

The advancement of social theory requires an analytical approach that systematically seeks to explicate the social mechanisms that generate and explain observed associations between events. These essays, written by prominent social scientists, advance criticisms of current trends in social theory and suggest alternative approaches. The mechanism approach calls attention to an intermediary level of analysis, in between pure description and storytelling on the one hand, and grand theorizing and universal social laws on the other. For social theory to be of use to working social scientists, it must attain a high level of precision and provide a toolbox from which middle-range theories can be constructed.

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STUDIES IN RATIONALITY AND SOCIAL CHANGE

Social Mechanisms

An Analytical Approach to Social Theory

Edited by

Peter Hedström
Richard Swedberg

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An Analytical Approach to Social Theory

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For James S. Coleman and Robert K. Merton

5. Concatenations of mechanisms

DIEGO GAMBETTA

Introduction

I take "mechanisms" to be hypothetical causal models that make sense of *individual* behavior. They have the form, "Given certain conditions K , an agent will do x because of M with probability p ." M refers either to forms of reasoning governing decision making (of which rational choice models are a subset) or to subintentional processes that affect action both directly (as impulsiveness) or by shaping preferences or beliefs.

Two other meanings may be attached to "mechanisms," as suggested by Hedström and Swedberg in Chapter 1 of this volume. The first refers to models of *interaction* among individuals that generate particular social outcomes (the micro-to-macro case in their terminology). We construct these models to explain social phenomena such as markets, inequality, institutional performance, collective action, and so forth. Interaction models are predicated on individual-level mechanisms. The Prisoner's Dilemma, for instance, predicts a suboptimal solution by assuming self-interested and rational agents. If people cooperate when the hypothetical mechanism predicts they should not, as many experiments in social psychology have found (cf., e.g., Thaler 1994, Ch. 2), one is forced to search for other mechanisms. The second meaning refers to "macro" conditions that, via a given individual mechanism, can affect, say, beliefs or desires and, through those, behavior. Once again, these models are predicated on individual-level mechanisms. If an increase in opportunities for upward mobility leads to an increase in the number of people who feel *more* rather than less frustrated with the promotion system, we have a puzzling cor-

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relation. The search is then open for the individual-level mechanism that can best make sense of it (as I will show later in an example).

To avoid confusing levels of analysis and using "mechanism" as a loose umbrella term, we ought to distinguish between individual mechanisms proper and the processes by which these are both triggered by social conditions (macro-micro) and generate social outcomes (micro-macro). The latter should be called something else, perhaps just "models." "Mechanisms" in the sense adopted here refer to those minimal assumptions about agents' make-up that we require to deduce how they both interact with one another and respond to external conditions.

The family of individual mechanisms identified by social scientists as relevant to their models is large and growing: instrumental rationality; focal points; biased inferential processes; cognitive dissonance reduction; self-validating beliefs such as distrust; emotions such as envy; passions such as *amour propre*; evolved dispositions toward altruism, sex, or children; special cognitive quirks like the endowment effect, and so on. (A catalogue of mechanisms, which Schelling suggests in Chapter 2 of this volume, would indeed be of great value.)

The individual-level mechanism, which travels wider and lighter than any other through the jungle of social phenomena, is, I suspect, rationality in its barest adaptive version.¹ It works like this. Assume that an agent has certain preferences. Do not waste time making sense of them ("de gustibus non est disputandum"). Then work out what is the best strategy to satisfy those preferences at the minimum cost. You can then deduce a set of testable behavioral hypotheses. In this way, you can explain a wide variety of social phenomena. You can explain *how* Frederick and Rosie West went about kidnapping, raping, and murdering an as yet unknown number of young women in Gloucester, England, as well as *how* members of Amnesty International or the bursars of Oxbridge Colleges go about investing the assets of their institutions. To work out *why* the murderous couple had those appalling preferences or why some people work hard for altruistic purposes is an altogether tougher task. It is, by contrast, quite straightforward to understand that in order not to be caught (preference) the former (1) kidnapped only women fleeing from their family whose whereabouts were unknown to others, and (2) chose to live in a road with

¹ In terms of generality and parsimony, the evolutionary model may well be superior, and could even make sense of the wide diffusion of adaptive rationality itself, but I will not consider it here.

lots of Bed & Breakfasts where no one paid much attention to people coming and going. We can also easily understand why the couple hunted for victims traveling in their car *together* – “in this way we did not scare them,” they declared. Rationality and sanity do not always go together. The motives of Amnesty and the Oxbridge bursars are no doubt altruistic, to make money for their cause and college; still, they will behave like any other investor out to make as much money as possible. They will endeavor to choose the best ways, with some moral limitation, to invest the money entrusted to them. Not only will a rational choice explanation be parsimonious and generalizable; it will also be the end of the story. Once intentions are posited, we as social scientists do not need to look further for yet more fine-grained mechanisms.

This line of research is of great value: Why posit a cumbersome “model of man” when a simpler one will do? In order to explain many social phenomena, we do not need to assume special features of agents psychology. There is no need to invoke the Oedipus complex to explain why a mafioso is, as it were, dead keen on his reputation. However, if our interest lies not as much in proving the power of any particular mechanism as in explaining social phenomena as they manifest themselves in the world (rather than in controlled experiments), in many cases we have to follow the opposite route – namely, pick our social puzzle and explain as much of it as possible regardless of how many mechanisms it takes. (A grand example of this strategy is provided by Tocqueville in *Democracy in America*.)

