Does that work? So, my talk is shaped in large measure because NSF is funding this and some of the things I’ve got to say, I think, are very much relevant to what NSF funds and their commitment over the years to panel surveys. And the theme of the conference is the future of survey research, so I think it’s fair to say, for the last 25 years, longitudinal surveys have been seen as an important part of the future. And NSF supports one clearly longitudinal study, the PSID. And the other two main studies that it’s funded over a great many years are the ANES and the GSS. Both have very significant panel attributes. And, in addition, a lot of our quintessential cross-sectional surveys aren’t entirely cross-sectional either; that the decennial census data, courtesy of Steven Ruggles and the IPUMS Project has been turned into a panel survey of sort. You know, who suspected that was going to happen? The, as has already been mentioned, the ACS has, essentially, been used as a screener for other studies, such as the NSF SESTAT effort. And so, the ACS might, maybe, morph into a panel. And as others have noted, talk this morning, mentioned that the CPS with its rotating structure, allows you to actually make this a high frequency panel, although I think it’s fair to say the Census Bureau does its best to prevent that from happening.

So, the point here is that people and organizations are always in motion and it’s unusual when a cross-sectional survey doesn’t ask backward-looking questions. So, when we look at the intertemporal aspect of social science data, we really have two choices. We either collect this intertemporal data prospectively or retrospectively. So, if you’re collecting data that covers many years, you do one or the other, so you kind of pick your poison. You either have problems with retrospective accuracy or you have attrition.

In the paper I show in table one, the panel aspects of the ANES are – which are fairly considerable – and there’s, the GSS has had, historically, many re-interviews. And then, of late, has started to go to a panel design as well.

So, let’s take a look at a – this is convenient sample of longitudinal surveys around the world and I have to really acknowledge the assistance I’ve received from people at RTI and ISR, Essex and, of course, colleagues at NORC and Census, who for years, have collected all this data. So, the educational longitudinal survey, at its intake, was able to complete interviews on 88 percent of the selected students, which is very high, but, of course, it’s a school frame. I don’t think this number accounts for non-cooperating
schools. I’m not sure to what extent schools opt out of the ELS, but insofar as that happens, this 88 percent is somewhat overstated.

At wave 2, the ELS completed interviews on 91 percent of the wave 1 respondents; and at wave 3, 87 percent of the wave 1 respondents. So, the attrition rate from one to two and then, from two to three, fell from nine to four percent. In addition, in wave three, the ELS returned to wave two non-respondents and for selected domains, recovered data missed in that wave two interview that was skipped. And that’s – I think that’s an important point and I’ll develop it more.

So, in terms of, you know, the attrition problem, which I believe there’s a case to be made that the attrition problem is greatly overrated, that in the ELS, by – as a round – as of the third wave, the ELS had effectively recovered 96 percent of the data that you would have expected them to have collected in that wave 2 interview, which is really not, not shabby at all. And compare that to the cross-sectional attrition going into wave 1 at 12 percent. So, the data loss in these selected domains for wave two was really only four percent. So, let’s keep things in perspective.

I want to take two other examples. The – I’m going to compare the PSID and The British Household Panel Survey. And these are really nicely matched studies. They’re both based on tracking households. They use proxy reports from a cooperative informant. Big difference. PSID started in ’68 from a SEO frame, a survey of economic opportunity frame that they got from the Census Bureau, and somebody at ISR had some real pull to get the PSID out of the Title 13. I just wish the rest of us could do that. But, it was augmented with an ISR augmentation frame. And the BHPS started in ’91, based on an address frame, as Cole mentioned this morning.

One, perhaps, little appreciated difference, and I think we have to keep this in mind when we compare panel studies internationally, is that, in this country, we fund survey organizations and interviewers based on cost reimbursement. Interviewers get paid for their time and their expenses of going out there and tromping the boonies and trying to bring these people under the – into the fold; whereas, in Europe and Asia, a lot of those countries compensate interviewers, essentially, on a per head basis. And so, the incentives for an interviewer to really push hard to bring in a respondent aren’t there because the risk is all on the interviewer and the capitation model of reimbursing interviewers.
So, with that in mind, and also, bearing in mind that The British Household Panel Survey started, what, 23 years after The British Household Panel, or thereabouts, you can see the Household Panel retention rate of the two follow the same pattern – a steep drop and then a, somewhat, a leveling off with The British Household Panel being somewhat below the PSID. And, again, it’s hard to understand exactly what the causal factor is.

