The fragility of a discipline when a model has monopoly status

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Abstract We consider the consequences of a scientific literature with only one model of an important phenomenon. The falsification of the model would mean falsification of the science. Scientists who would prefer not to have their discipline falsified will be tempted to find ad hoc explanations to excuse the failure. To test this hypothesis we propose a study of the economic forecasts of the comparative Soviet and American growth rates in the years before a public choice model of central planning was a viable alternative to the public interest model.

Keywords Central planning · Economic forecasts · Preferences over estimates · Robust political economy

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> Data is Latin for "given." Given by whom? Surely, not by God.
>
> *Zvi Griliches*
>
> One question must always be uppermost in the investigator's mind:
> what are the figures trying to prove?
> *Gregory Grossman*

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"Who built the White Sea-Baltic Canal?"
"On the right bank–those who told anecdotes,
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An Anecdote from the time of Stalin and his Death Camps

This paper applies the lessons we have learned from our study of the role of the expert in 19th and early 20th century economic controversies to issues nearer to the present day. The case we studied was eugenics, an offshoot of mathematical statistics that evolved into an attempt at demographic central planning (Peart-Levy 2005). Wrapped up as it was in a fundamentally hierarchical view of the world, eugenics is all-too-easy to dismiss as bad science.[1] The case we begin to address here is the response of economists to forecasting failures of the 1960s-80s of the comparative fate of the market and centrally planned economics.

The first lesson we learned from our previous work is that it is dangerous to assume the motivation of experts differs from that of ordinary people. This is consistent with the evidence which has been adduced (Tetlock 2005) that experts as *individuals* are reluctant to have their forecasts falsified. The second, related, lesson from our previous work is that sympathetic agency ought to be taken as the default assumption for economic analysis. In what follows, we therefore develop the idea of a sympathetic expert. In so doing, we consider a time period in which there was only one model of a centrally planned economy. Thus, a failure of forecast could then be interpreted as a failure of economic theory itself. Consequently, a sympathetic expert who had no interest in the actual fate of the Soviet Union versus the United States, but who is committed to economics would, in our account, prefer that the forecast based on the economists' (only) model of central planning not be falsified. With sympathy in the analysis, we can move from the interests of the individual to the interests of the discipline itself.

The model of central planning which dominated the profession was a simple public interest model. For one public reason or another—pure state power or the well-being of future generations—Soviet planners were said to have allocated more social resources to investment than did the liberal democracy of America. About the motivation there was a great deal of controversy: maximizing state power is not the same as maximizing the welfare of future generations. Nonetheless, assuming the relative efficiency of two economies was roughly the same, the implication was that Soviet growth would be higher. From this, a forecast of overtaking the liberal democracy economy by the centrally planned economy follows immediately.

The third lesson we have learned from our previous work is that, when the models of experts fail, this opens up the possibility of obtaining information by centering anecdotal evidence. The public choice models of central planning that were published in the early 1990s are a way to make sense of two sorts of systematic anecdotal evidence. Prices in the Soviet Union were consistently below market clearing levels, and officials had priority in the allocation of goods in short supply. From those two facts, a self-interest, public choice model follows almost immediately, (Levy 1990, Shleifer-Vishny 1992).

In the public choice model there is no reason to believe that a centrally planned economy will have any efficiency property other than the crassest private interest.[2] Time in the queue is

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[1] This claim is especially easy to make if one does not bother to read the technical work of Francis Galton, F. Y. Edgeworth, Karl Pearson and other great names in mathematical statistics who contributed so deeply to eugenic theorizing.

[2] "'What did the October Revolution do for the masses?' 'Before the Revolution the ruling classes used the front door of stores. The people came in through the back. Now the people use the front door and the bosses use the back.'" (Adams, 2005, p. 25). The back door is the entry to the unofficial economy.

time making neither consumer nor investment goods.[3] Thus, there is no reason to believe that a planned economy would grow faster than a market economy. But because public choice models came rather late in the discussion, we need not worry about them influencing the discussions of the 1960s-80s.

1. Expert and ordinary person

The division of the world between expert and ordinary person which we studied in debates of the past is still with us. Perhaps the best way to appreciate how neo-classical economists presuppose a motivational heterogeneity of the agents we study and experts who study them emerges when we ask, whether the economist is inside the economic model he proposes? Characteristically, the economist does not model his behavior qua economist. When asked informally about his motivation, few economists respond that they are interested in rewards carried by language, e.g., applause for finding truth, but many will entertain the idea once it is suggested to them.