Most social phenomena require more than just one mechanism to make sense. Here is an example. Contrary to what one might expect given the vehement antismoking feelings in the United States, the number of people one can observe smoking in the streets of New York City is conspicuously high, and the streets are covered by cigarette stubs. The puzzle is not so difficult to solve: If smoking is forbidden in offices and frowned upon in private homes, we can predict that the number of people smoking outdoors rather than indoors will increase, and so will the number of cigarette butts left around. This prediction seems intuitively sensible enough. If we “unpack” it, we can see that it rests on no less than three mechanisms, and that the plausibility of the latter sustains that of the model. It assumes that the *social norm* against smoking will be effectively enforced; next, that at least some smokers will not give up their *addiction* but persist in smoking even at the cost of doing it outdoors; third, that throwing stubs away in

the street, though not a nice thing to do, is *individually cheaper* than either pocketing it or walking to the nearest garbage can (as well as hard to police). Norm, addiction, and elementary rationality jointly explain the puzzle. If any one of these mechanisms either did not work or were offset by *yet other* mechanisms, the prediction would fail.

It is not just a matter of piling mechanisms on top of each other, however. Mechanisms interact with one another forming *concatenations of mechanisms*. In this chapter, I give some primitive indication of what the search for such concatenations may yield by using three cameo examples. One refers to the stability of suboptimal institutions – in this case, the Italian academic system. The second example comes from recent research on individual schooling decisions and two puzzles it has raised. The third example is a discussion of the competing mechanisms that can account for the classic puzzle discovered by Stouffer and associates in *The American Soldier*.

In the spirit of a mechanism-oriented scholar, I make no overall claim in this chapter. There is no punch line. I also reverse a common sequence. Rather than working out my theoretical elucubrations about mechanisms and then shopping around for ready-made examples that fit them, I have picked examples that are (to me) substantively interesting to see what they can tell us. Here I follow, suitably paraphrased, Arnold Schwarzenegger’s injunction: “Illustrate first, think later.”

The stability of suboptimal institutions: The Italian academic system

In several sections of the Italian academic world – as no doubt in other academic systems – loyalty toward the “barons” pays off more than independent research. If one plans a career in it, one better follow in the professor’s steps, regardless of how well directed these may be, study what he wants one to study, avoid criticizing his work, stick by his side when others criticize his work (especially if the critics happen to be right), and carefully avoid outperforming him. There are many exceptions, especially in those subjects in which merit is less controversially established and academics interact closely with the international scientific community. There is, however, overwhelming evidence that that is typically the case. Given this incentive structure, *elementary and unprincipled rationality* suf-

fices to explain intellectual subservience as the standard response on the part of younger academics. Most of those who end up in that system will have strong incentives to conform.

Over time, there is a further effect that reinforces loyalty: Individuals with a greater propensity to accept supine loyalty are, other things being equal, more likely to be selected by that system. Moreover, since the incentive structure is commonly known, there is also *self-selection*: Candidates with the "right" dispositions will be more likely to seek a career in academia. Notice that the selection effect relies on a different mechanism from rationality: It assumes the existence of prior dispositions, such as intelligence, risk aversion, impulsiveness, integrity or, in this case, independence of mind. It further assumes that such dispositions have a bell-shaped distribution in the population, and that institutions, via the incentive structure, select biased groups: The proportion of people displaying low independence of mind (or low attachment to whatever independence they have) will be overrepresented relative to the proportion in the population as a whole. In time, individuals in those institutions will have both the incentives to conform *and* a greater proneness to be governed by those incentives. Since the system is not impermeable, a number of valuable academics manage somehow to get junior positions in the Italian university. The selection effect hits them later when no promotion or research support will be granted to them. Stuck in those positions for life (all positions are tenured in this system from the start), scholars determined to maintain their integrity suffer particularly disturbing effects. The embitterment caused by the lack of appreciation and the frustration of being passed over by people of lesser merit eat their mental resources away and undermine their resolve. They lose their sense of direction and doubt the quality of their work. The selection effect ultimately strengthens the loyalty of subordinates within that system and thus its internal stability. In conclusion, *rationality and type selection form a concatenation of mechanisms that increases the internal stability of the academic institution.*

Two ancillary mechanisms are also at work in the same direction and enlarge the concatenation:

1. If most people behave supinely, supine behavior comes to be perceived as the norm, and independent behavior is felt as correspondingly more extravagant and thus becomes more costly.

2. If sycophancy is a perfectible skill, rather than being just an "on-off" variable, internal competition will reward those who are better at it; in time, they will gain more influence and socialize newcomers to their art.

That academic structure is not likely to produce a socially optimal outcome. Healthy intellectual competition is curbed. The quality of research is lower. Both the amount and the rate of progress of innovative research are also reduced. However, the set of mechanisms which govern that system sustains the prediction that there will be no internal pressure for change. Quite the contrary, we can expect considerable resistance to change. The selection effect may be more significant in this respect than rationality. Were a supine behavior simply chosen for instrumental reasons, a government could expect to modify the behavior of subordinate academics by increasing the rewards to independent research. This strategy, which may succeed with new generations, will, however, be much more costly to implement among those who have been selected already, because they had no great inclination for independent research to start with. Selection effects can cement bad practices and easily wreck naive policies that focus only on agents rationality when trying to improve the performance of institutions.