Now, let’s look at the hazard rate for attrition for the PSID versus the BHPS. And we see a similar sort of pattern that we, in fact, saw with the ELS, a fairly high attrition rate after the first wave and it falls, and then it starts to level off, although the ELS didn’t run long enough to really see this pattern. But, these both – both of these household panels show that same pattern.

So, what do we make of this? And, incidentally, we saw the same panel, I believe, in the ANES. In your 2008 panel, you had heavy attrition in those high frequency panels early on and then, it leveled off. And so, this is perfectly consistent with the notion that attrition is being driven by innate – heterogeneity in innate respondent cooperativeness, which means that these panel surveys slowly prune out the less cooperative respondents and, in time, we’re left with the more cooperative people.

So, with that in mind, you know, focusing on attrition, you know, first of all, the attrition for these surveys is not at all that bad and we’ll see later on that the news is even, potentially, a lot better. But, looking at attrition, I – are you as equivalent to single entry bookkeeping because we focus on – one of the problems of panel surveys, but we miss the substantial benefits, namely it doesn’t cost you anything to enroll the wave two respondents or the wave three respondents. You’ve already got them. So, an equivalent repeated cross-section effort is going to be substantially more expensive because you’ve got to go out there and you’ve got to sample and recruit people every time.

Now, over time, the panel studies do have a tendency to decluster, that in the NLS, after about 25 years, if you look at a scatter plot of where the respondents are, it looks exactly like a simple, random sample. So, these longitudinal surveys do decluster, so you do lose the economies of clustering that Cole mentioned this morning. But, nonetheless, you also have to remember that in repeated cross-sections, you have to keep collecting the same background information. And so, a lot more of your interview time is absorbed by the bookkeeping and the keeping up to date and, “Who is this person that I’m talking to?” that the panel surveys, you know, they
just paid for that once. And, in addition, the time varying data, I would argue, is more accurately collected prospectively than retrospectively. So, one action item for NSF to consider supporting is an effort, a comparative effort to ask, “Okay, what are the – how do we compare the problems of attrition with the problems of recall? And unless you consider the problems of recall, which we know are serious, especially for non-salient events, we – the focus on attrition is going to be misleading.

Let me skip now to the National Longitudinal Surveys and I’ll know a little bit more about these. These are surveys of individuals rather than households with six cohorts started between ’66 and ’97. And what’s interesting is that, of the four original cohorts were collected by The Census Bureau. NORC collects the data for the latter too. So, these are very similar surveys, but if you look at the young women, a survey which was begun in 1968, versus the NLS Y79 and the NLS Y97, we’ve got information that spans two different – approximately two decades of starting points with two different survey organizations. So, this is, you know, we’ve got a little bit of generalization that might be going on here.

Now, these surveys returned to non-respondents in many domains and sought to collect the data missing from the missed waves. And so, what I’d like to do is to develop the theme of respondent attrition versus data attrition. So, in this diagram, the dotted line is the completion rate for the young women’s’ survey from the beginning to 35 years after the beginning. And so, you can see that it, you know, had it’s good times and it’s bad times. And so, this is the normally computed attrition rate. And you say, “Oh, my goodness. Look at this. And, you know, at 30 years out, almost 30 years out, we’re down to 60 percent.” Well, that’s really very deceptive because if you go back and you collect the data missed, when you re-interview a respondent who had not responded to a previous round and use that to fill in the history, then the extent to which your data history is complete is the solid line up above. And, of course, they’ll meet at the very end. So, over time, this solid line slowly lifts up as you pick more and more respondents who’ve left the survey earlier. So, instead of looking at this point here and saying, “Oh, gee whiz, at 31 years, we’ve got a completion rate of 60 percent”, that’s – so, you might say, “Oh, we’ve got a respondent attrition rate of 40 percent, but our data attrition rate is really only 30 percent.”

