



Systematically Biased Beliefs about Economics: Robust Evidence of Judgemental Anomalies from the Survey of Americans and Economists on the Economy

Author(s): Bryan Caplan

Source: *The Economic Journal*, Vol. 112, No. 479 (Apr., 2002), pp. 433-458

Published by: Blackwell Publishing for the Royal Economic Society

Stable URL: <http://www.jstor.org/stable/798426>

Accessed: 28/04/2009 19:35

Your use of the JSTOR archive indicates your acceptance of JSTOR's Terms and Conditions of Use, available at <http://www.jstor.org/page/info/about/policies/terms.jsp>. 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.

Please contact the publisher regarding any further use of this work. Publisher contact information may be obtained at <http://www.jstor.org/action/showPublisher?publisherCode=black>.

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.

JSTOR is a not-for-profit organization founded in 1995 to build trusted digital archives for scholarship. We work with the scholarly community to preserve their work and the materials they rely upon, and to build a common research platform that promotes the discovery and use of these resources. For more information about JSTOR, please contact support@jstor.org.



Royal Economic Society and Blackwell Publishing are collaborating with JSTOR to digitize, preserve and extend access to *The Economic Journal*.

<http://www.jstor.org>

SYSTEMATICALLY BIASED BELIEFS ABOUT ECONOMICS: ROBUST EVIDENCE OF JUDGEMENTAL ANOMALIES FROM THE SURVEY OF AMERICANS AND ECONOMISTS ON THE ECONOMY*

Bryan Caplan

Differences between the general public's *positive* economic views and economists' resemble other judgemental anomalies: Laypeople and experts *systematically* disagree. I analyse this puzzle using data from the Survey of Americans and Economists on the Economy. The paper first tests and decisively rejects the hypothesis that the differences solely reflect economists' self-serving bias. Then it examines whether economists' political ideology and party loyalties explain the disagreement; if anything, this slightly increases their magnitude. The effect of economic training clearly falls but remains large after adding education to the set of control variables. Apparent biases' robustness suggests that the anomaly is real.

'The Western economics profession has been spoiled rotten by rational expectations thinking, by diverting our attention away from the profound misunderstandings that are part of every deep crisis.'

Jeffrey Sachs (1994, p. 507)

In standard economic models of belief formation, increasing the supply of information reduces the variance of estimates, but does not change their mean (Pesaran, 1987; Sheffrin, 1996). The implication is that lay opinion will be more dispersed than – but not systematically different from – expert opinion. In Akerlof's (1970) model of the used car market, for example, buyers have less information than sellers, but both groups know the mean quality of cars on the market. For one case of particular interest to economists, though, this account of belief formation fails: the positive economic beliefs of economists and the public seem systematically different (Rhoads, 1985; Walstad, 1996; Survey of Americans and Economists on the Economy, 1996; Blendon *et al.*, 1997). For example, economists are vastly more likely to see foreign trade and downsizing as economically beneficial, accept supply-and-demand rather than monopolistic explanations of price changes, and believe living standards have and will continue to increase.

These findings resemble more familiar judgmental anomalies where the general public's beliefs diverge from informed, expert opinion in predictable ways (Nisbett and Ross, 1980; Kahneman *et al.*, 1982; Camerer, 1995; Rabin, 1998). One might

* For discussion and useful suggestions I thank Don Boudreaux, Tyler Cowen, David Levy, Pete Boettke, Jim Schneider, Geoffrey Brennan, Bill Dougan, Bill Dickens, Mitch Mitchell, Ed Lopez, J.C. Bradbury, Todd Zywicki, David Bernstein, Robin Hanson, Dan Klein, Alex Tabarrok, Nicky Tynan, Timur Kuran, Ron Heiner, Roger Congleton, Fab Rojas, Charles Rowley, Gordon Tullock, Mike Wickens, four anonymous referees, seminar participants at George Mason, participants at the Public Choice Outreach seminar and the Public Choice Society meetings, participants at the Workshop in Economics and the Law, and members of my Armchair Economists' listserv. Gisele Silva, Eric Crampton, and Scott Beaulier provided excellent research assistance. Particular thanks are owed to the Kaiser Family Foundation for creating and sharing the data for the Survey of Americans and Economists on the Economy. The standard disclaimer applies.

straightforwardly presume that economists are, on average, correct and begin to analyse the sources of economic misconceptions. As Kahneman and Tversky (1982) put it, 'The presence of an error of judgment is demonstrated by comparing people's responses either with an established fact ... or with an accepted rule of arithmetic, logic, or statistics' (p. 493). But for economics, in contrast to logic, many are inclined to attribute bias to *the experts rather than the public* (Stigler, 1986; Wittman, 1995; Lott, 1997; Blendon *et al.*, 1997). There are two main ways one might try to vindicate the unbiasedness of non-economists' economic beliefs. The first is to maintain that the differences reflect economists' self-serving biases (Rabin, 1995; Babcock *et al.*, 1996; Babcock and Loewenstein, 1997; Dahl and Ransom, 1999). Economists are generally affluent white males, so perhaps they rationalise policies that personally benefit themselves by imagining that they are socially optimal as well (Brossard and Pearlstein, 1996; Chandler and Morin, 1996; Blendon *et al.*, 1997). The second is that economics attracts and/or moulds individuals with specific ideological and political views (Lazonick, 1991; Kuttner, 1996; Greider, 1997; Soros, 1998). Intensive study of economics might reinforce – rather than erode – ideological priors.

The present paper uses the Survey of Americans and Economists on the Economy (1996) to test these hypotheses empirically in a rigorous way. It finds that controlling for self-serving bias only marginally reduces the systematic differences between economists and the public; materially advantaged non-economists think much like the rest of the public, not like economists. The signs of coefficients on the control variables, in fact, cast doubt on the idea that self-serving bias is more common than its opposite. Controlling for ideological factors and party affiliation tends, if anything, to augment the effect of economic training.

The naive theory that economists are right and the public is wrong can most plausibly explain the robustness of the findings.¹ Further tests indicate that controlling for all other variables, economists' differences with the public can be decomposed into two effects: the first is a general effect of education, the second a specific product of economic training. Rather than merely eliminating random errors, both education and economic training actually seem to *debias* individuals (Fischhoff, 1982), though economic training is usually the more potent of the two.

The paper is structured as follows. Section 1 reviews the Survey of Americans and Economists on the Economy and the large raw differences between economists and the public it manifests, and addresses various interpretive concerns. Section 2 tests for the presence of self-serving bias on the part of economists. Section 3 tests for ideological bias. Section 4 shows that controlling for education along with self-interested and ideological variables diminishes but does not eliminate the large systematic effect of economic training. Section 5 briefly considers two competing theoretical approaches to the results, and concludes the paper.

¹ This is not to say that economists are immune to random or systematic error, but rather that economists should not update their beliefs conditional on the fact that the public disagrees.

1. The Data

1.1. Previous Findings

Estimation throughout this paper uses the Survey of Americans and Economists on the Economy (1996; henceforth SAEE) data set.² The structure of this data set is unique: while there are a number of other surveys on the economic beliefs of the public (Shiller *et al.*, 1991; Walstad and Larsen, 1992; Walstad, 1996, 1997) and economists (Alston *et al.*, 1992; Wessel, 1997; Fuchs *et al.*, 1998), to my knowledge this is the only one deliberately to ask both groups the same questions on a diverse set of topics.³ The respondents were 1,510 members of the public and 250 PhD economists; the former were randomly selected nationwide from the general population of the USA, while the latter were randomly selected members of the AEA with a PhD in economics, employed full-time as economists, and specialising in domestic economic policy (SAEE, p. 18). Blendon *et al.* (1997) summarise the studies' basic findings.⁴ Table 1 lists the questions that the current paper focuses on and shows the two groups' mean responses.⁵ The surveyors also collected detailed information about the personal characteristics of all respondents: their family income, education level, race, gender, political party, political ideology, and more. Table 2 lists these control variables.

Blendon *et al.* (1997) emphasise the stark contrast in the SAEE between the beliefs of economists and the public. They also put forward several possible hypotheses to explain the differences:

- 1 The experiences of individuals may not mirror official data.
- 2 When people evaluate the performance of the economy, government statistics are only one of several sources of information they use.
- 3 A large number of Americans do not believe government economic statistics are accurate.
- 4 The media tend to portray the condition of the economy as being worse than it actually is, leaving the public overly pessimistic about the nation's economic situation.
- 5 Economists are more optimistic about the economic future because they are part of an occupational segment, made up of professionals and scientists, that may have been sheltered to some degree from the negative consequences of economic change reported in the survey by much of the public.

² Note the availability of a web summary of the results at: <http://www2.kff.org/content/archive/1199/econgen.html>.

³ Shiller (1995) also surveys both groups, but focuses almost entirely on beliefs about inflation; for related findings, see Shiller (1997). Fuchs (1996) poses a common set of questions to health economists, economic theorists, and practising physicians, but not the general public.

⁴ For clarity, I have modified many of SAEE codebook's coding conventions; see Tables 1 and 2 for details.

⁵ Table 1 includes all of the SAEE's questions about the economy *unless* (a) only one of the two groups was queried, or (b) the question asked respondents to name the one or two 'most important reasons' for something. In the former case, there is no way to test for systematic belief differences. In the latter case, inclusion would almost double the number of dependent variables but add little new information. Once respondents separately rate the importance of all problems in a set, asking them to identify the *most* important is almost redundant.