We can find similar concatenations shaping other institutions. Whether the effects on the internal stability will be positive or negative, however, depends on the disposition selected. For a mafia member, for instance, there are strong incentives to use violence in certain circumstances. Even the meekest of guys, waking up one day as a mafioso, would be under that pressure. It is also the case, however, that the *type* of individuals who are more inclined to use violence to begin with are both selected and attracted by the mafia. In this case, the outcome is not greater loyalty but greater violence. Violence may in fact turn out to undermine loyalty and the internal stability of the system. Mafiosi have been aware of this problem. On the one hand, they have recruited psychopaths to discharge their nastier tasks; on the other hand, in several instances, they have had them murdered when they were getting out of control.

Returning to the more sedate ways of academia, an optimistic reader may be consoled of the bleak picture just painted by hoping that the competition which lacks between subordinates and barons may still be functioning among peers. Alas, the system of academic loyalty in Italy hinders

that, too. This is roughly how it works. The allocation of jobs is centralized, and positions on the selection committees rotate. This has promoted an internal "credit" market: The barons on selection committees at any one time give out positions also to the disciples of absent barons in the expectation that the next time around, when their turn will come to serve on selection committees, they will reciprocate. The barons develop a pact of reciprocity. An interesting consequence follows, as pointed out by Varese (1996) in an article in which he exposes a plagiarist who nests undisturbed in that system: If any one baron destroys another baron's academic reputation, the victim loses the ability to pay back his debts on the academic credit market. Debts and credits are passed on from generation to generation. The professors in credit, therefore, even if they had the soundest of intellectual reasons to pull the rug from under the feet of their debtors, refrain from doing so because in future rounds their pupils would suffer the consequences. "Like banks, professors do not wish the bankruptcy of their creditors" (p. 176).

Once again, *elementary rationality* does much to explain the persistence of that credit market. It is not the whole story, however. Italian academia may be an insulated world. Still, occasional meritocratic bacteria "infect" it. Academics catch them visiting foreign universities or coming intermittently in contact with professions where meritocracy does work. Although mediocre academics, who would lose out from a change, know that from *their* point of view this world is optimal and cannot be expected to take reforming action, the professors with greater intellectual clout might conceivably gain from a better system. Still, no great change is in sight, and everyone abides by the rules of reciprocity.

The awareness of better selection criteria has generated no more than subterranean dissatisfaction. To adapt to the demands of the credit system may be rational, but it nonetheless creates a friction, which makes it somewhat painful. Barons must know that in job competitions they act in a way that is neither fair nor efficient.² Privately, several among them acknowledge that the system is suboptimal in terms of academic output and unfair to the most deserving scholars. Few among those with a preference for a better state of affairs, however, reveal it publicly, as predicted by

² The selection effect actually may weaken the awareness for it may preselect candidates so that only mediocre ones will present themselves, and selectors will not have a feeling of directly excluding better ones, because these did not apply in the first place.

Timur Kuran's model (1995). Even professors prone to moralize in other fields refrain from doing so in their own. No one speaks up, and, what is worse, no one seems to like those few who do.

We often think of subintentional mechanisms as an alternative to rationality, whereas this is a case in which they work together: The tension between the rationality of complying with reciprocity and the adherence to fairer and more efficient selective criteria is resolved by way of *cognitive reduction of dissonance*. The outcome is a host of self-serving values that justify internal "honesty" and a norm against "cheating" in job competitions by not returning favors obtained in the past. The public defense of reciprocity is not played on grounds of cynicism (e.g., "that's life and we have to make a living" sort of argument) but on grounds of distorted values that get cited when something perturbs that system. The norm is enforced by ostracism of various sorts, both in the first- as well as in the second-order way.

Notice that the theory of cognitive dissonance reduction predicts further a counterintuitive result: On the one hand, the greater the awareness of the negative aspects of the system, the greater the likelihood of speaking up against it; however, since the greater the awareness, the greater the dissonance, if people do not speak up, the theory predicts the opposite effect – namely, that correspondingly more intense will be the activity to justify the existing arrangements. The paradox is that among the most intelligent Italian academics we can expect both those who are more opposed to the system *and* those who come down more cynically in its defense. Since they have reasons to dislike their practices *more* than others, they are also under greater pressure to rearrange their face-saving beliefs more energetically insofar as they themselves comply with those practices.

This suggests a new constellation of mechanisms: *If individually rational behavior is not right – because it produces suboptimal results of which people are aware, or it inflicts unnecessary pain, or because it is illegal or unfair – those with an interest in adapting to it experience a tension. By cognitive dissonance reduction, this leads to the emergence of self-serving values and beliefs which justify that behavior on grounds other than those of rationality.*

This concatenation manifests itself in a number of variants. Until a few years ago, everyone believed that the Sicilians actively liked the mafia and

considered it as a legitimate authority. Cultural relativists, cynics, economists who believe in revealed preferences, Northern Italian racists, corrupt locals, and intellectual Cassandras, all agreed on one thing: This is the way things are, and that nothing could be done or was worth doing. This gravely hampered the fight to eradicate the mafia.

