ECONOMIC PREDICTION: IRVING FISHER AND LUDWIG VON MISES

LAUR A DAVIDSON*

WALTER E. BLOCK**

I
INTRODUCTION

Economists in general are now in trouble with the public.[1] With some very, very rare exceptions, we have not predicted the latest depression; nor does our profession seem to be able to clearly fore-cast when (oh when) we will put the present malaise behind us.

To be sure, there are a few members of our profession who have seen their way clearly in this regard.[2] But, it is the contention of

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[1] According to Paul Samuelson (http://www.eclectecon.com/posts/1200789534. shtml): «Economists have predicted nine out of the last five recessions.» Also see Cor-coran, Terrence (2009). Also: http://www.smartbrief.com/news/naw/storyDetails. jsp?issueid=678B67A3-91AC-49B3-BDD0-6CCF13B41355&copyid=F908FD1F-9956-401 8-9CFC-3016DE1DC931&brief=NAW&sb_code=rss&&campaign=rss; http://www. thedaily.com.au/news/2009/mar/11/economist-admits-predictions-were-wrong/; http://www.accessmylibrary.com/coms2/summary_0286-9041854_ITM

[2] Given that there are thousands of dismal scientists continually making predic-tions, *some* of them are *bound* to be correct, at least sometimes. See for example, http://www.usatoday.com/money/economy/2009-03-17-top-economists-jpmorgan_N.htm

* Independent Scholar. Seattle, WA. davidsonlaura@hotmail.com

** Harold E. Wirth Eminent Scholar Endowed Chair and Professor of Economics. Joseph A. Butt, S.J. College of Business, Loyola University New Orleans, 6363 St. Charles Avenue, Box 15, Miller Hall 318, New Orleans, LA 70118. tel: (504) 864-7934. fax: (504) 864-7970. wblock@loyno.edu

this paper that they have not done so qua economists. Rather, they have taken on the role of entrepreneurs, a not totally unrelated field of endeavor.

Economic prediction takes the following form: if A occurs, then B will be higher (lower)3 than it otherwise would have been. One difficulty about peering into the future in this regard in terms of pin point precision, is that we never know, in advance, whether or not A will occur. All too often this turns on the results of an elec-tion, or, from which side of the bed various politicians, bureaucrats and other such denizens exit.

For example, consider the following:

If a minimum wage law is implemented (or its level raised), then unemployment for unskilled workers will be higher than oth-erwise would have been the case.4

If the money stock in circulation in increased by the central bank, prices will be higher than they otherwise would have been.

If government imposes a tariff, then economic welfare will fall below the level that otherwise would have obtained.

First, economists have no comparative advantage in knowing, ahead of time, whether a minimum wage, a chance in the money stock or a trade barrier will occur. Second, and far more important, economic law necessarily compares a real state of affairs with a hypothetical one that would have taken place had the initial change, or phenomena, not occurred. Thus, even if professional economists full well know the antecedent, they cannot predict,

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3 Or more or less probable.

4 We acknowledge an intellectual debt to Hulsmann (2003, 68) who states: «In par-ticular, what does it mean to say that inflation causes an increase of the price level, or that unemployment insurance causes an increase of unemployment? As compared to what do the price level and unemployment increase, according to these laws? The fact is that these laws—as pertinent as they might be on other grounds—cannot be estab-lished on the mere basis of systematic observations. Inflation does not always lead to a higher price level than the one that existed at the inception of the inflation. Some-times we observe money inflation followed by a stable or decreasing price level. Sim-ilarly, in some cases, we observe price ceilings but no shortages, and unemployment insurance does not always go in hand with unemployment. In all these cases, other factors intervene simultaneously, factors that partly or totally offset the operation of the factor under consideration. This is so, for example, when the effect of inflation on money prices is offset by economic growth, or when unemployment insurance is counterbalanced by a strong work ethic.»

qua economists, what will then result. At best, we can only offer a contrast with a hypothetical situation which never existed.

Let us now turn from these relatively simple economic laws to those concerning depressions, recessions, the business cycle, etc., which are far more complex.