Table 1
Questions and Mean Answers

No.	Variable	Question	Mean (Econ)	Mean (Pub)
<i>Regardless of how well you think the economy is doing, there are always some problems that keep it from being as good as it might be. I am going to read you a list of reasons some people have given for why the economy is not doing better than it is. For each one, please tell me if you think it is a major reason the economy is not doing better than it is, a minor reason, or not a reason at all.</i>				
0 = 'Not a reason at all'; 1 = 'Minor reason'; 2 = 'Major reason'				
1	TAXHIGH	Taxes are too high	0.77	1.50
2	DEFICIT	The federal deficit is too big	1.14	1.73
3	FORAID	Foreign aid spending is too high	0.14	1.53
4	IMMIG	There are too many immigrants	0.22	1.23
5	TAXBREAK	Too many tax breaks for business	0.65	1.29
6	INADEDUC	Education and job training are inadequate	1.61	1.56
7	WELFARE	Too many people are on welfare	0.72	1.61
8	AA	Women and minorities get too many advantages under affirmative action	0.21	0.76
9	HARDWORK	People place too little value on hard work	0.82	1.44
10	REG	The government regulates business too much	0.97	1.23
11	SAVINGS	People are not saving enough	1.49	1.39
<i>Now I am going to read you another list of reasons, having to do with businesses, that some people have given for why the economy is not doing better than it is. For each one, please tell me if you think it is a major reason the economy is not doing better than it is, a minor reason, or not a reason at all.</i>				
0 = 'Not a reason at all'; 1 = 'Minor reason'; 2 = 'Major reason'				
12	PROFHIGH	Business profits are too high	0.18	1.27
13	EXECPAY	Top executives are paid too much	0.69	1.59
14	BUSPROD	Business productivity is growing too slowly	1.43	1.18
15	TECH	Technology is displacing workers	0.27	1.26
16	OVERSEAS	Companies are sending jobs overseas	0.48	1.59
17	DOWNSIZE	Companies are downsizing	0.48	1.50
18	COMPEDUC	Companies are not investing enough money in education and job training	1.16	1.53
<i>Generally speaking, do you think each of the following is good or bad for the nation's economy, or don't you think it makes much difference?</i>				
0 = 'Bad'; 1 = 'Doesn't make much difference'; 2 = 'Good'				
19	TAXCUT	Tax cuts	1.04	1.46
20	WOMENWORK	More women entering the workforce	1.73	1.47
21	TECHGOOD	Increased use of technology in the workplace	1.98	1.57
22	TRADEAG	Trade agreements between the United States and other countries	1.87	1.33
23	DOWNGOOD	The recent downsizing of large corporations	1.40	0.62
<i>Some people say that these are economically unsettled times because of new technology, competition from foreign countries, and downsizing. Looking ahead 20 years, do you think these changes will eventually be good or bad for the country or don't you think these changes will make much difference?</i>				
24	CHANGE20	0 = 'Bad'; 1 = 'Won't make much difference'; 2 = 'Good'	1.92	1.15
<i>Do you think that trade agreements between the United States and other countries have helped create more jobs in the U.S., or have they cost the U.S. jobs, or haven't they made much of a difference?</i>				
25	TRADEJOB	0 = 'Cost the U.S. jobs'; 1 = 'Haven't made much difference'; 2 = 'Helped create jobs in the U.S.'	1.46	0.64

Table 1
(Continued)

No.	Variable	Question	Mean (Econ)	Mean (Pub)
<i>Which do you think is more responsible for the recent increase in gasoline prices?</i>				
26	WHYGASSD	0 = 'Oil companies trying to increase their profits'; 1 = 'The normal law of supply and demand' ['both' coded as 1; 'neither' as 0]	0.89	0.26
<i>Do you think improving the economy is something an effective president can do a lot about, do a little about, or is that mostly beyond any president's control?</i>				
27	PRES	0 = 'Beyond any president's control'; 1 = 'Do a little about'; 2 = 'Something president can do a lot about'	0.92	0.92
<i>Do you think the current price of gasoline is too high, too low, or about right?</i>				
28	GASPRICE	0 = 'Too low'; 1 = 'About right'; 2 = 'Too high'	0.63	1.68
<i>Do you think most of the new jobs being created in the country today pay well, or are they mostly low-paying jobs?</i>				
29	NEWJOB	0 = 'Low-paying jobs'; 1 = 'Neither'; 2 = 'Pay well'	1.07	0.37
<i>Do you think the gap between the rich and the poor is smaller or larger than it was 20 years ago, or is it about the same?</i>				
30	GAP20	0 = 'Smaller'; 1 = 'About the same'; 2 = 'Larger'	1.85	1.70
<i>During the past 20 years, do you think that, in general, family incomes for average Americans have been going up faster than the cost of living, staying about even with the cost of living, or falling behind the cost of living?</i>				
31	INCOME20	0 = 'Falling behind'; 1 = 'Staying about even'; 2 = 'Going up'	1.14	0.39
<i>Thinking just about wages of the average American worker, do you think that during the past 20 years they have been going up faster than the cost of living, staying about even with the cost of living, or falling behind the cost of living?</i>				
32	WAGE20	0 = 'Falling behind'; 1 = 'Staying about even'; 2 = 'Going up'	0.76	0.34
<i>Some people say that to make a comfortable living, the average family must have two full-time wage earners. Do you agree with this, or do you think the average family can make a comfortable living with only one full-time wage earner?</i>				
33	NEED2EARN	0 = 'Can make living with one wage earner'; 1 = 'Agree that need two wage earners'	0.75	0.87
<i>Over the next five years, do you think the average American's standard of living will rise, or fall, or stay about the same?</i>				
34	STAN5	0 = 'Fall'; 1 = 'Stay about the same'; 2 = 'Rise'	1.43	0.93
<i>Do you expect your children's generation to enjoy a higher or lower standard of living than your generation, or do you think it will be about the same?</i>				
35	CHILDGEN	0 = 'Lower'; 1 = 'About the same'; 2 = 'Higher'	1.28	1.06
<i>[If you have any children under the age of 30] When they reach your age, do you expect them to enjoy a higher or lower standard of living than you do now, or do you expect it to be about the same?</i>				
36	CHILDSTAN	0 = 'Lower'; 1 = 'About the same'; 2 = 'Higher'	1.30	1.30
<i>When you think about America's economy today, do you think it is...</i>				
37	CURECON	0 = 'In a depression'; 1 = 'In a recession'; 2 = 'Stagnating'; 3 = 'Growing slowly'; 4 = 'Growing rapidly'	3.10	2.59

Table 2
Control Variables

Variable	Question	Coding
<i>Econ</i>	–	= 1 if economist, 0 otherwise
<i>Black Asian</i> <i>Othrace</i>	What is your race? Are you white, black or African-American, Asian-American or some other race?	Black = 1 if black, 0 otherwise Asian = 1 if Asian, 0 otherwise Othrace = 1 if other race, 0 otherwise
<i>Age</i>	–	=1996 birthyear
<i>Male</i>	–	=1 if male, 0 otherwise
<i>Jobsecurity</i>	How concerned are you that you or someone else in your household will lose their job in the next year?	3 = 'not at all concerned' 2 = 'not too concerned' 1 = 'somewhat concerned' 0 = 'very concerned'
<i>Yourlast5</i>	During the past five years, do you think that your family's income has been going up faster than the cost of living, staying about even with the cost of living, or falling behind the cost of living?	0 = 'Falling behind' 1 = 'Staying about even' 2 = 'Going up'
<i>Yournext5</i>	Over the next five years, do you expect your family's income to grow faster or slower than the cost of living, or do you think it will grow at about the same pace?	0 = 'Slower' 1 = 'About the same' 2 = 'Faster'
<i>Income</i>	If you added together the yearly incomes, before taxes, of all the members of your household for the last year, 1995, would the total be:	1 = \$10,000 or less 2 = \$10,000–\$19,999 3 = \$20,000–\$24,999 4 = \$25,000–\$29,999 5 = \$30,000–\$39,999 6 = \$40,000–\$49,999 7 = \$50,000–\$74,999 8 = \$75,000–\$99,999 9 = \$100,000 or more
<i>Dem Rep Indep</i> <i>Othparty</i>	In politics today, do you consider yourself a Republican, a Democrat, or an Independent?	<i>Dem</i> = 1 if Democrat, 0 otherwise <i>Rep</i> = 1 if Republican, 0 otherwise <i>Indep</i> = 1 if independent, 0 otherwise <i>Othparty</i> = 1 if member of another party, 0 otherwise
<i>Ideology</i> <i>Othideol</i>	Would you say that your views in most political matters are very liberal, liberal, moderate, conservative, or very conservative?	Ideology: –2 = 'very liberal' –1 = 'liberal' 0 = 'moderate' 1 = 'conservative' 2 = 'very conservative' 3 = 'don't think in those terms' <i>Othideol</i> = 1 if <i>Ideology</i> = 3, 0 otherwise
<i>Education</i>	What is the last grade or class that you COMPLETED in school?	1 = 'None, or grade 1–8' 2 = 'High school incomplete (grades 9–11)' 3 = 'High school graduate (grade 12 or GED certificate)' 4 = 'Business, technical, or vocational school AFTER high school' 5 = 'Some college, no 4-year degree' 6 = 'College graduate (B.S., B.A., or other 4-year degree)' 7 = 'Post-graduate training or professional schooling after college (e.g. toward a master's degree or Ph.D.; law or medical school')

6 Americans do not have a very good foundation of knowledge about how the economy operates, and therefore they may be having a difficult time making accurate assessments of how the economy is performing (pp. 115–16).

While intuitively appealing, this set of explanations has some underlying conceptual difficulties. Blendon *et al.* make no sharp distinction between *imprecise* beliefs (low information, hence high variance) and systematically *biased* beliefs. It is not clear that (2), (3) and (6) have any logical connection to *non-random* differences between economists' beliefs and the public's. Furthermore, (4) leaves people's failure to compensate optimally for biased information unexplained (Wittman, 1989, 1995). Explanations (1) and (5), in contrast, try to account for the systematic disagreements of economists and the public without saying *either* group uses biased estimation techniques. Perhaps economists and non-economists alike infer aggregate conditions from personal experience, overestimating if (like most economists) they are doing better than average, and underestimating if they are doing worse. Blendon *et al.* do not test any of their six hypotheses and hint that additional data collection would be necessary to do so.⁶ Actually, though, the SAEE already contains most or all of the information necessary for empirical testing.

To set a benchmark for comparison, I begin by estimating ordered logits, with the *Econ* dummy as the only independent variable. Table 3 reports the coefficient on *Econ* and its z-stat. Consistent with other analyses of the SAEE, this coefficient is almost always highly significant in both statistical and economic terms. As a rule, the public is more pessimistic than economists, ranking problems' severity higher, the net benefit of change lower, and outlook for progress worse. But the degree of extra pessimism varies greatly from question to question.

