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The Making of an Economist

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As economists, we have an interest in and individual knowledge of the initiation process that turns students into professional economists. However, other than anecdotal evidence, very little in the way of data exists. This paper is a step toward providing insight into that process.

There are differing opinions about graduate economic education; most are privately expressed. However, some do surface, usually the most critical. For example, Robert Kuttner (1985), summarizing the views of critical economists such as Wassily Leontief and John Kenneth Galbraith, writes: "Departments of economics are graduating a generation of *idiots savants*, brilliant at esoteric mathematics yet innocent of actual economic life." Our study of graduate education provides some data to help in assessing such views.

Besides being of general interest, information on the making of economists is important to the sociological and the rhetorical approach to economic methodology (Coats, 1985; Klamer, 1983; McCloskey, 1986; Whitley, 1984). The graduate school experience plays an important role in determining economic discourse; it certifies economists as professionals, it establishes economists' view of argumentation and guides them as to what is important to study and what is not. To understand economic discourse one should have a good sense of the professionalization of economists that occurs in graduate school.

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We obtained our data from questionnaires distributed to graduate students at six top-ranking graduate economic programs—University of Chicago, Columbia University, Harvard University, Massachusetts Institute of Technology, Stanford University, and Yale University—exploring who current graduate students are and what they think about economics, the economy, and graduate school. The 212 respondents were relatively equally divided by year of study. (See Appendix for a discussion of the questionnaire and methodology.) We followed up our survey with a series of interviews.

We present the information gained from the questionnaire in four sections, keeping our editorial discussion to a minimum. Thorough discussion of the issues raised by this survey is beyond the scope of a journal article. In a final section, however, we do provide some of our interpretations.

Profile of Students

The typical graduate student in economics at these selected institutions is a 26-year-old, middle class, nonreligious white male who is involved in a long-term relationship. (In our sample 18.9 percent were female; there was one Hispanic and no Blacks.) Most had attended highly competitive undergraduate colleges and came from relatively well-to-do families. More than half (54 percent) of their fathers had advanced degrees, 23 percent of the mothers had advanced degrees and the average family income was approximately $50,000. Eighty-seven percent majored or concentrated in economics as undergraduates, 28 percent in mathematics, 24 percent in other social sciences, 15 percent in the humanities and 9 percent in the natural sciences. (Students could have both a major and a concentration.) For most students (63 percent) graduate work in economics was their only choice of career when they applied. Those who contemplated alternatives considered policy-related work or law school. Part of the reason for such clear focus is that 50 percent of the students had worked, traveled, or studied in another graduate field before they began their economics graduate program.

George Stigler (1982, first published 1975) has remarked that economics tends to make individuals conservative. At least at this stage of their career that was not the case with our respondents. In terms of political views, 47 percent considered themselves liberal, 22 percent moderate, 15 percent conservative, and 12 percent radical. (Four percent were "other.") Thus, at least for students at the top schools, the majority see themselves as predominantly liberal.

Interests of Students

When asked an open question as to what they most liked and disliked about graduate school, 36 percent stated they they most liked the intellectual environment and 24 percent said they liked the courses and research. As to the things they liked least, the majority of comments focused on the heavy load of mathematics and theory

and a lack of relevance of the material they were learning. Whatever their reservations, only 6 percent said they would definitely not do it again; 21 percent were unsure.[1]

In terms of future jobs, 53 percent were planning to pursue an academic career, 33 percent were planning to go into policy-related work, 17 percent into business, 8 percent into research institutes, and 2 percent into journalism.[2] These results are roughly consistent with an unpublished study by the National Science Foundation (reported in the *Committee on the Status of Women in the Economics Profession March 1987 Newsletter*, p. 4), which found that 60 percent of all new economics Ph.D.s plan to enter academia. Our lower percentage may be accounted for by the difference in the sampled populations: graduate students vs. new Ph.Ds. The difference would then suggest that students not planning to enter academia are more likely to drop out.