According to Friedman (1957) economics lives or dies based on its predictive powers. If so, the dismal science is now moribund, based on its inability to forecast the present depression, and has been in a brain dead state since, well, forever, since economists don't predict any better than weathermen. According to Norman (2003)[5]:

> «I'm an economist. Big deal, right? Until last year, economists got even less respect than Wall Street analysts; now, we're just a notch above. Admittedly, this reputation is well —deserved, because it comes from our less-than-stellar ability to get economic forecasts right. With all of that data and plenty of powerful computing abil-ity, you'd think we could produce better forecasts. Heck, even the local weatherman puts us to shame.»

But even otherwise sound economic thinkers can go awry on this issue. States Thornton (n.d.a., p. 3, footnotes removed):

> «We compare Mises's performance to that of Irving Fisher, the inventor of modern mainstream economics. The results of this investigation are of much more than of simple antiquarian interest because it provides evidence regarding the validity of Mises's and Fisher's contributions to economics, and their contributions in turn represent the foundations of Neoclassical and Neo-Austrian economics, especially with respect to the nature of money and interest, monetary and business cycle theory, and the role of his-tory in economic methodology. Representing nearly polar-oppo-site views, Fisher placed prediction at the heart of his science and yet had no foresight of the Great Depression, while Mises cast eco-nomic forecasting outside the realm of economic science and yet was able to predict the depression and accurately describe the pit-falls of Fisher's monetary system in 1928. As such, this comparison

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5 Cited in Thornton, n.d.b.

provides evidence both on the merits of Mises's contributions and the
likelihood of their ultimate triumph.»

But if the analysis of Mises is correct, then Fisher's failure to
forecast his way out of a paper bag does not disprove his theory, any
more than Mises' success in prediction establishes his sub-stantive
views as correct. The point is, both of these eminent econ-omists are
making predictions not qua economist, but, rather, in their capacity as
businessmen, or entrepreneurs, at least according to the perspective we
are defending in this present paper. True, Fisher and Friedman posit that
their respective economic theories should stand or fall based on the
quality of their predictions, but they are wrong in this contention.

Paradoxically, Fisher and Friedman lose from the evisceration of
their viewpoints on prediction; their forecasting abilities were found
wanting. On their own account, this would disparage their economic
theories. But, if we rely on Mises, then Fisher becomes resuscitated to
that extent. Also, paradoxically, Mises himself loses out from the
adoption of his perspective on prediction. Mises was a good forecaster,
at least in comparison to Fisher. But this ability of his does not in the
least promote his economic theories about the business cycle. We can
compare the forecasting abilities of Fisher and Mises in the following
way:

The irony is that even though Austrian economists reject fore-casting
as a part of economic science, they nevertheless tend to be better
forecasters than neoclassical economists who claim the sci-ence «lives
or dies» by the practice.

II
WHY ECONOMISTS WHO EMPLOY THE METHOD OF PHYSICS MAKE POOR FORECASTERS

Unlike the Austrian School, the neoclassical synthesis adopts the
methodology of the natural sciences. Since one of the great tri-umphs of
the natural sciences is its predictive power, it might seem that
mainstream economists ought to be better forecasters than their Austrian
counterparts.

However, consider the scientific method as it is used in say, physics. In order to explain the cause of a particular phenomenon, and thereby forecast similar future events, the physicist examines the empirical data, and through a process of induction, derives a hypothesis; essen-tially an educated guess as to the cause, in terms of underlying varia-bles. The assumption is that the governing relations between the variables are time and place-invariant; that is, they are determined by universal laws. Experiments are then performed, in which one or more of the variables are altered, in order to examine the effect. If, after many such experiments, the results are consistent with the hypothesis, the hypothesis is confirmed, in which case it may be said to be a theory.

In physics, it is possible to design experimental processes that completely isolate and control the factors being considered in the hypothesis while holding constant all others that might influence the outcome. This means that, when confirmed, the resultant the-ory can be used to make predictions in real-world situations that are (more-or-less) definite, and not merely probable. Of course, a single non-conforming result invalidates the theory, but in this case a modified hypothesis can lead to a new theory if further experiments are undertaken with confirmatory findings. Even though the predictions of physics are never absolutely certain, because they are always falsifiable by a single inconsistent result, they are often certain enough for all practical purposes.

