Part III
DEBATES

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ARE THERE SOCIAL SCIENTIFIC LAWS?

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1 Introduction

For someone whose thoughts haven't been tainted by postwar analytical philosophy, the most plausible answer to this chapter's question must be "Yes, of course!" There are *tons* of laws in economics and elsewhere:

- *the law of supply and demand* ("As the price for a good rises [falls], its quantity supplied goes up [down] and its quantity demanded goes down [up]; as the demand [supply] for a good goes up, its price increases [decreases]"; cf. Kincaid 2004);
- *Okun's law* ("The change in the unemployment rate is inversely related to the growth rate of output"; cf. Knotek 2007);
- *Say's law* ("Supply creates its own demand"; cf. Chang 2014, xxx [142 in epub]);
- *the iron law of wages* ("In the long run, real wages tend towards subsistence level"; cf. Baumol 1983);
- *the iron law of oligarchy* ("Any democratic organization will tend, in the long run, towards rule by an elite"; cf. Hyland 1995, 247);
- *Malthus's law of population* ("Population growth is exponential"; cf. Ariew 2007);
- *the law of superposition* ("In undeformed stratigraphic sequences, the upper units of stratification are younger and the lower older"; cf. Harris 1979);
- *Zipf's law* ("Given some corpus of natural language utterances, the frequency of any word is inversely proportional to its rank in the frequency table"; cf. Fagan and Gençay 2010);
- *Duverger's law* ("Plurality rule elections structured within single-member districts tend to favor a two-party system"; cf. Schlesinger and Schlesinger 2006);

and many more. So there are laws, QED. The chapter could end right here. But we are postwar analytical philosophers and must therefore endeavor to find a fly in the ointment. The fly is the claim that these aren't *real* laws. They may carry the name of laws—perhaps because they are particularly entrenched principles or their authors want to reify the principles they've discovered

by calling them laws—but they are not genuine because they are ridden with exceptions, merely 'phenomenological', subject to vague '*ceteris paribus*' clauses and so on. So a better title for this chapter would be: "Are There *Real* Social Scientific Laws?"

What *real* social scientific laws are is, of course, highly controversial. One of the reasons for controversy is that lawhood is unobservable. At best, an instance of the law is observable, but never the law itself. Suppose Galileo's 'law' of falling bodies, according to which bodies fall on the surface of the earth at a constant acceleration, is indeed a law. What we can observe in this case is the behavior of bodies—their positions over time and thus their accelerations—but not whether the behavior of the bodies is governed by a law. For all we know, bodies may behave the way they do purely accidentally. An exacerbating circumstance is that the quantities related by the law are often themselves not observable. According to the democratic peace hypothesis, democracies don't go to war with one another, and let us suppose that it expresses a true law. But who is to say with certainty whether a given set of observations qualifies as a democracy? Or as war? Perhaps the law is true but only for *real* democracies. And the nature of democracy is just as controversial as the nature of law.

Whether there are real social scientific laws depends on what concept of scientific law one uses, and it is not easy to find a concept that commands universal or near universal assent among social scientists, is free of obvious counterexamples, and plays the right functional roles such as the use of laws in prediction, explanation, and underwriting policies.

All the laws mentioned above express regularities of one kind or another, however. So let's begin with this idea, then see how it can be refined so as to have a chance to qualify as law, and finally address this chapter's question.

2 Regularity Plus *X*

In the positivist tradition, a law is a statement of the form "Whenever *F*, then G," or, formulated in first-order logic, "For all *x*, $Fx \rightarrow Gx$." Clearly, this cannot be all there is to a law, as many regularities seem accidental rather than lawlike. For instance, it is a true generalization that no country has more than 1.5 billion inhabitants (*F* = "is a country," *G* = "has a population smaller than 1.5 billion people"). Given actual history and predicted population growth rates, we can suppose that this is not only true today but also in past and future. And yet, we would not expect several million people to instantly die if China annexed Indonesia tomorrow. On the other hand, if, with David Hume, we suppose that the money supply in Great Britain were doubled overnight by slipping everybody a certain amount of money into their pocket, we would expect prices to rise eventually (cf. Schabas 2008). The quantity theory of money seems true in a manner different from the generalization about population size. Thus, if laws are regularities, they must be something else on top. A variety of proposals have been made about what the additional characteristic is. Before considering them, let me introduce two problems any good account of laws has to solve: the identification problem and the inference problem (cf. van Fraassen 1985). The identification problem asks us to identify a marker of lawhood that allows us to distinguish genuine laws from accidents. It addresses the question: What is it that makes one think that the "No country has more than 1.5bn people" generalization is only accidentally true whereas the quantity theory of money captures something more fundamental? The inference problem asks us to be able to identify genuine laws empirically. It addresses the question: How can we make sure that our empirical tools (tend to) establish genuine laws as laws and accidents as accidents?

