



The Search for Relevance in Economics

Arnold C. Harberger

The American Economic Review, Volume 83, Issue 2, Papers and Proceedings of the Hundred and Fifth Annual Meeting of the American Economic Association (May, 1993), 1-16.

Stable URL:

<http://links.jstor.org/sici?sici=0002-8282%28199305%2983%3A2%3C1%3ATSFRIE%3E2.0.CO%3B2-I>

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/about/terms.html>. JSTOR's Terms and Conditions of Use provides, in part, that unless you have obtained prior permission, you may not download an entire issue of a journal or multiple copies of articles, and you may use content in the JSTOR archive only for your personal, non-commercial use.

Each copy of any part of a JSTOR transmission must contain the same copyright notice that appears on the screen or printed page of such transmission.

The American Economic Review is published by American Economic Association. Please contact the publisher for further permissions regarding the use of this work. Publisher contact information may be obtained at <http://www.jstor.org/journals/aea.html>.

The American Economic Review
©1993 American Economic Association

JSTOR and the JSTOR logo are trademarks of JSTOR, and are Registered in the U.S. Patent and Trademark Office. For more information on JSTOR contact jstor-info@umich.edu.

©2003 JSTOR

RICHARD T. ELY LECTURE

The Search for Relevance in Economics

By ARNOLD C. HARBERGER*

It is a great honor to be asked to present the Richard T. Ely Lecture. The traditional expression of gratitude calls for the Ely lecturer to reveal himself, to try to communicate to the economics profession something that he personally considers to be important, and worthy of economists' general concern. Following this tradition, I plan to speak to you today about something that has meant a great deal to me throughout my professional life: the view of economics as a profession that has practitioners.

The analogy I like best is with medicine. Law and accounting do not fit because they are not inferential; in that sense they have no scientific component. Physics, chemistry, and biology are at the opposite extreme: much more science than prescription. None of these fits as nicely with economics as medicine—a profession with one foot planted in medical science, the other in what we know as the practice of medicine.

Whether I myself have a foot in both camps I will leave to others to decide. But today I come before you trying to speak for the practitioners of economics. And because I want to speak from personal experience, I will limit my claims somewhat. The things I have to say may have some degree of relevance to those who pursue the profession of economics in the world of busi-

ness and finance, but it is not specifically aimed to reflect their views. My aim today is to represent those whom I call the “policy practitioners”: those who work in the central banks and in the ministries and agencies of governments (my experience is somewhat more with developing than with developed countries), as well as those who serve as economists in the principal international organizations and in the foreign-aid agencies of this and other countries.

My links to this amalgam of types are all the stronger because so many of them—particularly of those with whom I have worked most closely—are my former students as well as close personal friends of long standing. I mention this because our relationship has encouraged them to be frank with me about these matters, giving me a certain confidence that in what I am about to say here I am in very significant measure speaking for them.

Returning to the medical analogy, the people I am trying to speak for are the general practitioners of policy economics. They are the ones who struggle in the field to harness the knowledge and insights of economic science to help improve the economic organization of their countries and the economic life of their peoples. Some of them are fortunate in that their efforts bring palpable results; they may see implemented the reforms they have worked for; they may see government practices rationalized and improved; they may even see enough of these changes so as to have a measurable impact on the level of living of their countries. But most have to endure with frustration, waking up every morning to go out and fight battles they rarely expect to win. Where do these people find their satisfaction? Typically, it is in the knowledge and conviction that, but for their presence and their struggle, things would be much worse. They may be able to scale down by a quarter the

*Professor of Economics, University of California, 405 Hilgard Avenue, Los Angeles, CA 90024-1477; also, Chairman of the Advisory Board, Institute for Policy Reform, Washington, DC. I am grateful to the many colleagues, mainly at UCLA and at the Catholic University of Chile, who have shared with me their thoughts on various topics as they came up during the preparation of this lecture. I single out for special mention those who have commented on an entire draft of the lecture, at one or another stage: Jorge Cauas, Sebastian Edwards, Eric Engen, Juan Andres Fontaine, Zvi Griliches, Jack Hirshleifer, Axel Leijonhufvud, Carlos Massad, Marc Nerlove, Christof Rühl, Federico Sturzenegger, and Mariano Tommasi.

overall size of a project or program whose economic benefits are half or two-thirds of its cost. They may be able to stop one counterproductive policy move out of every three. They may be able to modify the wording of a bad economic law or regulation so as to blunt, if not eliminate, its worst aspects. This is the life of the typical policy economist; small wonder that after some years many end up disillusioned and drift off to less frustrating occupations and pursuits.

In addition to describing the life of the policy practitioner, I hope to evoke in you some visions of what those of us on the academic side of the profession might be able to do about it. This requires a sense of where we are now falling short. Happily, this part of the road has been well prepared by the work of the American Economic Association's own Commission on Graduate Education in Economics (the Krueger Commission), which was composed of 12 distinguished members of our profession, chaired by Anne O. Krueger. To give some of the flavor of their diagnosis, here are a few extracts from a background paper written by W. Lee Hansen (1991) the Executive Director of the Krueger Commission, reporting on extensive surveys of faculty, graduate students, recent Ph.D.'s and nonacademic employers:

1. "Both faculty and recent Ph.D. respondents believed mathematical and statistical tools were overemphasized in programs from which they hired new Ph.D.'s, and they held even stronger views about the profession as a whole" (p. 1075).
2. "[O]nly 14 percent [of faculty members] could say that, by the time students completed their comprehensive examinations, most or all of them were good at applying theory to the real world" (p. 1077).
3. "[A]bout 80 percent [of faculty respondents] call for less theory and technique and more attention to applications-policy. The most frequently suggested changes include: more emphasis on the links between theory and real-world connections and applications; less emphasis on tech-

nique and more on the substance of economics; and greater emphasis on writing, acquiring research skills, and doing research" (p. 1067).

What I am going to try to do today is in much the same vein, but I want to take a different approach in selling the product. In a way, I may be taking the role of a Pied Piper, trying to tantalize and tempt you to follow me down a road that I find endlessly lively and fascinating. I want to try to convince you of important things that should be *in* our graduate curriculum, and not worry so much about what gets squeezed out. I have always felt that Economics—as a profession, a science, and a discipline—was a very big tent indeed. I think it is big enough for all of us to fit comfortably under it. In this profession, we need no concept of exile. These thoughts motivate my positive approach.