Mathematical propositions are deduced a priori, but they are uniquely suited to describe physical laws. There are two reasons for this. First, mathematical statements are universal; i.e. if they are true now, they are always true, which is important because physi-cal laws are also time-invariant. And second they are mutually determinative. In other words, any one variable can be described as a function of all the others, which is also true for the relations governing the variables in physics.

In adopting logical positivism, mainstream economists contend that the same methodology used in physics — induction and empiri-cism – can be used to derive hypotheses concerning human action. Even though such controlled experiments cannot be performed due to obvious ethical and practical considerations, they claim their hypothe-ses can be tested and confirmed using empirically-acquired historical data, and the resulting theories described using mathematical terms.

So why are they such horrible forecasters? Why is the scientific method so bad at predicting phenomena concerning human action?

First, without the benefit of a controlled experiment, only the gross data can be examined, so the economist can never know pre-cisely which variables are having an effect and which are not. Sec-ond, unlike the action of physical objects — e.g. a ball thrown into the air, or the movement of a planet — human beings are motivated; they have free will, and therefore the relations between the varia-bles governing human action are never time and place-invariant. Third, the relations in human action are not mutually determina-tive; they are not of the type A is a function of B; rather, they are of the type A causes B. And this is problematical because, whereas in the case of the former, it is valid to imply B is the inverse function of A (E.g. force = mass x acceleration => acceleration = force / mass), it is not valid to imply B causes A if A causes B in the case of human action. If, for example, we conclude that a sudden downpour causes a woman to open her umbrella, we cannot deduce from this circum-stance that opening her umbrella causes it to rain. Or consider the statement: raising the minimum wage causes unemployment to be higher, ceteris paribus. We cannot also say this implies higher unem-ployment causes a rise in the minimum wage, ceteris paribus.

Finally, the units analyzed in physics, such as mass, distance, time, etc., are infinitely divisible, which means calculus can be used to derive more complex relations that can further our understand-ing of a range of additional phenomena. But in economics, the units are often not infinitely divisible; they are discrete, and therefore cal-culus cannot be used. Mathematics, therefore, is not a suitable lan-guage to describe human action. Given the problems with this methodology when applied to the dismal science, is it really any wonder that the predictions of the logical positivists are so poor?

III
WHY RATIONAL EXPECTATION THEORISTS FARE NO BETTER AT PREDICTION

In the natural sciences, the occurrence of a particular phenomenon under a given set of conditions cannot always be predicted exactly.

Rather, it can only be assigned a probability. In this kind of circumstance, there are no laws that can yield definite (or nearly defi-nite) predictions as to whether or not the phenomenon will occur in any particular case. But when it can be demonstrated that the event occurs with a consistent frequency among many similar cases, then a (more-or-less) definite prediction — definite until proven otherwise — can be made in terms of the probability of that event occurring in the future. Thus, for example, in a manu-facturing process, we might determine that if in the past a machine producing widgets makes a bad one for every 5,000 manufactured, then the probability that any one widget will be malfunctioning in the future is one in five thousand.

Rational expectation theorists adopt a similar methodology in trying to predict outcomes of human action. They admit that a given event can never be predicted with the same precision as that found in physics. Nevertheless, they contend it is possible to know the probability of such an event occurring in the future, and this probability can be known with practical certainty. However, the rational expectation theorists fare no better in their predictions than other mainstream economists. Why is this the case?

In the natural sciences, there are two methods for determining the probability of a future event. The first involves an experiment, but, in contrast to the kind used in physics, it is the frequency of a particular outcome that is measured, under a given set of condi-tions, rather than the consistency of singular type of event. The more times the experiment is repeated, the greater is the confi-dence that the observed frequency can be translated into an accu-rate forecast.