For the first 18 items, which ask respondents to classify different factors as major, minor, or non-reasons for sub-par economic performance, the coefficient is highly negative in 15 instances, with the z-stat exceeding 10 for thirteen different beliefs. Economists massively discount the economic concerns of the general public.⁷ There are several factors that a majority of the public sees as 'major' problems which most economists deny are problems *at all*: excessive foreign aid, jobs going overseas and downsizing.⁸ Similarly, more than 50% of economists see immigration, affirmative action, excessive profits and technologically induced

⁶ For example, commenting on (5), they write 'One question that could not be addressed in the survey was whether or not Ph.D.'s in different fields, M.B.A.'s, M.D.'s and lawyers would share views similar to those of economists. Are economists' views related primarily to their being highly educated and part of the professional class, or are their views primarily the product of unique advanced training in economics?' (Blendon *et al.*, 1997, p. 116).

⁷ An anonymous referee points out that systematic differences on questions 1–18 might be an artefact stemming from the combination of (a) truncation of 'negative' answers (i.e., supposed 'problems' might actually be perceived as benefits), and (b) greater dispersion of lay opinion (Eichenberger and Serna, 1996). There are two reasons to be sceptical of this account. First, it predicts that the public's responses would be clustered at the *least* negative option ('not a reason'). In fact, the opposite holds; 'not a reason' is never non-economists' modal response. Second, the absence of extra response options is endogenous; if almost no one will endorse a given option, the administrative costs of including it exceed the benefits. The survey authors used the wording of Questions 1–18 when they anticipated disagreement about magnitude but *not* sign. (Blendon *et al.*, 1997, pp. 112–13).

⁸ Variable identifiers *FORAID*, *OVERSEAS* and *DOWNSIZE*.

Table 3
Benchmark Results – Ordered Logits on Econ

	Variable	<i>Econ</i> Coef.	z-Stat
1	<i>TAXHIGH</i>	-1.95	-14.14
2	<i>DEFICIT</i>	-1.86	-13.89
3	<i>FORAID</i>	-3.99	-19.91
4	<i>IMMIG</i>	-2.74	-16.28
5	<i>TAXBREAK</i>	-1.55	-12.08
6	<i>INADEDUC</i>	0.12	0.84
7	<i>WELFARE</i>	-2.36	-17.12
8	<i>AA</i>	-1.80	-10.89
9	<i>HARDWORK</i>	-1.47	-11.60
10	<i>REG</i>	-0.66	-5.21
11	<i>SAVINGS</i>	0.25	1.90
12	<i>PROFHIGH</i>	-3.27	-17.10
13	<i>EXECPAY</i>	-2.33	-16.98
14	<i>BUSPROD</i>	0.73	5.41
15	<i>TECH</i>	-2.77	-17.50
16	<i>OVERSEAS</i>	-3.04	-19.81
17	<i>DOWNSIZE</i>	-2.72	-18.54
18	<i>COMPEDUC</i>	-1.04	-7.88
19	<i>TAXCUT</i>	-0.99	-7.26
20	<i>WOMENWORK</i>	0.93	5.94
21	<i>TECHGOOD</i>	2.72	6.52
22	<i>TRADEAG</i>	1.90	8.44
23	<i>DOWNGOOD</i>	1.64	12.22
24	<i>CHANGE20</i>	2.98	10.30
25	<i>TRADEJOB</i>	1.89	14.17
26	<i>WHYGASSD</i>	3.08	14.74
27	<i>PRES</i>	0.05	0.47
28	<i>GASPRICE</i>	-3.12	-19.38
29	<i>NEWJOB</i>	1.67	12.23
30	<i>GAP20</i>	0.74	3.80
31	<i>INCOME20</i>	1.91	14.53
32	<i>WAGE20</i>	1.25	9.35
33	<i>NEED2EARN</i>	-0.81	-4.65
34	<i>STAN5</i>	1.31	9.86
35	<i>CHILDDGEN</i>	0.53	4.12
36	<i>CHILDSTAN</i>	0.00	-0.02
37	<i>CURECON</i>	0.81	6.38

unemployment as non-problems, while a majority of the public views them as (major or minor) economic ills.⁹ Economists and the public approximately agree about only two items: inadequate education and low savings rates, which both groups see as major drags on economic performance.¹⁰ Slow productivity growth is the only problem out of the first 18 that economists take more seriously than non-economists.¹¹

⁹ Variable identifiers *FORAID*, *OVERSEAS*, and *DOWNSIZE*.

¹⁰ Variable identifiers *INADEDUC* and *SAVINGS*.

¹¹ Variable identifier *BUSPROD*.

Disagreements within the next cluster of seven questions (which ask respondents to rank items as bad, neutral or good)¹² are slightly smaller. Economists are less sanguine about the economic effect of tax cuts: 61% of the public sees them as good, whereas the typical economist doubts they make much difference. Majorities of both groups acknowledge the economic benefits of increased female participation in the labour force, increased use of technology and trade agreements, though economists' positive judgment is more lop-sided. However, their views on the overall effects of downsizing and the employment effect of trade agreements are exactly opposed: a majority of economists sees both as good, a majority of the public sees both as bad.

One plausible explanation for the divergence between lay and expert opinion on Questions 19–25 is simply that the public has a higher discount rate. It is particularly interesting, then, to see that disagreement is, in fact, *greatest* for the one that specifically asks about the long-run consequences (20 years hence) of 'new technology, competition from foreign countries, and downsizing'.¹³ Economists almost unanimously see these as good, with a mean answer of 1.92, whereas the public remains neutral.

The two questions relating to the gasoline market again show sharp differences between economists and the general public. Of economists, 89% accept the supply-and-demand explanation for the 1996 gas price increase, versus only 26% of the public. They disagree even more sharply about the 1996 price of gas, with a *z*-stat on *Econ* of -19.38 . On the president's ability to improve economic performance, however, they are in near-perfect agreement.¹⁴

The remaining questions continue to show that economists are systematically more optimistic about the past, present and future of the economy than other people are. Economists are slightly more likely to hold that inequality increased, yet are *much* more likely to think that family income and real wages rose, new jobs are high paying and living standards will rise during the next five years. Economists are also more likely to think their children's generation will be richer than the current one, but are not especially optimistic about their *own* children's future. Finally, when asked to assess the current economic situation, the mean economist is markedly more favourable, even though narrow majorities of both groups say it is 'growing slowly'.¹⁵

In sum, large systematic belief differences on the SAE's wide-ranging questions stand out. There is no need for statistical adjustments to extract them; they are patently evident in the unadjusted data. At least on the surface, economists' vision of steady progress in spite of minor adversities has little in common with the public's picture of stagnation and decline driven by a multitude of crises.

¹² One anonymous referee points out that this depends on whether the changes are exogenous or endogenous, arguing that the former are more likely to be evaluated negatively. It is unclear, though why the public would be more likely than economists to see shocks as exogenous. Economists spend considerable time teaching students to analyse change *ceteris paribus*, suggesting if anything that the untrained instinctively treat shocks as endogenous.

¹³ Variable identifier *CHANGE20*.

¹⁴ Variable identifiers *WHYGASSD*, *GASPRICE* and *PRES*.

¹⁵ Variable identifiers *GAP20*, *INCOME20*, *WAGE20*, *NEWJOB*, *STAN5*, *CHILDDEN*, *CHILDDEN* and *CURECON*.

1.2. *Interpretive Concerns*

The model of belief formation. The rational expectations model of belief formation provides the theoretical underpinning of this empirical investigation. But does it make sense to extend this model to the public's economic beliefs in the first place? Some economists appear to treat this model as universally applicable (Wittman, 1989, 1995). Others, in contrast, see it as 'limited to instances in which individuals have an opportunity to form an opinion, gather information, and review their opinion in light of new information'.¹⁶ Even on this less expansive interpretation, though, the SAEE questions typically qualify. Given the ubiquity of extreme judgements by laymen, most clearly *have* opinions, and *a fortiori* the opportunity to form them. Furthermore, while laymen rarely spend a lot of time gathering information and reviewing opinions about the economy, they almost inevitably spend *some*. The SAEE includes topics largely because they enjoy wide media coverage (Blendon *et al.*, 1997); it is hard to avoid periodically hearing a little about them.¹⁷

Generality. The absence of international data raises concerns about the generality of the results. Ricketts and Shoesmith (1990) and Frey and Eichenberger (1992) find that the professional economic consensus varies somewhat across countries. At the same time, however, a considerable degree of international consensus can be observed. It is also worth noting that a fairly high percentage of members in the AEA and holding positions at leading American universities are foreign-born. In any case, it is difficult to attribute the surveyed economists' beliefs to an 'American effect' when non-economists in the USA are extremely unlikely to share their outlook.

*Positive–normative ambiguity.*¹⁸ Many questions in Table 1 might be interpreted as normative, rather than positive. At least in standard treatments, the rational expectations assumption applies only to the latter. Moreover, if economists parse the questions positively, and the public normatively, they could give systematically different answers even if they in fact agree. It is also conceivable that the public evaluates causes as well as effects; downsizing might be labelled a 'major problem' out of pure distaste for mistreatment of workers, not an empirical judgement about its effect on growth. Though such problems cannot be ruled out, the SAEE's authors did take sensible precautions against them, carefully qualifying terms like 'good', 'bad' or 'better'. The wording explicitly calls respondents' attention to, for example, reasons why 'the *economy* is not doing better than it is', or whether something is 'good or bad for the nation's *economy*'. The whole point of so framing the question is presumably to contrast it with 'good all things considered', 'morally good', and the like. It is also worth noting that even the SAEE's most extreme results parallel some from more quantitative surveys; the numerical fractions of the federal budget devoted to foreign aid and welfare, for instance, are enormously

¹⁶ I owe this formulation to an anonymous referee. For a similar view, see Fremling and Lott (1996).