The academic jobs the students desired were primarily at research universities. Forty-one percent wanted to be at a major university 15 years from now, 32 percent at a policy oriented research institute, 16 percent at a good liberal arts college, 11 percent at a major research institute, and 9 percent in the private sector. The students confirmed these preferences in the interviews. As one student said: "...that's definitely not the thing to do—to walk into [a well-known professor's] office and announce that you want to teach at [a major liberal arts college]."

Not all of the 53 percent had academia on their mind when they entered. In our conversations several students referred to peer pressure and the opinion of their professors as important factors in their decisions. When alternatives to a career at a major institution came up in a conversation among fourth-year students, the students emphasized the problems. One student noted: "It is very hard [to go into a public policy job] when a lot of friends, and certainly the faculty, are judging you by how good a job you get. When you want to succeed in their eyes you get a job at a major university. It is very hard to chuck all this and be a failure in the eyes of all those people who have been very important in the last four years."

If graduate schools are graduating *idiots savants* who have no interest in policy, it is not because students enter graduate school with no interest. The majority of students (53 percent) considered a desire to engage in policy formation very important in their decision to attend graduate school; only 17 percent considered such a desire unimportant. The other significant reason for attending graduate school was enjoyment of their undergraduate major in economics (53 percent); 13 percent considered that unimportant. During graduate school 71 percent worked as teaching or research assistants, 11 percent worked as consultants and 11 percent did political work. (Some students did more than one kind of work.) Thirty-four percent were already in the process of writing scholarly papers for publication.

In the survey as well as in our conversations, concern with the relevance of economics dominated. When asked what the major factor in their choice of dissertation topic was, or would be, there was a focus on wanting to do relevant work. When

[1]Dropouts are not included in the survey. However, at most of these schools the dropout rate is relatively low. This suggests to us that the admissions process is succeeding in weeding out students who cannot accept the process.

[2]The percentages can add up to more than 100 percent because some students choose more than one goal.

Table 1
The importance of reading in other fields

	Very important	*Important*	*Moderately important*	*Unimportant*
Mathematics	41	32	21	6
History	34	34	24	8
Political science	24	30	33	13
Sociology	16	29	35	21
Philosophy	15	27	27	15
Psychology	9	20	44	27
Computer science	8	26	35	30
Physics	2	6	27	64

asked about the factors that influence the choice of the dissertation, the majority (67 percent) stated that they wanted to understand some economic phenomenon. Seventeen percent said that getting the dissertation done was an important reason, while four percent mentioned the applicability of certain mathematical or econometric techniques.

Jacob Viner once said that "men are not narrow in their intellectual interests by nature; it takes special and rigorous training to accomplish that end." Based on our survey we can conclude that graduate economics education is succeeding in narrowing students' interests. Most of the respondents had wide interests but class work left little time to follow up these other interests. We asked them how important to their development as an economist readings in various fields would be; their responses are shown in Table 1. Even though most graduate students believed that reading in areas such as history and political science, and to a lesser extent, sociology and philosophy, was important for their development as economists, we found from our interviews that most did not undertake such reading because they lacked the time.

Another indication of the narrowing process is that students also felt that graduate school gave them little opportunity for interdisciplinary discussions. Even though 60 percent said they had frequent interactions with students or scholars in other disciplines, only 13 percent thought those interactions intellectual.

The interests of our respondents (ranked by percentage of students having great interest) are given in Table 2. In terms of interest among areas within economics, our respondents mirrored a hierarchy that Benjamin Ward (1972) argued exists, although there were some notable exceptions.[3] Microeconomics and macroeconomics coincide with Ward's suggested hierarchy of the profession. Econometrics is lower but has a significant amount of moderate interest. Economic development and industrial organi-

[3]Ward's hierarchy was as follows: (1) micro and macro theory, and econometrics; (2) international trade, public finance, money and banking; (3) labor, industrial organization, and economic history; (4) history of economic theory, economic development, and comparative economic systems.