Let me now quote from the Krueger Commission report itself:

Core courses [should be] taught... with a view to balancing breadth and depth, with sufficient attention to applications and real-world linkages to encourage students to start applying the concepts themselves.

The core should be regarded as the basic unit in which those things *common to all economists* [emphasis added] should be taught....

Field courses should attempt to include more empirical applications, using empirical findings and economic puzzles to spur students.

[Krueger et al., 1991 p. 1052]

I agree one hundred percent. I said there should be no exiles from economics, and I meant it. But the first year of graduate work is quite another matter. What goes into the first year should all be demonstrably useful to those who will go out and practice our profession as well as to those who will be research scientists and teachers. It should impart the kind of simple and robust theoretical framework that economists will be able to use for the rest of their lives, and also how to use it. If at the same time it

imparts a belief, a faith in the power of economics to help us see the world more clearly, thus greatly enriching our insights and understanding, so much the better.

At least the first year and the applied courses should be suffused with what one might call the spirit of economics. Much of this is captured in the old idea of "thinking like an economist." The weakening of this aspect of our training, in favor of more formal and more strictly technical material, is what worried the Krueger Commission, what worried the majority of Lee Hansen's respondents, what worries me.

I. What Do Policy Practitioners Actually Do?

There are a great many questions in economics that I have found much easier to answer than this one. So before I attempt a response, let me reveal that my underlying purpose is to start you (my listeners and readers) thinking, to start *us* as a profession thinking about how close our lectures, our courses, our papers, books, and journals come to serving the needs of our practitioners. My tentative conclusion is that the medical profession does a far better job than we do. The classes the medical practitioners have taken in their M.D. programs serve them better in their practice than the classes the economics practitioners have taken in their Ph.D. programs. And likewise, the textbooks, treatises, and journal articles written by medical scientists display more understanding of the situation of the practitioners and end up being more relevant to the specific decisions they have to take than do our corresponding writings.

I think there is a great deal we can do to rectify this situation. In fact, it is not even intrinsically very hard to do. We simply need to be thinking a goodly fraction of the time about how what we are doing helps serve the needs of the thousands of practitioners out there in the trenches. Those who contribute to our professional literature should be asking themselves such questions, as should the editors who help select books and articles for publication, as should our teachers designing courses and our committees designing curricula.

I think it is quite clear that we used to do better than we are now doing, in these dimensions. Practitioners at the major international and foreign-aid agencies complain that recruiting is much harder than it used to be. Candidates for jobs are less in tune with policy analysis, and less able to answer relatively straightforward questions about it, than they were 15 or 20 years ago. Smaller and smaller fractions of such practitioners maintain their subscriptions to the major journals (even those of the American Economic Association, which are among the least vulnerable to the practitioners' complaints), mainly, they say, because they find in them so little that is relevant to what they do.

Let me now attempt a sort of thumbnail sketch of what life is like for an economic policy practitioner. My hope is that this rapid-fire sequence of vignettes (sort of like a slide show) will help you see that the life of the economic policy practitioner is very demanding, and requires sharp eyes, subtle perceptions and artfully molded prescriptions, possibly as much so as the life of the medical practitioner. The slide show should also help give you a sense of the distance there is between the focus, emphasis and tone of the academic side of our profession and the focus, emphasis and tone of life in the trenches.

A. General

1.—Probably the best answer to the question of what policy practitioners do is "Lots of things—but always in a hurry and almost always at the request of others." This defines the lot of probably 90 percent of policy practitioners the world over. They have to be ready to respond quickly above all, and most frequently to questions that are not framed in the way that seems most natural to them. They have to be able to think on their feet, to know simple tools and how to use them well.

2.—One thing that nearly all practitioners have to do is communicate seriously with nonprofessionals. Even when the immediate boss is an economist, those who

really need to be convinced (the president, the cabinet ministers, the undersecretaries and other top administrators, the sponsors of new laws in the legislatures, and the legislative committees that draft these laws) are mostly noneconomists. So the art of communicating in general, and particularly the art of communicating with noneconomists, becomes in and of itself an important professional tool for the economist.

3.—In the dialogue between economics practitioners and others, sometimes all the others are remote and difficult to convince. Sometimes one finds a few friendly and understanding allies. On rare occasions, the whole environment is friendly, listening seriously to the economists' concerns and trying to implement their suggestions. Whichever of these may be the case, one can hope that there will be the chance for fruitful dialogue on precisely the nature of any job an economist might be asked to do.

I wonder if there is anybody who has served as a consultant with specific terms of reference and has not more than once wished that the drafting of those terms of reference had been held off to the end (i.e., done *ex post* instead of *ex ante*). Those who write terms of reference often do not have sufficient expertise to begin with, or do not adequately foresee the twists and turns of dealing with the problem, or do not really work out a full decision tree (sometimes a given result at an early step renders inconsequential much of the rest of the terms of reference).

Thus, ideally, there should be dialogue between economics practitioners and those for whom they work. Much of this dialogue will concern the design of the task to be done; some will concern next steps, once some results are in; some may deal with convincing noneconomists of the limits of what we as a profession can and cannot do.

It is very easy, starting from here, to get to the economist giving the noneconomists a seminar on comparative advantage and the virtues of free trade, on why consumption taxes are better than income taxes, and on why there should be very high peak-time tolls on urban routes. Unfortunately, such

general sermonizing, even when every word is soundly based and economically valid, will typically end up achieving nothing, maybe even costing the practitioner his job. So we have to talk of dialogue on a much more subtle level, where the economist shows sufficient sensitivity to other considerations to keep a fund of goodwill going in his favor yet shows sufficient spine to achieve concrete improvements in his own terms of reference at one end of the tunnel and in the actual legislative or regulatory outcome at the other end.

B. *Applied Welfare Economics*

1.—A big difference between the textbooks and the real world lies in the nature and perceptions of the constraints under which economic policy operates. Our students are these days more than facile in handling optimization problems, and it does not really matter to them whether it is optimization with only one constraint (first best) or with more than one constraint (second best).

