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Articles

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Aims and scope

This journal raises and debates all issues related to the political economy of personal, communal, national, international, and global conflict, peace and security. The scope includes implications and ramifications of conventional and nonconventional conflict for all human and nonhuman life and for our common habitat. Special attention is paid to constructive proposals for conflict resolution and peacemaking. While open to noneconomic approaches, most contributions emphasize economic analysis of causes, consequences, and possible solutions to mitigate conflict.

The journal is aimed at specialist and nonspecialist readers, including policy analysts, policy and decisionmakers, national and international civil servants, members of the armed forces and of peacekeeping services, the business community, members of nongovernmental organizations and religious institutions, and others. Contributions are scholarly or practitioner-based, but written in a general-interest style.

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Comments and replies as well as book reviews and books available for review are posted at www.epsjournal.org.uk.

Abstracts

Keisuke Nakao and **Sun-Ki Chai**. "Criminal conflict as collective punishment." Political conflicts have been extensively studied by political scientists, but criminal conflicts have received much less attention, especially by theorists in the field. Focusing on the latter type of conflict, we address why an individual crime across an ethnic or tribal border can lead to large-scale violence. Building on rational choice theory, we present three hypothetical mechanisms which may account for criminal conflicts: (1) Avengers penalize suspects in the culprit's social group because they cannot identify the culprit; (2) avengers inflict vicarious punishment because such punishment can be more severe for the culprit than a penalty on the culprit himself; (3) by demanding collective responsibilities, avengers urge the target group to police itself and to suppress deviant behavior against outsiders. Drawing on historical incidents and recent case studies, our third mechanism appears the most compelling.

David Zetland. "Intra-organizational conflict: Origin and cost." This article explores the origin and cost of conflict within the Metropolitan Water District of Southern California (MET), a cooperative of 26 member agencies delivering water to nearly 20 million people. Conflict within MET has existed for over 30 years, but increasing population and decreasing water supplies mean that this conflict is becoming more costly in terms of direct conflict, policies that misallocate water, and expenditure on unnecessary infrastructure. Although conflict exists within most businesses and bureaucracies, it is often difficult to identify the positions and actions of parties to the conflict and to observe the effects of conflict. This case study is useful for its clear illustration of how diverging objectives among participants (autonomous member agencies) result in conflict and the different costs that result from conflict.

David Zetland. "How markets can end persistent intra-organizational conflict." The literature has described the origin and cost of intra-organizational conflict within the Metropolitan Water District of Southern California (MET). This article explores how this conflict has persisted and suggest ways to resolve it. The key action requires that institutions designed with the assumption of abundant water be reformed to manage scarce water. Without modification to MET's legal and operational structures, an internal auction market can efficiently and transparently allocate water among MET's member agencies. A careful allocation of rights to water and revenues from that market make it possible to address issues of fairness (access to water for individuals) and to repay past member agency contributions that thus far have subsidized MET's operations.

Christopher Westley, **William L. Anderson**, and **Scott A. Kjar**. "War and the Austrian School: Ludwig von Mises and Friedrich von Hayek." The Austrian school of economics is generally considered an antiwar school. The Austrian view is not derived from a religious or class-based ideological viewpoints, but instead derives entirely from the school's fundamental economic tenets. This article examines the writings of Ludwig von Mises and Friedrich von Hayek as they relate to war and the causes of war. [An predecessor article on Carl Menger, Eugen von Böhm-Bawerk, and Friedrich von Wieser, the founders of the Austrian School, appeared in vol. 5(1) of this journal.]

Criminal conflict as collective punishment

Keisuke Nakao and *Sun-Ki Chai*

This article addresses why the event of an interpersonal crime such as robbery or murder can lead to brutal large-scale violence between tribes or ethnic groups.

Echoing advancements in game theory, political scientists have developed theoretical explanations for why wars can happen despite the enormous resource losses they precipitate. Even if one side gains resources through war, it has been unclear from conventional international relations theories why rational actors choose to suffer the deadweight losses on both sides in actual conflict rather than to peacefully settle on the transfer of resources. Using formal models, a newer generation of political scientists have powerfully and intriguingly illustrated several processes of how bargaining breaks down and war subsequently initiates between two parties competing for the same resources (e.g., land). Theorists in related fields remain less eloquent when they address wars triggered by crime.[1] For example, a report about the Nyakyusa people in Tanzania depicts communal war caused by a single cross-village wrongdoing:

> "In a case of adultery the injured husband, together with his kinsmen, pursued and attempted to kill, or torture and kill, the adulterer: self-help was not only permitted but expected in this situation, and a man's near kinsmen were obliged to assist him. Neighbours were not obliged to assist in executing vengeance, but they might be victims of it, for if the injured husband did not find the adulterer he might kill any village-mate of his enemy. Such an attack commonly led to war between the two villages."[2]

Although actual conflict lies on a continuum between the two types, we label the former type (between competing parties) "political" and the latter (initiated by a crime) "criminal".[3] Focusing on criminal conflict, this article addresses why an individual crime (e.g., robbery, cheating, adultery, and murder) can lead to brutal conflict between tribes or ethnic groups. If crime is one of the causes, then suppression of crime should reduce the risk of conflict. We thus begin by reversing the question for constructive purposes: How can crimes be deterred so that peaceful order is maintained? Regarding peaceful order as a public good, we offer a rational choice theory of peaceful order and consider why peace can be difficult to preserve in multiethnic societies. Subsequently, we explore three mechanisms of interethnic conflict and assess them with various examples.

Rational choice theory of peaceful order

Once peaceful order is established in a region, it benefits everyone there; that is, peace is nonexcludable. Because peaceful order entails positive economic externalities, it does not spontaneously emerge from free-market mechanisms. Thomas Hobbes thus maintained that peace should be provided by a central authority that monopolizes violence and polices wrongdoers. Even though contemporary political scientists agree that the provision of peaceful order is difficult without a powerful state, more recent studies have reported that peaceful order can exist even in anarchic or weak-state societies that are far beyond the control of a government. Thus, the puzzling question becomes: Just how can peaceful order be maintained without a central regime?[4]

Based on rational choice theory, the theory of collective action provides some clues to address this question. Collective action is possible when all participants expect an adequately large penalty to be placed on a deviant.[5] For such a penalty to be credible, each member must be accessible to the rest of the group. Otherwise, a deviant may not be penalized. In addition, the group must be capable of identifying the deviant with sufficient likelihood. Otherwise, the penalty could fall on all the suspects, or at least on some of them selected at random to deter deviance. But a critical drawback with randomized punishment is that as the population grows, punishment becomes more annoying to innocents because they become more likely to be penalized for someone else's misdeeds. The result is that collective action becomes less beneficial for the group as a whole. Once the size of the group exceeds a pivotal threshold, collective action breaks down.[6] Thus, the problem of identifying the deviant must be solved to enforce collective action with a sizable population. To this end, the group must retain transparency among its members. Rational choice theory thus suggests that accurate identification and effective penalization of a deviant are key to successful collective action.[7] A dense social network among group members is helpful in satisfying these two requirements.

Peaceful order in multiethnic society

Where ethnic groups coexist, social networks are not uniformly distributed. In particular, an intragroup network is presumably denser than an intergroup network. Labeled "bonding" and "bridging" social capitals,[8] heterogeneity of social connectedness in an ethnically mixed society may make peaceful order difficult to establish because both accessibility and transparency among individuals required for collective action are asymmetric across ethnic groups.[9] Through rumors or gossip, information about an individual's culpable behavior can easily be shared among peers, but it is less likely to spread beyond ethnic borders. Lack of daily communication, periodic interactions, or common interests across groups may exacerbate the information problem. In addition, there may exist disagreements about the set of

normative behavior among ethnic groups.[10] For example, an otherwise innocent act of a Christian may be interpreted as an insult to neighboring Arabs and infuriate them. A cultural gap can destabilize an existing interethnic peaceful order.

If contention becomes a norm, it might amplify violence. In many societies, once a clansman is offended by an outsider, not only do the victim and a handful of his brothers become vengeful, but so does the community as a whole, even at the risk of retaliation. Community members who are not hurt by the offense nonetheless may take part in the punishment because of meta-norms, the willingness to punish anyone who tolerates the offender (i.e., those who do not help to enforce a norm). In this sense, an interethnic offense is a communal event even when only a few actors are directly involved. An example of meta-norms is found in 1930 Texas: A white mob angrily tried to murder a black prisoner who had attacked a white woman. In the process, the mob lynched white bystanders who refused to participate. In the Rwandan genocide of 1994, it was not only the Tutsi people who were massacred by Akazu and other Hutu extremists, but so were moderate Hutus. Small bands of ardent Hutu ethnocentrists fueled violence by agitating their peers. (Media propaganda played a critical role in the Rwandan genocide.)[11] Similarly, during the Yugoslavian wars of the 1990s, it became "virtually impossible to stay in the community without joining the violence." Rules of meta-norms have been employed by mafias and gangs, as well as by former and existing communist countries.[12]

Three possible mechanisms of criminal conflict

Applying the theory of collective action to multiethnic society, three hypothetical mechanisms of criminal conflict and how each accounts for peace and violent conflict are considered. In particular, we employ (1) informational, (2) preferential, and (3) functional approaches.

Hypothesis 1: Lack of transparency

The heterogeneity of social connectedness in a hybrid society presumably implies that the actions and identity of someone beyond an ethnic tie are less visible than those of co-ethnics. Homophily in particular would imply that those who share ethnic ties will be geographically closer and engage in more interactions than those who do not. A higher degree of transparency of intragroup interactions, relative to intergroup ones, characterizes a multiethnic world. This means that once a crime occurs, it is easier and less costly to identify the culprit if he is among the victim's co-ethnics. But if the victim and co-ethnics fail to identify the criminal and only identify his ethnic background (possibly through markers such as accent, language, or appearance), they cannot penalize the criminal without troubling everyone who shares his ethnic characteristics. Threat of indiscriminate vengeance, which might be rational to deter crimes, can spark large-scale violence once a crime occurs. Proper and speedy identification of the criminal matters.

But in this kind of situation, lack of transparency between and among ethnic groups can also spur criminal conflict. If the criminal remains anonymous, the only way to penalize him is to penalize all the suspects (ex ante), escalating into a spiral of reprisal.

Community members who themselves are not hurt by an out-group offense committed against one of their own may take part in revenge punishment because of meta-norms, the willingness to punish anyone who tolerates the (presumed) offender, that is, those who do not help to enforce a communal norm.

This explanation of cross-ethnic communal violence on account of crime has limitations. For one, if identification plays a significant role in criminal conflicts, why are target groups of reported vengeance almost always ethnic groups, and not nonethnic groups? A crime investigation may merely narrow down the scope of suspects based on observable categories other than ethnicity such as sex, height, age, eye color, or people with glasses. In case that the culprit is not fully identified, an alternative penalty would fall on suspects who match a profile based on these observable categories. While the lack-of-transparency account cannot eliminate the possibility of such appearance-based penalties or conflicts, we seldom hear of a conflict between groups divided by any of these categories. Such conflicts are largely nonexistent. In addition, this account has another drawback: It cannot explain some conflicts which occurred even when the culprits were identified.[13] Thus, although one cannot fully reject the lack-of-transparency hypothesis, it is not a wholly persuasive explanation.

The identification problem would be more relevant in asymmetric wars than in criminal conflicts since foreign invaders or occupiers have scarce information about the locals. For instance, American combatants in Vietnam, Afghanistan, and Iraq encountered difficulties in finding their adversaries concealed among the civilian population.[14] "Two out of 10 people here hate you and want to kill you. You just have to figure out which two."[15] German soldiers stationed in France, Poland, and Russia were in similar situations during the second world war when they fought partisans.