2.1 Systems

In the Humean tradition, there is nothing in the world other than the occurrent facts; according to David Lewis, "all there is in the world is a vast mosaic of local matters of particular fact, just one little thing and then another" (Lewis 1986, ix). A law that states, "Whenever *F*, then G" says nothing more than that: *F* happens, then G happens; there is no glue that ties *F* and G together and G doesn't arise from or because of *F*. Laws are essentially summaries of these occurrent facts. According to the 'Mill–Ramsey–Lewis' view of laws,[1] facts are to be summarized in deductive systems which are individuated by their axioms. Now, one can summarize facts in more than one way. The curve-fitting problem can be used to illustrate the issue in a social science context. Quantitatively oriented scientists often use statistical methods to summarize their data ('particular facts'). When deciding which functional form to use, they often face a trade-off between simplicity and accuracy. If, as they often do, they use linear regression, at most two data points can lie exactly on the regression line. The resulting principle, given by the regression equation, is very simple, but hardly accurate for most large data sets. Going to the other extreme, it is always possible to find some function such that all data points lie exactly on that function. This will be perfectly accurate, at least for past data, but rarely very simple. A judgment must be made about how to best trade off the two desiderata.

David Lewis maintains that just those statements expressing regularities are laws, which are axioms (or theorems) in a deductive system that optimally trades off simplicity and strength (which is closely related to accuracy). This view has a variety of desirable qualities, especially for philosophers who are wary of non-Humean entities such as causal powers or universals. This approach provides a neat in-principle solution to the identification problem ("Those generations are laws that are axioms in our best systematization of the facts"). However, for social scientists it would mean that laws are not now and probably will never be known. No social science is neatly arranged as a formal system with axioms from which all truths in the given domain can be deduced. Even economics, sometimes said to be a formalistic enterprise, is not, in the relevant sense, axiomatized (see for instance Stigum 1990, 2003). Given the complexity of the field, and the fast pace with which research questions and interests change, chances are low that this situation will soon change fundamentally. So under a 'best systems' account of laws, there may well be social scientific laws, but we would never (or not too soon) know them. This is an untenable state of affairs for a naturalistically inclined philosopher of the social sciences who prefers a conception of law that allows at least some of the statements social scientists call and regard as laws to be laws. The inference problem is, therefore, not solved.

2.2 Universals

A rival view maintains that laws are relations between properties. Properties such as 'being a real wage' or 'being a subsistence level' are understood as universals; that is, as real qualities that particulars (such as individual economies) have in common. If it is a law that "All *F*s are G," then this means that the universals *F*-ness and G-ness stand in the relation of nomic (as opposed to logical) necessitation. An *F*, thus, must be a G, not because G is contained in the concept of *F* (as 'is unmarried' is contained in the concept 'bachelor') but rather because of the existence of a physical necessitation relation between the two properties (Armstrong 1983).

On the face of it, interpreting laws as relations between universals seems to solve the identification problem: presumably, 'money supply-ness' and 'price-ness' stand in the right kind of relation whereas 'country-ness' and 'smaller than 1.5 billion people-ness' do not. However, the relation

of physical necessitation is not observable, and in the literature on the universals approach to laws (apart from those of David Armstrong, Fred Dretske's and Michael Tooley's contributions are also important; see Dretske 1977; Tooley 1977) the metaphysics appears entirely disconnected from methodology.[2] Thus, again, under the universals account of laws, there may well be social scientific laws, but we'd never know what they are. Specifically, we could not tell whether any of the above-mentioned claims which social scientists regard as laws are genuine laws or not. Realism about laws thus does not solve the inference problem either.

2.3 Induction

Nelson Goodman argued that the problem of distinguishing accidental from law-like generalizations is closely related to induction and the confirmation of hypotheses: law-like, but not accidental generalizations are confirmed by their instances (Goodman 1954, 73). The examples he uses to illustrate are the confirmation of conductivity of copper by an instance, on the one hand, and the lack of confirmation of the generalization that all men in this room are third sons by the observation of this man's being a third son on the other.