¹⁷ Later results also show that large systematic belief differences persist after controlling for education. One might argue that high school drop-outs completely tune out all information on certain topics, but it strains credulity to say the same about non-economists with advanced degrees.

¹⁸ I would like to thank all four anonymous referees for drawing my attention to many of the following interpretive concerns.

overestimated (National Survey of Public Knowledge of Welfare Reform and the Federal Budget, 1995).

Definitional ambiguity. A second set of ambiguities centres on definitions. Adjectives like ‘major’ and ‘minor’ are comparative, not absolute measures; economists and lay people might use them differently even if they substantively agreed. While this objection is hard to falsify, there are several grounds for scepticism about its significance. Switching from three fuzzy categories (not/minor/major reason) to two sharper ones (is not/is a reason) generally leaves systematic differences intact. Differences also persist after demeaning lay and expert responses¹⁹ to adjust for the latter’s greater ‘restraint’, though many of the signs naturally change. And as mentioned above, the SAE’s results look compatible with those of more quantitative studies.

Concerns about the definitions of technical terms are more troubling. Perhaps economists uniformly interpret ‘the economy’ as GDP, and ‘the standard of living’ as per-capita income, while the public implicitly works with less precise multi-dimensional measures. Again, there is no way to resolve these doubts conclusively. However, there are reasons for guarded optimism. Later in the paper, we will see that controlling for personal characteristics, economists and the public evince only slight disagreements about the *current* state of the US economy. Both groups, in other words, see roughly eye to eye about the state of an economy under direct observation. This suggests that their implicit definitions are highly similar. At a more general level, it is worth noting that, in spite of lingering ambiguities, the SAE authors choose their words carefully. In ordinary language, for example, people often contrast the economic concept of ‘standard of living’ against the broader ‘quality of life’. By specifying the former, the SAE authors did much to ward off merely verbal disagreement. Similarly, while the ‘cost of living’ is less exact than ‘inflation-adjusted’, it is probably the closest ordinary language substitute. Admittedly, even in the clearest cases, there is no guarantee that lay people and economists are answering the same question, but the SAE authors worked hard to curtail semantic measurement error.

2. Self-Serving Bias

Do the raw differences between the economic beliefs of economists and the public solely reflect economists’ greater objectivity and knowledge? Or do economists’ implicitly assume that whatever is good for economists is good for the country? Observers aware of economists’ unusual perspective frequently point to an intimate connection between economists’ positive views and their material self-interest (Brossard and Pearlstein, 1996; Chandler and Morin, 1996; Blendon *et al.*, 1997). As Brossard and Pearlstein put it:

The disconnect between economists and typical Americans reflects, at least in part, the fact that economists tend to be members of a social, intellectual, and economic elite that has fared relatively well over the past

¹⁹ The exact procedure is to compute the two groups’ average overall responses for Questions 1–18 (1.40 for laymen, 0.75 for economists), demean all responses accordingly, and switch to OLS.

20 years. Two-thirds of economists report that their household incomes have outpaced inflation over the past five years – compared with only 14 percent of the public. And many of the economists hold down tenured teaching positions that afford them a lifetime of job security (1996, p. A6).

Economists might innocently over-generalise from their own circumstances to the whole economy, along the lines of Blendon *et al.*'s first and fifth hypotheses. This is a rather naive mistake, though, readily corrected by using aggregate rather than anecdotal evidence. The literature on self-serving bias suggests a more robust mechanism, one that would enable experts to err in spite of their familiarity with scientifically sampled data (Rabin, 1995; Babcock *et al.*, 1996; Babcock and Loewenstein, 1997; Dahl and Ransom, 1999). Considerable empirical evidence shows that people tend to accept positive (as well as normative) beliefs slanted to serve their self-interest. Economists do not have to be *more* subject to this bias than other people; the simple fact that they are relatively affluent and economically secure suffices as an account of their divergence from the outlook of the broader public. Realising that free trade, immigration, technological progress, and so on are advantageous for well-off people like themselves, economists are biased towards the conclusion that they are socially optimal too. Since economists personally have bright futures, they rationalise their privileged position to be part of a broad social trend.

Economists' other demographic characteristics may also be relevant from the standpoint of self-serving bias. They are disproportionately male and white, and are even somewhat older than the average non-economist. Each of these traits could influence their selfishly optimal policies and, thus, (via self-serving bias) their perceptions about the structure of the economy.²⁰ Males are less likely to collect welfare, to take one example. Affirmative action hurts whites' job prospects, while immigration's effect on labour markets may be most harmful to blacks. The old could be less able to adapt to economic change, and more concerned about the impact of economic policy on their retirement. Self-serving bias, if active, would lead each group to view the *social* impact of the same policies differently.

I use the following econometric strategy to test this hypothesis. The initial equations are re-estimated to see if the typically enormous coefficients on *Econ* disappear or substantially diminish after adding measures of self-interest to the right-hand sides. This allows us to, in effect, 'remove' the estimated effect of self-serving bias; i.e., simulate the belief distributions of economists and non-economists holding interests fixed. The set of control variables available in this data set (Table 2) is rich: in addition to family income, race, age and gender, it is possible to control for individuals' fear that a member of their family will lose their job during the next year, their family's *retrospective* income growth rate for the last five years, and their family's *prospective* income growth rate for the next five years.²¹ Accordingly, all of the ordered logits from the previous section are run with three

²⁰ Of course, beliefs might be correlated with demographics for reasons other than, or in addition to, self-serving bias. If so, the estimates of the magnitude of self-serving bias tend to be over-stated. I owe this point to an anonymous referee.

²¹ One might interpret the latter three variables as proxies for permanent income.

race dummies, age, age squared, male, Jobsecurity, Yourlast5, Yournext5, and income as control variables. Now if economists face unique self-serving biases uncorrelated with *any* of these controls, this econometric procedure will be less than fully effective.²² But critics of economists' class bias have almost never postulated anything so *sui generis*.

2.1. *Self-Serving Bias and the Public's Beliefs*

The self-interested variables are frequently significant. As predicted, materially well-off males think more like economists. Income level, along with past and expected income growth, is significant in about half of the equations; job security matters in about two-thirds. Gender frequently matters, but race is rarely important. Age sometimes has a marginal impact. This is not to say that self-serving bias produces radical belief differences, only that the control variables have a detectable impact. To illustrate the magnitude of these self-interested effects, I calculated the ordered logits' implied conditional mean beliefs for various sub-sets of non-economists, setting all variables except those under consideration equal to their medians for the combined sample: *race* is *white*, *gender* is *male*, *age* = 43, *Jobsecurity* = 2, *Yourlast5* = 1, *Yournext5* = 1, *income* = 6, *Econ* = 0 (Table 4).

The first block of results compares extremely high-income individuals with maximal job security (*income* = 9, *Jobsecurity* = 3) to extremely low-income individuals with minimal job security (*income* = 1, *Jobsecurity* = 0). As a rule, people with high, secure incomes think that problems are less serious. They are less concerned, for example, about immigration, tax breaks, excessive profits, technological unemployment and overseas competition. The best-off's mean answer on immigration, to take one case, is only 0.90, versus 1.37 for the worst-off. More surprisingly, the reduced pessimism of the well-to-do extends even to their beliefs about high taxes, foreign aid and welfare. Moving through the survey, we learn that the well-to-do are also especially optimistic about technological progress and trade agreements, but are, if anything, more pessimistic about tax cuts and trend real income growth.

Table 4's second block compares individuals with recent and expected real income growth (*Yourlast5* = 2, *Yournext5* = 2) to those with recent and expected real income decline (*Yourlast5* = 0, *Yournext5* = 0). Like people with high income and job security, people who have experienced and/or anticipate real income growth take economic problems less seriously, downplaying the severity of everything from high taxes and welfare to tax breaks and excessive profits. They are much more inclined to see the upside of trade agreements and the long-run benefits of today's economic dislocations. The contrast between those getting richer and those getting poorer is particularly pronounced on the topic of growth: the former are far more optimistic about real income over the past 20 years (0.79 versus 0.16), real wages during the same period (0.63 versus 0.13), the standard of living over the next five years (1.13 versus 0.50) and the prospects for the next generation (1.06 versus 0.59).

²² I would like to thank an anonymous referee for raising this point.

Table 4

Self-Serving Bias and Beliefs – Ordered Logits on Race Dummies, Age, Age², Male, Jobsecurity, Yourlast5, Yournext5, Income, and Econ (Comparisons Set Variables Not Named Equal to Median Sample Values)

No.	Variable	Mean belief conditional on...					
		Income and job security		Past and expected change in real income		Gender	
		Maximum	Minimum	Growth	Decline	Male	Female
1	TAXHIGH	1.35	1.59	1.32	1.55	1.43	1.50
2	DEFICIT	1.74	1.77	1.72	1.79	1.75	1.79
3	FORAID	1.27	1.69	1.31	1.55	1.43	1.55
4	IMMIG	0.90	1.37	1.01	1.14	1.08	1.21
5	TAXBREAK	0.94	1.33	0.91	1.26	1.09	1.30
6	INADEDUC	1.53	1.54	1.50	1.55	1.53	1.61
7	WELFARE	1.38	1.64	1.44	1.54	1.49	1.65
8	AA	0.69	0.88	0.74	0.80	0.77	0.72
9	HARDWORK	1.43	1.50	1.40	1.50	1.46	1.37
10	REG	1.21	1.37	1.25	1.27	1.27	1.16
11	SAVINGS	1.38	1.24	1.32	1.33	1.34	1.35
12	PROFHIGH	0.93	1.36	0.91	1.29	1.09	1.34
13	EXECPAY	1.37	1.66	1.30	1.65	1.49	1.69
14	BUSPROD	1.07	1.27	1.17	1.11	1.14	1.18
15	TECH	0.86	1.40	0.95	1.16	1.05	1.21
16	OVERSEAS	1.42	1.69	1.39	1.64	1.52	1.63
17	DOWNSIZE	1.27	1.61	1.29	1.50	1.41	1.58
18	COMPEDUC	1.36	1.61	1.43	1.48	1.45	1.51
19	TAXCUT	1.49	1.55	1.50	1.50	1.50	1.47
20	WOMENWORK	1.47	1.38	1.50	1.38	1.43	1.51
21	TECHGOOD	1.77	1.47	1.73	1.60	1.67	1.59
22	TRADEAG	1.45	1.18	1.52	1.16	1.34	1.36
23	DOWNGOOD	0.68	0.68	0.81	0.56	0.68	0.51
24	CHANGE20	1.38	1.09	1.52	1.01	1.29	1.20
25	TRADEJOB	0.75	0.55	0.87	0.52	0.69	0.52
26	WHYGASSD	0.34	0.14	0.30	0.22	0.26	0.26
27	PRES	0.81	0.76	0.79	0.81	0.81	0.88
28	GASPRICE	1.45	1.73	1.38	1.71	1.56	1.70
29	NEWJOB	0.38	0.24	0.52	0.20	0.34	0.31
30	GAP20	1.72	1.71	1.62	1.78	1.71	1.74
31	INCOME20	0.33	0.51	0.79	0.16	0.38	0.30
32	WAGE20	0.31	0.31	0.63	0.13	0.31	0.27
33	NEED2EARN	0.84	0.91	0.77	0.92	0.87	0.91
34	STAN5	0.79	0.79	1.13	0.50	0.81	0.91
35	CHILDGEN	0.74	0.92	1.06	0.59	0.81	0.97
36	CHILDSTAN	1.04	1.40	1.37	1.01	1.19	1.20
37	CURECON	2.70	2.56	2.96	2.34	2.65	2.65