The real world is different in that policy is usually subject to many constraints, most of them very hard to specify in clear analytical terms. Keeping a highway budget under a given limit or deciding which tariff rates to reduce in order to achieve a target average rate agreed upon with GATT are tasks that are relatively easy to handle using standard economic tools. Far more common however, are problems like designing a program so as "not to offend" a whole range of different prejudices of different powerful sectors, while at the same time "placating" a series of key interest groups and maybe downright "pleasing" one target group (e.g., the lumber industry) for which the legislation is mainly being designed. Also common is the fact that one must avoid, in every law or regulation being drafted, anything that appears to contradict a recent (or even not so recent) declaration of the president or of any powerful, important cabinet member. I hesitate even to mention the pressures that occur near election times, when professionals are asked to try to justify all sorts of projects and other goodies thrown to so-

called “swing states” or other electorates where the expected voting margin is close.

2.—The above description defines a subtle shift in the nature of the problem. From a problem of maximizing subject to one or more well-defined constraints the problem becomes more like that of a hunter seeking an elusive prey, or a detective trying to solve a very difficult case. The abiding question, as the search goes on is: will we find *any* solution that is not shot down for one or another reason?

3.—When not involved in the search for “solutions” that may prove impossible to find, practitioners are often confronted with specific alternatives that have been concocted by others, and where the principal problem is just one of choosing A, B, or C. Here standard applied welfare economics comes into play, but it should be realized that in all likelihood *all* the alternatives in the set (i.e., A, B, and C) fall far short of any optimum that an economist would define. Hence the art of using applied welfare economics to choose among distinctly sub-optimal alternatives should be part of the basic tool kit of large numbers of policy practitioners.

4.—Yet another task, or at least challenge, that falls to practitioners is to take solutions that appear to be emerging from complex decision processes and somehow “improve” them. I do not count it as an improvement in the context of this lecture if someone finds a way to get more votes out of Florida, or to please the lumber lobby more. I do not count these because they are not natural and intrinsic parts of exercising the profession of economics. They may reflect that one is a good Democrat or Republican, or Liberal or Conservative, but not a good economist. Most importantly, nothing in economic science with all its illustrious history and traditions can tell us how to avoid contradicting the president or how to cater to the whims of a particular senator or pressure group. What our science does teach us—and what, in my opinion, it is our professional duty to reflect—is how to measure

benefits and costs using the yardstick of economic efficiency. This is the economists’ genuine professional domain. If we are silent about the efficiency costs or benefits of policies, who else is going to represent them? Hence, when I speak here of “improving” solutions that seem headed down the path toward acceptance and implementation, I mean finding ways of passing the other tests, but with greater net economic benefits or lower net economic cost (using the efficiency yardstick). If efficiency is the yardstick, the real task still includes dealing with the whole range of ill-perceived, inchoate constraints that characterize the decision process at any given moment. Perceiving and dealing with these constraints and *still* finding ways to improve overall economic efficiency—this is true art for the policy practitioner.¹ If there is a phrase to characterize the hurdles at this stage, it is “Yes, but will it fly?”

5.—A related but, I think, separate task for policy practitioners is to serve as midwives as new laws and regulations are born. The period of gestation and birth is the time when they can have greatest influence on the results, because less has already been “written in stone.” Changing something that is already there means almost inevitably that its author will one way or another lose face or reputation. Convincing that person before the law is drafted or during the process of its drafting is far more benign. Thus I really believe that it is great when countries have large numbers of good policy professionals at work in all the nooks and crannies of the public sector. These people silently and selflessly succeed in deleting an economically terrible paragraph, in cutting a distortion from 40 percent to 25 percent, or in changing the coverage of a tax law (or even the definition of a taxed commodity)

¹In a work that should be read by more contemporary economists, John Neville Keynes (1891) made a trifold distinction between positive economics, normative economics, and the “art” of economics (see pp. 55–85 in the republished [1955] version).

so as to reduce significantly the efficiency cost of that tax.

Finally, but extremely importantly a country with a cadre of trained project analysts, working in each entity or agency where projects are generated, can save vast sums through intelligent modifications of project designs at the moment they are most malleable—that is, at the drawing-board stage. An even greater task for such cadres, of course, is to save even more by nipping truly bad projects in the bud—before they ever get started.

C. Projections

1.—In all of economics there is probably no task that falls to a higher fraction of practitioners than that of making projections. In just about every bank and business and in just about every department and agency of government, projections have a continuing role. Any activity that has a budget needs projections at least for the next budget year, and often on a multiyear basis. Any entity that undertakes investment projects needs to project the profile of costs and benefits of each of them—at least if it is subject to decent budgetary procedures or if it has to apply for outside financing. Finally, any entity that does middle- and long-term planning will typically make projections of its likely path of development, perhaps under alternative sets of assumptions.

2.—If projections are made on a perfunctory basis and are used little or not at all in serious decisionmaking, they can be done in almost any way, because they hardly matter. However, where they are taken seriously, the panorama is very different. Here projections are like works of art, or audits by accountants: the responsible parties have to sign their names and live with the result. In these cases, economists cannot lay the blame for a bad outcome on “ordinary least squares” or on “instrumental-variables” methods. It is their task to look at *all the evidence* they think is relevant, to make the best inferences they possibly can, to consult the best sources for relevant information and judgment, and then to put their results

down on paper. There is nothing wrong with making projections based on specified, often alternative, contingencies or by using Monte Carlo methods; indeed, the most responsible projections artists tend to work in this way. The important thing is to convey to the readers and users of the projections that every effort has been made (within the available time and resources) to take into account all of the principal factors and forces at work.

3.—Almost as a corollary to the above, the use of time-series regressions as the main device for making projections is highly suspect from the start. I think I know what I’m talking about here because I had two major experiences with projections work. The first was making (in 1951–1952) the whole set of demand projections for the year 1975 that were used by the so-called Paley Commission (U.S. President’s Materials Policy Commission, 1952 [see especially Vol. 2: *The Outlook for Key Commodities*]).² The second was working in the Planning Department (later Ministry) of Panama during the entire period 1963–1977, each year being responsible for that Department’s projections of public-sector income and outlay.