A little reflection shows, however, that things aren't quite this clear-cut. Frank Jackson and Robert Pargetter, for instance, have argued that taking a sample of 50 (out of 100) men in this room and finding them all to be third sons does indeed confirm the hypothesis that all men in this room are third sons, whether or not it is only accidentally so. Indeed, as Elliott Sober has pointed out, whether or not an instance confirms its generalization depends on background assumptions, and under the right kinds of background assumptions an instance confirms its generalization even though the background assumptions entail that it is accidental (Sober 1988).

If that is true, we cannot take the fact that a generalization is confirmed by its instances as evidence that the generalization is law-like. Therefore, we cannot use Goodman's proposal to distinguish among the generalizations social scientists call laws between genuine and mere pseudo-laws. If successful, this approach would solve the inference problem ("Genuine laws are those that are confirmed by their instances, and there are good empirical confirmation methods") but it is not successful in addressing the identification problem.

2.4 Causality

A final view that I want to discuss here maintains that genuine laws describe causal relations. If it is true that G always follows *F*, then this regularity obtains on account of a causal structure that may have *F* as cause and G as effect or relate the two in more complex ways. Market prices and quantities supplied and demanded, for instance, stand in a relation of mutual causation, and which variable is the cause and which the effect can only be determined for a given particular case.

Causality is able to distinguish genuine from accidental regularities. Many of the statements at the beginning of the chapter permit a causal interpretation, as we've just seen for the law of supply and demand. By contrast, the reason for supposing that the statement "There is no country that has more than 1.5 billion inhabitants" is accidental is exactly that we cannot imagine any causal mechanism that makes 1.5 billion a threshold beyond which no country can grow. Causal claims also permit of being tested. There are tons of methods of causal inference, many of which are widely used across the social sciences and well understood by philosophers of science (see for

instance Reiss 2015). *Prima facie*, the causal approach seems to address both the identification and inference problems.

However, causal claims do not entail corresponding claims about regularities (Anscombe 1971). The claim "*F* causes G" is consistent with *F*'s never being followed by G,[3] *F*'s sometimes being followed by G, *F*'s raising the probability of G, and *F*'s always being followed by G. We solve the identification problem at the cost of severing the relation between that which distinguishes between the genuine and the accidental on the one hand, and regularity, on the other. As we will see, this move will introduce a number of new problems.

3 Qualified Regularities

The discussion so far has tacitly assumed that the problem of finding real laws in the social sciences is the problem of distinguishing law-like from accidental, albeit true, generalizations. This way of putting the issue overlooks that there are few if any strictly universal and scientifically significant generalizations (of the form, "Whenever *F*, then G") in the social sciences. That most or all laws in the social sciences, if understood as strict generalizations, have exceptions has been well known since the 19th century. Indeed, both great social science methodologists of the 19th century, John Stuart Mill and Carl Menger, developed their conceptions of a social scientific law in response to the observation that empirical generalizations are never strict (Mill 1874 [1843]; Menger 1963 [1887]). For both, the reason for the nonexistence of strict regularities was that empirical outcomes are produced by many factors, all of which fall under a law. But these laws issue in regularities only in highly idealized situations, namely when a single law (or a small number of laws) operates all on its own without being subject to disturbances. The result is a view of laws as 'qualified regularities', regularities that obtain only under certain conditions. The main differences between alternative proposals concern the interpretation of the qualifier. Let us now consider two of the main accounts along these lines.

3.1 Ceteris Paribus *Laws*

The use of the *ceteris paribus* clause to qualify a general principle in economics goes back to at least the 13th century (Kaufer 1997). Petrus Olivi, a Franciscan friar from Provence, wrote in his tractate *De emptionibus, et venditionibus, de usuris, de restitutionibus* (quoted from Kaye 2014, 65):

> The right to receive a thing that is actually present, and the actual possession itself, is worth more … *ceteris paribus* … than either the right to receive something in the future or the right alone without actual possession.

'*Ceteris paribus*' is often translated as 'other things being equal'. The idea is that the regularity obtains whenever factors not mentioned in the generalization are held fixed or, more generally, do not vary. Let us, from now on, regard all laws as *causal* laws. A *ceteris paribus* law in this sense omits factors that have a causal influence on the effect variable; 'other things being equal' means that holding fixed these omitted causal factors results in a regularity.

The law of supply and demand, for instance, is true at best only under such a proviso. Holding fixed demand and other factors such as efficiency, an increase in scarcity will cause the prices to rise. By and large, the problem is not that extraneous factors vary but that they are there to

begin with. When prices are controlled, supply can vary all it wants (holding fixed demand), but prices will remain the same. The better reading of *ceteris paribus* may therefore be 'other factors being *absent*'.