Table 2
Interest of students by area

Area	*Great interest*	*Moderate interest*	*No interest*
Macro	42.6	43.5	13.9
Political economy	36.1	38.0	25.5
Micro	35.7	48.3	15.9
International	30.5	43.8	25.7
Industrial organization	30.1	45.1	24.8
Money and banking	28.0	41.1	30.9
Development	26.0	42.3	31.7
Labor	24.6	40.1	35.3
Econometrics	22.4	55.7	21.9
Public finance	18.9	47.6	30.5
History of thought	18.7	50.2	30.6
Law and economics	10.6	40.1	47.3
Comparative	9.3	42.4	48.6
Urban	5.4	27.0	67.6

zation ranked higher than Ward suggested they would. Political economy (not found in Ward's classification) received significant interest. (Political economy would include both neoclassical political economy, such as public choice, and Marxist political economy.)

One of the objectives of our study was a better understanding of the perceptions of their discourse that students acquire in graduate school. For that reason we asked them what abilities will likely place students on a fast track. That question provided some of the most dramatic results of our survey.[4] We presented students possible abilities which they ranked as shown in Table 3.

Knowledge of the economy and knowledge of economic literature do not make an economist successful, according to graduate students. Forty-three percent believed that a knowledge of economic literature was unimportant while only 10 percent felt that it was very important. Sixty-eight percent believed that a thorough knowledge of the economy was unimportant; only 3.4 percent believed that it was very important. The attitude about the importance of knowledge about the economy was confirmed in our interviews. The following typical comment was given in response to a question about what students thought of class work:

> One of the questions of your survey was: "What puts students on the fast track?" and if I remember correctly, one of the choices was "general knowledge

[4]The question was phrased as follows: "Which characteristics will most likely place students on the fast track? Circle one." In our interviews we asked students how they interpreted "fast track" and found that almost all students believed it to refer to success in the academic profession.

Table 3
Perceptions of success

	Very important	*Moderately important*	*Unimportant*	*Don't Know*
Being smart in the sense of being good at problem-solving	65	32	3	1
Excellence in mathematics	57	41	2	0
Being very knowledgeable about one particular field	37	42	19	2
Ability to make connections with prominent professors	26	50	16	9
Being interested in, and good at, empirical research	16	60	23	1
Having a broad knowledge of the economics literature	10	41	43	5
Having a thorough knowledge of the economy	3	22	68	7

about the economy." You can walk in off the street and take the courses and not know what the Fortune 500 is and blaze through with flying colors. You can also come in and know the difference between subordinated debentures and junk bonds and fail miserably.

Clearly these results raise significant questions about the nature of graduate school, what is being taught, and the socialization process that occurs. The issues raised here are complicated ones, but the results suggest that these issues need to be addressed by the profession.

In the questionnaire we did not ask whether students like what they perceive in graduate school, nor are graduate students necessarily the ones to ask. As Robert Solow stated when commenting on this paper, "To say that something is wrong with graduate education is to say that something is wrong with the economics profession."

For what it is worth the interviews suggested a definite tension, frustration and cynicism that, in our view, went beyond the normal graduate school blues. There was a strong sense that economics was a game and that hard work in devising relevant models that demonstrated a deep understanding of institutions would have a lower payoff than devising models that were analytically neat; the facade, not the depth of knowledge, was important. This cynicism is not limited to the graduate school experience but is applied also to the state of the art as they perceive it. A fourth-year student stated:

We go to the money workshop. You'd think that for edification the faculty brings in supposedly some of the best young people throughout the country to give macro talks about their current research. All of us go, week after week, and

come back, and just laugh at them. Big reputations. Often because it's just very implausible, very complicated.