4.—The key element in the Paley Commission projections of 1975 materials demand was the recognition that 1950, which

²When the Korean War broke out in 1950, the prices of most raw materials skyrocketed. This aroused concern not just for the immediate situation, but also for the longer run. If the relatively modest demand pressure of the immediate war situation could cause such a dramatic rise in materials prices, what do we have in store when secular economic growth brings the economy to double or triple in size? To help answer this question, President Truman appointed the President’s Materials Policy Commission, headed by William S. Paley. This Commission, in its seven-volume report entitled *Resources for Freedom*, correctly diagnosed the 1951–1952 situation as stemming from the short-run inelasticity of supply of most raw materials. It also correctly reassured the public that long-run supplies were quite elastic and that materials shortages would not constitute a serious impediment to economic growth over the next quarter-century.

was perforce our base period, was nonetheless a very unusual year. We observed and predicted that in residential construction and in purchases of new cars, refrigerators, and similar durables (but not TV sets) the 1950 levels represented peaks that it would take something like 20 years to reattain. We were still, in 1950, making up for the deficiencies of stocks of these durables that stemmed from one decade dominated by the Great Depression and another dominated by World War II. Therefore, most of our work consisted of finding ways to make reasonable projections of equilibrium 1975 stock demand for housing, cars, and the key durable goods, and of the normal growth of that demand under our general macroeconomic assumptions. The flow-demand for new construction, new cars, new refrigerators, and so forth then was built up of normal replacement demand plus normal growth of these equilibrium stocks. We have looked back at the decade of the 1970's in light of our projections, and I think I can fairly say we have no serious regrets; but I shudder to think of how ashamed we would be had we relied on standard regressions based on flow-demand over the 1920's, 1930's, and 1940's.

5.—Still on the 1975 materials projections, we looked for each material—from iron, steel, coal, petroleum, and aluminum through copper, lead, and zinc, down to antimony, bismuth, cobalt, manganese and titanium—at its actual pattern of end uses. Input-output tables did absolutely no good: even the largest table available at that time (and I believe even the largest one available today) lumped copper, lead, and zinc together into a category called “other nonferrous metals” (separate from aluminum). So we worked with industry data telling the producers' best estimates of where each mineral product actually went. Working with these available end-use classifications, we then linked each end-use to one or a combination of our macro variables (gasoline linked to the stock of cars and trucks; steel use in the auto industry to the new production of cars and trucks; household uses linked to the number of households and

per-household incomes, incorporating assumed or estimated income elasticities; etc.). Where technological substitutions were in process (as in the replacement of copper by aluminum in electrical transmission lines or in the replacement of tin and lead by plastics in collapsible tubes), they were in general projected to continue. Where input-output coefficients were expected by industry experts to change (as in the thermal efficiency of electrical generating plants), such changes were incorporated into our projections. The results were anything but elegant, but readers could trace our precise methodology, could see exactly what bases we touched and how we touched them, and in the end could judge for themselves how close we had come to capturing the essential reality we were trying to deal with.

6.—With respect to projections of tax revenues, the direct use of time-series regressions is almost out of the question. Rarely does a tax code stay put for more than two or three years, yet to do a decent time-series regression one wants at least 15 or 20 years of time-series observations, and hopefully more. How do we proceed? The worst, the least professional way is simply to forget about all the changes (in the code itself, in the methods of enforcement, and in the level of compliance). The best, the most professional way is to work from the most recent “base period” that is deemed reliable and to incorporate current law, administrative practice, and compliance directly within the procedure. If they are expected to change, they should be projected as changing; if they are expected to stay constant, they should be so projected; if one is worried about potential changes in these elements, they might be projected as remaining constant, but with explicit caveats. Then, one works with the identity that the receipts from a tax are equal to tax base times tax rate times yield ratio (1 minus the fractions lost through failures of administration and compliance) to get the final projections.

7.—The fallacy of using time-series regressions for projecting public finance vari-

ables is nowhere clearer than in the case of government expenditures. Here many things change, but some are quite stable. Therefore, I do not complain about regressions explaining primary-school operating costs or the salaries of policemen and firemen. But when it comes to government expenditures as a whole, nothing can replace the hands-on approach. Time was when the upward trend of government outlays was strong in nearly every country; in this period, time-series regressions would have yielded a quite good fit; and they also would have predicted well for a while. However, think how these regression-based projections would have failed in the more recent period (the middle and late 1980's), when major retrenchments of government spending took place in many parts of the world. In the last few years (see *IFS Yearbook*, 1992 p. 147), central-government expenditures as a percentage of GDP reached levels less than 60 percent of their earlier peaks in Argentina, Peru, and Chile; less than 80 percent in Mexico, Uruguay, and Panama; less than 50 percent in Nicaragua; less than 70 percent in Venezuela. None of these changes could have been captured by standard time-series analysis; all would have been pretty well flagged as part of an ordinary hands-on budget projection.

8.—One of the big problems with most projections, and with many other aspects of the professional practice of economics, lies in the fact that we cannot pick and choose what we would *like* to project, or what we could readily project using a particular method. No, if we are doing tax revenues we have to end up projecting *all* tax revenues; if we are doing imports, we have to end up projecting *all* imports; if the demand for aluminum, we have to end up projecting demand for *all* uses of aluminum. Inevitably, some parts of the job are easy, some are difficult but manageable, and some just lead one to throw up one's hands. Yet these last gaps have to be filled in before the project is complete, before the job is done. Here more than anywhere else, the making of projections turns from science to art; here more than anywhere else,

one's natural instincts as an economist are tested. Here more than anywhere else is where the art of making projections stands most in need of help from economic science.

D. Diagnostics

1.—The analogy between economics and medicine goes quite deep; one of its most interesting facets is the importance of diagnostics in both professions. Just as in medicine a doctor has to know that a heart rate can run from, say, 60 beats per minute all the way up to maybe 90 and still be in the normal range, so too in economics there is nothing particularly pathological about a rate of inflation of 5 percent or even of 10 or 12 percent per year. And just as in medicine a temperature of 104°F (40°C) should make any practitioner sit up and take notice, so too in economics real interest rates of 2 or 3 percent per month (as several Latin American countries experienced during significant parts of the 1970's and 1980's) are distinct causes for alarm. It is definitely part of the business of the economics practitioner to have a clear sense of when the signal is green (for more-or-less OK) or amber (for caution) or red (for danger). Once clients feel they can rely on a practitioner in this way, the best answer of all may be "nothing seems to be wrong; don't worry; just take an aspirin and get some rest." Thinking about this as a medical situation, I believe we all would also agree that it is one of the highest expressions of the practitioner's art to be able to give us such advice accurately and with confidence. Obviously, this type of diagnosis has its counterpart in economics. The key requirement here is that the diagnostician have a very good idea of what is "normal."