But a moment's reflection shows that that won't do, either. Social scientific generalizations hold, if at all, against an array of background conditions without which social factors, to the extent that it makes sense to talk of social factors in the absence of the background conditions, do not produce any effects, not to mention regularly. For increased scarcity to drive up prices, there has to be a market, certain kinds of norms have to be in place, and people must have certain kinds of tastes. To briefly explain, it is obvious that for scarcity to have any effects on prices, there has to be a regular exchange of the type of good in question. What is perhaps less obvious is that for any exchange to take place, exchanges must be regulated by social (and legal) norms, and people must trust each other. No one would attempt to exchange goods in the market if he feared that every time he entered an exchange, the partner tried to defraud him (Arrow 1973). The quality of most goods is not perfectly observable, so if there weren't any mechanisms that helped to attenuate problems of informational asymmetries, markets would collapse (Akerlof 1970). Finally, if people had perfectly elastic demand schedules (i.e. if the price increases above their reservation price, they'd stop buying the good altogether), increased scarcity would not have an effect on the price, either.

For prices to change in regular ways, we not only require institutionalized and regulated (by legal and social norms) exchange, we also require the existence of money. The existence of money, in turn, requires a host of other institutions—at minimum agreement on the use of one good as numeraire and general acceptance of that good in exchanges.[4] Thus, instead of requiring other factors to be absent, we need the constellation of other factors to be *just right* in order for the regularity to emerge.

I do not think that any of the three readings of the *ceteris paribus* condition—other things being *equal*; other things being *absent*; other things being *just right*—is the only correct or most defensible one. Instead, it is better to think of social scientific laws as being qualified by all three kinds of proviso. Some factors not mentioned in the generalization have to be held fixed; others absent; and yet others just right for the regularity to obtain. In fact, we've already seen that the law of supply and demand is subject to all three types of conditions: with increased scarcity, prices will rise whenever (among other things): *a) demand remains stable; *b) price controls are absent; and *c) there exist certain institutions as well as social and legal norms, and people have certain kinds of tastes. From now on, I will refer to any violation of one of the three kinds of conditions as *interference*. Thus, demand not being stable, price controls, and relevant changes in (or simply absence of) background social norms and tastes are all kinds of interferences.

It is sometimes argued that including such provisos in the description of the regularity risks rendering a law empty (Hempel 1988). Essentially, including a proviso leads to the following dilemma. Either the conditions under which the generalization holds can be included in the description, or they can't (because they are unknown, say). If they can be included, the law isn't a *ceteris paribus* law after all; we may in some situations prefer a simplifying description, but at bottom, the law is just a statement of a regularity, albeit with a complex antecedent. If they can't be included, the law will essentially assert "Y regularly follows X, unless there is a reason for it not to" (see Roberts 2004, 159 for this formulation). The conditions under which a social scientific generalization holds can rarely be made explicit completely, so the first horn of the dilemma is unavailable. Accepting the second horn would mean that there are many social scientific laws indeed, but they would hardly be useful to know.

The situation isn't quite as dire as it sounds, however. The clause "unless there is a reason for *Y* not to follow *X*" can be read as "unless there is a *good* reason." As long as social scientists have some standards that distinguish between permissible and impermissible reasons; that is, as long as there are possible situations social scientists will regard as being incompatible with the law rather than a legitimate interference, the law has some empirical content.[5] How useful such a highly qualified generalization is for predictions and explanations depends on the frequency and character of the interferences that prevent the generalization from holding.

The main problem with *ceteris paribus* laws lies somewhere else. So far, we have understood the *ceteris paribus* clause as providing, essentially, a list of conditions under which the generalization holds. What we have omitted so far is to ask what happens when the conditions are *not* fulfilled. Does the generalization hold *approximately*? Or is the ensuing sequence of events entirely unpredictable? Does knowledge of generalizations concerning interfering factors help? As far as I can see there is nothing in the concept of a *ceteris paribus* law that addresses these questions. *Prima facie*, we have to allow the possibility that the law is simply silent about what happens when other things are not equal, disturbing factors are not absent, and structural conditions are not just right.

3.2 Causal Tendencies

John Stuart Mill thought it was a mistake to think of laws as being subject to exceptions. This is because *laws do not state regularities* (Mill 1874 [1843], book 6, ch. 10):

> Thus if it were stated to be a law of nature, that all heavy bodies fall to the ground, it would probably be said that the resistance of the atmosphere, which prevents a balloon from falling, constitutes the balloon an exception to that pretended law of nature.
>
> But the real law is, that all heavy bodies tend to fall.