And this picture isn’t even as good as it gets. Here’s the LSY 79, which is, you know, has been remarkable for a high completion rate over many, many years. And, again, the same story. The
normal completion rate, again, showing the sharp drop after the first wave and slowly, you know, we actually have the completion rates going up for – in some of these rounds. And so, you can say, “Oh, after 30 years, we’re at an 80 percent completion rate.” Well, that’s true, but, you know, look back here. At 25 years, we had – we collected, essentially, 90 percent of the data which was available to be had from this group of people at, you know, roughly 25 years out. Now, that’s, again, that’s not too shabby.

So, if you look at these longitudinal surveys and if NSF provides the sort of funding for surveys such as the PSID to go back to people who’ve left and recover the data, some of these concerns about attrition start to go away. In LSY 97, we see the exact same pattern – a sharp drop initially, showing the pruning out of – by innate respondent heterogeneity and cooperation. And, you know, we have some rounds in here where the completion rate actually goes up. So, I mean, that’s something that’s really appreciated when people talk about attrition and longitudinal surveys. Sometimes, the field organization does a really great job, such as NORC did here and the completion rate goes up. But, look at how much of the data is complete. You know, out here at, you know, 12, 13 years, we’re recovering 90 percent of the data and, you know, that’s a lot better picture than what appears to be in the mid-‘80’s.

Hazard rates of attrition, there’s some blank spots here where the hazard rate, as I computed, actually goes to negative because you actually got more respondents than you did the round before, you know? So, the hazard is not well defined. But, again, you see this sharp, sharp drop for these various cohorts and then, a leveling off.

Now, going back to the young women’s’ survey done by The Census Bureau, you can see that, you know, this solid line isn’t as far above the dotted line as we saw for the two cohorts fielded by NORC and the explanation here was The Census Bureau’s following rule ‘cause if The Census Bureau said, “Oh, as soon as these people are not responders for two waves, we’re not going to follow ‘em anymore”, so, you know, we’d complain and grouse. And so, finally, I guess, I made a sufficient nuisance out of myself and they decided to go back. And so, some of these bumps upward in the attrition rate – I’m sorry, in the completion rate, were generated by The Census Bureau recanting this decision not to return to past non-responders and, instead, go back to them and recover more of the data. Had they done this all along, this – the data attrition rate would have been substantially more favorable.
So, the argument here is that standard respondent attrition rates are a flawed metric; that we really ought not to be talking about them quite so much; that what we really care, what social scientists really care about, I believe, is the completeness of the data. And so, if we structure these longitudinal surveys around the notion that we’re going to recover data when respondents drop out temporarily – and a lot of respondents drop out for idiosyncratic reasons. You know, the marriage goes into the dumper. They don’t want to talk, you know? They lost custody of their kids. They, you know, the last thing they want to do is to talk about their life. But, you know, 5 years later, 10 years later, we found you go back to these people and, all of a sudden, “Oh, so happy to see you.” And away they go. You pick up a lot of the data.

Now, there’s going to be these – sometimes, this generates a long retrospective and the recall problem pops up yet again, but as the comments, you know, or I forget, was it Mike that said it or some – Roger, you know, whatever – whoever said it, “You’re better off with recall data than no data whatsoever, you know? No data is the worse data you can possibly imagine.”

So, now, operationally, in the paper, there’s a table three that estimates our ability to predict who’s going to be a respondent and it turns out that easily observable factors, based on the previous survey or the respondent’s history with the survey, will reveal and explain a lot of the variation in who is at risk to attrition. And so, there are – once you know who is at risk of attrition, you can start to do something about it. So, the first half, I’m talking about relative, the data attrition rate is really what you want to look at, not the respondent attrition rate. So, just in case you were – you find that completely unconvincing, which is – would not be too surprising, how about turning to how we would reduce respondent attrition. So, we’ll leave the data attrition problem for – to the side for now. I’ll just assert that data attrition is the metric you want to use. But, if you’re interested in reducing respondent attrition, which is also another way of reducing data attrition, what can we do? And it comes down to, are we willing to walk the walk?

This table is also in – in case you’re at the back and you can’t read it, it’s in the paper. This is an experiment done in 2000 for the NLSY 79 and, the truth be told, this experiment just didn’t materialize out of the blue. This really reflected, you know, ONB, we’d been doing differential incentive fees for years and years and years. And, finally, OMB got on our case and said, “Can you prove that these work?” And we said, “Yeah. Yeah. Save us, but
yeah, yeah, yeah, yeah. We’ll do the experiment. But, we’d been
doing something like this for 10 years, kind of, under the radar.