2.—Another requirement of good diagnosis is that the practitioner should be able to make subtle distinctions between situations that to the untrained eye may look almost the same. This need for sharp and perceptive observation can easily be illustrated with examples taken from the field that I call real-exchange-rate analysis. To

set the stage, let me define the real exchange rate of Mexico as “the real price of the real dollar.”

The real exchange rate thus defined equilibrates the market for foreign currency. It tends to fall when there is a big jump in the real supply of foreign exchange, and to rise with a big increase in real demand. The big oil booms of 1974 and 1979 tended to produce a big drop in the real exchange rate (which we identify as Dutch Disease) for the major oil-exporting countries. But they did not do so for Iraq. Why not? And could a good diagnostician have predicted this anomalous result? The reason was that Iraq was maintaining a supertight licensing control over imports, which kept the effective demand down to the level of foreign exchange that was available to the licensing authorities. When the oil boom came, the licensing authority had more to distribute and did so, thus generating a jump in demand to match the jump in supply and obviating the need for an equilibrating adjustment in the real exchange rate.

Another example: in the period leading up to the debt crisis of the early 1980's, the borrowing countries were awash with foreign exchange, and their real exchange rates reached historic lows. One diagnostic lesson was to recognize that these low real exchange rates were in most cases an equilibrium phenomenon, resulting from the abundance of foreign exchange rather than from some aberration of monetary policy. But another lesson was a danger signal. In most cases, a quick analysis of the rate of borrowing would show that it was unsustainable in the long run, that if continued it would produce ratios of debt/GDP and of debt/exports that exceeded the viable maxima. The debt-crisis countries should have recognized the unsustainability of their rates of borrowing, and with it the likelihood that the equilibrium real exchange rate would soon take a big upward leap. On the whole these prospects were not recognized until they were not prospects, but reality. Country after country—Mexico, Venezuela, Peru, Brazil, Argentina, Chile, and Uruguay, among others—suffered the consequences. In the process of adjustment, the real ex-

change rate reached a peak of more than three times its pre-crisis level in Argentina, more than twice in Chile and Uruguay, and around 1.5 times in the rest of the debt-crisis countries.

3.—A similar but yet quite different case was that of El Salvador in the late 1980's. Here too there was a flood of dollars on the local marketplace, leading to a low real exchange rate and to complaints from producers of tradable goods. However, here the story was not one of an imminent shift in that status; rather, the likelihood was that things would stay much the same for some years to come. Why? Because the sources of the flood of dollars (remittances from emigrants plus government-to-government transfers, principally from the United States) were not about to be closed down or drastically cut. Hence export interests were well advised to recognize the low real exchange rate as reflecting the truth of the situation now and for some time to come. Policy makers were well advised to recognize that a devaluation of the nominal exchange rate would soon be matched by inflation, unless something happened to change the underlying forces of supply and demand that determined the existing equilibrium level of the real exchange rate.

4.—I think it is fair to say that real-exchange-rate analysis came into its own in the 1970's and 1980's, in response to a dramatic worldwide increase in real-exchange-rate volatility. Another important analytical advance was the development of the concept of effective protection. Here we learned that nominal tariff rates can be catastrophically misleading. The same 30 percent tariff on men's shirts can entail an effective protection rate of 30 percent if no imported inputs are used (say, in cotton shirts), or an effective protection rate of 60 percent if imported inputs account for half the world prices of the final product (say, in wool shirts), or an effective protection rate of 120 percent if imported inputs account for three-fourths of the world price of the final product (say, in silk shirts). These examples are special because they assume that im-

ported inputs enter the country duty-free. The rate of effective protection would change with each change in the level of tariffs on imported inputs and also with each change in the world prices of these inputs or of the final product. One of the big lessons that was learned from this analysis is that one can never really "plan" a set of different rates of effective protection for different goods, because they depend on too many factors that are always changing. On the positive side, however, we learned that a uniform tariff covering all imported goods—final products as well as inputs—has the unique property of providing equal effective protection to all import-substituting activities (potential as well as actual). This result was an important factor setting in motion the recent trend, in which many developing countries have moved their tariff structures sharply in the direction of equalization. Effective protection tariff rates were shown to range all over the map, from negative to several hundred percent. This was the diagnosis, but there was no sound rationale for such variation. The prescription was to greatly reduce this variation by squeezing all nominal tariffs within a narrow band (say 10–20 percent, as in Mexico) or actually to achieve uniform effective protection by way of a completely uniform tariff (e.g., the 11-percent rate now in effect in Chile).

5.—Another advance which greatly helped in the diagnosis of macroeconomic problems was the monetary approach to the balance of payments. The starting point here was to recognize that, when people have undesired real cash balances, they tend to spend them, and when real cash balances are too low, people modify their spending patterns so as to augment them. The next step was to note that when people were working their real balances down or up, an important part of the affected spending was on tradable goods. Under a number of different exchange-rate systems—a traditional fixed rate, a crawling peg, or a *tablita* (which preprograms the time path of the nominal exchange rate)—these changes in spending on tradable goods would end up being reflected in the balance of payments. Recognizing this simple sequence has enabled

economists to diagnose much more clearly the macroeconomic situation in countries where it is operative.

E. *What Makes Practitioners Feel Isolated?*

1.—If there is any quick answer to this question, it is the sense that the academic branch of the profession, in the classrooms and in our journals, is reflecting its own sense of priorities and its own hierarchy of values, with little feel for those of the practitioners. It would be all wrong to try to put one's finger on a single source of the problem. Some practitioners complain of too much mathematics, some of too much emphasis on methodology. I myself have used the word "supertechnicism" to describe one source of the perceived distance between the two camps. But all these are manifestations of the problem, not the problem itself. I for one can see all these elements persisting in the profession, without creating any serious problem for the practitioners.

As I interpret the situation, all the issues of which I speak could be easily resolved, just by giving "equal billing" (or even "closer-to-equal billing") to the concerns of the practitioners in the various hierarchies that we as a profession set up. How can we better instill in our students (and other members of our guild) a good sense of what is "normal" behavior in all the main dimensions of economic life? How can we be brought to recognize outliers, and most particularly those outliers that bode trouble? How can we send our graduates out into the world better prepared to take on tasks that with high probability will fall to them, such as the making of economic projections? My answer is: by paying more attention to these matters in our classrooms, journals, books, and conferences. But to pay more attention, the academic profession somehow needs to be sensitized to a new set of challenges, a new set of legitimate claims on its attention.