Differences Between Graduate Students and the Profession

Bruno Frey, *et al.* (1984) recently surveyed the beliefs of American economists. Our questionnaire included questions similar to theirs, allowing us to compare their responses for American economists with ours for graduate students. Table 4 compares the two sets of results. As can be seen in this percentage comparison, graduate students

Table 4

Economic opinions of graduate students compared to Frey Study of American economists

	Graduate students				*American economists*		
	yes	*yes but*	*no*	*not[a] sure*	*yes*	*yes but*	*no*
Fiscal policy can be an effective tool in stabilizing policy.[b]	35	49	11	5	65	27	8
The FRB should maintain a constant money growth.	9	34	45	12	14	25	61
A minimum wage increases unemployment among young and unskilled workers.	34	39	18	9	68	22	10
Tariffs and import quotas reduce general economic welfare.	36	49	9	6	81	16	3
Inflation is primarily a monetary phenomenon.	27	33	29	11	27	30	43
Wage-price controls should be used to control inflation.	1	17	73	9	6	22	72
Worker democracy will increase labor productivity.	13	40	22	24	—	—	—
The market system tends to discriminate against women.	24	27	39	10	—	—	—
The capitalist system has an inherent tendency towards crisis.	8	23	59	13	—	—	—
The income distribution in developed nations should be more equal.	47	32	14	7	40	31	29

[a] The survey of Frey, *et al.* did not allow the "not sure" option.

[b] The question as formulated in the Frey survey is: Does fiscal policy have a stimulative impact on a less than fully employed economy?

tend to qualify their conclusions, especially about the role of quotas and tariffs and the effectiveness of fiscal policy, much more than do most American economists.

Distinctive Characteristics of Graduate Programs

In an insightful study of the economics profession George Stigler and Claire Friedland (Stigler, 1982) pose the question: "Are the major centers of graduate instruction in the U.S. 'schools' in the sense of leaving distinctive imprints upon their doctorates?" They examine the citation practices from 1950 to 1968 of economists who received their doctorates between 1950 and 1955. Stigler and Friedland find "genuine differences among the universities in the attention and respect paid to various scholars." But the differences are so small, according to them, that they do not provide evidence for the existence of divergent schools of economic thought.

Unlike the study by Stigler and Friedland, our survey does not cover research interests after graduate school, but it gives insight into the opinions that graduate students hold. The results shown in Table 5 demonstrate that graduate schools, particularly Stigler's own University of Chicago, have distinctive characters. For example, differences come out clearly in the answers to questions about economics as a science presented in Table 5.

Looking at the "Total" column in Table 5, the scientific status of economics is clearly in doubt among students. A majority deny two key elements of any objective science: the distinction between positive and normative economics and agreement on fundamental issues. However those views are not evenly distributed among schools. For example, without MIT and Harvard, a small majority would conclude that economists do agree on fundamental issues.

The response indicates that Chicago students are most convinced of the relevance of neoclassical economics, and Harvard students least convinced. Apart from the Chicago students, the majority of graduate students question the possibility of separating positive and normative economics. In fact, three-quarters of those at MIT and five-sixths of those at Harvard deny the distinction between positive and normative economics. Chicago accepts it; other schools have bare majorities against.

The differences among schools are brought out more clearly when we compare the opinions of students at various schools on economic perspectives in Table 6 and on the importance of economic assumptions in Table 7. These two tables strongly support the hypothesis that Chicago constitutes a "school" that is distinct from other schools. It seems to be a creed at Chicago that inflation is primarily a monetary phenomenon, with 100 percent agreeing with the proposition. At Harvard, 46 percent disagree. Likewise, it seems a creed at MIT that fiscal policy can be an effective tool for stabilization, with no student disagreeing. At Chicago, 44 percent disagree.

The differences are also significant in the responses to the microeconomic questions. Chicago students have a significantly higher degree of confidence in the market than students at other schools. Harvard shows most variety in the answers with a significant number of the students skeptical of the market.