The second is to examine the historical data in an observational study, and look for a correlation between dependent and inde-pendent variables that have occurred in the past. Like the experi-mental process, the greater the number of data points collected, the greater the certainty there is in the result. In both kinds of analysis, however, the reason there can be no forecast in absolute terms, with respect to any particular case, and why the prediction can be expressed only in terms of probability, is because not all ele-ments affecting the outcome can be controlled; that is, there are

always certain causal factors that affect the result, of which we have no knowledge.[6]

Suppose out of a general population of 300,000,000 people, 500,000 died from a heart attack last year, and this result has been fairly consistent over time. In this case, we might conclude that the probability that a person has a deadly heart attack in any given year is one in six hundred out of a class that includes the entire population. Obviously, however, there is a wide variation in peo-ple's susceptibility to this disease. A more meaningful result can be obtained by grouping together individuals who have similar risk factors; for example, age, body mass index, smoking, family history of heart disease etc. The greater the proportion of non-ran-dom variables controlled in this way, the smaller is the class, and the more relevant is the probability with respect to the members of that class. In addition, accuracy is increased by ensuring the uncontrolled variables are as random as possible. [7][8][9]

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[6] Mises (1998, 107) gives the definition of class probability as follows: «We know or assume to know, with regard to the problem concerned, everything about the behavior of a whole class of events or phenomena; but about the actual singular events or phenomena we know nothing but that they are elements of this class.» Strictly speaking, it is *not* true to say we know *everything* about the behavior of the whole class of events unless the uncontrolled factors are completely random, and this is not the case in many fields of scientific enquiry. However, for all practical purposes, it is true for dice throwing, coin tossing and the drawing of lottery tickets, etc.

[7] Take the throwing of a dice. Provided the dice is not loaded — i.e. the density of the dice is uniform and the surfaces of the dice are the same — we can be sure with a very high degree of accuracy that the probability of throwing a certain number is one in six. This is because the controlled variables — e.g. density, surfaces etc. — are pre-cisely the same on each throw of the dice. The other variables, which are not con-trolled — e.g. the trajectory the dice leaves the hand, the air currents affecting it as it flies through the air, the angle the dice hits the table, etc. — while not the same on each throw, are nevertheless (almost) totally random. This is why the probability of one in six is very accurate. We have a high degree of confidence in this probability. (The rea-son the forecast must be stated in terms of probability is because of the uncontrolled factors. If, hypothetically, we could know in advance *all* the factors on each throw, then it would be possible to forecast with certainty which side of the dice would land face up.)

[8] The question becomes, are there any truly random events in the physical world? Cf. Quantum mechanics.

[9] Paradoxically, as the class size becomes smaller, *fewer* data are available, which makes the result *less* accurate. This is because, with fewer samples, the uncontrolled factors are less random, which skews the overall result. The task is to control for as

Thus, for example, if the frequency of heart attacks is examined for the class of non-smoking women in their 50s, with a body mass index of 22, then this data will yield a more accurate probability of a heart attack for an individual within that class than the 1:600 fig-ure cited earlier. If, hypothetically, we could control for all the causal factors, then there would be no need to express the predic-tion in terms of probability. The prediction would be (practically) certain for that person. However, this would require examining at least one past case that was identical in every possible respect to the one whose outcome we now try to predict. While this is possi-ble in physics experiments, it is of course a practical impossibility when it comes to examining heart attacks and most other biologi-cal processes.

One further consideration is that if the uncontrolled factors become less random over time, or if new variables are introduced into the class that were not previously considered, then the previ-ously established probabilities will be erroneous. Therefore, any intertemporal changes in the causal factors must always be guarded against.

Returning to the rational expectation theorists' claims, consider the factors affecting human action. All purposeful action requires thought as a prerequisite, which is an individual mental process. It consists, firstly, of acquiring objective knowledge, such as techno-logical know-how, availability of resources, etc. And secondly, of using this knowledge in conjunction with a subjective assessment of the future based on personal experience and intuition, in order to formulate an «understanding.»[10] It is this foresight that all actors employ, with varying degrees of success, in order to avoid error. In its most fundamental form, human error occurs when the actor judges his action ex post to involve a psychic loss. In catallactics, it occurs when a monetary loss is incurred by the entrepreneur. But in either case, the actor's expectations do not meet the consequent reality, because his foresight was lacking. «Understanding» or

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many non-random factors as possible, leaving only those factors we assume to be (more-or-less) random in their effect, while at the same time maximizing the number of data points collected in the sample to increase this randomness.