Hypothesis 2: Altruism among kinsmen

Economics assumes self-interested individuals to explain a market mechanism, but this assumption is too strong if it applies to a socially closed relationship, especially among kinsmen. Without claiming that altruism reduces conflict of interest among people and helps to preserve peaceful order—a trivial claim[16]— we instead consider the claim that intraethnic altruism can catalyze interethnic conflict. To understand the role of altruism in interethnic peace and conflict, recall that an effective punishment is essential to deter deviant behavior. For a culprit who has no concern for others (a

Success of interethnic peaceful order hinges, in part, on the quality of in-group policing. Groups with higher-quality policing can enjoy longer-lasting, stable peace, whereas those with lower-quality policing tend to suffer more frequent and longer-lasting disputes with other groups.

purely self-interested person), vicarious punishment—the penalization of the culprit's kin—has no deterrent effect on culpable behavior. Thus, vicarious punishment is nonsensical for self-interested parties. In contrast, if people are altruistic toward their kin, vicarious punishment can be more severe and preventive than the simple, direct penalization of the culprit himself. Aware of this effect created by altruism, avengers may threaten to target both culprit and kin to show the grim consequence of culpable conduct. Although not a case of communal conflict, a similar form of vicarious punishment can be seen in North Korea, where the government detains family members of a diplomat when he is out of the country. In order to prevent the diplomat's defection, the government may send his family members to labor camps or to death, for instance via ostensible accidents, once he defects to South Korea or elsewhere.[17]

Although altruism creates incentives for group-wide feuds, it also facilitates the effective suppression of deviant behavior and thus assists in enforcing peaceful order. Altruism can work because rational avengers are not seeking to penalize merely for the sake of penalty but for the sake of maintaining a peaceful regime. In this sense, peace and criminal conflict are opposite sides of the same coin.[18]

This form of feud was reported for example among a clan of native Americans: "The Family to revenge this Death appointed one of their Tribe not to kill the Murderer, but his dearest Friend considering he would suffer more in the Death of the Person he loved than in dying himself."[19] While this story illustrates the potential deterrence effect of altruism, we have not been able to locate additional such incidents. Hence, hypotheses 2 may not be so empirically relevant to the emergence of criminal conflicts.

Hypothesis 3: In-group policing

The third account focuses on functional aspects of criminal conflicts. A critical problem in enforcing interethnic peaceful order lies in the weakness of out-group networks relative to their in-group counterparts. This weakness makes out-group monitoring and controlling difficult and therefore undermines peaceful order among ethnic groups. The third hypothesized mechanism attempts to fill in the discrepancy between in-group and out-group network densities.

This account holds that once an interethnic transgression happens, the avengers may not only retaliate against the transgressor himself but also against the transgressor's ethnic fellows as a way to urge the target group to discipline its own population. Under threat of reprisal, people are motivated to monitor fellow kin and restrain them from offending outsiders since they are scared of communal war. Threat of conflict thus helps to develop an informal in-group policing regime in the target group that may contribute to interethnic peaceful order. Anthropologists have suggested the possibility that this mechanism occurs in some populations. For instance, it is reported that Eskimos around Point Barrow were so influenced by the fear of feud that any culpable behavior that could lead to violence was firmly suppressed:

> "Fellow Eskimo are said to be wary of the man who stands on his rights or forces a quarrel upon others, because they have no desire to be drawn into dispute. They prefer 'a quiet man.' They attempt to deal with the determined trouble-maker by withdrawal of support and if necessary by physical expulsion."[20]

This pattern of group-level reprisal is consistent with rational choice theory of collective action and makes sense in at least two ways. First, mutual in-group monitoring induced by the threat of conflict can be cheaper and more effective than monitoring from outside, and in-group monitoring may help to reduce out-group offenses: Co-ethnics are in a better position to monitor themselves than ethnic outsiders. Second, because of the tight social connectedness within an ethnic group, in-group punishment can also be cheaper and more effective than individual punishment by outsiders. Peers can impose various kinds of penalties on those who misbehave. For example, social ostracism by peers or the boycotting of a business can be sufficient to discourage opportunistic transgressions. In contrast, it is likely to be more difficult and costly for outsiders to effectively restrain individual wrongdoers because of the lack or weakness of social connectedness.

For these two reasons, fellows of the victim may wage a communal vendetta against the victimizer's group because "group-level sanctions may be expected to outperform individual-level ones."[21] Since co-ethnics are in a better position to monitor and control peers than are outside entities, external avengers take advantage of the insiders' position: The avengers overcome the discrepancy between intra and intergroup network densities by taking hostile actions. Moreover, this physical confrontation by outsiders may further consolidate the in-group policing regime. This in-group policing mechanism of criminal conflict is found in medieval Iceland where "group liability ... rendered the feud or fear of feud much more effective as an instrument of social control than it would otherwise have been if only the actual wrongdoer suffered the consequences of his actions."[22] Because a wrongdoer is a potential danger to his neighbors, he would be purged from his village to evade the escalation of violence. According to the previously quoted report about the Nyakyusa people in Tanzania, "thieves and adulterers were liable to be banished from a village just like witches and sorcerers, for they too brought misfortune on their fellows."[23] This sort of social ostracism may work as a penalty to suppress culpable behavior.

To summarize, out-group peaceful order is enforced by in-group policing while in-group policing is induced by out-group conflict. Although it cannot be asserted that the third mechanism always applies, it is richer in supportive incidents than the two others. Here are three additional examples of this mechanism at work: T.E. Lawrence (Lawrence of Arabia) reported in his autobiography that, on the way to see Faisal, the future king of Iraq, he met an Arab man who was excluded from his community and lived alone because he had murdered a Christian.[24] We have also located in-group policing mechanisms in Poland and the Ottoman empire which afforded a considerable degree of autonomy to ethnic minorities.[25]

In-group policing of interethnic criminal conflict suggests that the success of interethnic peace hinges on each group's quality of policing. Groups with higher quality policing can enjoy long-lasting and stable peace, whereas those with lower quality policing tend to suffer more frequent and longer disputes with other groups. In the absence of Leviathan, in-group policing can play a decisive role in maintaining a peaceful order. Without effective in-group policing, conflict might be inevitable.

Collective punishment in modern society

Applications of the in-group policing regime and collective punishment idea can be broadly observed even in modern society where individual rights are highly respected. In a production team, for example, workers' individual performance is often evaluated in the context of the group. When compensation is linked among the workers, the free-rider problem can be alleviated through mutual monitoring and peer pressure. An employer can exploit internal incentives to ensure team spirit and promote productivity.[26] Group lending, used in microcredit banking, is another instance. Because debtors are jointly liable, they tend to encourage each other's scheduled repayment.[27] Similarly, editors of scholarly journals may rely in part on coauthors of submitted manuscripts to repress academic misconduct. Because journal editors cannot readily tell which coauthor committed an offense such as plagiarism, they put the blame on all coauthors when an offense is revealed. In light of the risk of this shared blame, coauthors are motivated to discipline each other or blow the whistle. Other examples of collective punishment can be seen in politics and business: In Britain and in Japan a councilor loses his seat in Parliament if the councilor's secretary conducts a criminal act such as bribe; in corporate governance, shareholders are liable for the torts and crimes of their corporation. These examples illustrate how collective punishment can work to police social ills and serve the collective good. When selective and individual punishment on a defector is unavailable, ineffective, or overly costly, collective punishment can emerge as a second-best method on functional grounds.[28]

Conclusion

Based on a rational choice theory of collective action, the article presents three hypothetized accounts for cross-communal conflict induced by criminal acts: (1) informational; (2) preferential; and (3) functional. For all three, the disparity in density between intra and intergroup networks is the key obstacle undermining intergroup peaceful order. Although focused on interactions between ethnic or tribal groups, the theory can apply to other kinds of informal groups or organizations such as gangs. Gangs have kinship-like characteristics such as recognizable physical and cultural traits (e.g., colors and hand signs), demarcated geographical zones (i.e., turfs), and norms that dictate preferential treatment to group members.

Hypothesis 1 explains escalation of communal violence in terms of the identification of an interethnic transgressor. Hypothesis 2 holds that interethnic retaliation is collective because avengers exploit altruistic concerns among kinsmen to discourage intergroup opportunism. Hypothesis 3 maintains that external confrontation between tribal or ethnic groups is called for to develop internal social control within each group. Although the first two hypotheses cannot be fully rejected, the third is most closely associated with reported incidents.

Notes

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1. Exceptions include Fearon and Laitin (1996); Bendor and Mookherjee (2008); Nakao (2009).

2. Quoted from Wilson (1983, p. 149). Another example is from southern Egypt, where a Christian shopkeeper's insult to a Muslim, and the refusal to apologize, led to interethnic turmoil (*The Economist*, 8 January 2000).

3. This categorical distinction between political and criminal conflicts follows Chabal and Daloz (1999, p. 83).

4. Philosopher: Hobbes (2009). Contemporary: The most notable work exploring this argument is Horowitz (1985). More recent studies: For instance, Fearon and Laitin (1996); Bowen (1996); Gould (1999). Jha (2007) offers an alternative explanation for peace across ethnic lines.

5. Imagine a repeated n-person prisoner's dilemma game. The "folk theorem" in repeated game theory (e.g., Fudenberg and Maskin 1986) demonstrates that cooperation can emerge through tacit coordination even without a commitment device, such as court system, to punish free-riders.

6. For a theoretical examination of this prediction, see Bendor and Mookherjee (1987).

7. For more detailed argument, see Hechter (1984; 1987).

8. According to Putnam (2001, pp. 22-24), although there is no reliable and comprehensive measure to distinguish between bonding and bridging social capitals, they are conceptually different. The former is exclusive or inward-looking (exemplified by ethnic fraternal organizations and church-based women's reading groups), whereas the latter is inclusive or outward-looking (e.g., civil rights movements and internet chat groups).

9. These points are also noted by Hardin (1995, pp. 118-9): "First, groups are apt to have better information about their members' actions than about the actions of people in other groups. Second, groups are apt to have fairly straightforward reasons for imposing order on their own members if they are to be held responsible for their fellow members' actions."

10. Hechter (1987, p. 178) argues that cultural disparities tend to generate misinterpretation of behavior.

11. There are plenty of reports and some scholarly writing on how two radio stations in particular, Radio Rwanda and Radio Télévision Libre des Mille Collines (RTLM), spread messages urging Hutus to murder Tutsis. See Kellow and Steeves (1998); Thompson (2007).

12. Texas: This episode appears in Axelrod (1986). Rwanda: See Des Forges (1999) for the causes and consequences of the Rwandan genocide. Ardent: Mueller (2000) argues that ethnic wars are often waged by small groups of thugs. Yugoslavia: Hardin (1995, p. 23). Meta-norms in communist societies are mentioned in Axelrod (1986, p. 1101). Also see Bronfenbrenner (1970); Meyers and Bradbury (1968). For gangs, see, e.g., Cohen (1990, p. 14), Horowitz (1990, pp. 47-48), Sánchez Jankowski (1991).

13. This form of an incident can be seen among the Nyakyusa. Moore (1978, p. 104) reported: "Intervillage adultery cases sometimes blew up into intervillage war, when the wronged husband and his supporters killed a covillager of the adulterer in reprisal." The target of vengeance is not the adulterer himself but his covillager. Reid (1999, p. 93) also reported a case among North American Indians.

14. See Kalyvas (2006, pp. 89-91).

15. See Zucchino (2004).

16. In contrast, Bernheim and Stark (1988) and Nakao (2008) argue that altruism may not necessarily assist collective action.

17. The defection of Hwang Jang-yop, a developer of the North Korean state ideology, Juche Idea, seems to have provoked similar consequences (McDonald and Su-Hyun 2010).

18. In this sense, the rational choice theory of criminal conflicts mirrors Gluckman's (1955) conflict theory in anthropology.

19. From Nicholas Garry's diary as quoted in Reid (1999, p. 93). Another incident which supports hypothesis 2 might be Israel's policy of demolishing houses of Palestinian suicide bombers and their families. However, an Israeli army committee more recently acknowledged that the deterrent effect was limited (Myre, 2005).

20. Colson (1974, p. 41).

21. The mechanism of collective sanctions is well explained in Levinson (2003).

22. Miller (1990, p. 197).

23. See note 2.

24. Lawrence (1935).

25. Dubnow (1916, pp. 103-106, 188-193) reported that Jews maintained an autonomous community in Poland. In contrast, Dumont (1982, pp. 221-230) showed that Jews suffered from constant persecution by other ethnic groups in the Ottoman empire.

26. Kandel and Lazear (1992) point out the relative merit of the joint performance evaluation in team production.

27. For a theoretical account for the peer pressure among debtors, see Banerjee, Besley, and Guinnane (1994).

28. Commenting on a related context, Greif (1994) argues that compared to the individualist culture among the Latin Genoeses, the collectivist culture among the Muslim Maghribis played a significant role in fostering institutions exercising collective sanctions.