This separation of economic agents and experts at the level of motivation is one of the great divides between classical political economy and post-classical economics. For Adam Smith, and all those in the following century who accepted as a norm his chapter on the equalization of net advantages of employment, the rewards to all people come in vector form. For all employments there is a material component and an approbation component. Executioners get paid a great deal in material goods, other things because equal, because their work is shameful; philosophers get paid less because our work is considered honorable.

The problem of the expert who is better informed than the client he serves has been with us a very long time. Frank Knight's 1934 reflections upon the choice of a medical doctor by an ordinary person marks the beginning of the principal agent problem in the modern economic literature.[4]

Knight worried because he specified that the interests of the expert are opposed to those of the client. Here, we suppose the interests of the expert and client are harmonious and, as will make clear below, we continue to worry. We assume that the expert's private motivation is purely public spirited.[5] As the expert in our account works for a client, we need to specify

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[3] "What is a line? 'A line is the communist approach to sales.'" Adams (2005, p. 24)

[4] "A patient who would choose his doctor scientifically would, in the first place, have himself to know all medical science, or at least all that known to any and all candidates for the place, and in addition know just the amount of this knowledge possessed by each candidate. But this is only half the story, and perhaps the smaller half. Our poor patient would further be required to know the degree in which each candidate would use his knowledge in his, the patient's interest.

"If the problem of competence in an agent admits of no solution because of its magnitude and complexity, that of the moral admits of none, of an intellectual sort, by its very nature. One who is to act for another with special competence, superior to that of his principal, and with fidelity, must be picked for competence and trustworthiness by some intuitive process, and must then be trusted. Sanctions of the sort found in every society no doubt help in security trustworthiness. About all these matters we have little knowledge, and the only that can be said with assurance is that (peace to the shade of Jeremy Bentham!), no machinery of sanctions can conceivably function without very large aid from moral forces." (Knight 1934, 29–30).

The public choice account of socialism was understood by Knight. Farrant 2004 gives the details of Knight and the later rediscovery of the point.

[5] Buchanan's 1959 view of the economist as truth seeker supposes reclusive agency, Robinson Crusoe's motivation does not change when Friday appears. We keep truth seeking but drop reclusivity.

in what the expert-client relationship consists.[6] At this junction in the argument, we return to the classical foundations of political economy which supposed sympathetic agency. As the classics began their analysis from the evidential basis of proverbial wisdom, in which concern for others is frequently expressed (Peart-Levy 2005), we find this an attractive procedure.[7]

We locate the expert in an economy which, in addition to the usual resources and desires, also contains a language (Smith 1776, Rubinstein 2000). Language usage is not, of course, restricted to the expert but we assume that the expert has a slightly wider vocabulary than the people who live in the "same" language community.[8] We shall concern ourselves only with the expert's specialized vocabulary in which we find words that are mathematical estimates of the first two moments of a distribution. Our argument remains within economics proper as we suppose that both expert and client have preferences over two well-specified properties of estimators when applied to the particular data in question.

Ultimately, we wish to argue against the vision of the scientific community as isolated from ordinary people. Perhaps the most compelling vision of a community of science ruled by its own norms in isolation from the larger community was laid out in 1962 by Michael Polanyi when he argued for a "Republic of Science." Polanyi was of course concerned with fraud, but he viewed that as something which comes upon science from the outside.[9] Polanyi was clear that the scientific community needs to instill the proper truth-seeking motivation. This we do not dispute because, even accepting all that, the Polanyi argument requires an additional assumption that our motivation is entirely reclusive. We ask what happens when a truth seeker is sympathetic with the concerns of other people and there is little variation in the interests of others? Sympathetic agency is a means by which the concerns of one person bend the concerns of another. The consequence that Polanyi did not foresee is that when the Republic of Science is isolated from ordinary experience, contamination of one part of the community will contaminate it all.[10]

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[6] "Client" is a wider term in our usage than someone who exchanges material goods for advice. The client could exchange co-authorship on a research project for statistical expertise. This is a commonplace place in statistical consulting, e.g., Deming (1965).

[7] The reader who knows Adam Smith should now be able to predict how the argument will develop. As we have made no public spirited assumption about client, the sympathetic specification will result in expert being bent by client. Affection for Smith is simply habitual sympathy (Peart-Levy 2005) and motivates only a willingness to share. Modern economists are rather more casual than Smith. We suppose that "co-operation" is a good and that "collusion" is a bad. For Smith the behavioral foundations are the same; only the consequences differ. The "Adam Smith Problem" of the 19th century is evidence that our analytical ability decayed considerably.