But, so, what we did was considered two levels of respondent fees,
a $40.00 fee and an $80.00 fee. And in this table, we make the
distinction between what happened in round 19 for respondents
who were not responders in round 18 versus those who were
responders in round 18, this notion that their past behavior has
labeled them in terms of their innate cooperativeness. So, you can
look at the table at your leisure, but let me just, kind of, summarize
the bottom line and that is the fee costs per incremental complete
among the round 18 non-respondents was $133.00. For round 18
respondents, the incremental fee cost was $272.00. And, of
course, what this reflects is that some of the people you give a fee
boost to were going to complete the interview anyway. Now, this
experiment was done at the end of the field period, so we’d already
sorted out the most cooperative respondents and it was a matter of,
“Okay, we’re at the end. What can we do to get the completion
rate up?” And so, “Well, we’ll try this – bolt this experiment onto
it.”

So, getting, you know, after somebody’s been in the panel for, you
know, 18 waves, you know, if you can get ‘em to do the survey for
$133.00, you know, that’s not a bad deal. So, money can convert
some respondents. But, the point is, these fees are most cost
effective when they’re targeted to the people that you’re pretty sure
are most at risk of attrition. What we did not – and that was, of
course, no surprise at all. We knew exactly what was going to
happen. We just had to tell OMB that’s what happened. But, what
we – what did surprise us was that when we did this experiment,
we saw something we had never seen before and that was, all of a
sudden, the field costs fell. And, in fact, they fell so much that
amongst this stratum, the round 18 non-respondents, the fee
experiment very nearly paid for itself. That is, field costs fell by
an amount per case that was pretty darn close to the additional fee
that we were paying.

Alright. Let’s move on. This is an interesting example. This – we
were finally able to persuade The Census Bureau, I mean, the last
Bastian of don’t pay anybody, to do an experiment much like that
in 2003. This is a group of women who had never gotten in an
incentive payment. So, in 2003, there was a zero fee, a $20.00 –
I’m sorry, a zero dollar fee, a $20.00 fee and a $40.00 fee and these
were all based on non-respondents in 2001. That is, we had
learned our lesson from the formal experiment. We’d made the
case. “Yeah, if you’re going to do incentives, target the difficult
cases.” And so, God bless ‘em, The Census Bureau agreed to do this and what we got was that the $20.00 incentive versus no incentive had an incremental fee cost of $52.00 per case and the $40.00 incentive was the incremental cost per complete was $82.00 a case. So, but, again, after 35 years of following a panel, if you’re offered a completed case for $85.00, take that deal. You know, that’s a no-brainer.

The NLSY 97 round 10 experiment and the results are in table six ‘cause they wouldn’t fit on a PowerPoint. Much the same strategy of stratifying the experiment by former non-responders versus responders and what we got was that the – amongst the non-responders, the incremental fee cost per complete was about $50.00 a case, but the incremental fee cost per incremental complete amongst the responders was $230.00. So, again, you know, we don’t have a lot of money to do these things. The money we spend has to be spent wisely. This tells you, pretty much, if you want to spend your money wisely, put your money where the payoff is highest.

So, that leaves us where we are. In collecting time varying information, we have to either deal with recall problems and cross-sectional surveys or attrition in longitudinal surveys. And so, the open question is, “Which is the bigger threat?” It would be interesting to test the heterogeneity theory by administering the big five in the first wave of a panel survey to see whether attrition is getting – is related to agreeableness, openness, conscientiousness and maybe even neuroticism. Again, we need to recast, I believe, the discussion of attrition in terms of data attrition rather than respondent attrition, although the things we do to – in terms of, you know, differential respondent fees that can stem respondent attrition help with data attrition. Of course, the problem, you know, a lot of people find differential respondent fees, you know, repugnant. Interviewers hate them because they think it’s unfair because, I don’t know, I guess you’re treating the non – the uncooperative people better, I don’t know. But, I mean, how many of us pay the same amount for our airfare out here? You know, everybody on the airplane paid a different amount. So, you just, kind of, have to get over it.

So, I think, you know, the rap that panel studies get for attrition, I believe, is misplaced. Several waves of a panel study will almost surely cost less than an equal number of similarly sized, equally lengthy cross-section surveys and you wouldn’t be able to get as much data in those cross-sectional surveys because you have to
keep going back and collecting the background information over, over and over.