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Intra-organizational conflict: Origin and cost

David Zetland

This article tells the story of an organization—the Metropolitan Water District of Southern California (MET, for short)—that suffers from internal conflict. The story is important not just because MET supplies about half of the urban water in southern California, but because it highlights how conflict can arise and persist inside an organization. The key to understanding this story lies with the role of institutions (rules and norms), and how institutions may fail to evolve with circumstances. As differences between potential, appropriate and actual, inappropriate actions accumulate, outdated institutions impose greater costs with time. These costs cannot mount indefinitely: Eventually they grow so large that the organization is reformed by internal forces (management recognizes a need to change) or external forces (political intervention or competition forces change). In the worst case, the water management organization collapses, sometimes taking an entire society with it.[1]

This story of conflict over water within an organization is a logical extension, and complement, to studies of conflict over water among organizations (governments) that were highlighted in a 2007 symposium issue in volume 2(2) of this journal. Among the contributors to that issue, Frederic Pryor offers useful parallels: He examines different global regions for their potential for violent conflict and concludes "that in the coming decades the probability for interstate armed conflict over water is low." He reasons that conflict is costly, victory is hard to maintain in the long run, and improvements in water management are easier to accomplish than going to war. Even as its member agencies fight over water policies and water allocation, these ideas apply to MET because they explain why it has not broken up (too costly) and how MET can end conflict (improvements in water management).[2]

Before addressing why MET suffers from conflict, it needs to be clarified that as used here conflict does not refer to day-to-day process of "groping for success," characterized by battles over personnel, budgets, or products lines. Those costs are part of a process that has a positive expected value because they push the organization in the right direction, toward higher profits. Instead, in this article conflict refers to negative expected value such as zero- or negative-sum fights over access to MET's water or cross-subsidies to projects that do not pass cost-benefit criteria (except for those member agencies that benefit from a project subsidized by others). These conflicts can persist because MET is a government agency with a monopoly on water distribution, faces weak outside pressure for change, and distributes the costs of conflict and inefficiency to member agencies who have little say over operations and generally no idea of MET's (in)efficiency. (This example of conflict may also apply to water distribution organizations that have an asymmetric distribution of costs and benefits among customers.)

This article tells the story of an organization—the Metropolitan Water District of Southern California—that suffers from internal conflict. The story is important not just because the organization supplies about half of the urban water in southern California, but because it highlights how conflict can arise and persist inside an organization. The key to understanding this story is the role of institutions (rules and norms), and how institutions may fail to evolve with circumstances.

This article examines how conflict was built into MET's foundation documents but also how a conflict-alleviation mechanism included in those documents was ignored. This made it easy for those who wanted to use the mechanism as well as for those who preferred to keep ignoring it to claim the mantle of righteousness in the debate over how to respond to inefficiency. From this "original sin" came additional conflict, with heavy costs. Conflict persisted for three main reasons: (1) the political decisionmaking mechanism within the organization, (2) that through cost shifting outsiders bore (and bear) the cost of conflict, and (3) the lack of exit options due to the MET's monopoly status. The solution to MET's internal conflict requires that leaders adopt a new set of tools that reduce their control over the way MET allocates water and money. Market and price tools are familiar to economists but not often used by the engineers, bureaucrats, and politicians who control MET's policies and operations. Because these managers bear the cost of change without obvious benefit to themselves, and because water customers bear the cost of inefficiency without power to change MET, inertia and inefficiency persist.

Some background on MET

California's legislature created the Metropolitan Water District of Southern California (MET) in 1928. MET's founding members were Los Angeles and twelve other cities. Although founded for the purpose of importing water from the Colorado river to southern California, its member agencies wanted these imports for different reasons: The twelve cities wanted water imports so that they could grow without relying on Los Angeles and its aqueduct that brought water from the Owens valley. Los Angeles, in contrast, did not so much want water as cheap electricity from hydropower. Figure 1—appended to this article—shows MET's current service area and water sources and the (now) 26 member agencies.

The Los Angeles aqueduct had given the Los Angeles Department of Water and Power (LADWP) a taste for cheap hydropower and LADWP used it to reduce its reliance on Southern California Edison, an investor-owned utility. Wanting more electric power, LADWP envisioned a dam on the Colorado as an obvious and potent source. The Hoover dam—an expensive idea in a federal jurisdiction—did not yet

exist. In its original design, the Hoover was to deliver hydropower to southern California and neighboring areas but the idea was foiled at the federal level by a coalition of fiscal conservatives who did not fancy to pay for the largest dam ever designed and political conservatives who did not want more socialized power. So the 1920 proposal by LADWP's Ezra Scattergood to build a power-only dam was, at first, defeated.[3] But in 1923, one year after proclaiming that Los Angeles had four times its water requirements, LADWP's William Mulholland proposed that a Colorado River Aqueduct (CRA) bring water from the Colorado to "parched" southern California. As the CRA would need to travel over mountains—requiring pumps and power—it was convenient to recall that the Hoover dam could both generate electricity for the CRA and leave enough for LADWP to get its cheap power. The constellation was right, and the dam built. As of 2010, MET and LADWP buy, respectively, 28.5 and 15.4 percent of Hoover's electricity, at prices that are significantly lower than market rates.

Thus MET was birthed for reasons of water and power, and its main purpose was to build the CRA. An engineering masterpiece, but an economic disaster, MET planned to recover CRA costs in the price of water at several times the cost of local groundwater. Since MET's non-Los Angeles member agencies balked at paying such a high price, property taxes across all member agencies were used to cover MET's costs and subsidize water prices. Lower prices helped MET sell more water, but the subsidies created a different problem in the form of Preferential Rights (PRs), giving rights holders preferential access to MET water in times of shortage. PRs were included in MET's original charter as compensation to member agencies that covered MET's costs. By 1954, Los Angeles, with nearly 70 percent of MET's tax base, had paid 61 percent of MET's costs in exchange for only 8 percent of its water.[4] 1954 was also the first year in which MET's sales revenue covered its operating costs. Since demand was then only equal to one-quarter of CRA capacity, PRs were not worth anything. PRs continued to accrue and by 2006, LADWP's share of PRs were equivalent to 208 percent of its average 1979 to 2005 water deliveries, which means that LADWP could theoretically claim double its average MET delivery in the event of a drought. (We will see later that this claim stayed theoretical.)

Returning to the 1940s: With the CRA and the Hoover dam in operation, MET was looking for new sources of demand for its abundant water and for sales revenue to cover its costs. Between 1946 and 1955, MET's Board of Directors voted to "annex" new member agencies with lots of land but few people, increasing its service area by 200 percent and population by 75 percent.[5] Unlike MET's thirteen founding cities that sold water directly to retail consumers, the new member agencies were regional wholesale organizations, Municipal Water Districts (MWDs), that sold water to cities. In turn, MWD's were attracted by MET's relatively cheap supplies of surface water and its guarantee of water for future growth, as proclaimed in MET's 1952 Laguna Declaration:

> "The [Metropolitan Water] District is prepared, with its existing governmental powers and its present and projected distribution facilities, to provide its service area with adequate supplies of water to meet expanding and increasing needs in the years ahead. When and as additional water resources are required to meet increasing needs for domestic, industrial and municipal water, the District will be prepared to deliver such supplies.
>
> Taxpayers and water users residing within the District already have obligated themselves for the construction of an aqueduct supply and distribution system. This system has been designed and constructed in a manner that permits orderly and economic extensions and enlargements to deliver the District's full share of Colorado River water and State Project water as well as water from other sources as required in the years ahead. Establishment of overlapping and paralleling governmental authorities and water distribution facilities to service Southern California areas would place a wasteful and unnecessary financial burden upon all of the people of California, and particularly the residents of Southern California."

MET worked to increase demand for its then-abundant supply, using subsidies to lower the price of water to existing and new member agencies. These subsidies were only phased out slowly. (Revenue from operations surpassed revenue from property taxes in 1973.) Although it could be predicted that demand would overtake supply, MET's Laguna Declaration was intended to alleviate this very concern. In fact, MET issued the Declaration in 1952 as a first step in gaining additional water from California's vast and expensive State Water Project (SWP), and in 1960, MET signed contracts committing itself to buy about half of SWP's water, more than doubling its supply. MET seemed well on its way to a future of prosperity in which all member agencies would receive as much water as they needed at reasonable prices. That vision turned out to be mistaken, and MET's failure to reform its institutions turned increasing supply and demand imbalances into shortages and conflict.

The origins of conflict

California's legislature established MET as a cooperative of member agencies that would work together to build the CRA. Member votes on the Board of Directors were in proportion to their share of assessed value of real estate within MET's service area. At its foundation, MET's board was dominated by Los Angeles, which had 80 percent of assessed value but a voting share that was capped at 50 percent. By all accounts, members were in broad agreement in MET's early years: First, they agreed to build the CRA, for water and power; second, they agreed that Los Angeles would subsidize debt and operating expenses to make water prices attractive; and third, they agreed to expand, to generate more demand—and revenue. Agreement started to unravel in the 1960s and 1970s, when MET's supplies started to look less reliable and demand grew by leaps and bounds. MET's member agencies then divided into two main groups:

Those who favored paying more for reliable water and those who favored paying less for less reliability of water supplies and deliveries.

Efficiency in a cooperative

In economic theory, cooperatives are more efficient than organizations with outside ownership (profit-maximizing firms) if and only if its members share a single goal or the same ordering of goals, i.e., their preferences are reasonably homogenous. Thus, MET will be inefficient if its member agencies have heterogeneous preferences over its activities, for instance, reliability versus low prices. Inefficiency will manifest itself in arguments over policy design or the implementation of policy that reflects the preferences of the politically dominant group.

Given that cooperative members will have preferences over activities, there will also be a distribution of members' preferences. The skewness of this distribution (the degree to which the mean diverges from the median) indicates the propensity for members to disagree or enact misaligned policies that reduce cooperative efficiency relative to that of a profit-oriented firm. Skewness manifests itself in policymaking. Because cooperatives (and MET) generally use a median voter method of making decisions, while the mean may reflect willingness to pay, divergence of these two measures indicates the divergence of political and economic power. The greater this divergence, the greater the potential redistribution of gains and losses from cooperative policies and thus the greater the conflict prior to making these policies.

Heterogeneity has been present ever since MET's foundation. Table 1, also appended, shows how member agencies vary widely in area, population, water use, and local water supply. But heterogeneity was not relevant until the 1970s, when problems with scarcity began to emerge. Until then, heterogeneity was "hidden." Researchers say that reasonably homogenous preferences are necessary and sufficient for cooperative efficiency.[6] They assume that cooperative members are self-interested and that the consumer/producer cooperative allocates a scarce good. If we relax the assumptions, homogenous preferences are still sufficient but no longer necessary, and two alternative sufficient conditions for efficiency emerge. First, members of the cooperative may have social preferences such that they consider the welfare of others in addition to their own. When members with social preferences decide cooperative policies, they put more weight on group welfare and offset all or part of their underlying differences. The resulting policies maximize group surplus because the cooperative produces more public goods and creates more benefits than the sum of individual contributions necessary to create them. In MET's early years, the Board of Directors acted as if it wanted to maximize surplus in the MET area. Although that era has ended, it is possible that today's water managers have social preferences and cooperate to maximize group surplus. But they do not: MET's executives and member agency managers who took part in experiments revealed self-interested preferences in roughly the same proportion as control participants from the general population.[7]

Second, the cooperative may produce a good in such abundance that consumption by one member does not reduce the amount available to another member. Without rivalry over consumption, the cooperative need not ration the good. Because all members can consume as much as they want, according to their various preferences, MET is efficient. Until the 1960s, MET had abundant water, and LADWP paid most costs, so MET was efficient. MET could treat water as a club good, meaning that MET's allocation policies would be efficient because member agencies could get as much as they wanted. Members did not have to decide if MET should supply large quantities of expensive water or smaller quantities of cheaper water.

As from the 1960s, MET's abundant and cheap water did become scarce and expensive. Rivalry replaced nonrivalry inside MET, even as membership guaranteed access. MET's water turned from a club good into a common pool good: All members had access to it; but use depleted supplies for others. Rivalry over supply (water used by one member left less of other members) and costs (expenses created by one member were borne by other members) required that MET change its institutions for managing water and cost. But because of members' heterogeneous preferences, efficiency was lost in the debate over change and the use of old and new policies that served some members at the expense of others.

Without social preferences or abundance, the analysis collapses to that of Hart and Moore (see references), and the question returns to homogeneity of preferences: Are member agencies' preferences homogeneous enough to deliver efficiency? If one assumes that preferences follow from characteristics (for instance, that dependency on MET for water leads to a preference for policies that increase reliability of MET supplies) and shows that member agencies do not have homogenous characteristics, then one can conclude that they do not have homogenous preferences either.