2.—Let me give you a simple example of how our thinking is slanted. When one has a complaint, it is usually best to admit one's own delinquencies. Therefore, let me share with you a brief sketch about the economics

of exhaustible resources. If one asks a sample of graduate students or of recent Ph.D.'s what they understand about the economics of exhaustible resources, nine out of ten will probably recite the theorem that the principle of extraction is that the real price per unit of the stock of resources *in the ground* must be expected to rise at the real interest rate; any lesser rate of price increase would make immediate extraction the best policy. And I must admit that my own students would have responded just the same. Throughout many years of teaching price theory, I taught this vision of exhaustible resources because it was so neat, so clean; and besides, it generated such nice exam questions!

However, let's now stop and think about it. We surely have to assign to mining assets a level of risk as great or greater than, say, the average risk of New York stocks. This means that mineral assets should rise in value at a real rate of at least 7 percent per annum or so (the long-term yield of New York stocks). Seven percent doubles every decade, multiplies by 32 in 50 years, and by about a thousand in a century. Now the challenge is to find the minerals whose implicit price-in-the-ground behaves like that. I cannot say I have made an exhaustive search, but certainly a pretty good one, covering most well-known mineral names, and I have yet to find the first mineral whose price-in-the-ground appears to have risen secularly at the real interest rate. (Price-in-the-ground is the price of the extracted ore minus marginal costs of extraction, or price of the processed mineral minus the relevant costs of extraction and processing.)

Does this mean we should stop teaching the beautiful, clean, neat, simple theorem that we all learned? I think not. Rather, we should teach it as a door-opener, to be followed by a demonstration of its massive failure to explain the facts of the last century or so, to be followed in turn by an explanation of some of the more plausible reasons for this massive failure. The theorem itself implies that, if prices are not expected to rise at the required rate, there is no point in holding inventories of minerals in the ground. Under those circumstances one should extract rather than hold,

the speed of extraction being governed more by considerations of extraction costs than, as the theorem states, by the benefits of holding *per se*. This is what we tend to observe. All this makes more sense when one builds in the facts that the available amounts of exhaustible resources are not known, that mineral discoveries are constantly being made, and that technological substitutions often trigger dramatic drops in mineral prices.

II. What Can We (The Profession) Do?

The vignettes presented at the beginning are supposed to give listeners and readers a sense of what it is like to be a policy practitioner—of what sorts of abilities that role calls for, and to what kinds of demands practitioners are typically asked to respond. The exhaustible-resources example is supposed to provide a sense of how the academic side of the profession at times distances itself unwisely and unnecessarily from the world of the practitioners. In the process, I hope to have made my audience more sympathetic to the practitioner's lot and at the same time more aware of the high order of the professional skills that are required. From both angles, I hope my listeners and readers feel now more than before that we on the academic side of the profession should pay more attention to the needs of our practitioners and should try to serve them better.

What follows is another slide show, another set of vignettes, this one designed so that readers can weigh the merits of each successive thought or suggestion, and to stimulate thought related to further ways of providing greater academic support and improved scientific underpinnings for the things practitioners do.

A. General

1.—Very high on the list of ways to serve the practitioners is the simple effort to focus more on results and less on methodology. At least when we are dealing with something relatively new, there should actually be a premium on looking at it from various angles, using "all the evidence at hand,"

rather than placing all the weight on one particular approach or method. When we are not looking at something new, our task should be to state quite clearly wherein and how our results are superior to those that went before.

2.—From a methodological point of view, we should try to implant the principle of minimalism. This principle can be summarized as the economists' version of the old saw: "You don't use an elephant gun to kill a mouse." Our search should be for methodological simplicity, not methodological overkill. Wherever a straightforward application of supply and demand will do the job, there should be no need to go to anything more complicated. Note that this point does not contradict the first, which deals not with methods as such, but with the range of evidence that we examine.

3.—As a corollary of the principle of minimalism, whenever we go to a more complicated methodology, we should be able to show how and why the extra complication is needed. I suggest this may be a little hard to accomplish in reality, because very often the colleagues who manage an advanced technique best are not the same ones who have the aptitude to get the most juice out of the lemon using supply and demand or some other simple approach. So in reality the scenario might work out with A introducing a more complicated methodology which appears (in his analysis) to be needed in order to accomplish the objective at hand, and with B responding in a later journal article or comment that A missed a particular trick or twist, and showing that A's task could still be performed in a very simple framework. This leads up to a plea to journal editors and referees to modify their standards and priorities so as to give full status to this type of interchange.

B. *Applied Welfare Economics*

1.—As one who has written and taught in the field of applied welfare economics for more than four decades, and on the subject of cost-benefit analysis of investment projects for more than three decades, I feel

quite safe in stating that we do not have, in the United States, either the amount or the kind of training that is needed for our profession to make its appropriate contribution to our society's decision-making processes. Our society needs literally thousands of well-trained project analysts with good background in analysis, with the ability to move quickly to sound quantitative judgments, and to devise intelligent scenarios that are tailor-made for each problem at hand. Where we need thousands, I doubt that we even have hundreds. Results: a low level of professionalism in practice, with much work of highly variable quality passing as if it meets the most serious of standards. We need to take cost-benefit analysis more seriously, emphasizing those areas where current technique is adequate to the task. Starting from this base we have to build large cadres of knowledgeable professionals who can see to it that our work in the field meets adequate standards. At the same time, we need a significant volume of academic work to extend the frontiers of cost-benefit analysis to new areas.

2.—In our teaching, we should see to it that the typical graduate student emerges with a working knowledge of basic applied welfare economics, with emphasis on the measurement of deviations from optima, rather than on the elegant derivation and specification of the optima themselves. This does not mean giving up a lot, since if one can measure the costs and benefits of any situation, it is easy enough to analyze whether a given step is a net plus or a net minus. Apply this type of analysis, and in most cases you are carried to a definition of the optimum as that point where no marginal step in any direction will increase net benefit. The important thing here is to focus attention on nonoptimal, indeed on far-from-optimal situations, because that is what the student will encounter in the real world.