10 Mises (1998) speaks in terms of «verstehen.»

foresight is therefore the critical factor that affects the success or failure of all human action.

If the probability of a particular kind of human error can be quantified, as the rational expectation theorists claim, then it is necessary to define the actions which are subject to this error, and which are not; it is necessary to define the class. But if one includes all possible actions in the class — analogous to considering the entire population for heart attacks in the previous example — then this creates insurmountable problems, because the range of human actions is almost limitless. With no causal factors controlled, the class is too broad to be of any use in explaining errors. More impor-tantly, with an infinite sample size, there is no possible way to cal-culate a frequency. Frequency is meaningless in such a situation.

The only possible solution is to limit the class size. In which case, it is necessary to ask, is it possible to define a class, specifi-cally of actions, by controlling for certain variables? What are the variables in the data that can be controlled, if any, and what are those that cannot? One notable difference between this endeavor and that undertaken in the natural sciences is that the only causal factor in this case is the actor's foresight. Certainly, exogenous events like earthquakes or changes in the availability of resources or fluctuations in consumer preferences can make apparent an error ex post, but this is not the cause of the error. Indeed, there are no external factors that can cause error. The cause is the faulty rea-soning of the actor, because of his lack of knowledge and intuition. As the prerequisite for all human action, it is the only factor that can be responsible. [11]

However, foresight is subjective and cannot be measured. It has no cardinal value. Which means, it is not a variable. We cannot say, for example, action A has x amount of foresight which leads to n% error, whereas action B has 2x the amount of foresight and has only m% errors. Therefore we must treat it as a factor without magni-tude. However, every action is the product of a single thought pro-cess. Which means the actions that constitute the class cannot all

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[11] It might seem strange that the actor errs in failing to predict an earthquake. But to the extent he failed to have this knowledge, it is *his* error. Error is a human quality. The earthquake cannot be held responsible.

be different, because then there would be no common factor and no common understanding; every action would be a class of one, for which frequency measurement is not possible. But this can only mean that all the actions within the class must be the same, having precisely the same thought behind each one of them. But how is it possible for any two actors to be thinking exactly the same thing, let alone all of them, together?

Rational expectation theorists respond that while every per-son's present knowledge and future expectations might differ ini-tially, actors have the capacity to learn from one another, such that in time no new knowledge regarding future events can be discov-ered. The differences therefore evaporate until a kind of consensus — an equilibrium — is reached. Any mistakes are simply the result of «black-swan» events caused by exogenous shocks; random phe-nomena that are not the product of any human failure.

But even if it were possible for everyone's thought process to be exactly the same — which seems heroically unlikely — the exoge-nous data are constantly changing. This means that not only do actors refine their appraisements by learning from past errors, and from one another, but they do so with respect to the ever-changing external world they encounter. In the market, this means they adjust their forecasts constantly, and do so individually, to account for changes in available resources, technological knowledge, con-sumer preferences and the decisions of other entrepreneurs. There-fore, the critical factor which affects human action — understanding — is always evolving and changing. There is no equilibrium. Since the only causal factor of error is changing continuously, there is no possibility of establishing the class probability of any particular kind of error, or error in general. 12

There are no constant relations governing variables in human action.