[8] A specialized vocabulary is a mark of a linguistic division of labor which presumably follows from the material division of labor. Putman 1973 begins the discussion of linguistic division of labor.

[9] Polanyi (1962): "Scientific publications are continuously beset by cranks, frauds and bunglers whose contributions must be rejected if journals are not to be swamped by them."

[10] Polanyi (1962): "No single scientist has a sound understanding of more than a tiny fraction of the total domain of science. How can an aggregate of such specialists possibly form a joint opinion? How can they possibly exercise jointly the delicate function of imposing a current scientific view about the nature of things, and the current scientific valuation of proposed contributions, even while encouraging an originality which would modify this orthodoxy? In seeking the answer to this question we shall discover yet another organizational principle that is essential for the control of a multitude of independent scientific initiatives. This principle is based on the fact that, while scientists can admittedly exercise competent judgment only over a small part of science, they can usually judge an area adjoining their own special studies that is broad enough to include some fields on which other scientists have specialized. We thus have a considerable degree of overlapping between the areas over which a scientist can exercise a sound critical judgment. And, of course, each scientist who is a member of a group of overlapping competences will also be a member of other groups of the same kind, so that the whole of science will be covered by chains and networks of overlapping neighbourhoods. Each link in these chains and networks will establish agreement between the valuations made by scientists

2. The Soviet data generation process

The fundamental public choice question was asked in 1960 by Gregory Grossman. "What are the figures trying to prove" (1960, p. 134). Supposing, however, the truth of the public choice account then Soviet growth data have a critical ideological component. The justification for Soviet policy was not to serve the private ends of the planners but to bring about an abundant future even at the expense of present hardship.[11]

With this a background we consider a bargain between the statistical expert engaged by the central planner to estimate Soviet growth and the planner himself. We employ a simple model of preferences over estimates. We begin with the question of what are "wants" in the vocabulary of estimation. We start with the preferences of agents in isolation. This is how they would choose on the desert island so beloved of neo-classical economists if not by their classical parents (Peart-Levy 2005). In Figure 1 we present the problem of statistical consulting as one of competing preferences over estimates in which we visualize a trade-off between bias and statistical efficiency. We depart from the textbook treatment of the goals of statistical research and allow bias to be a desired property of an estimate. (Levy-Peart 2006) The central planner's preference for a biased estimator follows immediately from the divergence between his private interest and public pronouncements.

The constraint we imagine follows the simple mechanics of specification search or data mining where one makes many estimates and picks one's favorite (Learmer 1983, Denton 1985). In particular, these constraints, the replication set, is the result of computing a sequence of estimates mapping out the frontier combination of bias and efficiency (Levy-Peart 2006). In a Soviet context in which data suppression is allowed, then the replication set would be considerably extended.

We consider two sorts of preferences – one for a statistician behind Rawls' veil of ignorance and one for a client. The statistician before he encounters the client is interested only in statistical efficiency, the reciprocal of the mean square error. Either the statistician does not care about the value of the parameter to be estimated or perhaps he does care but is unwilling to give up any amount of statistical efficiency to get a more pleasing estimate. In Figure 1 this possibility is described by indifference curve J.[12] Thus for a statistician the rational estimate is j*. The client, however, has indifference curves of the shape marked by I and is thus willing to trade away some statistical efficiency for some gain in bias in the preferred direction. For the client, the rational estimate is i*.

Preference for bias of this sort is our way of representing something akin to private interest. The sign of the estimate matters in our account. Efficiency is measured without regard to sign as bias enters the efficiency calculation in squared fashion. Here we do not ask where

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overlooking the same overlapping fields, and so, from one overlapping neighbourhood to the other, agreement will be established on the valuation of scientific merit throughout all the domains of science. Indeed, through these overlapping neighbourhoods uniform standards of scientific merit will prevail over the entire range of science, all the way from astronomy to medicine. This network is the seat of scientific opinion. Scientific opinion is an opinion not held by any single human mind, but one which, split into thousands of fragments, is held by a multitude of individuals, each of whom endorses the others' opinion at second hand, by relying on the consensual chains which link him to all the others through a sequence of overlapping neighbourhoods."

[11] "Two Leningraders were talking. 'The lecturer said that we will soon have abundance.' 'Don't worry about it. We survived the blockade. With God's help we'll survive abundance.'" Adams (2005, p. 71). Adams explains that the German blockade lasted 900 days and cost two million lives.