Table 5
Opinions of economics as a science: comparison among schools

	Chicago	*MIT*	*Harvard*	*Stanford*	*Columbia*	*Yale*	*Total*
Neoclassical economics is relevant for the economic problems of today							
strongly agree	69	31	20	34	24	33	34
agree somewhat	28	56	56	60	68	60	54
disagree	3	11	22	6	8	8	11
no clear opinion	0	2	2	0	0	0	1
Economists agree on fundamental issues							
strongly agree	3	4	2	2	4	13	4
agree somewhat	47	31	27	51	48	33	40
disagree	44	60	68	43	44	47	52
no clear opinion	6	4	2	4	4	7	4
There is a sharp line between positive and normative economics							
strongly agree	22	7	9	9	0	7	9
agree somewhat	38	16	4	30	32	33	23
disagree	34	73	84	55	52	60	62
no clear opinion	6	4	2	6	16	0	6
Economics is the most scientific social science							
strongly agree	47	27	9	27	36	13	28
agree somewhat	28	36	43	31	24	47	39
disagree	9	24	30	23	28	40	19
no clear opinion	16	13	18	19	12	0	14

The "Total" column in Table 7 shows that most graduate students found the rationality assumption important, but were cautious about the rational expectations hypothesis. Only 17 percent considered the hypothesis very important, while 25 percent considered it unimportant. The assumption of imperfect competition and the assumption of behavior according to conventions ranked higher than the rational expectations assumption.

Looking at the breakdown among schools we see that Chicago students, compared with students in other schools, demonstrate the greatest commitment to neoclassical economics, with significant support for the rational expectations hypothesis and relatively less interest in the assumptions of price rigidity, imperfect competition and cost mark-up pricing. (One could also say that other schools demonstrate little support for Chicago ideas. As one third-year MIT student noted: "There are no Lucas types [at MIT]."). It is particularly striking that not a single MIT student thinks the rational expectations assumption is very important.

Table 6
Economic opinions: a comparison among schools

	Chicago	*MIT*	*Harvard*	*Stanford*	*Columbia*	*Yale*
Fiscal policy can be an effective tool in stabilizing policy.						
strongly agree	6	48	30	30	54	60
agree with reservations	34	51	65	52	38	33
disagree	44	0	2	9	8	7
no clear opinion	16	2	2	9	0	0
The Fed should maintain a constant growth of the money supply.						
agree	41	0	7	2	4	0
agree with reservations	44	27	24	39	50	21
disagree	9	60	57	44	33	64
no clear opinion	6	13	11	15	13	14
A minimum wage increases unemployment among young and unskilled workers.						
agree	70	24	15	36	38	33
agree with reservations	28	53	41	40	25	27
disagree	3	11	35	19	21	13
no clear opinion	0	11	9	4	9	27
Tariffs and import quotas reduce general economic welfare.						
agree	66	38	20	32	38	33
agree with reservations	34	42	56	51	54	60
disagree	0	13	11	9	8	7
no clear opinion	0	4	13	9	0	0
Inflation is primarily a monetary phenomenon.						
agree	84	7	15	23	29	13
agree with reservations	16	44	26	45	25	40
disagree	0	36	46	23	33	33
no clear opinion	0	11	11	10	13	13
The market system tends to discriminate against women.						
agree	6	24	44	11	38	27
agree with reservations	19	22	20	38	21	53
disagree	69	40	26	43	33	13
no clear opinion	3	13	11	9	8	7
The distribution of income in developed nations should be more equal.						
agree	16	52	54	52	46	60
agree with reservations	50	30	33	24	37	20
disagree	19	9	13	17	9	20
no clear opinion	15	9	0	7	9	7

Table 7
Importance of economic assumptions

	Chicago	*Harvard*	*MIT*	*Stanford*	*Total*
Rationality assumptions					
very important	78	35	44	58	51
important in some cases	22	51	44	36	41
unimportant	0	14	9	6	7
no strong opinion	0	0	0	0	1
Rational expectations					
very important	59	14	0	9	17
important in some cases	38	45	71	53	53
unimportant	0	38	18	32	25
no strong opinion	3	2	7	6	5
Price rigidities					
very important	6	37	38	26	27
important in some cases	56	54	56	65	60
unimportant	38	7	4	4	10
no strong opinion	0	2	0	4	3
Imperfect competition					
very important	16	47	51	38	40
important in some cases	72	47	44	60	55
unimportant	9	7	0	2	4
no strong opinion	3	0	2	0	2
Cost mark-up pricing					
very important	0	7	9	11	9
important in some cases	16	48	62	41	46
unimportant	50	26	18	33	26
no strong opinion	34	19	9	15	18
Behavior according to conventions					
very important	0	16	18	4	4
important in some cases	31	55	69	64	25
unimportant	31	9	2	4	57
no strong opinion	38	20	11	28	15