Dependency

Although water managers' most important concern is reliability in water supply,[8] the relative importance of reliability over low prices varies, reliability being more important for members that are more dependent on MET. To quantify and compare heterogeneity, an index was created to measure MET members' twofold dependency: from a lack of alternatives to MET (via MET's share of a member's total water supply) and from being a big customer (via the member's share in MET's total sales).[9] The first—dependency on MET as a big supplier—is intuitive; the second— big customer dependency—may not be so obvious. Member agencies want to avoid this second type of dependency because it is difficult to find alternative water suppliers in MET's large service area. For example, suppose that the CRA is shut down for some reason. Is it more likely that Beverly Hills (taking one percent of MET's total deliveries since 1990) or the San Diego Country Water Authority (SDCWA, which takes 26 percent of MET's total) will be able to replace the lost water? Beverly Hills could purchase water from LADWP, build a desalination plant, or even import water

on trucks. SDCWA, in contrast, could not replace 26 percent of MET's supply very easily. Table 2 (appended) shows large differences in dependency. Dependencies for MET's three largest member agencies (with 54 percent of the votes) vary from 1.00 for SDCWA (high) to 0.68 for MWDOC (Orange County) to 0.29 for LADWP (low).

These findings illuminate the tension between bargaining (votes) and efficiency (water allocation). Because the correlation between votes on the Board of Directors and dependency is 53 percent (for all member agencies), votes on issues affecting dependency (water prices, storage, and imports that are central to MET's mission) are not going to be 100 percent correlated with members' preferences on those issues. Some members will pay for too much reliability while others will get less reliability than they want, and the divergence between dependency and votes ensures that agreement will be difficult to reach. Member agency heterogeneity (preferences) underpins conflict over policies, and policies cannot properly reflect the weighted distribution of these preferences.

To summarize, MET was founded as a cooperative of member agencies with varying characteristics. Initially, these characteristics did not impede cooperative efficiency because MET had abundant and cheap water. But the arrival of the end of abundance (forty to fifty years after MET was founded) meant that members had to choose between reliable water and cheap water. Some members wanted reliable water because they depended on MET for their supplies. Others preferred cheaper water because they had their own supplies. This heterogeneity of preferences meant that political votes at MET would impose policies on all that did not result in the same benefits and costs for all. This situation resulted in conflict in decisionmaking and in decisions that did not suit all.

The biggest problems came from the continued use of institutions for managing water that assumed water was a club good when it had become a common pool good of inadequate supply to meet all demands. The drought of 1977 should have made it clear that MET lacked sufficient water supplies. Instead, it revealed how outdated MET's institutions were. MET needed to cut demand by 10 percent. MET could have used higher prices or preferential rights to cut demand, but imposed usage quotas that penalized agencies that exceeded 90 percent of their recent historical demand. These across-the-board cuts were not just economically inefficient (ignoring both value in use and expected property rights): They created rents for member agencies that were able to insert their preferred wording into the formulas that determined historic use and adjustments for conservation. During the much worse drought of 1987-1991, Los Angeles and SDCWA (San Diego), for example, were paid because their cuts were large relative to the formula.[10]

The cost of conflict within MET

The end of water abundance revealed many problems with long-standing MET policies and led to disputes over the policies and how to amend them as well as to reforms and other actions members undertook to reduce their exposure. This section describes the costs, most of them too small for the average water customer to notice or too hard to meaningfully quantify. But "under-the-radar" costs are one reason for the persistence of inefficiency. (Additional reasons, and solution approaches to the problem, are explored in a companion article.[11])

Costly policies

Since its foundation, MET's water prices were based on the average cost of delivery, known as "postage stamp pricing" (PSP) because of the way this resembles postage on letters: First class postage costs the same for letters going across town or across the country. Easy to calculate, PSP evenly distributes system costs across all customers (ignoring costs covered by property taxes). The trouble with PSP comes in two forms. First, PSP subsidizes customers that generate a greater share of system costs to the detriment of customers with below-average service costs. MET's giant service area (about 5,300 square miles or nearly 14,000 square kilometers) and differences in population density, water consumption, and infrastructure quality mean that variations in service costs and PSP subsidies can be quite large.

Second, because it is linked to the cost of water service, not the scarcity of the water being delivered, PSP fails to signal scarcity. Average cost pricing encourages more water demand, until a shortage results. But the user-cost of shortage varies—some customers wish to irrigate landscaping, others need water for biotechnology research—and that variation in usage is not reflected in PSP.

MET's member agencies lack a facility for trading water rights, which would be helpful in reducing the cost of shortages. This cost results from the lost opportunity to move water to where it has a higher value (in exchange for money) and thus reduces total social welfare. The Laguna Declaration asserted that trading would never be required because MET would always have plenty of water, but the promise did not last. MET has not recognized this and has done nothing to facilitate trading. Trading could use preferential rights (PRs) or some other system of dividing MET's limited water supplies among member agencies. But MET has never invoked PRs in a shortage (more on this later on), even as PRs provide an obvious method for rationing supplies. The cost of shortage can be reduced with trade; the absence of trade means that the cost of shortage at MET is maximized.

Costly disputes

Shortages, PSP, and the lack of trading annoyed many of MET's members and they began to lobby for policies that would alleviate their costs: For MET to buy more water or build larger storage facilities, for example. Other members did not want to pay for those costs but did not always get their way. MET's structure as a cooperative with policies and costs that apply to all members implied that policies were debated,

implemented, and/or tabled based on political grounds, not in terms of economic damage done or willingness to pay. Votes grew more contentious as Los Angeles's subsidies to other members fell and its domination of the Board waned. In 1972, the combined assessed property values, hence Board of Director votes, of the second- and third-largest member agencies (MWDOC and SDCWA) passed that of LADWP (Orange County, San Diego, and Los Angeles, respectively). It can be shown that equality among contestant parties increases the intensity of competition and thus the dissipation of surplus.[12] For example, persons A, B, and C may vote on how to split A's US$3. In voting, A may lose 2:1 to B and C, but the fight before, during, and after voting may cost more than US$3. At its best, political redistribution does not reduce social welfare (total wealth is still US$3); but at its worst, redistribution destroys all welfare gains through the cost of conflict.[13]

The scope for conflict increased as MET shifted its revenue base from taxes to sales. The gap between political and economic power widened because votes on MET's board continued to be allocated in proportion to assessed value (the tax base), not to members that bought a larger share of MET's water (the customer base). Thus one can see that LADWP (with many votes but small water purchases) and SDCWA (with fewer votes and large water purchases) might quarrel about decisions that involved spending more money to get more water. The policies that result are inefficient: Researchers have documented the adverse impact of political voting on efficient water management and concluded that a mismatch between voting power and the benefits from trade reduces efficiency.[14]

For examples of contentious votes, one may cite the surprise victory of a MWDOC-coalition over an alliance of LADWP and SDCWA in the choice of MET's new general manager in 2006, lawsuits challenging PSP subsidies, and the decade-long fight over wheeling charges (the price of moving water through MET's distribution system) between SDCWA and other MET members. The wheeling dispute is explored in depth elsewhere. The short version is that SDCWA bought water from farmers outside MET's service area. When SDCWA petitioned to use MET facilities to deliver the water, members voted 25:1 against SDCWA's offer price of US$97 per acre-foot moved (approximately 326,000 gallons or 1.23 megaliters); the actual cost of delivery was about US$116 per acre-foot. Instead, members voted to charge SDCWA about US$250 per acre-foot, which meant that SDCWA was subsidizing them. This dispute went back and forth between 1995 and 2003 before it was ended by a gift of US$235 million from the State of California to SDCWA. The wheeling dispute left bitter feelings, a hole in the state budget, and the precedent of a high wheeling charge that blocks members from even trying to circumvent MET's monopoly on water imports. (A recent attempt to sell water failed due to uncertainty over access to MET's infrastructure and the cost of wheeling charges.[15])

Costly responses

In a famous book, A.O. Hirschman identified exit, voice, and loyalty as responses to conflict inside an organization.[16] For most members, MET membership means nominal costs for reasonable benefits, so they are loyal. SDCWA and other members (e.g., the Central Basin MWD and Long Beach) have used voice—protesting MET policies that ignore PRs or subsidize water consumption. For most members, exit is not an option. Although they may have had adequate water supplies when they joined MET, additional supply led to higher demand that made them dependent. They cannot exit MET without serious consequences. That does not keep them from making efforts to lower their vulnerability to political decisions at MET. SDCWA, for example, is spending hundreds of millions of dollars to build desalination, storage, and water treatment facilities that either duplicate MET facilities or add capacity at much higher costs. SDCWA's management justifies these expenditures as "drought proofing," but they really are "MET-proofing" themselves from the short end of a drought-stick.

In contrast, LADWP used the Los Angeles aqueduct to insulate itself from MET policies. In 2006, for example, LADWP announced it would use the aqueduct to take delivery of water from farmers outside MET's service area.[17] This move was similar to SDCWA's deal with farmers, but the use of the aqueduct allowed LADWP to avoid the wheeling charges that LADWP voted to levy on SDCWA.

MET has tried to reduce the cost of shortages, PSP, and a lack of water trading in the least efficient, but most familiar, way by building a US$2 billion reservoir, the Diamond Valley Lake (DVL). DVL and the US$1.2 billion pipeline connecting DVL to other supply networks will not help much without more supply, but disputes over MET imports from northern California mean that supplies are more likely to fall than to rise.[18]

Perhaps the worst response to shortage and conflict has been the abrogation of preferential rights, meant to compensate LADWP and others for their heavy payments to cover MET's costs and facilitate water rationing in shortage. Instead of being used in the 1977 and the 1987 to 1991 droughts, MET's members voted to ration water according to prior use and formulas for water conservation that reflected political power more than economic efficiency or value. These formulas retard conservation in wet years that would reduce rights in the next drought, favor some members at the expense of others (conservation via low-flush toilets is ok, xeriscaping is not), and wholly fail to allocate water according to value in use (via prices and/or markets). The companion article discusses why these policies persist—inertia, the mismatch between political votes and economic costs, a management culture that favors bureaucracy over efficiency, and that rate payers rather than politicians and bureaucrats suffer the costs of conflict, shortage, and inefficiency—and what solution approaches are available.

Conclusion

Even if it does not provide an easy answer of how things can go right, MET provides a useful case study of how things can go wrong. MET's member agencies waste a lot of time and money on conflict over the allocation of water and costs, and to resolve the problem one cannot just say "play nice." That is because these problems can be traced to the continued use of institutions that were established in an era of abundant water and money, when demand was weak, and subsidies easy. The change in conditions linked to the end of abundance has not led to a change in policies due to a combination of inertia, professional conservatism, weak incentives to reform (costs and benefits accrue to different parties), and a Tragedy of the Anticommons voting structure that makes it easy for any of many different coalitions to block change.[19]

The lessons from this case study apply elsewhere, to organizations whose institutions have failed to evolve in response to changing external conditions, to organizations with multiple objectives (profits and social responsibility, for example), and to organizations that have weak connections between those who govern and those who experience the implications of governance. The lessons do not often apply to profit-seeking organizations because competition force these organizations to change their activities if they want to maintain profits; weak governance is also less of a problem, because shareholders have greater control of the Board of Directors. This is not true at MET, where directors are sometimes directly elected but often appointed by member agencies that provide water to customers without alternative suppliers and very little insight into the connection between their water bill and decisions on wholesale water supply. The lessons also apply to other nonprofit and bureaucratic organizations in which heterogeneous objectives, cross-subsidies, and weak feedback on management decisions make it easy to get sidetracked. Thus, one might see how USAID—the United States' overseas aid agency—may simultaneously market agricultural surpluses, pursue international development, and lobby for U.S. Department of State objectives. And one may see how NATO may be torn between security and nation-building objectives. The problem is not that the world is complicated; the problem is that organizations and people cannot pursue two "highest and best" objectives simultaneously.

The companion article to this case study explores potential changes in MET's method of pricing and allocating water that would improve efficiency (taking scarcity into consideration) while maintaining equity (distributing benefits and costs according to past actions and population weights). The key feature of this reform is that it realigns MET behind one objective—water provision—by using a market mechanism that reconciles member agencies' heterogeneous demands for water and a per capita method to redistribute revenue in excess of costs back to member agencies.

Notes

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1. See Diamond (2004).

2. Quote: Pryor (2007, p. 13).

3. Los Angeles had separate organizations for water and power until 1937, when it merged its Bureaux of Power & Light and Water Works & Supply into LADWP.

4. Milliman (1956).

5. "Annexation" was voluntary; it is MET's term for "joining": A new member applies; existing members approve the application.