[12] If the preferences are lexicographical then J is to be viewed as a pseudo-indifference curve and is marked with pseudo-Roman numbers.
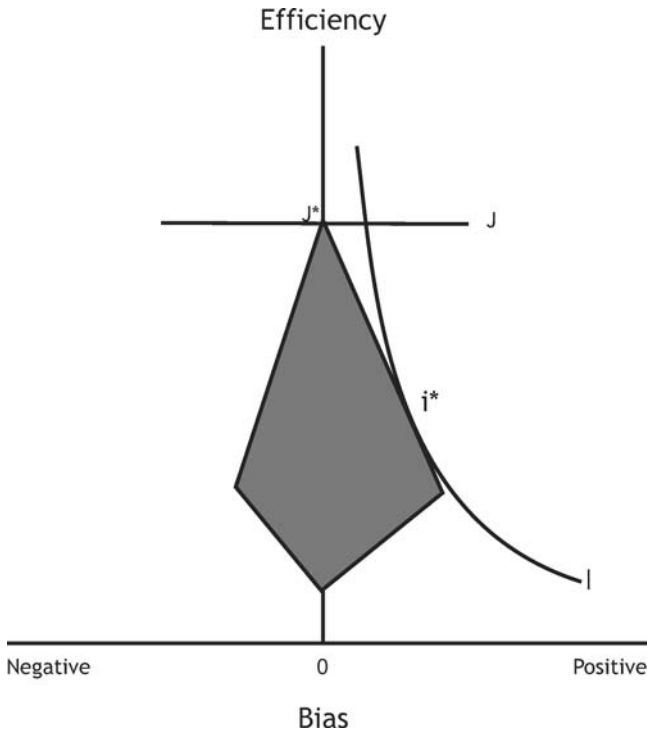
Efficiency

Fig. 1 Rational Choice of Estimates

these interests come from. Loss functions might be asymmetric as we suggest when there is only one model in the discipline.

What is the relationship between expert and client? We propose that the expert (first mover) is allowed to produce an estimate and present it to the client (second mover). The client as second mover has no say in the matter. In the experimental literature this is called a dictator game and, to the consternation of neo-classical economists, experimental subjects share (Camerer - Thaler 1995). The Stalinist variation the "dictator game" is that if the first mover's performance is judged unsatisfactory, he may be executed.

Our formulation of the sympathetic agent's utility function postulates that habitual sympathy creates an affection for another agent (Smith 1759) that becomes as important as the physical requirements for life (Mill 1861). We supposed that *i's* utility function contains a projection of *j's* preferences.[13] Thus, *j's* weights of the goods are only what *i's* beliefs make them to be. As the predictions of reclusive agency have been found wanting (Sally 1995, Camerer - Thaler 1995), sympathetic alternatives have been formalized in various ways in economics (Sally 2001, Levy-Peart 2004).

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[13] Smith's sympathetic agent, at least as starting point, projects his own preferences onto the situation of others, Peart-Levy 2005. Presumably, when there is a feedback mechanism in place, the projection will be modified. There is no reason to believe in Smith's account that the projected preferences will actually be the other agent's.

Our agents both have preferences over bias (B) and statistical efficiency (E) which will be common to both agents as there will only be one estimate reported. The utility function which we proposed for a sympathetic expert is as follows:

$$U_i = (B_i^\alpha E_i^\beta)^{1-\sigma} (B_j^\alpha E_j^\beta)^\sigma$$

Our sharing parameter is σ. When $0 < \sigma < 1$, we posit that positive sharing is utility maximizing. The reclusive expert, one for whom σ is 0 and for whom bias is important only in so far as it modifies efficiency—thus, $\alpha_i = 0$—will pick an estimate which maximizes statistical efficiency. However, the experimental evidence is overwhelming that $\sigma > 0$ (Sally 1995). In our sympathetic formulation the expert will bend his estimate to reflect the preferences of client.[14] The marginal utility of bias for a truth-seeking, sympathetic expert is positive.