Chicago was unique in other areas as well. For example, only 19 percent of the Chicago students perceive a significant tension between their course work and their interests. This number contrasts with an average of 42 percent for the other schools. No stress is reported by 60 percent at Chicago, compared with an average of 28 percent at the other schools.

While Chicago definitely constitutes a specific school, there is less, but nonetheless some, evidence that other programs do too. Were we to generalize we would say that Harvard students appear to be most skeptical, while Stanford students place themselves in the spectrum of opinions between Chicago and MIT students.

The fact that Chicago represents a different school does not mean that the school shapes the students to its image. The students could have been self-selected. We tested this possibility in two ways. First, we asked students to compare their beliefs before graduate school with their beliefs now in regard to certain issues such as the relevance

of neoclassical economics, whether a sharp line can be drawn between positive and normative economics, and whether economics is the most scientific of the social sciences. No clear-cut conclusion emerged from these questions. Approximately 50 percent of the students felt that they had not changed their minds in graduate school. Among those who did change their minds, for the total sample of all schools there was no clear-cut movement toward or away from the beliefs associated with that school.

Looking at the data by school, however, one can detect a slight pattern, especially at Chicago. For example, at Chicago 44 percent did not change their view about the relevance of neoclassical economics from what it was before graduate school. The 56 percent who did change their minds were divided as follows: 3 percent thought it less relevant and 53 percent thought it more relevant. This is in direct contrast to other schools. For example, at MIT 62 percent of the students believed that they did not change their view of the relevance of neoclassical economics from what it was before graduate school, but those who did change their mind were split: 22 percent thought neoclassical economics more relevant, 16 percent thought it less relevant.

Another example can be seen in students' beliefs about how scientific economics is. Forty-seven percent of the Chicago students did not change their minds: 34 percent thought economics more scientific; 19 percent thought it less scientific. At MIT 71 percent of the students did not change their mind on this question; 7 percent thought it more scientific; 22 percent thought it less scientific. These data suggest that schools tend to reinforce previously-held positions.

Although we did not ask questions about previous beliefs on economic policy, we were able to separate answers to questions by year of study and thereby capture changes in views that occurred after the first year. This provided a second test, although the results of this test are inconclusive because the study was done in the spring, and it is possible that first-year students could have already been influenced by the school. Still, this test also suggests that self-selection is important but that some adjustment and reinforcement of views occurs at graduate school. For example, at MIT 66 percent of first- and second-year students agreed that inflation was a monetary phenomenon whereas only 42 percent of four- and fifth-year students agreed. (At Chicago 100 percent agreed in all years.) But the comparison also presented some anomalies. For example, at Harvard 26 percent of first- and second-year students felt that inflation was primarily a monetary phenomenon; while 53 percent of fourth- and fifth-year students believed that it was.

Answers to the two other questions provide a good sense of the reinforcement of views that occurs in graduate school: 58 percent of first- and second-year Chicago students believed that fiscal policy could be effective, but only 36 percent of the fourth- and fifth-years students believed that it was. At Harvard and MIT all but one student in all years agreed that fiscal policy is effective. In response to a question about the minimum wage, all Chicago students in all years believed it increased unemployment; of Harvard students in the first and second year 45 percent disagreed; in the fourth and fifth year only 24 percent disagreed.