What does it mean for a regularity to tend to obtain? Three things, in my view (Reiss 2013). First, the factor of interest *causally affects* the outcome. Tendency laws are causal laws. Second, regularities obtain only under highly idealized circumstances. Tendency laws express hypothetical or counterfactual regularities: "If such-and-such were the case, then *X* would regularly cause *Y*." The kinds of circumstances under which a regularity obtains have been discussed above. Third, and this is what makes a causal tendency different from a *ceteris paribus* law, the causal factor of interest *continues to make a systematic contribution to the outcome* when the circumstances are not ideal, in the presence of interferences.

This last point needs some elaboration. What Mill thinks is that the causal factor of interest makes a systematic difference to the outcome when interferences prevent it from realizing the outcome that is stated in the law. Helium-filled balloons don't fall but rise. What Mill means saying that all bodies tend to fall is that gravity makes a difference to its rate of fall; that is, its rate of fall is different from an otherwise identical situation in which gravity is not present.

How do causal factors combine? Mill, unfortunately, offers us only two highly simplified models: the physical (more precisely: the mechanical) and the chemical. In the mechanical model, causes combine additively. Since forces are vectors, when two forces combine, the result is the vector sum of its parts. In the chemical model, causal factors interact. If we regard the properties of individual elements as the causes of a chemical reaction, say, and the properties of the

reaction product as the effect, it is often hard to see how the former make a systematic contribution to the latter; instead, something entirely new seems to emerge.

For some reason, Mill thinks that the social world is mechanical rather than chemical (Mill 1874 [1843], book 6, ch. 7):

> Men are not, when brought together, converted into another kind of substance, with different properties: as hydrogen and oxygen are different from water, or as hydrogen, oxygen, carbon and azote are different from nerves, muscles, and tendons. Human beings in society have no properties but those which are derived from, and may be resolved into, the laws of nature of individual man. In social phenomena the Composition of Causes is the universal law.

Under this model, then, the contributions from different factors affecting an outcome simply add up. If, say, scarcity exerts an upward pressure on prices, and increased competition a downward pressure, the result of the combined action of the two factors is something in between. If we knew the various elasticities involved, we could make a very exact numerical prediction of the combined effect.

Mill's mechanical and chemical models of the combination of causal laws are the two end points on a continuous spectrum. It is certainly conceivable and probably quite frequent that causal factors combine interactively but without complete annihilation of the individual contributions, as Mill describes chemical combination. This is why I would speak of a causal tendency whenever the causal factor makes a *systematic contribution* to the outcome; that is, whenever it is in principle possible to make a prediction about what happens in the presence of interferences or when there is a (meta) law of combination, even if that law is not as simple as vector addition.

4 In Favor of Tendency Laws

As mentioned in the introduction to this chapter, lawhood is unobservable. Thus, even if we can establish empirically that it is true that "*X* tends to cause *Y*," we could not establish empirically that it is a law that "*X* tends to cause *Y*." I nevertheless want to argue that tendencies have a special claim to being regarded as laws. There are a number of considerations in favor of doing so.

First, many laws in the social sciences are explicitly statements about tendencies. This is true of three of the nine laws mentioned at the beginning of this chapter: the iron law of wages, the iron law of oligarchy, and Duverger's law.[6]

Second, social scientists often talk as though they maintained a tendency account. Consider the following passage from Gunnar Heinsohn, a German/Polish sociologist and economist (Heinsohn 2012; my translation):

> Accordingly, the claim that deflation does not occur is as untenable as the claim that inflation does not occur. The former is invisible only as long as one looks at the prices for a pound of butter. But the ordinary butter buyer does not go to the central bank counter where he can find money for zero interest. The commercial banks, however, which guzzle there, buy shares or bonds and cause strong inflation in these markets which is in turn praised as 'added value'. For the statistician the deflation remains invisible because it is covered by artificial inflation, while he misses the inflation

> because it is neutralized by the deflationary pull. Inflation is not only existent, but it is deliberately exploited for the retardation of deflation.

The relevant law here is 'increases in the money stock tend to raise prices'. Recall that there were three characteristics of a tendency law: (a) Factors cause outcomes. Heinsohn explicitly uses causal language. (b) A regularity obtains only in ideal circumstances. Heinsohn says that the inflation caused by the money glut remains invisible due to an interference, the 'deflationary pull' from other factors. Thus, if the deflationary pull had been absent, there would have been (visible) inflation. Just as a helium-filled balloon would fall if it were released in a vacuum. (c) The causal factor makes a systematic contribution to the outcome in the absence of interferences. Clearly, Heinsohn argues that there would be deflation if it wasn't for the artificial inflation brought about by the banks' guzzling at the central bank for zero interest rates.