The fundamental assertion of our model is that the data generating process in the Soviet Union requires appeal to sympathetic agency. This assertion draws credence from the analysis in Joseph Berliner 1957 *Factory and Manager in the USSR* which posed the issue in an unforgettable manner. We quote from Warren Nutter's discussion:

> the chief accountant, the head of the planning department, and so on— seem to be dominated by the plant manager and enmeshed in a "web of mutual involvement," to use Berliner's expressive phrase. (31)

Nutter's footnote in which Berlinger's "family relationship" is quoted makes the issue transparent to all who have been following experimental discussions of household allocations:

> Berliner describes the basis for this involvement as follows *(Factory and Manager*, pp. 324 f): "Awareness of common interests in plan fulfillment often generates within the enterprise a '*family relationship*' in which Party secretary, chief accountant, and other control officials facilitate or overlook the transgressions of an enterprising and successful director and share in the rewards and prestige that come with plan fulfillment. It is the fact that the control officials perceive their own fates as closely interwoven with the success of the enterprise that explains the endurance of the irregular practices of management." (31) emphasis added

3. Textbook accounts

We propose that a textbook author takes the profession as client. Although textbooks are purchased by students, they do this at the behest of their teacher. If there is only one model for an issue which attracts considerable discussion then anyone who prefers a world where

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[14] In an important article in *American Statistician*, Stephen Vardeman and Max Morris suggest that the "human element" in statistics arises from the fact that all-too-often the client has decided preferences over outcomes. We find the crux of the matter in their advice to the young statistician, emphasized below, Vardeman and Morris (2003, p. 23): "If your assignment is to help with statistical consulting, you are already wrestling (at a "trainee" level) with some of the serious issues faced by one segment of our profession. Carefully consider and handle these now, as you begin to see how the "human element" of statistical consulting requires thoughtful and principled discipline. You're going to have to argue with yourself in conversations like: -

What looks to me like the thing that should be done would take two hours to explain and several more hours of my time to implement, while this client would be happy with something less appropriate that I could explain in five minutes . . .

-*This client really wants "A" to be true, but these data look inconclusive* . . .
-This looks pretty much OK except for that oddity over there that the client doesn't really want to discuss."

economic theory is true to one with economic theory false will prefer that the model not be falsified.

This is the hypothesis we are setting out to test. To do so, we would look at every principles of economics text in the Library of Congress catalogue to see if there was a general reluctance to falsify the forecast of the planned economies overtaking the market economies.[15] Our prediction is that there was such a reluctance to falsify a forecast so connected with economic theory itself. To help insure that our interests are at least transparent (Levy-Peart 2006), we publish our prediction before we conduct the systematic study.

As we are on record defending centralized anecdotal evidence, we risk only a little extra abuse by providing anecdotal evidence for our thesis. Consider the forecast in three editions
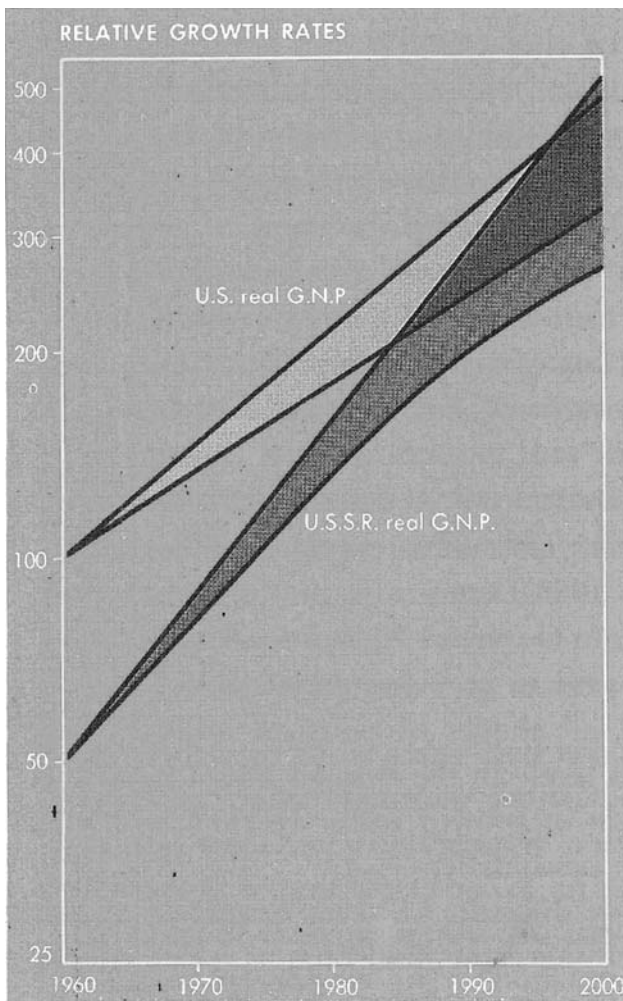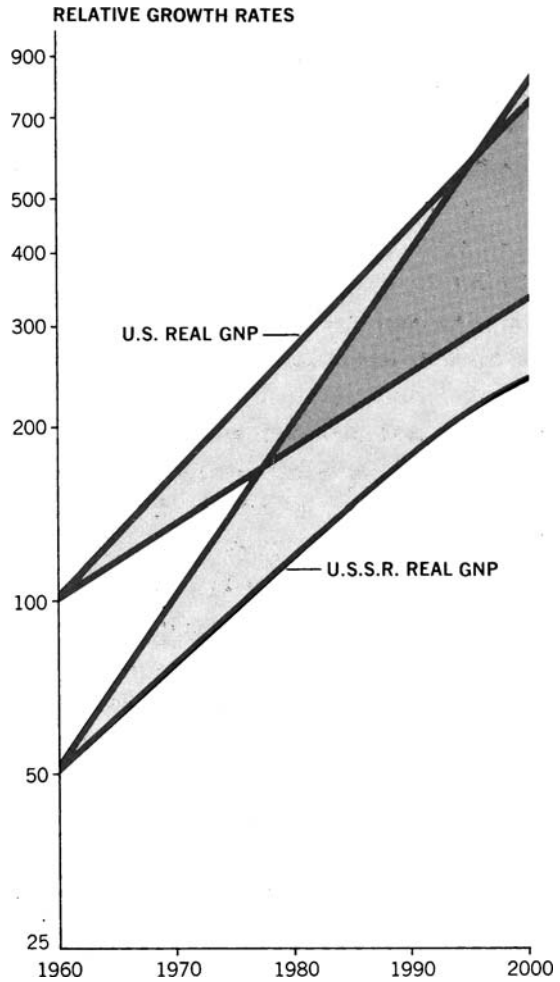