Human beings think and choose. They are not mere

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12 Hoppe (1997, 56) addresses the failings of RE theorists in the following way: «Rational expectation theorists only replace the model of man as a never -failing automaton with that of a machine subject to random errors and breakdowns of known types and characteristics. Rather than possessing perfect knowledge of all singular (individual) actions, man is assumed to possess merely perfect knowledge of the prob-ability distribution of all future classes of actions. He is assumed to commit forecast-ing errors, but his errors are always correct errors.»

automatons. Some who deny the existence of free will acknowl-edge the unpredictable element in human action, but maintain that this merely appears to be so not because people express genu-ine choices that transcend physical laws, but rather because deci-sion making is subject to the rules of quantum mechanics. But even if it is conceded that at any given instant an individual «chooses» an action (or not) based on a mere quantum event in the brain, and that this «choice» is governed by a particular probabil-ity, how does this help the advocates of empiricism when we can never quantify that probability?

Even if one claims the law of large numbers must ultimately prevail, and therefore empirical methods can be used to predict the probability of future human events, this argument is untena-ble, for it employs the fallacy of composition. Even in a quantum world, the number of possible actions are virtually limitless; the «choice» for any individual is never merely yes or no; or heads or tails as in the toss of a coin. There exist an almost infinite number of possible «choices» based on the particular case. And while one particular course of action might be ruled more probable than another, there cannot exist a singular probability for the class when each individual's «choice» is based on the particular case. And therefore future trends in the macroeconomic sphere cannot be gleaned simply by an analysis of past events.

IV
WHY AUSTRIANS ESCHEW PREDICTION, AND YET TEND TO BE BETTER FORECASTERS

Why then do Austrian economists tend to fare better than their mainstream counterparts when it comes to economic forecasting, even though they eschew prediction qua economists? In contrast to the mainstream, the Austrian approach rejects empiricism and induction, and employs a methodology in which apodictic laws are deduced a priori. However, because all propositions deduced stem from the axiom of action, which is a self-evident truth based on inner experience, the laws are not merely tautological. On the contrary, they tell us something true about the real world; in

Kantian terms, they are synthetic a priori. And because they are deduced through a process of formal logic, they are absolutely true and never falsifiable.

In the social sciences, it is not possible to conduct a real experi-ment, in which all but the variables to be studied are held constant. But praxeology does indeed involve a kind of experiment — a thought experiment — in which all the variables are imagined to be constant initially, and then one or more are «altered» individu-ally to analyze the result. 13 This kind of deductive process pro-duces hypothetical statements of the type «if A then B, ceteris paribus.» For example:

«If the demand schedule for a good decreases, then the price falls and the quantity demanded is less, ceteris paribus.»
«If the money stock increases, prices in general rise, ceteris pari-bus.»

«If a minimum wage is introduced or raised, then unemployment increases, ceteris paribus.»
«If the quantity of fiduciary media is increased, then market rates of

interest fall, ceteris paribus.» 14

One objection might be that in the real world, all other things are never equal. Suppose in the first case above, there is a simulta-neous decrease in the supply schedule of the good, then the price might rise despite reduced demand. Or in the second example, if

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13 As Mises (1998, 237) states, «The specific method of economics is the method of imaginary constructions.

«This method is the method of praxeology... It is a product of deduction, ultimately derived from the fundamental category of action, the act of preferring and setting aside. In designing such an imaginary construction the economist is not concerned with the question of whether or not it depicts the conditions of reality which he wants to analyze. Nor does he bother about the question of whether or not such a system as his imaginary construction posits could be conceived as really existent and in opera-tion. Even imaginary constructions which are inconceivable, self-contradictory, or unrealizable can render useful, even indispensable services in the comprehension of reality, provided the economist knows how to use them properly.»

14 In these examples, under certain circumstances it is possible at the margin for there to be no change. This does not alter the thrust of the argument, however.

the reservation demand for money increases,15 then prices in gen-eral might fall even if the money stock increases. The minimum wage might have no effect and unemployment might actually fall if, at the same time, the demand for labor increases, or the supply decreases. And even if the quantity of fiduciary media increases, it is always possible for market rates to rise if there is a contempora-neous rise in time preference. All of this is of course true, which is why Austrians refrain from prediction in the first place.

Nevertheless, it is possible to say the following: In the first example, the price of the good will be lower than it would have been otherwise. Similarly, in the second case, prices -in-general will be higher than otherwise would have occurred. The mini-mum wage will cause more people to be unemployed than would have been the case had the minimum wage not been introduced. And when fiduciary media enter the loan market, interest rates will always be lower than the counterfactual circumstance.