To give a second example, consider a passage from a recent article in *The Economist* (2015):

> Europe's open economy is most exposed to a cooling in emerging-market demand, which is why more monetary easing there looks likely. But America's policy dilemma is more acute. The divergence in monetary policy between it and the rest of the world will put upward pressure on the dollar, hurting exports and earnings. And waves of capital may again seek out the American consumer as the borrower of choice. If so, the world's debt crisis may end up right back where it started.

Divergent monetary policies at home and abroad will put upward pressure on the US dollar. The outcome may be an increase of the dollar relative to other currencies, a decrease, or no change. What matters is that the exchange rate of the dollar will be higher than it would have been in the absence of the said divergences.

Third, important social scientific methods and analytic tools presuppose a tendency account. A clear example is multiple regression. If there were no stable tendency for X to cause Y, it would not make sense to regress *Y* on *X* and a set of possible confounders **Z**. No stable tendency would mean that the effect of *X* on *Y* could in principle be different for any combination of values of the *Z*'s. The coefficient on *X* would then represent an average effect over all the combinations of values of the *Z*'s. Such a quantity would hardly be meaningful and certainly not useful for policy. It would predict the correct value of the effect of an intervention on *X* to change *Y* only for a population that is characterized by the exact same combination of values for all *Z*'s.

Moreover, most regressions are linear. So not only does regression presuppose a tendency account of laws, it assumes a particularly simple law of combination—Mill's.

Fourth, tendency laws are useful for social scientists' endeavors to predict and explain outcomes. Only if there is a stable tendency for monetary policy to affect the exchange rate can *The Economist* predict that a divergent policy will lead to upward pressure on the dollar. While the prediction is not a categorical one—'the dollar *will* rise'—but rather a contrastive one—'the dollar will be higher than it would be in the absence of the policy divergence'—this is useful information, certainly in policy contexts (see also the Heinsohn quote above). The same can be said for explanation. Past divergences of policy have resulted in pressures on exchange rates, and the tendency law can explain the outcome relative to a hypothetical situation in which other factors are the same but the policy or policy change was absent. That explanation is always contrastive has been argued many times (van Fraassen 1980; Weber et al. 2013).

Fifth, laws are often said to be closely related to counterfactual statements. A law 'supports' a counterfactual or licenses a counterfactual inference. Thus, if it is a law that "Whenever *F*, then G," and some *x* is not *F*, then I can infer that if *x* had been *F*, it would have been G as well (for example). The tendency account of laws fares better than the *ceteris paribus* laws account with such counterfactual inferences. This is because *ceteris paribus* laws remain silent about what happens when the *ceteris paribus* conditions are not fulfilled. So we cannot generally infer what would have happened if things had been different. Because of their degree of independence from interferences, tendency laws are not subject to this limitation.

5 Are There Social Scientific Laws?

This chapter's question, under the proposed reading, boils down to: "Are there causal factors that have an effect on outcomes relatively independently from possible interferences?" Before attempting to answer, let me make a couple of remarks. First, this is obviously an empirical question that cannot be addressed without paying detailed attention to social scientific evidence. Second, lawhood comes in degrees. With strict price controls, no change in the money stock will affect prices. Similarly, when the required social and legal norms are all absent, we'll be hard-pressed to meaningfully talk about 'changes in the money stock', even if physical analogues such as coins and bills can be found. There are, thus, interferences that make the regularity go away completely. On the other hand, minor changes in the organization of exchange may have a quantitative effect on money's effectiveness in changing prices without completely undermining it. For other regularities, all possible interferences may be of the former, qualitative kind so that the regularity only obtains in the absence of all interferences.

A first thing to note is that social scientific generalizations tend to be very highly context-dependent. If, say, we were looking for micro laws of the form, "When individuals are placed in a situation of type *S*, they will do *A*," we see that a great number of interferences can affect individuals' behavior in *S* in ways that are quite unpredictable. Experimental economics is an enormous source of empirical results concerning these kinds of laws. Among the aims of experimental economics is the establishment of generalizations of this kind and the investigation of the conditions under which they hold. Situations can be market or strategic situations such as buying and selling good or making decisions in games such as ultimatum, dictator, and public games. 'S' then may refer to 'being a proposer in an ultimatum game'. Here are some of the factors that influence what people do when they find themselves in situations of type *S* (Reiss 2008, 92–96):