Our conclusion from these two incomplete tests is that while some adjusting to the school view does occur in graduate school, unless the changes occur in the first year,

the predominant factor in determining the beliefs of a graduate school student is self-selection. Graduate schools modify those beliefs somewhat but often reinforce previously existing views.

Some Thoughts About the Implications

Reporting the data is one thing; interpreting them is another. We were especially struck by a series of tensions that emerged in the making of economists. Graduate students are interested in policy; most entered economics because they hoped it would shed light on policy. In the early years when they learn techniques and basic skills, the application to policy is limited, and this causes some frustration for the students as shown in the following conversations:

> *Student 1:* It seems to me that we spent six weeks in the macroeconomics course where we did a lot of algebra, we took a lot of derivatives, but we never really talked about how applicable these models were, how reasonable these assumptions were.
>
> *Student 2:* I don't think we get policy at all in our courses. Well, there's Theory of Commercial Policy, but we don't really get policy in that. We get, "What's the optimum tariff?"

Some students argued for the advantage of specializing in technique. Other students disagreed as can be seen in the following exchange:

> *Student 3:* It think there are two things going on. One is the first year we're getting equipped [with the basics]. I think it's very important to make sure that we cover an agenda of items. And I think there's another feeling—I've seen this in a quote that Solow had—that policy is sort of for simpletons. If you really know your theory, the policy implications are pretty straightforward. It's not really the really challenging meat and potato stuff for a really sharp theorist. I think that's another reason why they don't spend much time on applications.[5]
>
> *Student 4:* Not necessarily. I feel like the implementation of policy is a much trickier question than those people give it credit for. A guy like [names an instructor], for instance, on the faculty here, is very concerned with that sort of thing, and I get the impression that he's almost sneered at for caring about practical problems that come along with implementing theoretical results. And there really are very few people on the faculty whose work I've seen really take that sort of thing into consideration.

The other students agreed.

[5] Perceptions often differ from reality. Robert Solow pointed out to us that he never made such a statement The likely source for the statement is a quotation from Dale Jorgenson as reported in a *Business Week* article.

To make it through the first two years of graduate school, students have to focus on technique. Thus, the graduates are well-trained in problem-solving, but it is technical problem-solving which has more to do with formal modeling techniques than with real world problems. To do the problems little real world knowledge of institutions is needed, and in many cases such knowledge would actually be a hindrance since the simplifying assumptions would be harder to accept.

Students come into graduate school wanting economics to be relevant, and are taught theory and techniques that point out the complexity of the problems. But they quickly come around; they perceive the incentives in the system. They are convinced that formal modeling is important to success, but are not convinced that the formal models provide deep insight into or reflect a solid understanding of the economic institutions being modeled. Believing this, they want to be trained in what the profession values. Thus we find that students who believe they are not being taught the most complicated theory feel deprived and unhappy because they worry about the ability to compete.

The value students place on learning technique can be seen clearly in the interviews with students at Columbia. In response to a question about how they and the faculty would respond to bringing in a higher level of theoretical economists, they stated:

> *Student 1:* If you ask me, that's [the absence of a high level theoretical economist] one of the weaknesses of Columbia when we go into the job market. We don't have a high level theorist here.
>
> *Student 2:* What do you mean—like pure money theory?
>
> *Student 1:* In micro. Micro theorists, topology—we don't have anyone like that here. We don't touch it.
>
> *Questioner:* Does that bother you?
>
> *Student 3:* Yes, it worries me greatly. Because I'm interested in micro theory, that's what I want to do.
>
> *Student 1:* It's a liability not to understand foundations.
>
> *Student 2:* And I kind of think that math for math's sake is nice, just to learn the math, and then it's a good way of thinking. And then maybe some of it might be relevant to economic ideas.