6. For the economic argument, see Hart and Moore (1996; 1998).

7. Zetland (2008a, chapter 5). Preferences range from strictly self-interested (zero weight for the welfare of others in one's utility function) to benevolence to the point of self-sacrifice (overweighting the welfare of others). These preferences do not exactly match the meanings or uses of "egoic" or "benevolent." Those words relate to feelings toward self or others; actions—not feelings—reveal preferences in the utility function.

8. Lach, *et al*. (2005).

9. To find a single measure of each agency's dependency, divide each member's share in each of the two dependencies (MET's share of a member's total water supply, $METSh_i$, and the member's share in MET's total sales, $ShMET_i$) by the largest share in each dependency (normalizing each dependency measure to fit a 0 to 1 scale), and divide the average of those two values by the largest value of any member agency (again, to fit a 0 to 1 scale). [The exact may be obtained by contacting the author.] The calculations reported in the text use averages from 1970 to 2004 data; results that use 1960 or 1980 starting dates are similar.

10. Young (1998).

11. See Zetland (2011).

12. Mehlum and Moene (2002).

13. Utilitarian arguments for redistribution based on the marginal utility of income do not hold here: Water allocation in southern California is not a life or death decision.

14. Rosen and Sexton (1993).

15. Lawsuits: Schoch (2008); wheeling dispute: see Zetland (2008a); infrastructure and cost of wheeling charge: GWI Staff (2009).

16. Hirschman (1970).

17. See LADWP (2006).

18. Serjeant and Woodall (2008); Zetland (2009b).

19. Heller (1998).

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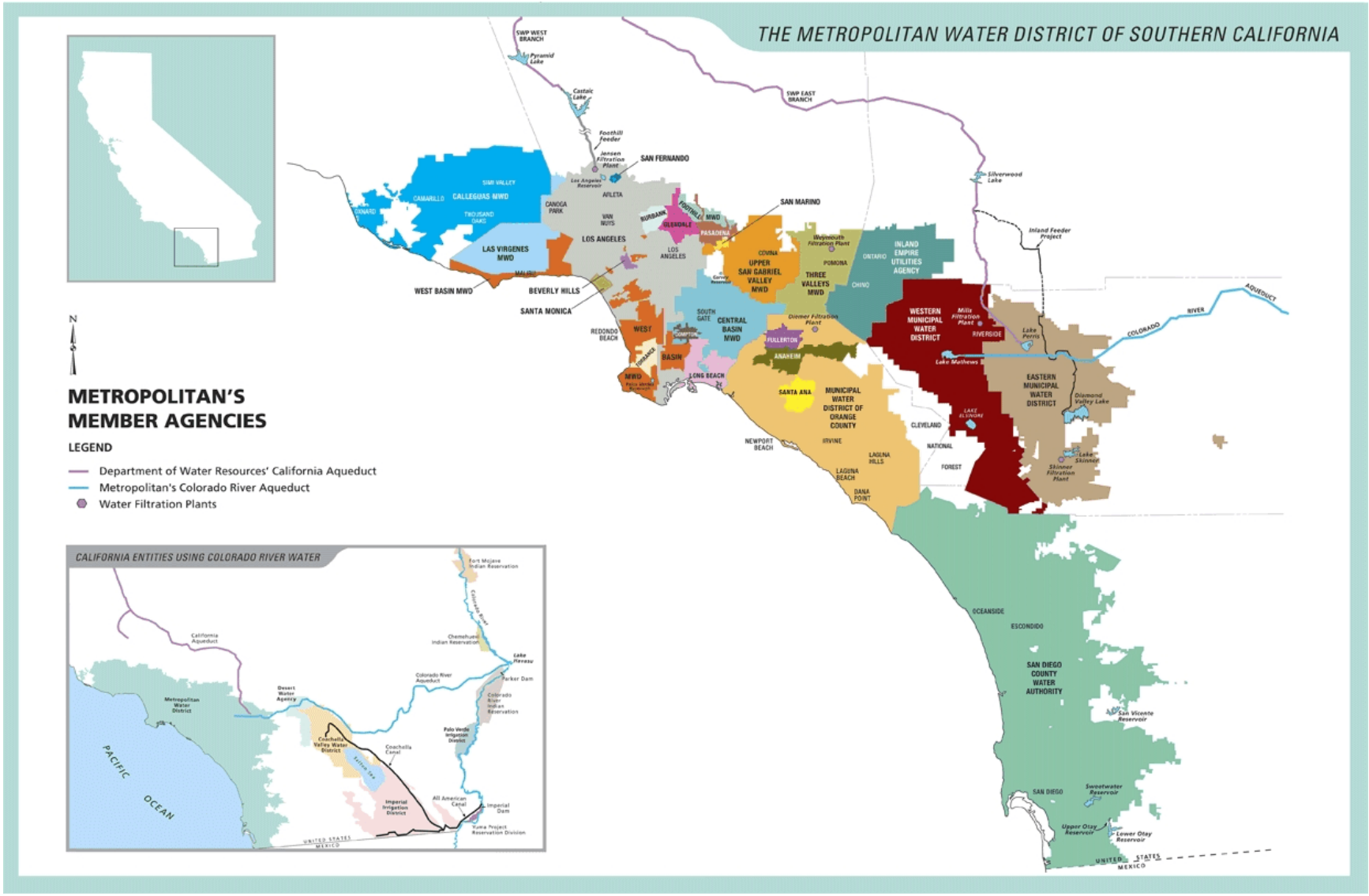

Figure 1: MET's member agencies and service area.
***Source*: MET.**

Table 1: Characteristics of MET's 26 member agencies (2004 to 2006)

Member agency	Area (sq. miles)	Population ('000s)	Year joined	Board of Directors (seats)	Board of Directors (% votes)	Share of sales (1979-2005)	Water uses (% urban/ag)	Water sources (% local/MET)	Preferential Rights (2005)
Anaheim	50	340	1928	1	1.7	1.3	100/0	75/25	0.93
Beverly Hills	6	41	1928	1	0.9	1.7	100/0	14/86	1.01
Burbank	17	105	1928	1	0.9	1.0	100/0	50/50	0.95
Calleguas	395	517	1960	1	4.0	5.4	84/16	24/76	3.75
Central Basin	227	1,400	1954	2	5.5	5.7	100/0	65/35	7.78
Compton	8	93	1931	1	0.2	0.2	100/0	47/53	0.26
Eastern	555	105	1951	1	2.8	2.9	74/26	20/80	3.00
Foothill	22	80	1953	1	0.6	0.6	100/0	40/60	0.68
Fullerton	22	134	1931	1	0.7	0.7	100/0	66/34	0.59
Glendale	31	200	1928	1	1.1	1.4	100/0	15/85	1.28
Inland Empire	242	700	1951	1	3.8	3.0	100/0	70/30	2.43
Las Virgenes	122	65	1960	1	0.9	1.0	99/1	0/100	0.77
Long Beach	50	487	1931	1	1.8	2.5	100/0	51/49	2.61
Los Angeles (LADWP)	465	3,849	1928	4	19.0	10.3	100/0	70/30	21.38
Orange County	600	2,000	1951	4	17.1	14.8	97/3	50/50	13.96
Pasadena	26	160	1928	1	0.9	1.2	100/0	40/60	1.08
San Fernando	2	24	1971	1	0.1	0.0	100/0	100/0	0.10
San Marino	4	13	1928	1	0.2	0.0	100/0	90/10	0.21
Santa Ana	27	347	1928	1	1.1	0.8	100/0	66/34	0.77
Santa Monica	8	90	1928	1	1.1	0.6	100/0	18/82	0.90
SDCWA	1,457	2,840	1946	4	18.3	26.6	85/15	15/85	16.16
Three Valleys	133	600	1950	1	2.5	3.5	100/0	40/60	2.55
Torrance	20	112	1931	1	1.1	1.1	100/0	8/92	1.18
Upr. San Gabriel	144	900	1960	1	3.5	2.3	100/0	20/80	3.89
West Basin	185	900	1948	2	6.6	8.7	100/0	20/80	8.22
Western	509	600	1954	1	3.6	3.7	68/32	76/24	3.56
Totals/averages	**5,327**	**16,702**	**n/a**	**37**	**100**	**100**	**93/7**	**38/62**	**100**

Source: Appendix D.1 of Zetland (2008a).
Note: Fourteen cities (highlighted) sell water at retail; the remaining twelve, all MWD's, sell wholesale water to more than 230 water agencies.

Table 2: The Dependency Index for MET's member agencies depends on MET's share of their total water supply and their share of MET's total sales

Member agency	MET's share of MA supply	MA's share of MET sales	Dependency index (DI)	Standard deviation (st. dev.) of DI
SDCWA	83	26	1.00	0.00
West Basin	92	11	0.73	0.10
Orange County	63	16	0.68	0.09
Beverly Hills	93	1	0.55	0.08
Las Virgenes	91	1	0.54	0.06
Calleguas	75	5	0.52	0.09
Torrance	80	1	0.48	0.05
Glendale	76	1	0.46	0.11
Burbank	73	1	0.44	0.13
Central Basin	47	7	0.41	0.11
Long Beach	62	3	0.41	0.05
Santa Monica	65	1	0.38	0.11
Foothill	59	1	0.35	0.03
Pasadena	55	1	0.34	0.05
Three Valleys	45	3	0.31	0.08
Los Angeles	23	8	0.29	0.23
Fullerton	44	1	0.27	0.10
Eastern	32	3	0.24	0.04
Compton	40	~0	0.23	0.08
Anaheim	34	1	0.22	0.08
Western	25	3	0.21	0.06
Santa Ana	33	1	0.20	0.04
Inland Empire	23	2	0.18	0.11
Upr. San Gabriel	18	2	0.14	0.09
San Fernando	10	~0	0.06	0.06
San Marino	9	~0	0.05	0.07

Source: Author's calculations (see Zetland, 2008a).
Note: "MA" is member agency; DI is mean dependency index, using data from 1970-2004; standard deviation is across all of these years. St.dev. has a mean of 1.00 because it is consistently the most dependent, and thus always the base/reference MA against which all other MAs are compared/normalized for dependency.

How markets can end persistent intra-organizational conflict

David Zetland

The Metropolitan Water District of Southern California (MET) is the largest water utility in the United States, wholesaling water to about 20 million residents. MET is legally structured as a cooperative among 26 member agencies. This article examines why internal conflict at MET over water pricing and water allocation persists and what may be done to resolve this conflict and improve the efficiency of water delivery and usage.

The Metropolitan Water District of Southern California, MET for short, is the largest water utility in the United States, wholesaling water in urban areas with a population of about 20 million people. MET imports water to southern California via the Colorado River Aqueduct (CRA) and State Water Project (SWP) and sells that water to 26 member agencies that vary in size, function, and wealth. A companion article examines the origin of conflict among MET's member agencies, a counterintuitive phenomenon to find within an organization formally governed as a cooperative.[1] Conflict stems mainly from member agencies' heterogeneity, most easily seen in their varied dependency on MET's water supply. Some members (e.g., the San Diego County Water Authority, SDCWA) are heavily reliant on MET for water; others (e.g., the Los Angeles Department of Water and Power, LADWP) much less so. Diverging characteristics mean that members do not share a common goal for MET, which makes it an inefficient cooperative.[2] Dependent members want MET to increase water supplies and reliability; less-dependent members would prefer that MET concentrate on minimizing costs. MET's complex system of cross-subsidies makes it difficult to deliver services to one group without imposing costs on others. The main vehicle for cross subsidies is MET's use of "postage stamp pricing" (PSP) for its water. PSP sets the same price for everyone and ensures that letters going across town subsidize the cost of letters going across the country. MET's PSPs for water are based on the average cost of delivery and subsidize members that use infrastructure more heavily. Like most water pricing models worldwide, MET's PSP is based on cost, not scarcity, which makes shortages more likely. This article examines the persistence of MET's conflict-ridden, shortage-encouraging institutions for managing water and covering costs and looks at an alternative, market, mechanism that can better allocate water and costs, reduce conflict among MET members, increase sustainability of the entire system, and improve service to MET's ultimate customers—the roughly 20 million residents of southern California.

The persistence of conflict

MET is over 80 year old. Its member agencies have been working together for most of that time, paying for joint projects that are too expensive for any one member but benefit all. And yet, there are problems with decisionmaking within MET and problems with the consequent allocation of water and money. These result in inefficiencies that lower the benefits of belonging to MET. This first section discusses how such inefficiencies may persist. The second section reviews ideas of how to reduce inefficiencies by reforming MET's decisionmaking institutions for water allocation and cost distribution.