Self-serving values and beliefs created in that way are not deprived of important consequences that at best delay social change and at worst make it outright impossible. They remain, however, a thin veneer. Once change occurs, they evaporate more quickly than expected. As soon as all the most important mafiosi ended up in jail, and the government determination became credible enough to reassure Sicilians that the bosses were not only jailed but were likely to stay there for life, the mood shifted dramatically. Even in villages where the mafia was rife, new left-wing antimafia politicians have been elected and have received much more support than any of the foregoing categories would have predicted.

A very interesting example of the same class is provided by Mackie (1996) for vicious practices, such as footbinding and infibulation. These practices are conventions enforced by a perverse but no less compelling form of rationality: Families, argues Mackie, are afraid of being the first and only ones to stop practicing them for fear their daughters will be penalized in the marriage market. In this particular case, a third mechanism joins the constellation to reinforce the stability of those conventions. Mackie aptly calls it a "belief trap": "a belief that cannot be revised, because the believed costs of testing are too high." Women who practice infibulation are caught in such a trap: "The Bambara of Mali believe that the clitoris will kill a man if it comes in contact with the penis" (ibid.).³ This mechanism can itself originate from or be retained because of cognitive dissonance reduction in the following way: Should a belief be voiced, even fortuitously, such that it provides an extra reason for complying with a painful convention with which it is painfully rational to comply anyway, this belief is more readily believed without testing. In addition, this belief is more likely to be retained if it happens to be a belief trap. Belief traps should be high on the agenda of mechanism-oriented scholars.

³ A general case of self-enforcing beliefs of some considerable importance is that of complete distrust (see Gambetta 1988).

Individual decision mechanisms in education

The next two examples come from a recent survey of 756 subjects, 14–17 years old, in Piedmont, North West Italy (IRES 1996). A local research institute decided to check, among other things, whether my conclusions in a previous research on individual decision mechanisms in schooling choices still held after 10 years (Gambetta 1987). Here I provide no account of the overall results but pick only two puzzles that emerged during our data analysis.

Case 1

One of my original results was simple yet intriguing: Controlling for many other variables, the probability to stay on at school after the end of compulsory education was negatively correlated with father's age. The effect, calculated through multivariate logistic models, was strong. A subject whose probability to stay on at school given all other variables in the model was 50% decreased to less than 30% if his or her father was older than 64 (Gambetta 1987: 144–50). I had inserted that variable with the following hypothesis in mind: Age is an indicator that income will be declining in the near future. Foreseeing the tightening of economic constraints, families should be more prudent and encourage an early entry in the labor market rather than more school. The underlying mechanism is a simple response to expected economic constraints. Insofar as education is at least partially a consumption good or the credit market is not perfect in supplying loans for investment in education, agents should respond to their income level in deciding how much education to consume or in which to invest.

When we carried out the analysis again on the new data, that result was confirmed. We had a surprise, however. The logit model over the whole sample gave much the same coefficient, showing that children of older fathers do suffer from a considerable disadvantage. However, when we ran separate models by gender, the picture changed: In a classic case of the same mechanism generating opposite effects, our expectation was confirmed for boys but reversed for girls. The father's age shows a significant positive effect on the probability that a girl will choose the *liceo*, the most demanding secondary school. Choosing the *liceo* amounts to an early commitment to sending the child to university later on, so it is not only de-

manding in terms of its academic content but also of the number of years one expects to be in education. If, for example, a girl's chances are 50%, an older father pushes them up to 70%.

Clearly the expected effect is stronger than the opposite one, or else the overall model would not have picked it up because the effects would cancel each other out. (Notice that this is often a risk of empirical analysis because one may conclude that there is no effect when there are opposite ones neutralizing each other. A mechanisms-sensitive approach makes such wrong conclusions less likely.) Moreover, the expected negative effect dominates also in the models broken down by social class, and in all four classes – upper, middle, self-employed, and working class – age of the father is, with some variation, a disadvantage.

This result backfired on my original hypothesis. Is age really a proxy for declining income, or is it related to some other mechanism? Father's age seems to trigger greater generosity as well as greater prudence. Are we picking up the effect of an intentional mechanism or of some "behind-the-back" force that affects the disposition for risk taking? A sign that suggests that we may be faced with a mechanism other than straightforward rationality is when we observe that the same cause produces opposite effects. Age can plausibly make one both more worried about the future and more carefree; it can fuel egoism or dampen it. "If I spend a lot of money, what will happen if I fall ill? versus I am not going to need much money now for my pleasures and even less when I am dead, so why not be generous and give the best education to my kid?"

The intriguing question, however, is: Why should gender make a difference as to which of the two extremes age should push? Overall the results of the analysis by gender suggest that education is conceived more instrumentally when it comes to boys. They are on average likely to earn more money than girls when they first enter the labor market, so families forego greater sums by sending boys to school than girls. In order to send a boy to school, therefore, incentives must be stronger. This is shown by two facts: (1) boys in general are less likely than girls to stay on at school after compulsory education; if they decide to stay on, however, (2) boys are more likely than girls to choose the liceo rather than less demanding secondary courses.

In conclusion, age captures rather than a concatenation a bifurcating mechanism – in the sense illustrated by Jon Elster in Chapter 3 of this book – the direction of which is controlled by a third variable, the size of

the loss: *The greater the loss incurred, the greater the risk aversion that age produces. But if the loss is minimal, age triggers greater generosity.* This is the best explanation we could think of for our puzzle. How robust this mechanism really is, how far it can travel, can be assessed only by further research on whether age has the same dual effect under comparable conditions.