And so, the theme – basic conclusion I come to – and I have a dog in this fight, I’ll admit. But, you know, that, really, panel studies are an excellent value for money and, you know, we really need to think about that when we consider panel studies and keeping them going and supporting them.

Having, in addition, you know, having the initial data from a panel study also helps us do things with attrition corrections because we know more about the people who’ve left after that initial wave of a panel study and I’m not sure whether the PSID has done this, sort of, model based weights or not where you take into account round one characteristics of people and use that to up weight people with similar characteristics, aside from the usual sampling strata.

I would argue that, perhaps, an equally important problem to attrition is the lack of accretion; that is, inflows of migrants into the country. My guess is migrants are probably less, likely, less well represented by existing panel members because migrants are, you know, they’re just very, very different. And so, in times of heavy in migration, which probably described the situation from about, what, about 1980 through 2008, the seriousness of lack of accretion bias may actually rival attrition bias and that’s something NSF may want to look at.

So, I’ll stop there.

Jon Krosnick: Thank you, Randy.

Question: Hi, Randy. So, I’m wondering in the context of panel surveys, then, how do you manage the differential incentives over time? So, what happens in the wave following the incentive boosts? Do the respondents, I guess, first, do they come to expect the higher incentive? And then, also, I think in at least some of these studies, there are families that are related to each other and do they, you know, do they talk to each other about getting different amounts of money to do the study?

Randall Olsen: I always wonder how much I should say about this.

[Laughter]

Question: Well, now’s your chance.
Not everything that can be said should be said.

We’re sensitive to this issue. Now, in times gone by, if we bumped up the attrition payment, we might let it slide back if they raise, “Oh, that must have been a mistake.” “Yes, well, we’ll pay you more.” We pay attention to who’s related to whom. And in the NLSY 79, especially, there are big kinship networks because it also has this bolt on second generation study, like the PSID does, that’s now been going on for over 20 years. And so, if someone in the family group gets paid more, we’re more likely to pay them. But, in general, what we try to do is to get by paying them as little as we can because you’ve only got so much money for the field and it’s all a matter of how you spend your money and where you spend your money. It’s like the decision of whether you interview them by phone or face-to-face that, you know, I think we would all prefer that we could do our respondents face to face, but, you know, you guys can’t afford it. We can’t afford it. Who can afford it? But, the money we save by going telephone, we can put into respondent fees. But, that’s, pretty much, what you have to do.

Now, if you’re a singleton in that study and you’ve been cooperative, that is to say you don’t have any kin that we’ve had to pay, you know, an extra fee to, you’re getting the standard; or if everybody in your family is marvelously cooperative, yeah, you’re going to get the standard fee. But, as soon as there’s any push back whatsoever about, “Well, Sarah got $80.00. Why am I only getting $40.00?” Well, “Oh, yes, that must have been a mistake. You will, of course, get $80.00”, you know? But, you know, we’re in this for the long run. You’re in it for the long run. We’re in it for the long run. The last thing you want to do is offend a respondent. But, it does make this strategy – it’s more costly in the long run, in the short run, but it’s still effective.

I’m just curious, when you go back to somebody who hasn’t done the interview for, say, six years, I mean, now that you’re on two year intervals, six years is not a crazy gap, I mean, you actually experience that in the data, and you try to fill in the full six years, I mean, you mentioned the possibility of recall error. I’m thinking
about it as a potential respondent that that’s not – “I’m trying to remember where I was five years ago and what it was doing. Not a lot of fun, if I’ve changed jobs a lot.” So, does the task of filling in become sufficiently unpleasant that the people who, you know, have a lot of history to fill in become greatly uncooperative the following - what’s their behavior? So, what’s the continuation rate for the people that you’ve reconverted, I guess, and does it vary with how long they’ve been out?