Fig. 2 Samuelson's 1961 Forecast

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[15] We specify the catalogue not the Library itself to avoid the "survival bias" which results from the fact that the very best texts are stolen more frequently than those we, as teachers, would be embarrassed to assign.

Fig. 3 Samuelson's 1967
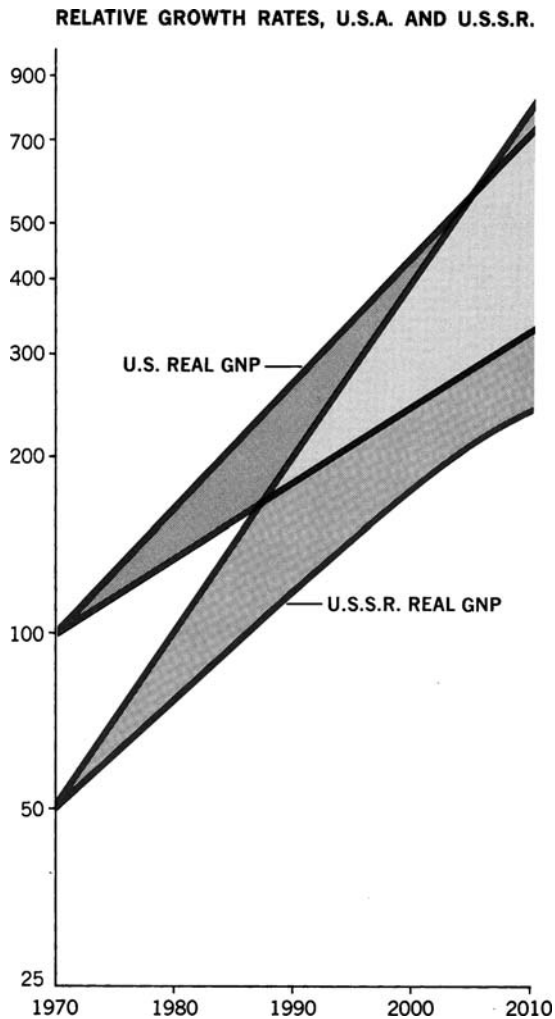Forecast

RELATIVE GROWTH RATES

of best textbook of the period, Paul Samuelson's *Economics*. As early as the 1961 edition, Samuelson presented a graph of Soviet and American growth projected to the future in a way that illustrated the range of uncertainty (Samuelson 1961, p. 830). Responsible forecasts require estimates of both first and second moments, a point clearly captured in the graph we produce below as Figure 2.

The graph also presents estimates of the year at which Soviet output would overtake American output. There are two overtaking years of interest. The first is the projection making the maximum respectable Soviet growth assumption and the minimum respectable American growth assumption. Let us refer to this as the max-min overtaking point. The second overtaking year would make the maximum Soviet growth assumption and the maximum American growth assumption. This we call max-max overtaking. In the 1961 edition the max-min year seems to be 1984; the max-max year seems 1997. Thus, time to max-min overtaking is 23 years; time to max-max overtaking is 36 years.