- the size and kind of the incentives;
- the availability and distribution of information;
- the experience of the participants;
- cultural and environmental factors;
- minute details of the experimental set up;

and others. The problem with these results is not that there are factors that interfere with an experimentally established regularity but rather that these factors affect results in highly unsystematic ways. While it is true, for instance, that people tend to think harder as the monetary incentives rise (Wilcox 1993), this doesn't always make them behave more rationally in the

economists' sense. One study has shown that preference reversals increase rather than decrease with higher monetary incentives (Grether and Plott 1979). Henrich et al.'s 2001 study is famous for demonstrating the effect of customs and social norms on people's behavior in ultimatum games. Once more, that such factors should influence results is hardly surprising, but how a new group of people will behave is difficult to predict from knowledge about other people's behavior and their social norms.

What these experimental results demonstrate, in my view, is that it is hard to interpret behavioral generalizations as tendency laws. It is not the case that some factor—say, greed—has an effect on behavior in certain kinds of situations that persists despite interferences. Instead, what people do seems to depend on the entire constellation of background factors within which the behavior obtains. If all generalizations were like this—highly local and context-dependent—I would answer the chapter's question with "No" or "Social scientists haven't found any laws yet."

This phenomenon is not confined to microeconomics. In the 1990s there was a view—the 'Washington Consensus'—among policy makers that the following list of factors provides a desirable policy framework for economic growth (Rodrik 2007, 17):

1. fiscal discipline
2. reorientation of public expenditures
3. tax reform
4. interest rate liberalization
5. unified and competitive exchange rates
6. trade liberalization
7. openness to foreign direct investment
8. privatization
9. deregulation
10. secure property rights.

It would be mistaken to assume, however, that this list states a set of tendency laws of the form: "Fiscal discipline contributes positively to economic growth, relatively independently of context" and so on. Empirical evidence suggests the contrary: there is, if anything, a negative correlation between adherence to the list and economic success: many countries that did exceptionally well (such as the Asian tigers) score low on the list and many of those who closely followed the Washington policies did quite poorly (such as some of the Latin American countries post 1980). Instead, what matters is that the *mix* of economic policies is right. This is not to say that the factors on the list are not causes, triggers, or sustaining factors of economic growth. What it does say is that they need a constellation of other factors in order to exercise this function.

There are some examples that point in the other direction. Okun's law has relatively recently been tested in a cross-country study. Among the results are: (a) there is a relatively stable negative qualitative relationship between changes in unemployment and growth; (b) this relationship varies considerably across countries. What is noteworthy is that the variation in (b) appears to be systematic (Moosa 1997, 353):

> [E]mployment is more responsive to economic growth in the United States and Canada than in Europe and Japan. … This finding can be explained in terms of some institutional differences that determine the rigidity or flexibility of the labor market. More

> specifically, employment is more responsive to economic growth in the United States and Canada because of the lack of job security provisions and restrictions on layoffs. These provisions inhibit employers from reducing their workforce during recessions and hiring more workers during expansions.

This is at least consistent with a tendency law interpretation of Okun's law: there is a stable tendency of growth and changes in unemployment to co-vary that persists when disturbing factors are present. Specifically, job market rigidities affect the numerical rate of this relationship (like air resistance affects the rate of fall of bodies) but don't undermine it altogether.[7] This interpretation is further confirmed by longitudinal comparisons (ibid., 354–55):

> In the cases of Germany, France, and Japan, the steady increase in the absolute value of the coefficient may be attributed to labor market reform. Likewise, the stability of the coefficient in the cases of the United States and Canada may be attributed to lack of similar changes because the labor markets in these countries have been flexible throughout the sample period.

A final example is from political demography. Youth bulges, defined as excessive ratio of people aged 15–24 to the total adult population, have long been known to cause political violence (Moller 1968). In a recent study Henrik Urdal has looked at the effect of youth bulges on internal conflict, terrorism, and riots in particular as well as the role of intervening factors that affect this relationship (Urdal 2006). He can, first, confirm previous studies in that he finds that countries experiencing youth bulges of 35 percent run a risk of armed conflict which is more than twice higher than countries without youth bulge. More interesting are various (often, non-linear) interdependencies with other variables. The 'dependency ratio' is the ratio of 0–14-year-olds relative to 15–24-year-olds. It measures the degree to which a youth bulge is sustained or reduces over time. Sharply declining birth rates are often associated with economic development, which may help to lessen the effect of youth bulges on violence. Indeed, Urdal finds that (619):

> Youth bulges in the context of continued high fertility and high dependency make countries increasingly likely to experience armed conflict … while countries that are well underway in their demographic transitions are likely to experience a "peace dividend."

