

2000 Elaine Bennett Award Winner Susan Athey, MIT

As interviewed by Rachel Croson regarding her work, her mentors and her goals.

The following is the edited interview:

RACHEL: Susan, why did you go into economics? How did you become an economist?

SUSAN: It was accidental. I was a computer science major and I was taking some economics courses in anticipation of, perhaps, going into a computer business someday. One of my sorority sisters, Leslie McFarland Marx, who is now a professor at Rochester, saw that I was taking economics classes and got me a job with her mentor, Bob Marshall. Leslie was two years ahead of me, and she wrote a thesis, took all advanced math classes, applied to graduate school, and got an NSF fellowship. Seeing her go ahead of me really helped me understand what it was all about.

Working as a research assistant for Bob got me excited about research in economics. Bob had had a series of undergraduate mentees, all of whom had gone to graduate school in economics, several women in fact. He hired me to work full-time for him in the summer, advised me on two thesis projects, and helped me with all of my essays. I still keep in touch with him regularly today.

What I liked about economics, early on, was that it was very rigorous and analytical, yet it could be applied to real-world policy problems. When I started working for Bob, I had been working for a government contractor in the computer business. Based on this experience, I wrote a thesis on the regulation of computer procurement, and Bob published a couple of papers on the topic. Later, I was able to watch Bob testify in front of a Senate Subcommittee about a policy change. It was a neat chance to see how theoretical research in economics could influence public policy.

RACHEL: Do you have that kind of relationship with anybody now that you're a professor? Have you been a mentor?

SUSAN: Yes. I've had such great role models with my mentors, that it would be hard to imagine not trying to help out students that I work with. I have worked closely with students at both the undergraduate and the graduate level. My very first year as a professor, I got a group of about twenty sophomores as undergraduate advisees. I got to know that group really well—I took them out for dinner and met with them regularly. That was a really special group. Six students from that class are now in economics graduate school, including four women. Even among the ones who didn't go into academics, there's a woman from that group I still talk to every few weeks, she's like a younger sister to me now. In terms of graduate students, I've also had already some really great experiences. I find helping students through the job market to be especially intense but

exciting. As a junior faculty member, sometimes I felt it was tough to balance the students with my other obligations, but even if it meant missing some more of the little sleep I was getting, the relationships I've formed are well worth it!

RACHEL: Tell me about your research. What are some of the interesting puzzles or some interesting questions that you think you would advise graduate students to work on or you might be thinking of doing yourself?

SUSAN: I've actually worked in a couple of different areas. I've done pure micro-economic theory, as well as empirical work. One topic that I've worked on both theoretically and empirically is auctions. Auctions have been a hot topic for the past twenty years, but I also think they'll be a hot topic for the next twenty years, but perhaps in different ways. There's been a lot of recent, exciting research on market design and auction design, in more complicated settings, for example, multiple-unit auctions. The internet has made it feasible to run much more complicated auctions than we might have imagined 10 years ago. And, we're getting enormous amounts of data from the Internet, so I think auctions will continue to be an exciting topic.

Another area that I've worked on is the study of repeated games, and I've been particularly interested in repeated games where agents have private information about features of the environment that vary over time. For example, colluding firms may get cost shocks or inventory shocks in every period, or you might have a community or group that's getting together to provide a public good, and people may have privately observed costs and benefits of providing that public good. I've been interested in analyzing the question of whether or not agents are able to sustain cooperation and at the same time provide incentives for truthful revelation of this private information in an environment where they can't use money or side payments in order to induce that revelation. My research (which is joint with Kyle Bagwell) shows that if agents can keep track of individual-specific histories, they may find it optimal to induce truthful revelation of information, enforced by providing future favoritism to agents who admit being a "bad" type today; however, if rewards and punishments must apply equally to all agents in a group, optimal collusion typically involves sacrificing truthful revelation, and thus productive efficiency. So far, I've focused mainly on the topic of collusion, but more recently I've been working on applications in other areas, from government policy games to a study of institutions and developing communities.

RACHEL: So that leads to the next question, do you think that your research is useful for

industry, for policy, for regulators?