Case 2

In the same models, we specified another variable: whether a subject had an older sibling who was or had been in higher education. Our hypothesis was that that condition should increase the probability of subjects to stay on at school themselves after compulsory education. The mechanism hypothesized is one of opportunity: Older children at school provide help, guidance, and books to their younger siblings. An older child at school increases the cultural capital on which the family can draw and decreases the education costs for younger siblings. The logit models showed that, other things being equal, this variable did have a strong positive effect as we predicted.

Once again, there was a surprise. This variable had a much greater effect for girls than boys, for whom it was negligible (regardless of the gender of the older sibling, which does not make any difference). This prompted a more elaborate reasoning than we had anticipated. If it were just cultural capital, why should it make a difference only for girls? In fact, it should not. The effect of an older sibling at school could be a proxy for a different mechanism.

Consistently with the overall picture presented in the previous case, the reasoning that underlies a school decision for boys seems different: If they have what it takes, they go to school, or else they are off to work. It does not matter whether an older sibling is at school. When the choice is seen as *instrumental*, there is no reason why the action taken for an older sibling should impinge on the younger one. If one brother turns out to be a great soccer player, this does not make the other brother equally good at it. Suppose, by contrast, that the reasoning were one which valued education as a consumption good. In this case, what we allow an older sibling to consume we can hardly deny younger ones. Families are bound by a *norm of distributive fairness* in what they give to their children. This might explain why it works for girls only. Since for them school may be per-

ceived more as cultural consumption than a means to improve career opportunities, and having sent a girl's older brother or sister to school before, one cannot deny her the same treatment. This suggests a concatenation of mechanisms: *Whether the norm of fairness is applied depends on the value we attach to the good to be allocated. Only if this is perceived as a consumption good will the norm be binding.*⁴

Relative deprivation revisited

In *The American Soldier* (1965), Stouffer and his colleagues discovered one of the most challenging puzzles in sociology. Studying soldiers attitudes in World War II, they found that in the Military Police (MP), where opportunities of becoming an officer were much lower than in the Air Corps, subjects were *more* satisfied with the fairness of the promotion system, irrespective of rank and education. In particular, the less educated officers in the Military Police were found to be extraordinarily highly satisfied. (The reader can find the data in the appendix to this chapter.)

This finding has become a classic. There is a very good reason for this: Were it generalizable, it would mean that better and richer societies with higher opportunities produce a higher proportion of frustrated individuals, and this in turn would affect collective action in those societies. Imaginative social scientists have offered different speculative explanations as to why more opportunities can cause a higher level of discontent with the promotion system. I collected five mechanisms. They can be organized in two ways: according to whether frustration is brought about by a change in expectations or a change in preferences, and by distinguishing whether the change is the result of a rational or a nonrational process. This reorganization yields four possible combinations in which we can fit the five explanations (see Table 5.1).

According to the original researchers, the mechanism which explains that correlation is *relative deprivation*.⁵ Officers in the MP shared their

⁴ I do not have good evidence to say whether a different view of education between boys and girls is itself a rational adaptive response to differential opportunities in the labor market or the result of gender-biased values as to what constitutes a desirable life. Either way, insofar as school is singled out as a consumption good, the norm of fairness is triggered, while it remains dormant if school is perceived as a mere investment.

⁵ Here I do not touch on the many questions that this concept has generated. One of the most important ones is: How do people select the group with which to compare themselves? Another question concerns whether feelings of relative deprivation are extended to

Table 5.1. *Mechanisms suggested as explanation of why members of the Military Police were found to be more satisfied with the promotion system than members of the Air Corps.*

	Hopes—expectations	Wants—preferences
Nonrational	Excessive hopes (Merton)	Relative (Stouffer) Emulation effect (Tyler)
Rational	Higher incentive to invest (Boudon)	Release from adaptive preferences (Elster)

privilege with relatively fewer fellow officers; similarly, the men were also more content because they shared the absence of promotion with correspondingly more soldiers like them. The concept of relative deprivation was introduced by Stouffer earlier in the book to explain a number of other intriguing correlations found in *The American Soldier*. It was invoked to explain differences in willingness to serve in the army by age, marital status, and educational attainment. "The idea is simple, almost obvious, but its utility comes in reconciling data . . . where its applicability is not at first too apparent. . . . Becoming a soldier meant to many men a very real deprivation. But the felt sacrifice was greater for some than for others, *depending on their standards of comparison*" (p. 125, vol. I).

The reason why married men are less willing to serve in the army is partly that they suffer more absolute deprivation, in that they give up more; but the critical additional factor, argues Stouffer, is that there are many unfavorable examples around with which to compare themselves. The first is the unmarried men who were also drafted. The second is that the draft board is considerably more liberal with married men than with single, so those married men who *do* get drafted can see numerous examples of married men who avoid it. A similar argument applies to age. Older men are likely to be further on in their career and are therefore objectively giving up more. They are also likely to be less physically fit, and therefore the army made a greater demand on them. But the objective factors of

the group of people in a similar position ("fraternal deprivation" in Runciman's definition) or whether they remain confined to personal loss ("egoistical deprivation"), which has a bearing on the potential consequences on collective action. A more general question concerns exactly which psychological conditions are required to set off relative deprivation. See Runciman (1966), Crosby (1976), Olson, Herman, and Zanna (1986), and Masters and Smith (1987).

jobs and health, if they had not persuaded the draft board, turned into subjective grievances when in the army, because of the existence of younger fitter comparisons within the army and of other people similar to themselves whom the draft board had treated more leniently.⁶

The second mechanism (upper left cell in the table) was provided by Merton while elaborating on the explanation of the original researchers. He wrote that a "generally high rate of mobility induced *excessive hopes* among members of the group so that each is more likely to experience a sense of frustration in his present position and disaffection with the chances of promotion" (Merton 1957: 237). Here the mechanism is one of *excessive hopes* that lead more subjects to frustration. This explanation seems different from that of relative deprivation more than Merton himself acknowledged: Frustration does not occur directly because one feels deprived as a result of more people getting a desirable promotion. It emerges indirectly, via excessive hopes, generated by more people being promoted.