Inefficiencies can persist for several reasons. First, they are hard to quantify. Although it may be easy to understand that one member agency may be getting cheaper water with PSP than the cost of delivery, it may be hard to link price to the actual cost of delivering that water. It may just be easier to charge the average cost of delivery. Second, it is even harder to understand or quantify the opportunity cost of water misallocation. Who suffers more from rationing in shortage: The farmer who gets a lower delivery of water for his avocado trees, the householder who loses his lawn, or the business that must cut a production shift for lack of water? It is hard to associate objective cost numbers with each user. It may just be easier to cut everyone's water supply by the same amount. Third, moving water requires coordination through multiple engineered systems that do not always have capacity at the right place and right time. It is much easier to plan for the same delivery each day to each location for the next several months than to switch water from place to place on the whim of efficiency.

Even if these information and operation problems were to be resolved, cultural, psychological, and political barriers to implementing change remain. MET was founded to deliver cheap and abundant water, not to ration expensive water. The natural response to water scarcity is to go get more water: Prices should not rise; they must stay low. Engineering solutions to increase supply or to improve the efficiency of demand (by reducing leaks or replacing inefficient water fixtures) are much easier to understand than using economic or psychological methods to reduce demand. The staff and managers of MET and its member agencies are some of the best in the business—but they are the best engineers, not the best economists.

The psychological barriers are simple, yet formidable: Change is hard, and people prefer to avoid it. It is hard to change brands of breakfast cereal, to switch one's route to work, or move from one city to another. People undertake change when benefits exceed costs, but the customers who benefit from better water management are not the water managers who pay the cost of switching. This mismatch between the parties affected by costs and benefits, combined with the fuzzy magnitude of costs and benefits (even to experts), makes it hard to justify change. In addition, that MET and

its member agencies are monopolies (as is nearly every water provider worldwide) means that there is weak outside pressure to change. Politicians, regulators, activists, and customers may advocate change, but they need to take time to learn about the current situation and alternative paths from people who may not want to reveal that information or even know what needs to be revealed. This problem is much smaller in the world of business, where efficiency means more customers and greater profits. It is also present in politics and bureaucracy but may be weakened by competition between political parties or comparisons of bureaucracies in different jurisdictions, for instance the speed and cost of getting a driver's license at the Department of Motor Vehicles. The water sector is harder to monitor and understand because most of the action takes place "underground," using water that varies in quality from different sources. Perhaps the greatest barrier concerns the relatively tiny amount of money at stake. Most people do not pay attention to 5 percent efficiency losses for a product that costs only US$3 for 750 gallons (about US$1 per 1,000 liters).

Of course, people become more interested when a shortage is declared, but by then it is too late to take speedy action. Water reservoirs may take years to drain, and longer to refill. Infrastructure (dams, pipelines, and treatment plants) take years and hundreds of millions of dollars to plan, build, and put into operation. Few people can monitor this whole process; even fewer know if the process is even justified. Many people are content to trust that water managers will do the right thing; they cannot know if managers are wasting 50 cents on the dollar or making a shortage 25 percent more (or less) likely.

The final barrier to change is political, and it lies at the heart of decisionmaking in any organization with mismatched costs and benefits. MET, as a cooperative of members with different goals, faces mismatches due to the end of abundant water. Most political bodies with cross-subsidies among citizen groups also encounter mismatches. The problem does not arise from the mismatches, but from their growth. Social security in the United States (and other countries with pay-as-you-go pensions) was designed so that current workers would fund current retirees, for example. This system was popular when the retiree-to-worker ratio was low but is less fiscally sustainable now that the volume of retirees and their benefits are outpacing the volume of workers and their contributions. Many people know that this system needs to change, yet others prefer to keep it going because they benefit from it and can veto change. The Tragedy of the Anticommons is a phrase that refers to this veto power, the way that one or more parties can veto change that pose a real or imagined threat to them.[3]

The Tragedy of the Anticommons, blocking majorities, and increasing cost-benefit imbalances all are present at MET. A number of MET's member agencies are doing quite well with their costs and water supplies, and so they do not want change. Others (e.g., LADWP) do not care overmuch about MET inefficiency because they do not suffer from it; they are uninterested in reform that may raise their costs. Still others (e.g., SDCWA) want change that will give them more water at lower prices: One study calculated that SDCWA paid US$69 per acre-foot in the same years in which LADWP paid US$532 per acre-foot (approximately 326,000 gallons or 1.23 megaliters)[4]—but neither subsidies nor abundance are possible any longer. The end of abundance also ended the "something for everyone" paradigm at MET that resulted from building the CRA that brought too much water sold for too little.[5]

The end of abundant water and of subsidies left member agencies with an addiction to cheap water and growth that could no longer be met. Although some efforts were made to reduce demand (by replacing toilets and switching to volumetric prices that rose with use), most member agencies (and MET) continue to price water in such a way that a reduction in use disrupts revenue. That is because most service costs are fixed, reflecting the cost of infrastructure, but most revenues are variable, to encourage water conservation. Managers target break-even points by setting prices such that expected revenues match expected costs for an estimated delivery volume.

For example, one may see a water system where 80 percent of costs are fixed but 80 percent of revenues are variable. Thus, a family with a US$100 water bill is paying US$20 in fixed (monthly service) charges and US$80 in variable (water consumption) charges. At the same time, the water utility's cost of delivering water is US$80 fixed and US$20 variable. If the family cuts water use by half, for instance in response to calls for water conservation, its water bill drops to US$60 (US$20 fixed plus US$40 variable), but the utility's cost of delivering that water only drops to US$90 (US$80 fixed plus US$10 variable). The net loss to the utility is US$30, and water managers ask for price increases. Price increases displease customers, and displeased customers make for unhappy managers. Consequently, managers facing scarcity prefer to get more water instead of cutting demand.

This supply-side emphasis encourages demand to grow on the intensive (per capita) and extensive (service area) margins; it also impedes customers' skills in adjusting demand (or awareness that scarcity can ever be a problem), making shortages more likely. As a result, municipal and industrial water consumption ranges from 383 to 1,239 liters per capita per day (lcd) in MET cities (100 to 325 gallons per capita per day, or gcd), over fifty percent of which goes for outdoor irrigation.[6] This contrasts to 135 lcd (approximately 36 gcd) estimated to be adequate for human health, economic activity, and social development. Australian urban residential consumption varies from 145 to 290 lcd.[7]

Economists say that a group can change policy if a "core" for an alternative policy exists, meaning that enough members of the group will benefit from the change to get the group to adopt a new policy. The existence of heterogeneous dependency ratios and their increasing dispersion due to the mismatch between political votes (assessed value) and economic stakes (water purchases) means that the core at MET is small and shrinking. Policies that may be economically efficient are not enacted for lack of a core.[8] Thus, policies established in the 1930s through 1950s (an era of water abundance) continue to be used, at great cost.

Another problem in pursuing change comes from the distraction of preferential

rights (PRs). Formally, PRs created priority rights to water in the event of a shortage at MET, yet despite increasing scarcity and occasional years of drought they have never been used. Many member agencies believe that PRs should be used now, but members with few PRs can veto their use. Rather than solve the problem of shortage, PRs prevent a solution to shortage. They need to be retired, but in a way that recognizes their value.

A final reason for the persistence of inefficient policies at MET is related to mismatched costs and benefits. Water managers at MET and member agencies are not paid for efficient water use or reliability. They do not get fired for rationing water or creating and administrating shortages. Their political masters respond to shortages with "handle it." One need not favor Wall Street-type performance bonuses and other high-powered incentives to find it useful to give managers some external motivation and reward for good water management. Most managers want to do a good job, but their monopoly power and discretion on how hard to work and what work to pursue means that they may not undertake uncomfortable projects or make sure that water gets to its highest and best use. The losers from these weak incentives are customers who pay too much for water that is unreliable and worry that other customers are wasting precious resources. The natural environment also suffers, because emergency shortages make it easy to ignore rules and regulations that protect ground and surface waters.

Solutions to conflict

Conflict within MET can be traced to the continued use of institutions for allocating abundant water in an era of scarcity. Conflict over goals (cheap water or reliable water?) and policies that preferentially subsidize certain goals over others result from heterogeneous preferences among MET's member agencies within its cooperative framework. There are two ways to solve this problem: First, change MET from a cooperative to a corporation with an independent Board of Directors or, second, change MET's method of allocating water and cost so that member preferences are irrelevant. Although the former solution is possible, it is politically difficult to advance and may create new problems. (MET is a monopoly, after all). Ignoring the first idea, the solution to be discussed—price rationing through auctions—would probably also be pursued by a corporation. Thus, the important idea here concerns the means of allocating water and costs, not the legal structure of the organization. Although governance structure may have an impact on allocation via rules, votes, or other bureaucratic mechanisms, it will not have an impact on an internal auction market where allocation is determined by willingness to pay.

Assessed-value voting and heterogeneous preferences are not efficient means to allocate water and costs (because votes do not correlate with values for water). Instead, one wants a system for allocating water, and the revenue from selling that water, to member agencies in proportion to historical facts and customer metrics. Such a system realigns member interests around a single goal—maximizing revenue while preventing shortage—such that all members can agree to use it in the knowledge that any short-run losses that they may experience will turn positive in the long run due to a minimization of internal conflict and maximization of efficiency inside MET.[9] A brief discussion of markets and prices is followed by an exposition of an auction designed to suit MET's circumstances.

Markets, prices, and fairness

Auctions for MET water would guarantee supply to whoever is willing to pay the most. Instead of the current case where a reduction in MET supplies leads to difficult negotiations among member agencies insisting their demand has not changed, increases in auction prices would gradually squeeze demand until it matched reduced supplies, preventing shortage. Auctions work. For example, experimental auctions have been used to allocate the United States' space station's limited capacity among numerous claimants insisting that their essential needs deserved priority over others.[10]

Simple to understand, explain, and implement, auctions increase "procedural utility" from participating in a transparent and fair mechanism, are flexible and robust; respond to changing conditions, and allocate with price—not political, bureaucratic, or engineering methods—thereby reducing conflict and increasing trust.[11] Reduction in conflict and increase in trust would make it easier for members to turn their attention to other projects where cooperation could help everyone, a useful spillover.

Markets would end members' reliability worries because they would always be able to buy reliability (additional supply) by bidding higher prices for water. Such assurance would alleviate the need to spend large amounts of money and years of effort on investments for backup water supplies (e.g., desalination). Prices would also serve as a clear indicator for cost-benefit analyses for capital expenditure. If prices rise high enough, member agencies will look for other sources of water or ways to reduce demand, but higher prices are unlikely to push member agencies out of MET. First, because MET will still be a very large provider of water to a region where additional water is likely to be quite expensive. And second, member agencies will have the right to a baseline quantity of water (see below) that will be cheap and may be sufficient to supply all their needs. (Auctions within MET would not create adverse impacts outside of MET's service area as they would merely reallocate water among MET member agencies.)

MET would need to have two markets, one for conveyance and another for water. MET's current system of PSP includes the cost of conveyance in the price of water, but these are not perfect complements as conveyance capacity can be scarcer than water itself, a lesson we learn from traffic jams.[12] With PSP, it is not hard to see how a price that is right for water but low for conveyance can lead to shortages of conveyance. This problem is most obvious when member agencies face the choice of paying a wheeling charge to move non-MET water. MET's high wheeling price has

surely eliminated water trades that would be economically feasible with wheeling charges that reflected the marginal cost of moving water. Flexible conveyance prices would equalize supply and demand as well as signal bottlenecks that need expansion. But because water and conveyance auctions can be run interdependently,[13] one may assume that conveyance auctions will not interfere with water auctions and ignore them in the discussion that follows.

Wholesale auctions at MET will result in water prices that rise and fall, price swings that could be passed through to customer's retail prices. Although fluctuating prices introduce volatility, they need not trouble users who already deal with price changes for gasoline, meat, and other commodities, especially when these price fluctuations help eliminate shortages. Indeed, it has been calculated that the use of higher prices (instead of rationing) during drought increases average household welfare by the equivalent of one-third of all water spending in the year.[14]

One concern is whether auctions deliver water to rich member agencies at the expense of poor ones. Although it is possible to allocate all of MET's water in auctions, it is also possible to set aside a baseline quantity to every member agency based on the number of people each serves. Recall that 135 lcd is adequate for health and economic development; yet current average consumption at MET is 811 lcd. Lower baseline quantities will increase the quantity of water priced and allocated by auction, which will increase water allocation efficiency and revenue to member agencies that use less than average quantities of water. MET's member agencies will need to decide this baseline number through a political process.