3.—When we do modern political-economy analysis, we should avoid like the plague any suggestion that it has the patina of a welfare optimum. We are still mourning the death of our colleague, George Stigler, and

I am happy to invoke his memory. He often pointed out that for 200 years we economists have won the debates on free trade in the lecture halls, but the protectionists have won the battles in our legislatures. The iniquity reflected in this observation led to much fruitful research on why some industries succeeded in winning high tariffs, while others did not; why some gained beneficent regulatory treatment and others did not, et cetera, et cetera. At the core of this political-economy analysis was an exploration of the interests of those in government (the interests of the regulators, the interests of the legislators, etc.), and how these interests mesh with those of the industries being regulated. All of this is a great aid to our knowledge and understanding and as such is to be applauded, but as I said, we must avoid any suggestion that the outcome of such interaction of interests is beneficial. Knowing the mechanics of how the U.S. sugar industry has been able to wangle protective legislation in its behalf for all these many decades is good information for our economists and citizens to have; but the best use of that information is to help us manage a better struggle to tear down those protective walls, not to justify their continued existence. In fact, modern political-economy analysis is neither an outgrowth of nor a substitute for standard applied welfare economics. The latter remains as an essential component of the tool-kit of economics practitioners.

C. *Projections*

1.—The art of making projections is rich and varied, but it certainly is not well represented in the economics literature. It fits rather nicely in a Bayesian framework, however, because one can think of changing one's "priors" with respect to certain older information, or with respect to the results of a regression, as new information comes in. As I think of projections methodology, I go back to the old and very fundamental economics vision that sunk costs are sunk, that by-gones are by-gones, that economic activity is forward-looking. This is what leads one not to look on any mechanical, repetitive procedures as giving the final answer.

2.—Looking for ancillary evidence is a big part of the art of making projections. Comparing flows with stocks of durable goods can provide good clues as to whether we are dealing with a situation of full equilibrium, or whether our present production rates reflect a transition from one stock equilibrium to another. Likewise, analysis of the fundamentals of a commodity market can help reveal when the actual price is unsustainably high or low. In such cases we will often find that we are observing a process of overshooting: learning to recognize overshooting when one sees it is also an important part of the art of making projections. (Please note that recognizing an overshoot implies only that one perceives, say, that prices are above the long-run equilibrium price. It does not in the least imply that one knows the time path by which that equilibrium will be reached.)

3.—This point fits somewhat uncomfortably under the heading of projections, but I feel it is important enough that it should, willy-nilly, be squeezed in somewhere. Our profession has become enamored of dynamics, in recent years as never before. The question is what sort of goals we set ourselves as we explore this fascinating but potentially treacherous terrain. I have a humble analogy that I present in all seriousness. If I am in my office at 5:00 P.M., it is next to a certainty that I will be home by 8:00. What is uncertain is exactly when I will leave the office, when I will arrive home, how long I will take on the way, what route I will follow, and what intermediate stops I will make. Of all the propositions that I have heard in economics concerning dynamics, the most profound by far is Marshall's distinction between the long run and the short run, and in particular his vision of the short-run situation being one of equilibrium and disequilibrium at the same time—an equilibrium with the arrows of change built in.

My question is: can we not emulate Marshallian analysis in our empirical work on dynamics? That is, can we define a short-run situation by the indicated direction or directions of change of one or more key variables and test our hypotheses by checking how

often the movements are in that direction? This sort of “qualitative dynamics” would capture the reality that many of us perceive far better than a quantitative dynamics that tries to predict not only the entire path of adjustment, but also the speed with which it is traversed.

D. *Diagnostics*

1.—The first step in teaching people how to diagnose different situations is to teach them how to observe, in the same way, perhaps, as a hunter would try to teach his children how to scan the horizon and what to look out for. I know of no true substitute for hands-on practice in this area, but it is surely better undertaken with the help of an experienced guide (or at least a good guide-book) than to try to go it alone. Therefore, in our literature and in our classes, we should become more articulate about how to observe and how to diagnose.

2.—For those interested in the economics of different countries, I know of no better starting points than the IMF’s *International Financial Statistics* (IFS) and the World Bank’s *World Development Report* (WDR). Sheer immersion in the data presented in these publications will set novices on the right track, and all the better if they have someone to guide them. I am fascinated by the thought of a course in macroeconomics that would use the *Yearbook* of IFS as its principal text. This yearbook gives annual data for some 150 member countries, going back where feasible for about 30 years on a vast array of subjects: monetary and banking institutions and magnitudes, national income and product accounts, trade and the balance of payments, prices, wages, interest rates, and exchange rates. From such data one can derive at first hand not only a good notion of what is normal and what is not—of when the light is green, amber, or red—but also a pretty good sense of the nature and source of the trouble, when trouble is present.

3.—The world of diagnostics has its own vocabulary, in which syndromes and scenarios play a key role. These have no formal

definition for economic applications, but I like to think of the syndrome as the simultaneous presence of a combination of symptoms, which one could read from the data of (or up to) a moment in time. Similarly, I like to think of the scenario as sort of a motion picture, in which the forces present in a given situation are released in such a way as to tell a quite natural story. I have written papers with titles like “The Inflation Syndrome” and “Some Debt Crisis Scenarios From Latin America,” and one can also envisage scenarios for trade liberalization, or for specific types of fiscal reform. For devaluation crises one can identify both a syndrome, signifying the need for major real-exchange-rate adjustment, and one or more scenarios, showing how the story might play out once a major (or perhaps minor) devaluation is undertaken.

4.—The label “diagnostics” connotes a lot of what might be called a practitioners’ world-view of economics. Once applied to economics, it automatically classifies it as a fundamentally observational discipline, in which learning about and dealing with the world is the name of the game. Add to this the awesome truth, that the real world is far too complex to be encompassed in any single model or vision, and you get another practitioner’s adage: that in the face of the world’s complexity we have to divide it up into components that are simple enough for us to comprehend—simple paradigms to deal with complex reality. These have always been a part of the teaching of economics, though they may have faded into the background in recent years, with the increasingly technical tone of our discourse. Syndromes and scenarios might be a way to restore them to a more central role as part of a conscious effort to reinvigorate economics as an “observational discipline.”