Merton did not elaborate on how exactly "excessive" rather than "realistic" hopes result from higher opportunities. A false inference – "if a lot made it, I will too" – could be the source of the process. There is evidence, discussed by Elster (1983), of a cognitive mechanism that leads individuals to bring to the extreme what is objectively possible: If little is objectively possible, people tend to believe that nothing is; at the other extreme, if a lot is possible, people tend to believe that everything is. It is important to point out that Merton's explanation could hold even if we assume a *constant* distribution of preferences for promotion in the relevant population. It suffices that more of those who already entertain that preference will also entertain higher and unrealistic expectations about the

⁶ Stouffer even tries to make this argument apply to education. By extension of the previous arguments, one would have thought that the objective sacrifice would have been greater for educated people, and that, once in the army, they would be able to see less educated soldiers who had given up less, and people attending college outside the army, and thus feel more aggrieved. In fact, the more highly educated were *more* willing to serve in the army. Instead of a host of simpler explanations (the more highly educated identifying more with the objectives of the war, and so on), Stouffer produces a somewhat tortuous argument. The better educated were probably healthier than the less well educated and therefore would not have such a sense of deprivation when they compared themselves with them. Furthermore Stouffer denies that the objective sacrifice over being forced to leave civilian jobs was greater, since the jobs most commonly granted deferment for were skilled manual jobs and agricultural jobs. Therefore it was the less educated who were most likely to have grievous sources of comparison of friends in civilian life. His final argument is that the better educated would also be less objectively deprived because they were less likely to have parents who were economically dependent upon them.

possibility of fulfilling their ambition. The difference between a change in expectations and a change in preferences is conceptually relevant to distinguish Merton's from the other explanations.

Boudon (1977) provides a different view on how higher opportunities could produce higher frustration (bottom left cell in the table). As in Merton's case, the stress is on a change in expectations; unlike Merton's, the process is held to be rational. Ex ante, subjects would be perfectly rational to have higher expectations when facing higher objective opportunities. More of them are therefore justified to invest in trying to obtain promotion, even if ex post more of them are exposed to frustration and disappointment. Merton and Boudon provide alternative interpretations of basically the same mechanism.

The third explanation (bottom right cell in the table) has been suggested by Elster (1983) as an explicit alternative to those of Merton and Boudon. He argues that "when promotion becomes sufficiently frequent, and is decided on sufficiently universalistic criteria, there occurs a *release from adaptive preferences*" (p. 124). These preferences would be there already but kept dormant by subjects through a process of *sour grapes* in response to the lack of opportunities. Higher opportunities bring about a process of disillusionment relative to one's true preferences, and one finally finds the courage to admit that one actually desires promotion. Irrespective of hopes, frustration could result from the fact that more people would consciously reach a "new level of wants" about promotion. Thus it is the silent preferences for promotion to be "excessive," the product of a non-rational process by which constraints shape subjects' tastes "behind their backs."

Finally, the fourth explanation (upper right cell in the table) was put forward by Mark Tyler, a student at Cambridge, England, in the class where the late Cathie Marsh and I taught about this case back in 1985. He suggested a mechanism we called the "emulation effect": The larger the number of people obtaining promotion, the higher the feeling that achievement is essential. Thus, in the MP where promotion is more rare, one attaches a *special* significance to it and does not feel that it is something everyone must achieve. In the Air Corps, on the contrary, the higher promotion rate leads to attach a lower significance to being an officer. But, precisely for that reason, those not promoted suffer more by being passed over.

This is an interesting elaboration of the relative deprivation hypothesis:

Frustration does not occur directly through a feeling of injustice but because if many are promoted, then its lack is more sorely missed. It also differs from Merton's explanation in that the stress is on the change in relative desirability rather than on excessive expectations to fulfil one's desires. There would be more people desiring promotion rather than more of those already desiring it, expecting to be promoted. As in Elster's explanation, the stress here is on a change of preferences. In Elster's case, there seems to be a latent autonomous desire brought to the surface, but in the emulation effect, the desire is socially manipulated. In Elster's case, subjects' wants become more transparent, thanks to the fact that higher opportunities dissolve the effects of self-deception. By contrast, the emulation effect works behind subjects' backs.