The graph continues in the 1967 edition (Samuelson 1967, p. 791). This is Figure 3. Again, the graph starts at 1960. Not surprisingly, the overtaking times are drawing closer.

Fig. 4 Samuelson's 1970
Forecast

RELATIVE GROWTH RATES, U.S.A. AND U.S.S.R.

The assiduous American student who obtained both editions might be excused a moment of panic. The max-min overtaking year is 1977 and the max-max is 1995. The time to max-min overtaking is 10 years, time to max-max overtaking is 28 years.

However, Samuelson's sidebar adds an element of hope.

> From 1960 to 1967 it would appear that the United States has moved at the very top of its projected range. But the U.S.S.R., because of bad weather and crops and shortening of the work week, may have moved at the bottom of her projected range. (1967, p. 791).

Tetlock (2005) has much to say about forecasts and "bad weather."[16]

In the 1970 edition the Soviet experience with bad weather, and the shortening of the work week, are again said to explain sluggish Soviet economic growth (Samuelson 1970, p. 831) but now the student is not forced to figure out how that relates to the graph. It (Figure 4) has

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[16] "'What are the main obstacles in the way of Soviet agriculture?' 'There are four: spring, summer, autumn, and winter.'" Adams (2005, p. 72).

been rebased to 1970. The overtaking times have moved back toward the 1961 edition, with max-min of 18 years and max-max of 35 years.

So, the Soviet economy has been growing more rapidly over the period but overtaking time is not unambiguously shortened; indeed, it has dramatically lengthened from one edition to another. This seems odd.[17] However, until we complete our study of textbooks and comparative growth forecasts, we offer these anecdotes as nothing more than motivation.

4. Conclusion

The problem of expert and the agents he studies is more general than that which we consider here. The debate between the philosopher and the ordinary person is as old as philosophy itself and is wound up in the development of economics itself. (Peart-Levy 2005). The word "philosopher"—lover of wisdom—is a sneer at people who choose to love private happiness at the expense of public truth. Preference claims, as Samuelson has demonstrated, can be tested against revealed choice.

We conclude first with an anecdote from an expert who trusted anecdotes and survived the Soviet era with reputation enhanced, and then with an anecdote about anecdotes. Here is testimony from Robert Conquest, a statement about the general problem of experts with "anecdotal" evidence and about his experiences with sociologists:

> Part of the trouble seems to be that they were (like Hough) sociologists by training, rather than historians, and sought (in rather the same context as that which produced Marxism) the structural rather than the essential, the form rather than the content. This also led them, like the Webbs before them, to accept official documents as better evidence than what they referred to as "anecdotal" accounts—that is, the firsthand testimony of actual witnesses which contradicted the official picture. As we now know, this unofficial evidence was vastly superior to the official, and even when not conclusive was not simply one vast fake, like the Communist product.
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> Once when I referred to the 1939 Soviet census as a "fake," one expert replied that no census was perfect, but that I was not thereby entitled to pick and choose which census I accepted. My objections to the 1939 census were: that the census taken in 1937 had been suppressed and the Census Board shot for "diminishing the population of the Soviet Union" so that the new Census Board had some incentive to exaggerate the numbers; that these new figures were announced in 1939 before the new Census Board had delivered its figures; and so on. All obvious enough, and Soviet publications soon confirmed the obvious—that millions reported in the 1939 document "existed only on paper." Yes, official, "documented" evidence was totally worthless—and a tiny modicum of common sense should have made this plain even to an academic. (2000, 145)

Our anecdote about anecdotes is this

> "Who built the White Sea-Baltic Canal?"
>   "On the right bank–those who told anecdotes,
> on the left bank–those who heard them." (Adams 2005, p. 37)

Just as the Census Board was shot for telling the statistical truth, so retellers of "jokes" were severely punished.

> More jokes about anecdotes appeared in the 1940s when one could still be arrested for the 'anti-Soviet activity' of telling them. Most joke swapping was confined to close friends. Adams (2005, p. 48)

This suggests that from the point of view of those with much to conceal, true statistics and anecdotes amusing enough to retell were equally dangerous. It also suggests a reason why

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[17] "'They say that communism is just over the horizon. What's a horizon?' 'A horizon is an imaginary line which continues to recede as you approach it.'" Adams (2005, 86).

there might well be complementary sources of information. For every forecasting failure of the experts, we ought to be able to find a well-retold anecdote.