Finally, the third block of Table 4 contrasts the economic beliefs of males and females. While often highly statistically significant, the size of the gender gap tends to be modest. It is greatest for the questions about tax breaks, high profits and executive pay; in each of these cases, estimated average beliefs differ by 0.20 or more. Like respondents with high incomes, high job security and income growth, males are less pessimistic across the board. Predictions about the future are the main exception: even though men see the last 20 years more favourably than women, more women think living standards are going to rise.

Even when the coefficients on the control variables are statistically and economically significant, it is far from clear that they genuinely reflect self-serving bias. Yes, high-income males with recent and expected real income growth and little fear of job loss are less worried about tax breaks, profits and executive pay, along with technological unemployment, overseas competition and downsizing. In other cases, though, individuals view policies seemingly inimical to their material well-being more favourably than the presumed beneficiaries: past increases in real income and reduced fear of losing one's job correlate with milder estimates of the economic harm of high taxes. High-income males think that foreign aid and welfare are less serious problems than low-income females do. Higher income actually increases the propensity to believe that real incomes fell over the past 20 years. The better-off are also pessimistic about the real living standard of their children's generation, and still more so about their own children's. Of course, the evidence counter to the self-serving bias hypothesis could be accommodated by making sufficiently unusual assumptions about incidence, but post hoc this tends to be unpersuasive.

2.2. *Self-Serving Bias and Economists' Beliefs*

On the whole, then, the beliefs of people who are rich, getting richer and/or male differ from the beliefs of people who are poor, getting poorer and/or female. Since economists fall almost entirely into the former group, the necessary conditions for a self-serving account of economists' distinctive outlook hold. However, these necessary conditions do not suffice: adding the self-serving variables to the right-hand side of every equation does not come close to eliminating the apparent impact of economic training.

Table 5 shows how controlling for self-serving bias affects the divide between economists and non-economists. It displays the coefficient on *Econ*, its z-statistic, and the mean belief distributions of economists and non-economists – setting all self-interested variables equal to their overall sample medians. The number of coefficients with z-statistics greater than 10 does fall from 20 to 9, but the absolute value of the coefficients significant in Table 3 typically falls by only one-fifth, and the average absolute value of the lay-expert belief gap falls even less, from 0.57 to 0.47. There are even a few instances where the coefficient gets bigger: controlling for self-interested variables, economists are more pessimistic about business productivity and inequality, and more optimistic about the future.

In only one out of 37 equations does the coefficient on *Econ* lose statistical significance: controlling for self-interested variables, economists are not especially likely to deny that the average family needs two full-time wage-earners to earn a comfortable living. However, there is also one equation where controlling for self-serving bias actually turns an initially near-zero coefficient significant and positive: holding other factors constant, economists are unusually likely to believe their children's' living standard will ultimately overtake their own.

All in all, the systematic belief differences between economists and the public are quite robust. The full array of self-interested measures can, at most, account for a small fraction of their disagreements. Moreover, in spite of their statistical

Table 5

Controlling for Self-Serving Bias – Ordered Logits on Race Dummies, Age, Age², Male, Jobsecurity, Yourlast5, Yournext5, Income, and Econ (Comparisons Set Variables Other than Econ Equal to Median Sample Values)

No.	Variable	Econ Coef.	z-Stat	Mean Belief	
				Economists	General Public
1	TAXHIGH	-1.40	-7.90	0.92	1.43
2	DEFICIT	-1.88	-10.09	1.15	1.75
3	FORAID	-3.26	-14.25	0.25	1.43
4	IMMIG	-2.20	-10.86	0.30	1.08
5	TAXBREAK	-0.70	-4.16	0.82	1.09
6	INAEDEDUC	0.30	1.58	1.62	1.53
7	WELFARE	-1.56	-8.78	0.91	1.49
8	AA	-1.73	-8.54	0.24	0.77
9	HARDWORK	-1.41	-8.32	0.88	1.46
10	REG	-0.64	-3.79	1.03	1.27
11	SAVINGS	0.19	1.11	1.39	1.34
12	PROFHIGH	-2.57	-11.39	0.24	1.09
13	EXECPAY	-1.67	-9.38	0.83	1.49
14	BUSPROD	0.89	5.09	1.44	1.14
15	TECH	-1.89	-10.03	0.40	1.05
16	OVERSEAS	-2.48	-12.96	0.61	1.52
17	DOWNSIZE	-2.11	-11.46	0.61	1.41
18	COMPEDUC	-0.60	-3.41	1.24	1.45
19	TAXCUT	-0.93	-5.23	1.12	1.50
20	WOMENWORK	0.86	4.36	1.68	1.43
21	TECHGOOD	2.29	4.37	1.95	1.67
22	TRADEAG	1.41	5.43	1.78	1.34
23	DOWNGOOD	1.41	7.92	1.34	0.68
24	CHANGE20	2.34	7.33	1.89	1.29
25	TRADEJOB	1.54	8.86	1.33	0.69
26	WHYGASSD	2.79	11.05	0.85	0.26
27	PRES	0.27	1.73	0.92	0.81
28	GASPRICE	-2.06	-10.39	0.88	1.56
29	NEWJOB	1.39	7.34	0.88	0.34
30	GAP20	0.84	3.45	1.86	1.71
31	INCOME20	1.50	8.40	0.95	0.38
32	WAGE20	0.71	3.86	0.52	0.31
33	NEED2EARN	-0.42	-1.78	0.81	0.87
34	STAN5	1.38	7.81	1.30	0.81
35	CHILDGEN	1.14	6.53	1.29	0.81
36	CHILDSTAN	0.65	3.08	1.43	1.19
37	CURECON	0.35	2.10	2.83	2.65

significance, the signs on the control variables' coefficients are often problematic for a self-interested account.

3. Ideological Bias

Another popular account of economists' beliefs maintains that economists are ideologically biased (Lazonick, 1991; Kuttner, 1996; Greider, 1997; Soros, 1998). Their political preconceptions colour their positive analysis, partially blinding

them to evidence against standard economic theories.²³ Probably the most prominent version of this theory holds that economists are dogmatic proponents of free trade, competition, deregulation, privatisation and laissez-faire generally. As Kuttner puts it, '[M]uch of the economics profession, after an era of embracing the mixed economy, has reverted to a new fundamentalism cherishing the virtues of markets' (1996, pp. 3–4).

This hypothesis can be tested. The SAEF includes two relevant variables: one for political party and one for ideology. The former is straightforward: people may be Democrats, Republicans, independents or members of another party. The latter is slightly more unusual: respondents self-classify as very liberal, liberal, moderate, conservative or very conservative. Note that while honest ideological self-assessments may not be incentive-compatible for vote-maximising politicians, survey respondents have no comparable motive to lie.

Even if controlling for political views did significantly shrink the coefficient on *Econ*, one should not immediately conclude that economists are biased. Were an initially apolitical economist to reach the conclusion that free trade enriches everyone in the long run, his ideology and/or party affiliation might change as a consequence. The direction of causation between economic training and political conclusions could run either way. However, if controlling for political variables does little or nothing to reduce the magnitude of the coefficient on *Econ*, it is hard to make a *prima facie* case that economists' beliefs are the product of ideological bias.

The equations in this section reestimate Table 3's ordered logits controlling for the following variables: *Dem*, *Rep*, *Othparty*, *Ideology*(1-*Othideol*) and *Othideol*. The *Indep* dummy is omitted to preserve full rank. *Othideol* turns on if a respondent does not think in terms of the liberal-conservative continuum (i.e., *Ideology* = 3); using (1-*Othideol*) as an interaction term makes it possible to pick up the effect of movements along that continuum for everyone who *does* think in left-right terms.

The results, shown in Table 6, provide no support for the ideological bias hypothesis. Partisan and ideological variables frequently matter, yet controlling for them has no tendency to make the coefficients on *Econ* smaller than the benchmark coefficients from Table 3. If anything, the differences between economists and the public grow: the absolute value of the coefficient on *Econ* rises by 0.1 or more in ten equations, and falls by 0.1 or more only three times. Even though mean belief gaps never change by more than 0.08, they are almost three times as likely to rise as to fall. The columns in Table 6 marked 'Economists' and 'General Public' show both groups' predicted mean beliefs, fixing ideology and party at their median values (*ideology* = moderate, *party* = independent). As can be seen, the ideology-adjusted numbers show even sharper disagreements than the raw means from Table 1.

There is a fairly simple explanation: the control variables are nearly orthogonal to *Econ*, with economists slightly more left-leaning and likely to be Democrats or

²³ While these critics do not explicitly appeal to it, their claims are consistent with cognitive psychologists' evidence on belief persistence and confirmatory bias (Nisbett and Ross, 1980; Rabin, 1998).