The mechanisms considered so far can make sense of why those who *do not* obtain promotion tend to be more frustrated if chances of promotion are higher. The striking finding of *The American Soldier*, however, is that those who *do* obtain promotion in the Air Corps tend to be more unsatisfied with the promotion system than those in the MP, where there were lower objective possibilities of being promoted. Three of the five mechanisms previously described – “excessive hopes,” “rational investment,” and “release from adaptive preferences” – can explain only frustration among the nonpromoted group. Only “emulation” and “relative deprivation” can make sense of both sides of the finding and can account for why the difference in frustration with the promotion system is found among the promoted groups also. If a lot of people obtain something desirable, it becomes both *more* disappointing not to have it and *less* valuable once one has it. This double effect can be accounted for by both hypotheses: A privilege shared with many others can be debased either because of some relative comparison between one's ability and the ability of others or because of the *snob* version of the emulation effect – namely, “If a lot have it, then I do not want it.”

On balance, when considered together, the findings suggest that something more than a rational mechanism is at work here and that the mechanisms which could explain only the views of the nonpromoted, interesting as they may be in their own right, are not *prima facie* as parsimonious as the relative deprivation or emulation mechanisms. Parsimony, however, is a logical rather than a substantive criterion, and more research is needed to adjudicate among these hypotheses. There is a rational reason to test

parsimonious hypotheses first, but there is no reason to expect only one mechanism to be at work.

So far we have considered only the effect of army section on the level of frustration with the promotion system. The findings also included two other effects: Satisfaction with the promotion system was found to be positively associated with *rank* (holding army branch and education constant) and negatively associated with *education* (holding rank and branch constant).

Officers, by simply having been made such, could feel happier about the promotion system, given that it acknowledged their personal ability. Correspondingly, privates feel more cynical about officers and the method of *their* appointment, for the simple fact of not being among them, *independently* of the proportion of officers and soldiers. The crucial mechanism reflects a reduction of cognitive dissonance working in both directions: “Whatever reward is bestowed on me must be well deserved” and, conversely, “Whatever reward I fail to obtain is the result of an unfair promotion system.”

As for the second finding, subjects with lower education could feel less ambitious and more content, irrespective of their rank. If promoted they have a reason to be very pleased with the system; if not, they have less reason to feel deprived. Correspondingly, more educated subjects have more reason to be dissatisfied when not promoted and, if they are, because they have to share their privilege with officers of lower education. Here the governing mechanism is one of adjusting one's expectations to what is possible given one's point of departure coupled with feelings of relative deprivation.

In conclusion, even if we do not know for sure which specific concatenation of mechanisms is at work here, it is unlikely that *one* mechanism could make sense of *all* the findings and succeed in explaining the sources of dissatisfaction with the promotion system.

Conclusions

Why should we work out the individual-level mechanisms that account for social outcomes? Cannot we rest content with establishing correlations avoiding the cogs and wheels of the causality that brings them about? Several other essays in this collection make a very strong case for this

approach, so I shall just mention one reason: Unless we gain some knowledge of mechanisms, we remain at the mercy of social statistics. We can collect an infinite amount of information and do not know what to do with it. We know more and understand less. Mechanisms, as many as they may be, are a minute fraction of all possible social events. Many possible events can be explained by few mechanisms. As Hernes's witty paper forcefully shows (Chapter 4 of this volume), the explanation of even the most ordinary phenomenon is ultimately erected, whether explicitly or implicitly, on individual mechanisms.

Even if in principle we feel happy about this route, how can we be sure that mechanisms differ from armchair theorizing? First, I would like to say a word in favor of the latter. Theoretical imagination may be cheap. Stinchcombe notes that "a student who has difficulty thinking of at least three sensible explanations for any correlation that he is really interested in should choose another profession" (quoted by Hedström and Swedberg in Chapter 1 of this volume). Still, were it really so cheap, why is it that so many sociologists are busy doing social statistics and feeble at the former task? Why, in other words, did they not choose another profession? Introspective imagination and analytical energy are not enough to discriminate scientifically among competing mechanisms but are crucial for the supply of candidates. Give me a good speculative mechanism any day rather than a batch of useless survey data.

In doing sociological analysis, we hypothesize the existence of mechanisms, but we cannot observe them directly. Unlike what happened for genes and atoms, which were first hypothesized and much later actually observed, we are unlikely ever to be in that position. This in itself should not rule out testing as much as it does not rule it out for gravity, which we also cannot observe. Testing via the predicted effects is as good as you can get in many sciences, not just the social sciences. Thus if our empirical research were led by mechanism-based reasoning, we would, rather more quickly than we now expect perhaps, be collectively able to focus on those mechanisms that have the wider and more resilient explanatory power. The only way forward we have is to apply our sociological mechanism kit to more social puzzles, large and small alike, searching for evidence that can tell us how far the mechanisms we postulate can travel. Is it the case, for instance, that with age people become simultaneously *more* fearful of losses and *less* prudent when there is little to lose? Does relative deprivation affect agents by modifying their pref-

erences or their expectations? How do rational choice and type selection interact in different institutions?

By venturing out of the relatively safe shores of rational-choice analysis, we may end up in a dead-end alley, speculating about mechanisms that verge on "ad-hockery." Our models may grow heavier. On the other hand, it is a risk worth taking. Rational-choice analysis, powerful as it is, often ends up modeling obvious aspects of phenomena or enslaving the choice of the phenomena to be explained to the limits of the theory. Its neatness comes at the cost of being of less interest to humans other than rational-choice theorists. A small family of mechanisms has strong qualifications already to engage our attention closely as much as rational-choice analysis has done over the past 20 years. Cognitive dissonance reduction in its several variants, type selection, and belief traps, all are mechanisms that seem to travel well beyond our armchairs. They are worth exploring further, possibly in conjunction with one another. The examples in this chapter show that social puzzles of interest have the annoying tendency of presenting themselves in complicated forms, many times removed from the ideal conditions of a controlled experiment. By isolating the concatenations of mechanisms that govern them, we may much improve our explanatory and predictive apparatus to tackle other social puzzles, even if social "laws" remain out of our reach.