Generally, higher levels of development reduce the risk of political conflict. The effect of youth bulges on political violence is lowest both in highly democratic and highly autocratic regimes; intermediary regimes are more conflict-prone. Again, this is just what we would expect: youths without opportunity in democratic countries will either voice their complaints in other ways or leave the country, and youths in highly autocratic regimes cannot express discontent violently (though there other forms of violence will be present).

There is a tendency, then, for youth bulges to cause political violence that persists in the presence of disturbing factors such as dependency burden and regime type. Youth bulges will cause violence also when the dependency burden goes down, but the relationship is attenuated. Youth bulges cause violence independently of regime type, but 'being strongly democratic/autocratic' is an interference that reduces incidents of rioting, terrorism, and civil conflict.

6 Conclusions

The most accurate answer to this chapter's question is "There is some evidence that there are social scientific laws." To give a more definite answer is difficult given the empirical nature of the question and the quantitative nature of lawhood. What we can know about the stability of causal factors depends obviously but crucially on the quality of the methods we use to establish causal claims, and the most frequently used method—multiple regression—is subject to various important limitations (Freedman 1997; Reiss forthcoming). Whatever results we find, these results are often not particularly stable under relevant specification changes, and so it is difficult to tell whether a factor that appears to make a stable contribution independently of the constellation of background factors can be replicated in a study that makes different background assumptions (for instance, about the statistical properties of the variables involved and their operationalization). It is well possible that factors that appear stable to us now, are in fact highly interactive. On the other hand, the behavior of at least some of the factors discussed here—youth bulges and changes in the money stock, for instance—has been investigated for enormous stretches of human history using multiple methods, and they come out as stable causal factors time and again, so I would suggest that the weight of evidence speaks in favor of the proponent of social scientific laws.

Notes

1 A brief statement of the view can be found in Lewis 1973; Lewis 1983 elaborates on the earlier paper.

2 James Robert Brown proposes thought experiments as means to 'observe' laws understood as relations between universals (Brown 2004, 2010). Given the relative paucity of thought experiments in the social sciences and the ambiguity of their results, I don't think that Brown's epistemic Platonism is really an option for the social sciences (on thought experiments in economics, see Schabas 2008 and Reiss 2012). At any rate, his account explicitly addresses only the natural sciences and none of the law statements at the beginning of this chapter were established by means of a thought experiment.

3 Chris Hitchcock gives the following example: 'Swallowing 1kg of plutonium causes death', which is, presumably, a true causal claim, even if no one in world history ever swallows a kilo of plutonium. See Hitchcock 1995.

4 This is true on the standard, Mengerian, account of the origins of money. There are alternative (and more plausible) accounts that require a much larger number of institutions including strong property rights, individual freedom, enforceable debt contracts, and more. See Reiss 2012 for a discussion.

5 See for instance Kincaid 1990 and Hausman 1992 for a discussion of a number of criteria aimed to make *ceteris paribus* laws testable. With Kincaid and Hausman, I therefore disagree therefore with commentators such as Earman and Roberts 1999 who argue that hedged regularities cannot be discovered by science because they are not empirically testable. In particular, I disagree with their suggestion that under this reading there would be hedged regularities everywhere. For us to establish the hedged law, "*Ceteris paribus*, *F* causes G," we first have to establish that *F* does indeed cause G and then, in case *F* obtains but G doesn't (or doesn't obtain with the appropriate frequency), provide a good reason that despite the presence of *F* G does not obtain. That reason will very much depend on what *F* is. Earman and Roberts's criticism of Pietroski and Rey 1995 that under their proposal, *ceteris paribus* anything that is *F* is also G depends on specifics of their proposal that don't carry over to causal laws.

6 I should perhaps mention that I did not actively seek social scientific laws that explicitly express tendencies. Clearly, though, many social scientists do think that social scientific laws are really tendency laws and so one can find examples of attempts to make this explicit quite frequently.

7 I deliberately described the example in non-causal terms as most studies of Okun's law include only measures of unemployment and growth and I cannot imagine that there aren't common factors affecting both variables. Moosa assumes that causality runs from growth to changes in unemployment but the

opposite relationship is certainly conceivable. This does not change the interpretation of Okun's law as a tendency law, because no matter what the true causal relationship between these variables is, it seems to persist in the light of disturbing factors. I'd therefore speak of a tendency law here, albeit not a causal tendency from growth to changes in unemployment.

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