Table 6

Controlling for Ideological Bias – Ordered Logits on Dem, Rep, Othparty, Ideology(1-Othideol), Othideol, and Econ (Comparisons of Economists and General Public set all variables other than Econ equal to the median sample values – Ideology = Moderate, Party = Independent)

No.	Variable	Econ coef.	z-Stat	Mean belief			
				Economists	General public	Left-wing ideologues	Right-wing ideologues
1	<i>TAXHIGH</i>	-1.93	-13.75	<i>0.80</i>	1.50	<i>1.06</i>	1.79
2	<i>DEFICIT</i>	-1.86	-13.56	<i>1.16</i>	1.75	<i>1.61</i>	1.81
3	<i>FORAID</i>	-4.04	-19.43	0.16	1.55	1.43	1.58
4	<i>IMMIG</i>	-2.73	-15.86	<i>0.24</i>	1.20	<i>1.02</i>	1.37
5	<i>TAXBREAK</i>	-1.68	-12.58	<i>0.62</i>	1.27	1.58	<i>1.00</i>
6	<i>INADEDUC</i>	0.06	0.43	1.59	1.56	1.66	1.47
7	<i>WELFARE</i>	-2.33	-16.54	<i>0.74</i>	1.61	<i>1.32</i>	1.82
8	<i>AA</i>	-1.79	-10.42	<i>0.23</i>	0.76	<i>0.41</i>	1.06
9	<i>HARDWORK</i>	-1.46	-11.20	<i>0.81</i>	1.43	<i>1.15</i>	1.65
10	<i>REG</i>	-0.52	-3.96	<i>1.01</i>	1.20	<i>0.78</i>	1.62
11	<i>SAVINGS</i>	0.29	2.16	1.49	1.37	1.34	1.43
12	<i>PROFHIGH</i>	-3.46	-17.35	<i>0.17</i>	1.28	1.51	<i>1.00</i>
13	<i>EXECPAY</i>	-2.52	-17.63	<i>0.66</i>	1.61	1.78	<i>1.34</i>
14	<i>BUSPROD</i>	0.76	5.48	1.43	1.17	1.19	1.22
15	<i>TECH</i>	-2.79	-17.27	<i>0.28</i>	1.25	1.31	1.20
16	<i>OVERSEAS</i>	-3.14	-19.81	<i>0.51</i>	1.62	1.63	<i>1.50</i>
17	<i>DOWNSIZE</i>	-2.83	-18.65	<i>0.47</i>	1.51	1.66	<i>1.34</i>
18	<i>COMPEDUC</i>	-1.21	-8.81	<i>1.18</i>	1.59	1.76	<i>1.23</i>
19	<i>TAXCUT</i>	-0.88	-6.30	<i>1.08</i>	1.45	<i>1.02</i>	1.78
20	<i>WOMENWORK</i>	0.84	5.23	<i>1.75</i>	1.53	<i>1.71</i>	1.17
21	<i>TECHGOOD</i>	2.90	6.34	<i>1.97</i>	1.54	1.55	<i>1.63</i>
22	<i>TRADEAG</i>	1.84	8.13	<i>1.84</i>	1.32	<i>1.48</i>	1.25
23	<i>DOWNGOOD</i>	1.75	12.60	<i>1.34</i>	0.56	0.44	<i>0.84</i>
24	<i>CHANGE20</i>	2.99	10.28	1.91	1.13	1.18	1.20
25	<i>TRADEJOB</i>	1.92	14.09	1.43	0.62	0.60	0.68
26	<i>WHYGASSD</i>	3.21	14.59	<i>0.91</i>	0.29	0.19	<i>0.34</i>
27	<i>PRES</i>	0.08	0.63	0.87	0.83	0.94	0.96
28	<i>GASPRICE</i>	-3.11	-19.00	0.63	1.68	1.62	1.73
29	<i>NEWJOB</i>	1.79	12.61	<i>1.10</i>	0.34	0.24	<i>0.54</i>
30	<i>GAP20</i>	0.57	2.84	<i>1.87</i>	1.79	<i>1.90</i>	1.37
31	<i>INCOME20</i>	2.00	14.69	<i>1.13</i>	0.36	0.27	<i>0.52</i>
32	<i>WAGE20</i>	1.34	9.73	<i>0.76</i>	0.31	0.23	<i>0.47</i>
33	<i>NEED2EARN</i>	-0.99	-5.44	<i>0.72</i>	0.88	0.96	<i>0.74</i>
34	<i>STAN5</i>	1.36	9.93	1.40	0.89	0.87	1.00
35	<i>CHILDDGEN</i>	0.61	4.56	1.28	1.03	0.99	1.13
36	<i>CHILDSTAN</i>	0.02	0.15	1.31	1.29	1.28	1.31
37	<i>CURECON</i>	0.80	6.14	<i>2.93</i>	2.51	<i>2.76</i>	2.54

Italic indicates economists and ideologues think alike.

independents than average.²⁴ The original coefficient estimates are thus close to unbiased; but on issues where Republicans and conservatives think more like economists than Democrats and liberals, the coefficient on *Econ* slightly rises to compensate for economists' average political slant.

²⁴ This may be seen from two simple regressions: $(Dem \text{ or } Indep) = 0.66 + 0.12Econ$, and (limiting the sample to $Othideol = 0$) $Ideology = 0.14 - 0.18Econ$. The coefficients on *Econ* are significant at the 0.01 level.

Economists do frequently hold extremely conservative beliefs, in the sense that the average economist takes a position as or more extreme than the typical very conservative Republican. However, economists affirm the extremely liberal view about equally often. The last block of Table 6 displays the implied beliefs of very liberal Democratic non-economists ('left-wing ideologues') and very conservative Republican on-economists ('right-wing ideologues'). When left- and right-wing ideologues disagree in a statistically significant way *and* the coefficient on *Econ* is also significant, one can classify economists' beliefs as left- or right-leaning. If the economists lean towards the left-wing belief, Table 6 shows economists' and left-wing ideologues' belief distributions in italics, and *vice versa* if economists lean towards the right-wing belief.

In Table 6, economists lean towards the rightist position in 13 cases, and the leftist position in 11, taking numerous extreme positions. Their beliefs are more liberal than the liberal ideologues' 8 times out of 11, and more conservative than the conservative ideologues' 13 times out of 13. For example, a politically independent, ideologically moderate economist is actually more prone to believe that high taxes are 'not a problem' than very liberal Democrats without economic training. They also outflank left-wing ideologues on immigration, welfare, affirmative action, inequality and other topics. Furthermore, economists lean towards liberal views on regulation, the effects of tax cuts and the current state of the economy but, in these cases, the ideologues are more extreme.

At the same time, middle-of-the-road economists frequently go beyond the extremism of right-wing ideologues. Economists are less concerned about things like tax breaks for business, excessive profits and overseas competition than very conservative Republicans. They also have more optimistic beliefs about the benefits of technological progress, downsizing, new jobs and real income and wage growth. Thus, there is a kernel of truth to ideological stereotypes about the economics profession: views typical of extreme right-wing ideologues in the general public are often economists' conventional wisdom. This is primarily a reflection of economists' general willingness to endorse immoderate conclusions, though, not their political leanings, which are in fact mildly left-wing.

4. Education and Economics

The belief gap between economists and the public is robust: neither self-serving nor ideological bias can account for economists' and non-economists' disagreements. Since the arguments against the economic profession's objectivity fail empirically, it seems that this puzzle should be analysed like any other judgmental anomaly (Kahneman and Tversky, 1982). At minimum, falsifying the two leading accounts that impute bias to the experts shifts the burden of proof, restoring the presumption in favour of the straightforward hypothesis that the public suffers from systematic bias.²⁵

²⁵ This is not to say that the current consensus of economists is immune to criticism. As an anonymous referee (along with many historians of thought) points out, the discipline has often been susceptible to questionable intellectual fads. Few of the SAEE questions, however, touch on questions at the research frontier of recent decades. Indeed, the lay-expert divergence in the SAEE closely parallels the generalisations of nineteenth century economic educators such as Bastiat (1964) and Newcomb (1893).

But how have the experts been able to debias themselves? Recall that the economists in the SAEE differ from the public in two ways: they are all economists, and they all have PhDs. What is it that tends to correct systematic misconceptions about economics: economic training, education, or a mix of the two? To answer this question, the last battery of tests runs ordered logits of the standard dependent variables on education and *Econ*, plus all of the independent variables from the previous sections.

Table 7 shows the coefficients on *Econ* and education, their z-statistic and implied mean beliefs after fixing all variables other than *Econ* and education at their median. Four main facts stand out: First, adding education to the set of control variables usually makes the coefficient on the *Econ* dummy fall relative to specifications controlling for self-serving bias alone.²⁶ Second, even controlling for self-serving bias, ideological bias and education, the effect of economic training usually remains very large. Third, whenever both are statistically significant, the coefficients on education and economics almost always have the same sign.²⁷ Both variables' effects are statistically significant in 21 equations, and have the same sign in 19. Fourth, adding education strips income (but not job security or income growth) of almost all explanatory power. The number of equations where income level matters in a statistically significant way falls from 18 to 3.

One can typically place the poorly educated, the highly educated and economists on a belief continuum from most pessimistic to most optimistic. The last three columns of Table 7 illustrate this by comparing the beliefs of PhD economists (*education* = 7, *Econ* = 1), other people with post-graduate education (*education* = 7, *Econ* = 0), and people with primary education only (*education* = 1, *Econ* = 0). What is striking is that minimal education is associated not with agnosticism, but with a cluster of extreme beliefs. On foreign aid, to take one example, the mean severity rating is 0.22 for economists with PhDs, 1.26 for non-economists with the highest education level, and 1.76 for non-economists with the lowest education level. For excessive profits, these three groups' respective mean severity rankings are 0.19, 0.97 and 1.37. Similarly, when rating the effect of trade agreements, the mean response of economists is 1.82, compared to 1.54 for the most-educated non-economists and 0.95 for the least-educated non-economists. In these and several other cases, the low-education non-economist typically sees 'major' problems, the high-education non-economist 'minor' problems, and the economist no problem at all.