SUSAN: Yes, I do. In fact, a lot of the past research on collusion and repeated games didn't provide much of a role for the institutions that we see arising in real-world collusive arrangements. For example, we haven't had much of a role for people to get together in a smoke-filled room and discuss the collusive arrangement. We haven't had much to say about how firms decide when they're going to try to make side-payments, or in an environment where that might be costly, why they even need those side-payments—couldn't they find some other way that wouldn't be illegal? My research on collusion suggests a role for communication as a way to coordinate production to low-cost firms; but communication is only valuable if the firms can find some way to reward or punish individual firms, so that the communication is credible. We also show that if firms are fairly sophisticated and patient, that they may not need side-payments; but if they're less patient, then they may use some combination of keeping track of individual histories and side-payments.

RACHEL: What part of your job really excites you? What part of your job do you wake up in the morning and say, "Gosh, I'm so glad I get to do this today?"

SUSAN: I love being in the middle of the research process, or the beginning. Coming up with a new theory, and developing a model, and proving some results, and then changing the model, and getting to the point where you have just the right model and into discovering how it works—just the moment when the model really "sings" to you—is just a "high" that it's hard to match anywhere else. Sometimes I get a hard time from my friends about how hard I work, and sometimes they may be right, but I have to say that that kind of "rush" from solving models is a lot more interesting than a lot of other things that I could think of doing.

The other part that I've really loved is working with students; in particular, mentoring students and watching their careers develop. That gives me a lot of meaning—it feels like the impact that I have there will outlast a lot of the other things that I do. I feel lucky that I've already had the chance to see the effect that I've had on a few students' lives.

RACHEL: What part of the job do you hate? What part of the job do you dread?

SUSAN: Revising papers. I think that the editorial process has just been in a state of some crisis in the last ten years. My colleague Glenn Ellison has recently done some empirical research to support that contention, which I found very validating, given my own experiences

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with the process. It can be very hard to sit down and revise a three- or four-year-old paper for the “nth” time. That’s so much less exciting than writing new ones.

RACHEL: Do you have any advice for young women researchers—also young researchers in general—but particularly women?

SUSAN: I think it’s important to aim high and find role models and mentors. For young women, I think it is also useful to find a few “buddies,” and if you don’t have other women in your department, or in your field, to find buddies in other schools. Going through graduate school, the tenure process, balancing work and family, are just incredibly stressful, and so it can be very helpful to have sounding boards.

I also think it is important to cultivate your mentors, keep them informed as your career progresses, and make sure they know that you appreciate their help!

RACHEL: So now you can answer my fun question, if you weren’t a skilled, white-collar, educated type of worker, what job would you have? What would you be?

SUSAN: Well, I had a lot of blue-collar jobs when I was in high school, in fact. I graduated high school when I was 16, but still needed to earn

money for college, so I had to be creative about finding places to hire me so young. I did all sorts of jobs, including telemarketing for a lawn service, but my favorite job was working in local pizza joints. So I think that running a restaurant would be a fun job to have. That might seem surprising to some of my friends, since I’m not especially domestic in my skills—my refrigerator is often completely empty, and I often eat microwave dinners in my office. But I love organizing people, and there’s a lot of “team spirit” among employees of a restaurant. Then there are also business decisions about everything from scheduling to promotions to coupons, competing with your rivals. Thinking about those things as a teenager taught me my first lessons in industrial organization!

RACHEL: Any final thoughts?

SUSAN: Sometimes people ask me about what it’s like to be one of the only women in my field. As you know, some fields in economics have a lot more women than others. I can see a huge difference when I go to the empirical industrial organization meetings, where women play prominent roles in all aspects of the field. In microeconomic theory it’s just a very different picture. It has certainly created some challenges, and I haven’t always been sure where I fit in. But, at the same time, a lot of people in micro

theory have been very supportive. I think that if we can just get more women coming to graduate school with mathematical training and mathematical backgrounds, there is room for them to succeed.

That’s one reason that I’ve agreed to be interviewed by the press a few times, as well as given talks to high school students and written magazine articles for teenagers. Being interviewed by the press has had costs and benefits for me. I’ve taken some heat (directly and indirectly) from colleagues for doing it, and I find it extremely stressful, since you can’t control what the press will say, and they tend to twist things to make the story interesting. But I feel strongly that it is important for mathematically oriented women to get out and be role models if they can. I know that when I was a teenager or in college, it would have made a big difference to me if I had seen a woman in a mathematical field and she had made it sound interesting and exciting and feasible. I only got to this field because I was picked out by mentors to do so—it never would have occurred to me otherwise. So, even though my efforts alone may not make much of a difference, I think it’s important to give it every shot so that young women see that it is possible.