Auctions at MET

The academic literature on auctions goes into great detail on issues such as speed of allocation and maximization of revenue, but MET's structure as a cooperative (selling water to members who also divide the auction revenue) means that these debates are not overly important here. This auction design allocates water to high bids, with all winning bids paying the same price, and revenue distributed to members through a known formula. The following paragraphs spell out how this would work.

Every day MET estimates its sustainable supply, deducts baseline quantities, and puts the remaining x units of water up for auction. (Member agencies already order water daily.) Member agencies bid for water, and the highest x bids are accepted. All bids pay the same price, equal to the $x+1^{st}$ bid. These bids are submitted in an auction with a "soft ending," that is, an auction does not end until a few minutes without a bid have elapsed. This design ensures that members always have the chance to get as much water as they are willing to pay for.

Revenue from water auctions will probably exceed PSP revenue (any shortfall could be covered using MET's current property tax mechanism). PSP revenue will also be replaced by revenue from conveyance auctions that pay for costs and allocate scarce capacity (conveyance prices will be zero if capacity exceeds wheeling demand; taxes in proportion to wheeling can cover shortfalls). But the most likely case is that water scarcity results in higher water prices and auction revenue that exceeds PSP costs. In this case, revenue in excess of costs can be rebated to members in proportion to:

- Past taxes: Until the early 1970s, a majority of MET's revenue came from taxes. Los Angeles paid about 70 percent of all property taxes—just under US$3 billion in 2004 dollars.
- Preferential Rights: Member agencies hold PRs in proportion to their past payments toward fixed costs, which would allow PRs to be retired. LADWP and SDCWA (Los Angeles and San Diego) have the largest claims on PRs, with 21 and 16 percent of the total, respectively. Tax repayments would also reduce PRs.
- Population: Per capita rebates are progressive and reward efficiency.

Rebates could be sequentially or simultaneously implemented, depending on their relative importance to member agencies. Auctions will give price information to member agencies, customers, and politicians, creating "yardstick competition" among agencies to increase efficiency.[15] Frequent price updates will help managers make operating and investment decisions. Customer rebates will intensify the pressure to raise efficiency. Best of all, auctions for water and infrastructure that replace PSP will end rationing and cross-subsidies.

Conclusion

Barriers to reform can be circumvented by changing MET's water and cost allocation method to a different system that treats members fairly (in terms of their access to valuable water), rewards past sacrifices (tax payments and preferential rights), and restores MET's cooperative objectives to a single goal: Selling a reliable water supply to the highest bidder. Reform is relatively easy to implement because it does not require big changes in MET's legal or operational structures. In some ways, it simplifies operations by removing price-setting and revenue-targeting functions.

The answer to the question of why MET has not implemented seemingly obvious reform lies in its monopoly position, with customers who cannot see how inefficiency costs them, and member agencies arguing over policies that have become dysfunctional. The end of abundance provides an excuse to reconsider these policies; an excuse to consider new methods for allocating water (auctions); an excuse for customers and politicians to push for change that will manage scarcity instead of permitting shortages that damage business operations, environmental sustainability, and citizens' quality of life. The end of abundance can mean increasing conflict, but equally it might mean increasing cooperation over managing our most precious resource—water.

Notes

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1. See Zetland (2011).

2. Hart and Moore (1996; 1998).

3. Heller (1998).

4. Flaxman (1976). Los Angeles' apparent very high MET water prices are offset through alternative non-MET supplies and, importantly, through the Hoover dam whose main function for the city is delivery of low hydropower costs.

5. Zetland (2011) details how LADWP subsidized MET's water prices and endorsed MET's growth to stimulate demand because, in exchange, it received cheap hydropower from the Hoover dam. Los Angeles also obtained preferential rights to MET water during periods of water shortage.

6. Zetland (2008a).

7. Estimated: Chenoweth (2008); Australia: WSAA Staff (2010).

8. Blake, *et al*. (1994).

9. Buchanan and Tullock (1962).

10. Plott and Porter (1996).

11. See, e.g., Henrich, *et al*. (2001); Benz (2004); Frey (2005).

12. Howitt (1997).

13. Murphy, *et al*. (2000) explain how smart auction markets for water integrate conveyance constraints.

14. Mansur and Olmstead (2007).

15. Shleifer (1985).

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War and the Austrian School: Ludwig von Mises and Friedrich von Hayek

Christopher Westley, *William L. Anderson*, and *Scott A. Kjar*

To understand the thoughts of Ludwig von Mises and Friedrich von Hayek on war, it is necessary to understand their fundamental views on economics. Like their Austrian School predecessors—Carl Menger, Eugen von Böhm-Bawerk, and Friedrich von Wieser—von Mises and von Hayek believed that a free economy was the natural outgrowth of a free society. Free men voluntarily transact with each other in free markets, and society itself is an outgrowth of these voluntary transactions.[1] Further, free markets serve as a method of allocating society's scarce resources: In particular, prices serve to highlight consumer desires, and entrepreneurs are guided to business decisions that support consumer preferences.

War necessarily violates the market by overriding consumer preferences in favor of the preferences of governments and their militaries. Likewise, prices as a guide to resource allocation are distorted by wartime edicts including price controls, quotas, and outright confiscation. It is on these foundation that Mises's and Hayek's views on war are to be understood.[2]

The early professional years of Ludwig von Mises

Although Mises wrote his best-known works after he came to the United States as a refugee from world war II and the Nazi onslaught, even his pre-world war I writings demonstrate his commitment to classic liberalism and free markets. In his first major work, *The Theory of Money and Credit* (1912), Mises argues that free markets and an honest monetary system based on gold would preserve social harmony. Later, in *Omnipotent Government* (1944a), Mises argues that the wave of protectionism proceeding the outbreak of world war II only heightened the prospects of international conflict, while the liberal (free market–free trade) economies would help preserve peace.

When world war I broke out in 1914, Mises served in the Imperial and Royal Army of Austria-Hungary. Badly injured, he was given a position on the Scientific Committee for War Economics, part of the War Ministry. His pro-market, hence not pro-war, views made him unpopular with other members of the Committee. According to Hülsmann, Mises was a dissenting voice "on the prospective economic benefits of military victory. He definitely did not believe that conquests in the East would convey any economic advantages for the future Austro-Hungarian economy."[3]

Following the war's end, which split the former empire of Austria-Hungary into two small countries, Mises wrote *Nation, State, and Economy* (1919) in which he addressed economic issues of war. Prophetically, he warns against a government policy of revenge:

> "To retaliate for wrong suffered, to take revenge and to punish, does satisfy lower instincts, but in politics the avenger harms himself no less than the enemy. The world community of labor is based on the reciprocal advantage of all participants. Whoever wants to maintain and extend it must renounce all resentment in advance. What would he gain from quenching his thirst for revenge at the cost of his own welfare?" [p. 181]

War necessarily violates the market by overriding consumer preferences in favor of the preferences of governments and their militaries. Likewise, market prices, as signal and guide to resource allocation, are distorted by wartime edicts that include price controls, quotas, and outright confiscation. It is on these foundations that von Mises's and von Hayek's views on war are to be understood.

Mises roundly criticizes war socialism—defined as increased state control of the economy during wartime—in Germany and Austria, claiming that it hastened their final collapse. In both countries, socialists and democrats rushed to fill the void left by the destruction of the monarchy, but neither group held to the classic liberalism that had dominated European political thought for a century.

In 1920, Mises wrote an essay, "Economic Calculation in the Socialist Commonwealth," in which he laid out a critique of socialism based on his belief that a pure socialist economy could not exist. Expanded to book length in *Socialism* (1922), Mises portrays world war I as total war—a war that required the complete mobilization of people and resources.[4] To Mises, war combined all of the illiberal things he most despised, the marshaling of resources along with the activities of once-free individuals to satisfy a "national purpose." Contrary to beliefs of Marxists, Mises did not believe that capitalism had internal contradictions that required periodic wars in order to keep from spiraling into recessions. Rather, Mises believed that periodic wars were themselves contradictions to capitalism and classic liberalism.

Mises, war, and socialist calculation

The key to Mises's views on war and socialist calculation are found in his criticism of central allocation of goods and government control of methods of production. In "Economic Calculation in the Socialist Commonwealth," Mises made an important point about the role prices play in resource allocation, and especially in allocating factors of production. For him, prices of final goods are determined by the interplay of suppliers and demanders in the market, and, following Menger, the prices of these

final goods in turn are imputed to their higher-order factors of production. The value of the factors of production used for any class of goods, such as war goods, is compared with the value of those same factors used in the production of other goods. This allows resource owners to better select how to allocate scarce resources among competing products, and allows entrepreneurs to select production methods among alternate allocations of capital, labor, natural resources, and time.

Mises did not specifically address war socialism in his 1920 essay, but neither did he make an exception for it. He believed that government demands upon individuals to carry out a "national purpose" were abhorrent, something he addressed in later writings. For Mises, war socialism was not a way to rationally direct war production, which is how its supporters justified it. Instead, he believed that total wars such as the two world wars empower the state in a way that enable it to enforce wartime production rules.[5]

Mises held this position even when he emphasized the need for Hitler and the Nazis to be defeated. For example, in *Omnipotent Government: The Rise of the Total State and Total War* (1944a), Mises wrote that the Nazi regime sought "world hegemony" in order to enjoy a higher standard of living through conquest:

> "The essential point in the plans of the German National Socialist Workers' party is the conquest of Lebensraum for the Germans, i.e., a territory so large and rich in natural resources that they could live in economic self-sufficiency at a standard not lower than that of any other nation. It is obvious that this program, which challenges and threatens all other nations, cannot be realized except through the establishment of German world hegemony." [p. 1]

Mises further emphasized that war and conquest are not in fact necessary for a higher standard of living. A simpler and better way is to practice free trade and have free institutions:

> "Within a world of free trade and democracy there are no incentives for war and conquest. In such a world it is of no concern whether a nation's sovereignty stretches over a larger or a smaller territory. Its citizens cannot derive any advantage from the annexation of a province. Thus, territorial problems can be treated without bias and passion; it is not painful to be fair to other people's claims for self-determination." [p. 3]

Mises believed he was standing against totalitarianism and believed that war—and especially the total wars of the 20th century—empowered the state and collectivism. His warnings came during the 1920s and 1930s when collectivist ideals grew in Europe, becoming fascism in Italy and Germany and communism in the Soviet Union.

As an anti-collectivist Jewish intellectual, Mises knew he was not safe in Vienna and so, in 1934, he and his wife moved to Geneva, in neutral Switzerland. In 1940, as Germans marched across France and the Low Countries, the von Mises's fled for the United States, arriving in a country that was soon to go to war as well.

Writing *Omnipotent Government* (1944a) and *Bureaucracy* (1944b) during the world war II years, the former identifies National Socialism as a form of collectivism not unlike the socialism of the U.S.S.R. Mises declares that modern wars are not the result of "unfettered" capitalism but rather of economic nationalism, promoted both by autocratic and democratic governments:

> "The fateful error that frustrated all the endeavors to safeguard peace was precisely that people did not grasp the fact that only within a world of pure, perfect, and unhampered capitalism are there no incentives for aggression and conquest. President Wilson was guided by the idea that only autocratic governments are warlike, while democracies cannot derive any profit from conquest and therefore cling to peace. What President Wilson and the other founders of the League of Nations did not see was that this is valid only within a system of private ownership of the means of production, free enterprise, and unhampered market economy." [pp. 4-5]

In *Bureaucracy*, Mises argues that government cannot effectively run an economy in the same way as would be done in a free-market system. He blames world war II and all of the resulting economic dislocation on the growing power of the state:

> "Economic interventionism is a self-defeating policy. The individual measures that it applies do not achieve the results sought. They bring about a state of affairs, which—from the viewpoint of its advocates themselves—is much more undesirable than the previous state they intended to alter. Unemployment of a great part of those ready to earn wages, prolonged year after year, monopoly, economic crisis, general restriction of the productivity of economic effort, economic nationalism, and war are the inescapable consequences of government interference with business as recommended by the supporters of the third solution. All those evils for which the socialists blame capitalism are precisely the product of this unfortunate, allegedly 'progressive' policy. The catastrophic events which are grist for the mills of the radical socialists are the outcome of the ideas of those who say: 'I am not against capitalism, but ...' Such people are virtually nothing but pacemakers of socialization and thorough bureaucratization. Their ignorance begets disaster." [p. 119]

In 1949, Mises published his most important work, *Human Action*. This includes a chapter titled "The Economics of War." In it he again stresses that free markets are based on peaceful cooperation and how this cooperation falls apart when "citizens turn into warriors" (p. 821). One virtue of the combined idea of limited war and free markets was the recognition that free trade was a necessary prerequisite for peace

because it makes little sense for a country to wage war against its trading partners. In the absence of free trade, conflicts over territory, religion, ideology, culture, and a host of other issues fester with no countervailing reason for calmness or rationality among the belligerents. While a nation might not wish to engage in war with its trading partners, it has no such constraints concerning those with whom it does not trade. As such, many conflicts cannot be fixed by creating new bureaucracies (such the League of Nations or the United Nations) because the participants in war have no reason to stop (p. 821).