There are nonetheless a few issues where non-economists of all educational levels diverge from economists' consensus and cluster together. Whether highly educated or barely educated, non-economists think that the deficit and low business investment in the workforce are major problems. This is especially striking for the deficit, where the z-statistic on *Econ* is -9.01 , but only -0.77 on *education*.

²⁶ Blendon *et al.* (1997) also note that the more educated have milder disagreements with economists, but do not control for income or other potentially serious confounding variables.

²⁷ Delli Carpini and Keeter (1996) report that, on objective tests of *political* knowledge, education is generally the strongest predictor of success. Assuming same would hold for *economic* knowledge, the naive hypothesis correctly predicts that education and economic training tend to work in the same direction.

Table 7

Controlling for Self-Serving Bias, Ideological Bias, and Education: Ordered Logits on Race Dummies, Age, Age², Male, Dem, Rep, Othparty, Ideology(1-Othideol), Othideol, Jobsecurity, Yourlast5, Yournext5, Income, Education, and Econ (Comparisons Set Variables Other than Econ and Education Equal to Median Sample Values)

No.	Variable	Econ coef.	z-Stat	Educ		Mean belief		
				coef.	z-Stat	PhD economists	Non-economists with post-graduate	Non-economists with primary only
1	TAXHIGH	-0.88	-4.71	-0.29	-7.35	0.89	1.21	1.74
2	DEFICIT	-1.78	-9.01	-0.04	-0.77	1.17	1.74	1.78
3	FORAID	-2.95	-12.38	-0.28	-6.81	0.22	1.26	1.76
4	IMMIG	-1.78	-8.41	-0.31	-8.34	0.23	0.79	1.52
5	TAXBREAK	-0.61	-3.42	-0.22	-5.62	0.70	0.91	1.40
6	INADEDUC	0.26	1.32	-0.03	-0.83	1.60	1.52	1.57
7	WELFARE	-1.07	-5.72	-0.28	-6.47	0.85	1.26	1.75
8	AA	-1.35	-6.29	-0.24	-6.42	0.21	0.57	1.08
9	HARDWORK	-1.19	-6.65	-0.11	-2.97	0.84	1.32	1.56
10	REG	-0.17	-0.98	-0.20	-5.38	1.02	1.08	1.51
11	SAVINGS	0.20	1.11	0.04	0.99	1.42	1.35	1.26
12	PROFHIGH	-2.54	-10.78	-0.18	-4.79	0.19	0.97	1.37
13	EXECPAY	-1.74	-9.11	-0.15	-3.50	0.74	1.42	1.70
14	BUSPROD	0.98	5.33	-0.03	-0.83	1.43	1.09	1.16
15	TECH	-1.55	-7.86	-0.30	-8.11	0.32	0.80	1.47
16	OVERSEAS	-2.32	-11.58	-0.20	-4.80	0.58	1.43	1.76
17	DOWNSIZE	-2.15	-11.03	-0.08	-2.15	0.54	1.34	1.50
18	COMPEDUC	-0.77	-4.09	-0.05	-1.22	1.23	1.50	1.59
19	TAXCUT	-0.71	-3.78	0.00	0.05	1.19	1.48	1.47
20	WOMENWORK	0.57	2.77	0.09	2.24	1.71	1.55	1.40
21	TECHGOOD	2.14	4.03	0.12	2.75	1.95	1.70	1.48
22	TRADEAG	1.08	4.01	0.22	5.74	1.82	1.54	0.95
23	DOWNGOOD	1.51	8.01	0.00	-0.02	1.34	0.63	0.63
24	CHANGE20	2.23	6.86	0.10	2.71	1.90	1.34	1.07
25	TRADEJOB	1.33	7.26	0.19	5.01	1.38	0.83	0.41
26	WHYGASSD	2.67	10.13	0.17	3.81	0.89	0.36	0.17
27	PRES	0.29	1.73	0.06	1.64	0.86	0.74	0.61
28	GASPRICE	-1.73	-8.34	-0.19	-4.24	0.83	1.42	1.74
29	NEWJOB	1.43	7.05	0.09	1.95	0.96	0.36	0.22
30	GAP20	0.39	1.51	0.16	3.48	1.88	1.83	1.65
31	INCOME20	1.64	8.61	-0.04	-0.86	0.95	0.34	0.41
32	WAGE20	0.92	4.69	-0.08	-1.86	0.52	0.26	0.39
33	NEED2EARN	-0.54	-2.13	-0.07	-1.17	0.77	0.85	0.90
34	STAN5	<i>1.54</i>	<i>8.26</i>	<i>-0.08</i>	<i>-2.31</i>	1.27	0.72	0.89
35	CHILDGEN	<i>1.44</i>	<i>7.82</i>	<i>-0.18</i>	<i>-5.17</i>	1.23	0.63	1.09
36	CHILDSTAN	0.77	3.35	-0.03	-0.63	1.44	1.15	1.24
37	CURECON	0.31	1.79	-0.03	-0.91	2.76	2.59	2.68

bold indicates economists and the more educated think alike;
 italics indicates economists and the less educated think alike.

Non-economists of all education levels also lop-sidedly maintain that new jobs are low-paying and real incomes declined over the past 20 years. On the latter question, for instance, the mean response is 0.34 for the most educated, 0.41 for the least educated and 0.95 for PhD economists.

Only for forecasts of future economic performance – whether medium- or long-term – do economic training and education pull in opposite directions. Economists are significantly more optimistic about economic growth in the next five years whereas the educated are significantly more pessimistic. Economists characteristically expect growth, with a 1.27 average response. Poorly educated non-economists have a slight tendency to predict real income decline; their average response is 0.89. Highly educated non-economists' are the most pessimistic of all, with a mean belief of only 0.72. Pessimism and education are even more tightly associated for estimates of the living standard of the next generation. Most highly educated non-economists actually expect their children's generation to live worse than the current one. Both economists and those with little education tend to disagree. Interestingly, though, when asked about the living standard of *their own* children, economic training still correlates with greater optimism, yet education makes no difference. In other words, the educated are pessimistic about the future in general, but not their own children's' future; economists are more optimistic about both, but less so for their own descendants.²⁸

Ideological explanations for the belief patterns of the educated can be largely ruled out, since the specification controls for self-reported ideology as well as political party. Like economists, the educated hold a mix of liberal and conservative beliefs. For example, economists, the highly educated and ideological liberals all believe the immigration problem is less serious than the rest of the public, with a *z*-statistic of -8.41 for *Econ* and -8.34 for *education*. At the same time, like ideological conservatives, economists and the educated downplay the economic danger of excessive profit levels, with respective *z*-statistics of -10.78 and -4.79 .

Adding education to the set of control variables puts earlier results into noticeably sharper focus. The independent effect of income level – but not income growth or job security – largely vanishes, raising further doubts about the project of linking economic beliefs with respondent interests. The estimated impact of economic training markedly drops, but remains extremely large. Economists' distinctive outlook partly reflects their education level, but cannot be reduced to that alone. Finally, consistent with a naive view of lay-expert opinion divergence, economics and education push beliefs in the same direction.

5. Conclusion

Economists have been aware of the existence of belief differences for well over a century, but previous research has done little to measure them or explore their robustness. Using the SAEE, it is possible for the first time to not only quantify these systematic belief differences, but show that they are remarkably hard to explain away.

²⁸ Since the question asks respondents to compare their economic success with their children's, this might just reflect economists' knowledge of regression to the mean.

The main empirical findings along these lines are summarised in Table 8, which shows the mean absolute magnitude and z-statistic of *Econ*'s coefficient. Without controls, the average coefficient on *Econ* is 1.70. Its mean z-statistic exceeds 10. These numbers modestly decline after adding various measures of self-serving bias to the set of independent variables. Controlling for ideology alone slightly reduces *Econ*'s average z-statistic but, as Table 8 shows, actually increases the size of the coefficient. Simultaneously controlling for self-serving bias, ideological bias and education has the largest effect of all. The mean coefficient falls to 1.28; the mean z-statistic falls to 6.00. Thus, variables other than economic training can account for about a quarter economists' distinctive patterns of belief.

Testing competing theories of the origins of popular misconceptions about economics must be left for future research, but two approaches seem particularly promising. The first is to show that systematically biased beliefs about economics are a special case of one or more documented cognitive biases. Some of the public's mistakes can be plausibly attributed to availability bias (Rabin, 1998; Kuran and Sunstein, 1999). For example, memorable stories about welfare fraud or executive pay may explain the public's overestimate of these problems' severity. The general pattern is also consistent with the psychological evidence on overconfidence in low-information beliefs. As Table 7 shows, it is the least-educated segment of the population, regardless of ideology, that most fully rejects economists' outlook (Lichtenstein *et al.*, 1982; Rabin, 1998).

Perhaps, however, these systematic errors have a different origin. The problem may not be that people follow an imperfect heuristic for all problems of a given form, but that there are topics that elicit emotional rather than analytical responses. Most of the psychology and economics literature emphasises biases driven by content-independent rules, yet there is also considerable evidence that some biases are content-driven (Gigerenzer and Murray, 1987; Akerlof, 1989; Rabin, 1995). For example, people may have strong negative feelings about foreigners that incline them to blame foreigners for economic difficulties and angrily dismiss contrary evidence (Reynolds *et al.*, 1987). Even after controlling for education in Table 7, large lay-expert gaps on foreign aid, immigration, overseas competition, trade agreements and other questions involving foreigners stand out. Many economists, past and present, seem to implicitly

Table 8
Summary of Results

Controlling for...			Average absolute value	
Self-serving bias	Ideological bias	Education	<i>Econ</i> coef.	<i>Econ</i> z-stat
			1.70	10.58
√			1.40	6.87
	√		1.75	10.49
√	√	√	1.28	6.00

appeal to this sort of content-dependent bias when they lament the public's 'populism'. (Newcomb, 1893; Bastiat, 1964; Sachs, 1994).²⁹

On the surface, the general public's economic beliefs exhibit large, systematic biases. The main finding of this paper is that the first impression seems to be correct. Using the SAEE, it is possible to test empirically and reject decisively the main alternative explanations. Self-serving bias can explain at most 20% of the divergence between economists and the public. Controlling for ideology seems if anything to make the belief gap between economists and the public slightly bigger. Adding education to the set of control variables further diminishes but hardly ever eliminates the impact of economic training. Moreover, education and economic training typically move beliefs in the same direction.