5.—I should emphasize that in pleading for simple paradigms to deal with complex reality I do not mean that we should embrace a crudely partial-equilibrium approach. Far from it: he who deals with reality can never forget the wholeness of our complex world. But just as the orthopedist can look mainly at knees and ankles while

not forgetting their links to the rest of the human body, so economics practitioners learn to explore minute details in the sector they are studying while embedding that sector in a broader economy that is sketched with much broader strokes. The practitioner's way of thinking is probably more deeply rooted in the focused general-equilibrium analyses done in macroeconomics and in international trade than it is in the Walras-Pareto type of vision which treats equally all of many branches or sectors of the economy.

6.—As one delves into the world of syndromes and scenarios, particularly for purposes of policy analysis, whole new vistas emerge. How do governments get themselves into trouble on the inflation front? On the real exchange rate front? On the social security front? On the whole, such evidence as we can muster suggests that policymakers face temptations and moral dilemmas much like those we all have to confront in our daily lives. One of my favorite devices in studying developing-country inflations is a variable I call β , which expresses as a fraction of each year's GDP the increment of banking-system credit to the government in that year. This variable goes behind mere money creation to what is in many cases one of its main underlying causes. I have set up diagnostic categories of stable countries, chronic-inflation countries, and acute-inflation countries, on the basis of their actual inflation experience. For each such category I set out the frequency distribution of β , for the relevant countries and years. In three successive nonoverlapping data sets, one covering the years 1950–1975, (Harberger, 1981) the second the years 1976–1984, (Harberger, 1988) and the third (unpublished) the years 1985–1990, the frequency distribution of β for the acute-inflation countries lies to the right of that of the chronic-inflation countries, which in turn lies to the right of that of the stable countries. So old Calvinists like myself can say that sinners reap their just reward. However, we can't be very pompous or dogmatic about it, because, unfortunately for the black-and-white vision of the world, the distributions overlap a great deal. Typi-

cally, the third quartile of β for the stable countries lies above the first quartile for the chronic-inflation countries, and the third quartile for the chronic-inflation countries lies above the first quartile for the acute-inflation countries. This is just like medical evidence on smoking, drinking, and diet. Their influence on our life expectancy has been clearly proved, yet some three-pack-a-day smokers live to be 90, as do some pint-a-day drinkers and some well-known *gourmands*.

Faced with this sort of evidence, governments often fall prey to the temptation to take the easy road and drift into an inflation syndrome, hoping they can get away with just a little more borrowing from the banking system, just one more time. In this world of varying shades of gray, it also becomes harder for advocates of prudent policy to hold the line against their more permissive colleagues. This is why qualities of character like fortitude and determination tend to be of key importance in distinguishing the great economic ministers and central-bankers from their run-of-the-mill counterparts.

III. Conclusion

I hope that in this lecture I have gone a step beyond just pleading for the profession to pay more attention to the professional practice of economics in our teaching, in our research, and in our literature. That extra step has been to show that doing so can be interesting, even fascinating. In short, it is fun to face the challenges and puzzles that abound in the world of the practitioner.

The vision I would like you to carry away from this lecture sees economics as fundamentally an observational discipline. An important part of our instructional task is to teach students how to be sharp and perceptive observers, to recognize and respond to telltale clues, and to have command of tools that are simple and versatile, so they can react on the spot, help avert disasters by timely action, and in general fix things quickly when they go wrong.

A related vision is of the learning process of practitioners. At least to my perception, the best practitioners go around with a cer-

tain worldview in their heads. All sorts of crazy things can happen—like hyperinflations and huge recessions and wrenching debt or exchange-rate crises. All of these plus many more rare and apparently anomalous events can occur and still leave seasoned practitioners unruffled, because their worldview already contains sensible explanations for them. Every now and then, however, something happens that does not fit the prior image—something that shakes our Bayesian faith in what we used to think. In my view, this is how most practitioners build their expertise, how entities like the IMF and the World Bank learn as institutions, and how we ought to teach our students to learn.

I hope I have been able to evoke these visions in my remarks today. If we move to link the academic profession more closely to the world of the practitioner, we will enjoy it, our students will profit from it, the discipline of economics will be richer, and the world may even end up being a somewhat better place to live in.

Let me take off from that thought to note that over the last few decades we have witnessed quite a number of economic success stories, the great bulk of them linked to economic policies that were far better than what went before. We not only have the Far Eastern dragons of Hong Kong, Singapore, Taiwan, and Korea, but also Indonesia, Malaysia, and Thailand; Spain, Portugal, Greece, and Turkey; Chile, Uruguay, Mexico, and now probably also Argentina.

I did not build this talk around such success stories because I wanted to focus more on the daily lives of practitioners, on what it is like to live in their world. I wanted to show that their lives can be enormously rich and full (in a professional sense) even though most of them never savor the grand triumph of participating in the successful transformation of an entire national economy. But the evidence of one national success story after another should not be left

unmentioned, for it shows that major economic transformation—the ultimate fruition of the struggles of our practitioners—is not beyond our reach. This fact ought only to add to our enthusiasm to give the practitioners of economics, and the study of their craft, as much of an honored place within our discipline as we and others (including medical teachers and scientists) give to the practitioners and the practice of medicine, our sister discipline.

REFERENCES

- Hansen, W. Lee**, “The Education and Training of Economics Doctorates: Major Findings of the Executive Secretary of the American Economic Association’s Commission on Graduate Education in Economics,” *Journal of Economic Literature*, September 1991, 29, 1054–87.
- Harberger, Arnold C.**, “In Step and Out of Step With World Inflation: A Summary History of Countries,” in M. June Flanders and Assaf Razin, eds., *Development in an Inflationary World*, New York: Academic Press, 1981, pp. 35–46.
- , “World Inflation Revisited,” in Elhanan Helpman, Assaf Razin, and Efraim Sadka, eds., *Economic Effects of the Government Budget*, Cambridge, MA: MIT Press, 1988, pp. 217–37.
- Keynes, John Neville**, *The Scope and Method of Political Economy*, London: Macmillan, 1891; reprinted, New York: Kelley and Millman, 1955.
- Krueger, Anne O. et al.**, “Report of the Commission on Graduate Education in Economics,” *Journal of Economic Literature*, September 1991, 29, 1035–53.
- International Financial Statistics, Yearbook*, Washington, DC: International Monetary Fund, 1992.
- U.S. President’s Materials Policy Commission**, *Resources for Freedom*, Vols. I–VII, Washington, DC: U.S. Government Printing Office, 1952.