The likely reason for students' transformation into technique-oriented individuals is that most of them aspire to academic jobs. They know that tenure depends on publication in the right journals. They logically choose a source of study that is most likely to lead to their goal of succeeding in that intermediate goal. Knowing a technique that can be applied to ten areas can lead to ten articles; knowing a specific area well might lead to one or two articles. Thus, students see little incentive to know the literature in an area or to have institutional knowledge of a particular area. This

emphasis does not reflect their lack of concern about policy; it reflects the perceived incentives in the system. Novelty in approach, not slogging through enormous amounts of data or becoming an expert in the literature, is important.

Conclusion

We are not saying that graduate education in economics is bad or good. We are merely stating how students perceive the incentives and providing a possible explanation for why those incentives exist. If we are correct in our explanation, these incentives are the inevitable result of other aspects of the economics profession that we have not considered here. It is not because of the interest of students; thus, it seems that some very real socialization process is going on. In our conversations the students frequently brought up the subject themselves, often using the notion of socialization:

> *Student 1 (a fourth-year student):* I came into economics with little economics and math and felt very much that I was being socialized into something, and put through a wringer of linear algebra. After the first two years it has been fabulous. The thesis-writing process has been really fun.
>
> *Student 2 (a first-year student):* The first year seems to shape the rest of our career as an economist. It is really disturbing. We are moving into something but nobody really knows what that is, except that they were socialized in this way of thinking by people who got their Ph.D.s five years ago. It's like being brainwashed. You are deprived of sleep. You are subjected to extreme stress, bombarded with contradictory notions, and you end up accepting anything.
>
> *Student 3 (another fourth-year student):* I feel that I have been socialized into the profession, into its way of thinking. When I came here I would have sworn that I was to go straight into political work. I was reasonably skeptical of these hoity-toity articles in academic journals where the thing to do is to get an academic position, write papers for journals, and the idea is that those who can't do economics do policy. ("Or teach at a liberal arts school," added another student.) Now the research side is more valuable, or maybe it is that I view that as the thing I am supposed to be doing.

Others present confirm this experience.

Our attempt in this paper was to provide some empirical data that allow us better to understand the process that shapes economists. Certain results seem unambiguous and worth repeating. Specifically, there is a significant variety of opinions among graduate economics students and among the schools in the survey, and there definitely seems to be a Chicago school of economics. There are also tensions between the emphasis on techniques and the desire to do policy-oriented work. What students believe leads to success in graduate school is definitely techniques; success has little to do with understanding the economy, nor does it have much to do with economic

literature. We hope that this information leads to discussion within the profession of whether this focus is good or bad.

Appendix
Methodology of the Questionnaire

In 1985, 812 doctorates were awarded in economics. Judging from incomplete figures we would estimate that the six schools in our study awarded approximately 110; thus those of our sample schools represent about 14 percent of the total.

The questionnaire was distributed in the spring of 1985. The total number of respondents was 212 from an estimated population of 600–800, an approximate 25–30 percent response rate, normal for this type of study. There were 31 questions and it took anywhere from 15 minutes to more than an hour to fill out. The distribution of respondents by year was roughly equal: first, 24.5 percent; second, 20.8 percent; third, 21.7 percent; fourth, 14.2 percent; and fifth or more, 18.9 percent. We followed up our survey with a series of interviews.

The questionnaires were distributed at the six schools in two ways. Where possible (at all schools except Yale and Columbia), they were placed in individual student mail boxes. At Yale and Columbia they were distributed by a few selected individuals. This accounts for the lower response rate and adds a possible bias in the coverage at those schools. Thus in certain cross-school comparisons we have left those schools out. Determining the total size of the student population is difficult, because schools list individuals who have not finished dissertations as active students even though they may not be active students: still, the response rate was about 40 percent at Harvard, MIT, Chicago and Stanford. The response rate at Yale and Columbia was lower but since the results of the survey were not all out of line with the results from the other four schools, it seems reasonable to conclude that the results from these schools are valid.

The potential for bias in these surveys does, however, exist. More technically-oriented students may be less likely to answer questionnaires. In our survey there were, for example, relatively few Asian students, who are believed to be more technically-oriented than the typical U.S. student. Thus, as with all empirical research, the results must be interpreted with care.

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