References

Adams, B. (2005). *Tiny Revolutions In Russia: Twentieth-Century Soviet And Russian History In Anecdotes.* London: Routledge.

Berliner, J. S. (1957). *Factory and Manager in the USSR.* Cambridge, Mass: Harvard University Press.

Buchanan, J. M. (1959). "Positive Economics, Welfare Economics, and Political Economy." *Journal of Law and Economics* 2, 124–38.

Camerer, C. F. and Thaler, R. H. (1995). "Anomalies: Ultimatums, Dictators and Manners." *Journal of Economic Perspectives* 9, 209–219

Conquest, R. (2000). *Reflections on a Ravaged Century.* New York: W.W. Norton.

Deming W. E. (1965). "Principles of Professional Statistical Practice." *The Annals of Mathematical Statistics* 36, 1883–1900.

Denton, F. (1985). "Data Mining as an Industry." *Review of Economics and Statistics* 57, 124–127.

Edgeworth, F. Y. (1881). *Mathematical Psychics.* London: C. Kegan Paul & Co.

Farrant, A. (2004). "Frank Knight, worst-case theorizing, and economic planning: socialism as monopoly politics." *History of Political Economy* 36, 497–504.

Grossman, G. (1960). *Soviet Statistics of Physical Output of Industrial Commodities: Their Complication and Quality.* Princeton: Princeton University Press.

Hoffman, E., K. A. McCabe and V. L. Smith (1996). "Social Distance and Other-Regarding Behavior in Dictator Games." *American Economic Review* 86, 653–660.

Hoffman, E., K. A., McCabe and V. L. Smith (1999). "Social Distance and Other-Regarding Behavior in Dictator Games: Reply," *American Economic Review* 89, 340–341.

Knight, F. H. [1944 (1932)]. "Social Science and Political Trend." In F. H. Knight. *Freedom and Reform*, pp. 19–44. New York and London: Harper & Brothers.

Leamer, E. E. (1983). "Let's Take the Con Out of Econometrics." *American Economic Review* 73, 31–43.

Levy, D. M. (1990). "The Bias in Centrally Planned Prices." *Public Choice* 67, 213–236.

Levy, D. M. and S. J. Peart (2006). "Inducing Transparency: Towards a Code of Ethics in Econometrics." *Eastern Economic Journal*. Forthcoming.

Mill, J. S. [1969 (1861)]. Utilitarianism. In: Robson, J. M. (Ed) *Collected Works of John Stuart Mill*, 10: 205–259. Toronto: University of Toronto Press.

Nutter, G. W. (1962). *Growth of Industrial Production in the Soviet Union.* Princeton: Princeton University Press.

Nutter, G. W. (1969). *The Strange World of Ivan Ivanov.* New York: World Publishing.

Peart, S. J and D. M Levy. (2005). *'The Vanity of the Philosopher': From Equality to Hierarchy in Post-Classical Economics.* Ann Arbor: University of Michigan Press.

Polanyi, M. (1962). "The Republic of Science: Its Political and Economic Theory." *Minerva* 1, 54–74

Rubinstein, A. (2000). *Economics and Language.* Cambridge: Cambridge University Press.

Putnam, H. (1973). "Meaning and Reference." *The Philosophy of Language.* In: Martinich. : A. P. (Ed.) New York: Oxford University Press, 1996.

Sally, D. (2001). "On Sympathy and Games." *Journal of Economic Behavior & Organization* 44, 1–30.

Samuelson, P. A. (1961). *Economics*. 5th edition. New York. McGraw-Hill.

Samuelson, P. A. (1967). *Economics*. 7th edition. New York. McGraw-Hill.

Samuelson, P. A. (1970). *Economics*. 8th edition. New York. McGraw-Hill.

Shleifer, A. and R. Vishny (1992). "Pervasive Shortages Under Socialism." *Rand Journal of Economics* 23, 237–246.

Smith, A. [2004 (1759)]. *Theory of Moral Sentiments.* www.econlib.org.

Smith, A. [2004 (1776)]. *An Inquiry into the Nature and Causes of the Wealth of Nations.* www.econlib.org

Tetlock, P. E. (2005). *Expert Political Judgement: How Good Is It? How Can We Know?* Princeton: Princeton University Press."

Vardeman, S. B. and M. D. Morris (2003). "Statistics and Ethics: Some Advice for Young Statisticians." *American Statistician* 57, 21–26.