Appendix

*The findings of The American Soldier*⁷

In Volume I, in the section on social mobility within the army, Stouffer et al. (1965) present a table comparing two different branches of the army at two extremes of the proportion of officers in that branch: the Military Police, which had very few officers, and the Air Corps, which had very many. There are three independent variables – rank, education, and section – all having an effect on a dependent variable – perceived fairness of the promotion system in the army. The three independent variables are themselves interrelated: There are very different proportions in different ranks and different educational groups in the different sections, for example (see

⁷ The data analysis presented here was carried out in collaboration with the late Cathie Marsh.

Table 5.2. *Questionnaire: Do you think a soldier with ability has a good chance for promotion in the army? Percentage saying "A very good chance"*

	Military Police		Air Corps	
	Not high school grad.	High school grad	Not high school grad	High school grad
Non-coms	58 (N = 165)	27 (N = 241)	30 (N = 70)	19 (N = 152)
Privates and PFCs	33 (N = 707)	21 (N = 470)	20 (N = 79)	7 (N = 123)

Source: MP data from special survey of a representative cross section of MPs, S-107, March 1944. (Base: White men enlisted in the army 1-2 years, continental United States.) Air Corps data are a segment from a representative cross section of all white enlisted men in the United States, S-95, January 1944. (Reported in Stouffer 1965, Vol. 1: 252.)

Table 5.2). To examine the relationships, we must look at percentage differences in the various directions. Consider first the effects of rank. In each case, the officers view the system as fairer than do the privates, yielding the following differences:

Military police: less educated	25
Military police: more educated	6
Air corps: less educated	10
Air corps: more educated	12

In other words, in the Air Corps, the differences between officers and men are the same regardless of whether they are educated or not, but among the MP, the differences between officers and men are much more pronounced among the less educated.

Now turn to the effects of education. Unlike the previous example, here the more educated are more critical of the army, viewing the system of promotion as less fair. But, once again, there are important interactions:

Military police: non-coms	31
Military police: privates	12
Air corps: non-coms	11
Air corps: privates	13

Table 5.3. *Percentage of officers in different categories*

	Not high school grad	High school grad	Total
Military Police	19 (N = 872)	34 (N = 711)	26 (N = 1583)
Air Corps	47 (N = 149)	55 (N = 275)	52 (N = 424)

The effect of education is similar throughout except among the MP non-coms, where education has a dramatic effect; the non-coms who are not high-school graduates are very much more supportive of the system of promotion.

Finally, consider the effect of section. Here comes the famous finding: In all groups, those in the Air Corps are more critical of the promotion opportunities than comparable groups in the Military Police, despite the fact that the proportion of officers is much greater in the Air Corps:

Less educated non-coms	28
Less educated privates	13
More educated non-coms	8
More educated privates	14

The effects are more or less of the same amount except for the less educated non-coms, where the effect is huge.

We can summarize the whole table parsimoniously by saying that being an officer, being less educated and being in the Military Police all increase perceptions of fairness in the promotion system. It is important now to be aware of the structure of these two different sections of the U.S. army with respect to the three independent variables (Table 5.3).

There are many fewer officers in the Military Police, but the effect of being a high-school graduate is quite marked: There are approaching double the number of officers among those who have graduated from high school. There are many more officers in the Air Corps; there are even more officers without high school in the Air Corps than there are with high school in the MP. But the difference in proportions between those with high-school education and those without is not so marked. Finally, we should note that the educational composition of the two different sec-

tions is very different: two-thirds of the Air Corps are high-school graduates, whereas only 45% of the MP are.

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6. Do economists use social mechanisms to explain?

TYLER COWEN

Introduction

In interpreting the question "Do economists use social mechanisms to explain?" I focus on the phrase "social mechanisms" rather than on the word "explain." I take the explanatory status of economic science as given and ask whether that enterprise uses social mechanisms. I interpret social mechanisms (defined in greater detail later) as rational-choice accounts of how a specified combination of preferences and constraints can give rise to more complex social outcomes. As we shall see, social mechanisms cover a broader class of cases than do invisible hand mechanisms, a more familiar concept to many economists.¹

The concept of social mechanism holds importance for both rational-choice sociologists and economists. In sociology the study of social mechanisms serves as a methodological competitor to both more atheoretical approaches and to grand theory building. Analyzing social mechanisms puts sociology firmly in the rational-choice camp and brings it closer to economics and public choice approaches to political science. In economics, a strongly unified discipline in methodological terms, explanation in terms of mechanisms is more widely accepted than in sociology. Nonetheless studying the method of social mechanisms has broader implications for how we think about markets, the epistemological status of economic science, comparing mathematical and nonmathematical approaches to eco-

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¹ On whether economics is an explanatory science, see, for instance, Hausman (1984), Nelson (1986a, 1986b), and Gibbard and Varian (1978). Green and Shapiro (1994) offer a skeptical view, at least as applied to public-choice theory. On the complementarity of economic and sociological approaches, see Coleman (1994) and Swedberg (1994).