Take the example of introducing a minimum wage. Suppose it were possible to conduct a real experiment in which all the factors that influence the demand for labor are held constant except the minimum wage, and suppose the result of this experiment demon-strates that this intervention in the market independently causes unemployment to rise by 10,000. Suppose another experiment is performed in which it is shown that a particular demographic change independently causes unemployment to fall by 4,000. If in the real world, these two events happen simultaneously, and noth-ing else impacts labor, then net unemployment must rise by 6,000. However, if the demographic change independently causes 12,000 fewer people to be unemployed, then unemployment will fall by 2,000 overall. But in all of these cases, unemployment must be higher than it would have been had the minimum wage not been introduced. It can never be lower than otherwise.

This provides some insight into why Austrian economists make fairly good forecasters. In the above example, while it is always possible for unemployment to fall overall, there must be some off-setting circumstance to cause it, which must have a greater (and

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15 Or the stock of goods increases or the demand for goods decreases, or any com-bination of these.

opposite) impact than the event under consideration, in this case the minimum wage. And perhaps on a fairly regular basis, the chances of the intervening circumstance(s) completely offsetting the effects of the original event are fairly low.[16]

V
HYPOTHETICAL AND COUNTERFACTUAL PROPOSITIONS

The artificial construct alluded to earlier produces hypothetical laws of the kind, «if A then B, ceteris paribus.» And yet all such hypotheticals can be expressed in terms of a counterfactual state-ment. How is this so? First, it should be noted that artificial con-structs can be applied to all aspects of human action. And more specifically, all economic laws are derived in this way. But with respect to any given law, the chain of reasoning always starts with the action axiom, and the A and the B always refer to events con-cerning changes to the various categories of action or their deriva-tive economic variables: e.g. value, preference, profit/loss, demand, stock, supply, interest rate, price, etc. With regard to theory, the change is always relative — e.g. increase/decrease, more/less, greater/lesser, etc. However, in the real world the change has mag-nitude or rank with regard to the category implied by the cause, A, while with regard to the effect, B, it has magnitude.

And precisely because in the real world the change to the eco-nomic variable implied by B is quantifiable, it is necessarily the case that if two or more events affect it simultaneously, then the changes must be additive. Suppose two events, A and A', inde-pendently lead to B and B', and the latter each refer to a separate change in the variable β. While theory can determine these changes in relative terms only, in reality they have magnitude. Therefore, if B and B' occur at the same time, the changes to β, whether positive or negative, must be additive. The same is true when β is affected by other contemporaneous outcomes, B'', B''' etc., caused by A'', A''' etc. Which means that if the «ceteris paribus» in «if A then B» is

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16 To put this another way: In terms of the statement «if A then B, ceteris paribus,» all other things are often fairly equal.

dropped, and B', B'', B''' etc. are allowed to enter the scene, then even if we have no knowledge of how they affect β, it is always the case that A independently causes the same absolute change to β as that implied by B. If this change is positive, β is necessarily higher than it would have been without the occurrence of A. And if the change is negative, then β is necessarily lower than it would other-wise have been.

From the above we can conclude that it is a general rule that all hypothetical propositions deduced from mental experiments con-cerning human action can be expressed in terms of counterfactu-als. And the latter are extremely helpful in understanding real world conditions, and can even assist in making predictions, at least from the non-economist's standpoint!

Taking a contrary position, Hulsmann (2003, 89-93) contends that counterfactual and hypothetical statements, each have differ-ent origins. According to that author, counterfactuals have more relevance to the real world, precisely because they do not employ imaginary constructs. Says Hulsmann, ceteris-paribus proposi-tions are less useful, because they are derived from mental exper-iments, and are merely hypothetical; they describe only «tendencies,» rather than precise changes, because they make the unrealistic assumption of «frozen data.»

But as can be seen from the foregoing argument, it is univer-sally the case that the counterfactual is merely a restatement of the hypothetical, and both have their origins in the imaginary con-struction.

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