War reduces the international division of labor because it reduces opportunities to engage in trade. Mises argues that if the tailor goes to war against the baker, then he must bake his own bread. What is more, if the tailor does this, he will soon be in worse shape than the baker. This was one of the reasons why, Mises wrote, the South lost the American civil war, and why Germany lost both world wars. These problems arise because of the existence of what Mises calls the "inter-regional division of labor" (p. 829).

Finally, Mises writes that it is humans' ability to cooperate that separates them from other animals. To cooperate, they first must overcome innate tendencies for aggression, and in so doing they become better off because they extend the division of labor. "Interventionism generates economic nationalism, and economic nationalism generates bellicosity. If men and commodities are prevented from crossing the borderlines, why should not armies try to pave the way for them?" (p. 832). Mises laments how far we have come from the era of limited war. In the 1940s, 50 million were killed in war, reflecting what Mises calls the spirit of conquest that, if not countered, will result in the destruction of civilization.[6] Mises concludes that the ideologies that generate war—collectivism and statism—must be discarded and replaced with the ideologies of freedom and free markets:

> "The market economy involves peaceful cooperation. It bursts asunder when the citizens turn into warriors and, instead of exchanging commodities and services, fight one another." [p. 817]

The early years of Friedrich von Hayek

Like Mises, Hayek is in many ways a product of his lineage, both intellectually and biologically. His family was involved in medicine and biology, and young Friedrich was encouraged to study these disciplines. Indeed, Hayek worked for a time in the Institute of Brain Anatomy. This would help pave the way for such works as *The Sensory Order* (1952). At the University of Vienna, Hayek took doctorates in both law and political science. (The Faculty of Economics was located in the school of law.) There, Hayek became a devotee of his teacher, Friedrich von Wieser, and was strongly influenced by the work of Carl Menger. After graduation, upon Wieser's recommendation, Hayek went to work for Mises in the Austrian government. The pair would continue their collaboration at the Austrian Institute for Business Cycle Research. Works that developed from this time in Hayek's career include *Monetary Theory and the Trade Cycle*, and *Prices and Production*.

In 1931, Hayek was persuaded to join the London School of Economics (LSE). This was at the behest of Lionel Robbins (who, incidentally, eventually examined the topic of economics and war himself in *The Economic Problem in Peace and War*, 1947). At the LSE, Hayek both influenced and was influenced by Karl Popper. Hayek was also an early reader of Wittgenstein's works. Philosophy and the history of science became important elements in Hayek's work. Also at LSE, Hayek famously exchanged letters with Keynes. Some of the ideas developed during this time would later appear as his primary thesis in *The Fatal Conceit* (1988). One of the keys to his thought is the idea of a spontaneous order, or a cultural order that develops from the voluntary interactions of society's participants, rather than from the planned structure imposed by government or other authoritative force. We see that both the influences on Hayek and those whom Hayek influenced in turn as being broad and diverse. To understand and apply Hayek's thought to war, we need to view him not only as an economist but as a broad social thinker with influences in philosophy, psychology, the history of science, political science, and culture.

Hayek on war

We trace Hayek's views on war through several key writings, starting with "Socialist Calculation" (1935). Writing the introduction to a book on the socialist calculation problem, which included an older essay by Mises, Hayek lays out what he considers as the great and insurmountable problem of socialism: Even if a planner knows what needs to be produced, how does he know how to allocate the necessary resources to produce the goods? Since there are many factors of production that can be applied to many different final goods, and many different ways to produce each good, the allocation problem is not merely of what to produce, but of how to produce it, as well as what not to produce. Absent prices, the opportunity cost of the foregone allocation cannot be understood.

In subsequent articles, Hayek grapples with Britain's problem with Germany: Given that war seemed inevitable, how was Britain to devise plans that allocate resources for the war effort while minimizing any attendant economic disruption? More bluntly, how does Britain mobilize for war against Germany without turning its economy into a reflection of the German economy? For Hayek realized that many of his intellectual opponents saw the impending war with Germany as an opportunity to grow the state in ways that were not possible during peacetime. In this, Hayek would develop a theme taken up by Robert Higgs (1987): the "ratchet effect" of government expansion. Hayek saw that once planners expanded their hold on an economy, they would not want to let go.

In "Prices versus Rationing" (1939a), Hayek recognizes that the military will need

to extract resources from the economy first. Prior extraction, however, does not mean that rationing, quotas, or other perturbations of the market are necessary. Instead, Hayek says, during war, allow the military to extract what it needs and leave the free market to sort out the rest. The market will equilibrate the remaining supply with the civilian demand for increasingly scarce resources, and entrepreneurs will be motivated to provide additional goods in precisely those areas where scarcity is deemed most urgent by the populace, as evidenced by corresponding price changes. Any political effort to fix prices or to establish quotas, he pointed out, will serve merely to cause inefficient allocation of resources during the very period in which they are the most scarce. If prices cannot rise, then they lose their signaling power to entrepreneurs and investors. The result is waste, which reduces the current as well as the future civilian standard of living, and also reduces the very availability of resources upon which the military might need to draw later.

"The Economy of Capital" (1939b) follows the same logic, but applied to financial markets. A key element in Austrian theory—from Menger and Böhm-Bawerk to Mises and Hayek and then to Garrison and the modern Austrians—is that interest rates are the intertemporal price of capital goods. High interest rates generate more saving and the reduction of current consumption, but discourage capital formation and what Böhm-Bawerk called "roundabout" methods of production since only highly profitable projects can cover the interest expense over a long time period. Low interest rates generate more desire by entrepreneurs to engage in capital-intensive long-term projects and more roundabout production, but discourage consumers from reducing current consumption and freeing up scarce resources. A free market equilibrates the interest rate according to society's time preference rate, thereby generating the mix of consumption goods and capital goods desired by the society.

Government interventions that influence or set interest rates, Hayek noted, lead to swings in capital allocation, and often generate business cycles. This idea, which Hayek expressed in several writings, was one of the keys to his Nobel Prize award, with the committee citing Hayek, along with Gunnar Myrdal, "for their pioneering work in the theory of money and economic fluctuations and for their penetrating analysis of the interdependence of economic, social, and institutional phenomena."[7]

As in the goods market, Hayek recognized that the military might have a prior claim on capital, but once the military has established that claim, the remainder should be left to the market. Any government interest-rate fixing will merely generate the sort of malallocation of capital that would hinder not only civilian production during and after war, but could also hinder later military production both during and after war, a state of affairs that could actually cause a nation's military defeat. Thus, Hayek argued, economic central planning during war is, if anything, even more self-defeating than economic central planning during peace.

Hayek's "The Economics of Planning" (1941) reiterates the argument concerning the complexity of the economy and the impossibility of any planner being able to manage the huge amounts of information necessary to allocate resources. In contrast, Hayek points out, an entrepreneur does not need to plan for an entire economy. He needs only to see a few prices around him, prices of potential competitors, prices of factors of production, and prices that his own services can command in other employ. In this way, he coordinates with other entrepreneurs in choosing how scarce resources will be allocated, since they will be allocated to that entrepreneur who values them the most, as evidenced by his willingness and ability to pay higher money prices for them. Another point Hayek raises concerns the amount of central planning that occurs during wartime as compared to peacetime. He notes that there is no deficiency in the free market that necessitates increased planning. Rather, the deficiency lies in political leadership and in the insufficient understanding of the workings of the economy. As such, politicians make bad decisions that throw markets into chaos, and then propose planning as a solution, rather than allowing the market to arrive at its own resource allocation.

In his most famous work, *The Road to Serfdom* (1944), Hayek writes that planning is "the deliberate organization of the labors of society for a definite social goal" (p. 56). However, in democracy no single social goal exists:

> "And we all think that our personal order of values is not merely personal but that in a free discussion among rational people we would convince the others that ours is the right one. The lover of the countryside who wants above all that its traditional appearance should be preserved and that the blots already made by industry on its fair face should be removed, no less than the health enthusiast who wants all the picturesque but unsanitary old cottages cleared away, or the motorist who wishes the country cut up by big motor roads, the efficiency fanatic who desires the maximum of specialization and mechanization no less than the idealist who for the development of personality wants to preserve as many independent craftsmen as possible, all know that their aim can be fully achieved only by planning—and they all want planning for that reason." [pp. 54-55]

It matters not that the planner is some sort of specialist with a greater or different education. It makes no difference that the planner has at his grasp reams of statistics and data that an ordinary person does not have. The fact is that all central planning requires a decision by the planner as to which goal is best and then which plan is best to achieve that goal. The key Hayekian objection is that because no central planner can possess all of the disparate pieces of knowledge found in society, no central planner can allocate resources as efficiently as can the decentralized market. Since war is coordinated by central planners, it necessarily follows that war planners will generate resource misallocations and cause widespread inefficiencies in production. Once these occur, they will have ongoing effects not only during war but also thereafter since war allocation alters the very structure of capital in an economy. For this reason, Hayek says, any planning that goes on—because of the nature of military needs, not because of the nature of the economic structure—must be temporary,

abandoned the instant an armistice is signed. Leaving any vestige of war planning in place after war leads to Higgs's ratchet effect, and to what Hayek feared would be a Road to Serfdom in which much of the economy would be subservient to the demands of government planners, both military and civilian.

Conclusion

By questioning the state as a force of social good, the writings of Mises and Hayek on economics and war went against the intellectual tide of their day. Free markets, and especially free trade, were not the causes of war; indeed, these served as bulwarks for peaceful international relations. Mises especially saw socialism and statism as evils that set people against one another, and he believed that "national purpose," emphasized by collectivist states, led to conflict and war. Hayek believed that planning led to serious economic resource misallocation, both in the present and in the future, leading people down a road to serfdom.

Neither Mises nor Hayek were pacifists, nor were they opposed to war on the basis of principle. However, both men saw that the social, political, and economic developments that accompanied the total wars of the twentieth century posed a danger to the liberal order that they supported. Mises, in particular, was outspoken on this subject and despaired of what he saw, especially in the post-world war I fall of what had been old Europe, writing that "From time to time I entertained the hope that my writings would bear practical fruit and point policy in the right direction ... I set out to be a reformer, but only became the historian of decline."[8]

For Mises, it was not just a case of opposing a particular war. Instead, he saw modern warfare as the antithesis of civilization: "What the incompatibility of war and capitalism really means is that war and high civilization are incompatible" (1949, p. 828). In *Socialism* (1922) Mises pursues the theme that private enterprise and economic exchange promote peace, while war promotes destruction:

> "Society has arisen out of the works of peace; the essence of society is peacemaking. Peace and not war is the father of all things. Only economic action has created the wealth around us; labor, not the profession of arms, brings happiness. Peace builds, war destroys." [p. 59]

Far from holding a "military Keynesianism" view according to which war is good because it promotes aggregate demand, Mises believed that economic disruption created by war destroys the liberal civilizations that had characterized Europe and the United States during the 1800s, and whatever the outcome of those wars, the legacy of government economic planning created lasting harm:

> "Modern war is merciless, it does not spare pregnant women or infants; it is indiscriminate killing and destroying ... Nobody can foretell what will happen in the next chapter of this endless struggle. But this will not alter things, it will merely prolong for a short time the process of the complete destruction of civilization." [1949, p. 832]

Notes

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1. On the Austrian School founders, see Kjar and Anderson (2009).

2. The correct German names are, of course, von Mises and von Hayek. English usage has reduced this simply to Mises and Hayek, and this convention is followed in the remainder of the article.

3. Hülsmann (2007, pp. 274-275).

4. Also see Mises (1944a), Southerland (1998), and Bell (2007).

5. Hülsmann (2007).

6. 50 million: Denson (1999, p. xvii).

7. See http://nobelprize.org/nobel_prizes/economics/laureates /1974/hayek.html.

8. Quoted in J. Tucker, "Ludwig von Mises's Memoirs." http://www.lewrockwell.com/tucker/tucker156.html [accessed 24 December 2010].

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