Analysing their broader significance is outside the scope of this paper. However, these findings may be particularly relevant to the political economy literature. Economists have often explained deviations from efficient policy as the product of special interest politics. This paper's empirics suggest an alternate explanation: political failure could simply be a byproduct of the electorate's systematically biased beliefs about economics (Akerlof, 1989; Sachs, 1994; Caplan, 2001a, b).

George Mason University

Date of receipt of the first submission: May 2000

Date of receipt of the final typescript: October 2001

References

- Akerlof, G. (1970). 'The market for "lemons": quality, uncertainty, and the market mechanism', *Quarterly Journal of Economics*, vol. 84, pp. 488–500.
- Akerlof, G. (1989). 'The economics of illusion', *Economics and Politics*, vol. 1, pp. 1–15.
- Alston, R., Kearl, J. R. and Vaughan, M. (1992). 'Is there a consensus among economists in the 1990s?', *American Economic Review*, vol. 82, pp. 203–9.
- Babcock, L. and Loewenstein, G. (1997). 'Explaining bargaining impasse: the role of self-serving biases', *Journal of Economic Perspectives*, vol. 11, pp. 109–26.
- Babcock, L., Wang, X. and Loewenstein, G. (1996). 'Choosing the wrong pond: social comparisons in negotiations that reflect a self-serving bias', *Quarterly Journal of Economics*, vol. 101, pp. 1–20.
- Bastiat, F. (1964 [1845]). *Economic Sophisms*. Irvington-on-Hudson, NY: Foundation for Economic Education.
- Blendon, R., Benson, J., Brodie, M., Morin, R., Altman, D., Gitterman, D., Brossard, M. and James, M. (1997). 'Bridging the gap between the public's and economists' views of the economy', *Journal of Economic Perspectives*, vol. 11, pp. 105–88.
- Brossard, M. and Pearlstein, S. (1996). 'Great divide: economists vs. public: data and daily life tell different stories', *Washington Post* (October 15), p. A1.
- Camerer, C. (1995). 'Individual decision making', in (J. Kagel and A. Roth, eds) *The Handbook of Experimental Economics*. Princeton, NJ: Princeton University Press.
- Caplan, B. (2001a). 'Rational ignorance versus rational irrationality', *Kyklos*, vol. 54, pp. 3–26.
- Caplan, B. (2001b). 'Rational irrationality and the microfoundations of political failure', *Public Choice*, vol. 107, pp. 311–31.

²⁹ As Newcomb wrote in the *Quarterly Journal of Economics* over a century ago: 'If they were consistent enough to constitute a system, that system might be called the popular political economy. What I first propose to show is that we have to deal with ideas centuries old, on which the thought of professional economists has never made any permanent impression, except, perhaps, in Great Britain, and that in the every-day applications of purely economic theory our public thought, our legislation, and even our popular economic nomenclature are what they would have been if Smith, Ricardo, and Mill had never lived, and if such a term of political economy had never been known' (1893, p. 377).

- Chandler, C. and Morin, R. (1996). 'Prosperity's imbalance divides U.S.: disparity grows wider for winners, losers', *Washington Post* (October 14), p. A1.
- Dahl, G. and Ransom, M. (1999). 'Does where you stand depend on where you sit?', *American Economic Review*, vol. 89, pp. 703–27.
- Delli Carpini, M. and Keeter, S. (1996). *What Americans Know About Politics and Why It Matters*. New Haven, CT: Yale University Press.
- Eichenberger, R. and Serna, A. (1996). 'Random errors, dirty information, and politics', *Public Choice*, vol. 86, pp. 137–56.
- Fischhoff, B. (1982). 'Debiasing', in Kahneman *et al.* (1982), pp. 422–44.
- Fremling, G. and Lott, J. (1996). 'The bias towards zero in aggregate perceptions: an explanation based on rationally calculating individuals', *Economic Inquiry*, vol. 34, pp. 276–95.
- Frey, B. and Eichenberger, R. (1992). 'Economics and economists: a European perspective', *American Economic Review Papers and Proceedings*, vol. 82, pp. 216–20.
- Fuchs, V. (1996). 'Economics, values, and health care reform', *American Economic Review*, vol. 86, pp. 1–24.
- Fuchs, V., Krueger, A. and Poterba, J. (1998). 'Economists' views about parameters, values, and policies: survey results in labor and public economics', *Journal of Economic Literature*, vol. 36, pp. 1387–425.
- Gigerenzer, G. and Murray, D. (1987). *Cognition as Intuitive Statistics*. Hillsdale, NJ: Lawrence Erlbaum Associates.
- Greider, W. (1997). *One World, Ready or Not: The Manic Logic of Global Capitalism*. New York: Simon and Schuster.
- Kahneman, D. and Tversky, A. (1982). 'On the study of statistical intuitions', in (D. Kahneman, P. Slovic and A. Tversky, eds) *Judgment Under Uncertainty: Heuristics and Biases*, Cambridge: Cambridge University Press, pp. 493–508.
- Kahneman, D., Slovic, P. and Tversky, A. (1982). *Judgment Under Uncertainty: Heuristics and Biases*. Cambridge: Cambridge University Press.
- Kuran, T. and Sunstein, C. (1999). 'Availability cascades and risk regulation', *Stanford Law Review*, vol. 51, pp. 683–768.
- Kuttner, W. (1996). *Everything for Sale: The Virtues and Limits of Markets*. Chicago: University of Chicago Press.
- Lazonick, W. (1991). *Business Organization and the Myth of the Market*. Cambridge: Cambridge University Press.
- Lichtenstein, S., Fischhoff, B. and Phillips, L. (1982). 'Calibration of probabilities: the state of the art to 1980', in Kahneman *et al.* (1982), pp. 306–34.
- Lott, J. (1997). 'Donald Wittman's *The Myth of Democratic Failure*', *Public Choice*, vol. 92, pp. 1–13.
- National Survey of Public Knowledge of Welfare Reform and the Federal Budget (1995). Kaiser Family Foundation and Harvard University, January 12, no. 1001.
- Newcomb, S. (1893). 'The problem of economic education', *Quarterly Journal of Economics*, vol. 7, pp. 375–99.
- Nisbett, R. and Ross, L. (1980). *Human Inference: Strategies and Shortcomings of Social Judgment*. Englewood Cliffs, NJ: Prentice-Hall.
- Pesaran, M. H. (1987). *The Limits to Rational Expectations*. Oxford: Blackwell.
- Rabin, M. (1995). 'Moral preferences, moral constraints, and self-serving biases', unpublished manuscript, University of California Berkeley.
- Rabin, M. (1998). 'Psychology and economics', *Journal of Economic Literature*, vol. 36, pp. 11–46.
- Reynolds, V., Falger, V. S. E. and Vine, I. (1987). *The Sociobiology of Ethnocentrism: Evolutionary Dimensions of Xenophobia, Discrimination, Racism and Nationalism*. Athens, Georgia: University of Georgia Press.
- Rhoads, S. (1985). *The Economist's View of the World: Government, Markets, and Public Policy*. Cambridge: Cambridge University Press.
- Ricketts, M. and Shoesmith, E. (1990). *British Economic Opinion: A Survey of a Thousand Economists*. London: Institute of Economic Affairs.
- Sachs, J. (1994). 'Life in the economic emergency room', in (J. Williamson, ed.) *The Political Economy of Policy Reform*, Washington, DC: Institute for International Economics, pp. 503–23.
- Sheffrin, S. (1996). *Rational Expectations*. Cambridge: Cambridge University Press.
- Shiller, R. (1997). 'Public resistance to indexation: a puzzle', *Brookings Papers on Economic Activity*, vol. 1, pp. 159–211.
- Shiller, R. (1995). 'Why do people dislike inflation?', in (C. Romer and D. Romer, eds) *Reducing Inflation: Motivation and Strategy*, Chicago: University of Chicago Press.
- Shiller, R., Boycko, M. and Korobov, V. (1991). 'Popular attitudes toward free markets: the Soviet Union and the United States compared', *American Economic Review*, vol. 81, pp. 385–400.
- Soros, G. (1998). *The Crisis of Global Capitalism: Open Society Endangered*. New York: Public Affairs.

- Stigler, G. (1986). 'Economics, or ethics?', in (K. Leube and T. G. Moore, eds) *The Essence of Stigler*. Stanford, California: Hoover Institution Press. pp. 303–36.
- Survey of Americans and Economists on the Economy. (1996). *The Washington Post*, Kaiser Family Foundation and Harvard University, October 16, no. 1199. Web version at: <http://www2.kff.org/content/archive/1199/econgen.html>.
- Walstad, W. (1996). 'Economic knowledge and the formation of economic beliefs', in (P. Lunt and A. Furnham, eds) *Economic Socialization: The Economic Beliefs and Behaviors of Young People*, Cheltenham, England: E. Elgar, pp. 162–82.
- Walstad, W. (1997). 'The effect of economic knowledge on public opinion of economic issues', *Journal of Economic Education*, vol. 28, pp. 195–205.
- Walstad, W. and Larsen, M. (1992). *A National Survey of American Economic Literacy*. Lincoln, Nebraska: The Gallup Organization.
- Wessel, D. (1997). 'Economists, in survey, push education and R&D spending', *Wall Street Journal* (March 6), p. A2.
- Wittman, D. (1989). 'Why democracies produce efficient results', *Journal of Political Economy*, vol. 97, pp. 1395–424.
- Wittman, D. (1995). *The Myth of Democratic Failure: Why Political Institutions are Efficient*. Chicago: University of Chicago Press.