Randall Olsen: It’s – you can kind of get the fitted values from table three. First of all, the interview length doesn’t swell up that badly because the places where we do – we fill in the history are these key demographic things. So, you know, we’re funded by the Department of Labor, so we’re going to collect every job you’ve ever held. We’re going to talk about training. We’re going to get the event history and all your education, marital history, fertility. And, for the most part, these are pretty, pretty salient events. The – and especially as they’re getting older, the high frequency job changing, you know, slow - you know, it’s much, much, much slower. So, it doesn’t add that much and these are people who have revealed themselves to be somewhat less cooperative. So, yeah, they – once you come back after four or five or six missed rounds, yeah, you’re not the star pupil anymore. But, it’s really – it’s not bad. The interview penalty isn’t – the length isn’t severe. We did do a recall experiment just before we went to every other year and I think we went to every other year about one or two years before you guys went to every other year. And so, what we – and Roger Tourangeau did the analysis of the recall experiment. Roughly speaking, what we found was things like employment were sufficiently salient; that people, you know, a one year versus a two year recall was good enough. Whether that extends to six or eight years, I don’t know, but it was also clear that things such as program recipiency, receipt of food stamps or AFDC, that recall there was really, really, kind of, shaky. But, of course, it’s also the case that we respondents often, even if you know that they’ve received it from administrative data, they often deny it anyway. So, those are just the worst data – some of the worst data in terms of that history data, you can collect. But, again, yeah, so, there’s going to be more measurement error than there would have otherwise be if they’d been in. But, it, you know, it’s a lot better than the alternative.

Andy?

Andy Peytchev: Well, just to the point about whether it’s better than the alternative, it kind of resembles the same question that we had in the morning
about proxy reporting versus, well, do you just not collect it? Frauke made a very good comment about, “Well, maybe it is a middle ground and you could use both in some kind of a model and use a proxy, but adjust it.” Here, as well, it seems like, as we’re trying to reduce the burden on respondents and what Colin was saying as well about, “If you have a panel, you want to minimize the burden, especially at the front end. You’d want them to participate in the next wave.” The same argument could be said about collecting as little information as you can on every single wave. So, maybe this is an area that’s ripe for research in terms of how do you optimize a plan missing data design? So, if you do catch them on wave one, you missed ‘em on wave two, and you get them on wave three, would you want to skip and not ask them about the wave two stuff? And now, you have a very good model, maybe, that would work in terms of getting what their values would be from what – for wave two instead of burdening them and threatening wave four.

*Randall Olsen:* Well, I mean, we, I mean, we certainly don’t – we don’t try to recover all of the data that we’ve missed. You know, the most burdensome data, the data that respondents hate the most is balance sheet data. That, they really dislike and we never attempt to – I mean, you can’t collect balance sheet data accurately, you know, based on your current situation, let alone, “So, tell me what your net worth might have been six years ago?” You know, kids don’t do this at home. But, at the end of the day, often, this question of, well, of keeping the respondent versus burden comes up. And so, what we’ve done is we’ve, kind of, looked at this and said, “You know, why do we do this? We do this for the science. We do this because it’s important to social science researchers to have good data for this survey, the data that’s most important for them to have, that’s of high quality for us is education, employment, training, fertility, marital status.” And so, we circle wagons around the core. And we say, “Okay. If we lose ‘em because we went back and collected that data, we lose ‘em. But, we’re doing this because we want to have the data be as good as we can and, you know, you have to draw the line somewhere and we just decided, “We’re not going to compromise on what we think are the core data elements that are most important to the study”, you know? And some of these respondents, you know, we’re going to lose. And, you know, the corollary to this is, in terms of incentive payments, and this is what I – the advice, you know, we talked about for the 2008 was, you know, just the opposite of, you know, incentive payments don’t put any money on the table at the outset. Let the uncooperative respondents reveal themselves to be uncooperative. Don’t try to keep them in by
paying them more money because they’re just going to abandon you anyway. Leave ‘em be. Let them label themselves as being uncooperative. You’re not, you know, they’re not going to be with you for 25 years. You’ll be lucky if they’re with you for three years. Let ‘em go. And then, once you’re down, you’ve trimmed out the least cooperative people, then – then, you hold onto ‘em for dear life.

Al?

Question: Just one really quick question. You may not know the answer. But, in The British Household Panel Survey, in year five, their hazard rate drops down and then, pops back up.

Randall Olsen: Right. So, the – you have the graph – let me find it. And that smooths it all. It drops down to the same level as PSID and then, jumps back up, so it’s not like a, you know, a smooth transition we might have anticipated.

Question: Yeah. Right.

Randall Olsen: And –

Question: Any idea?

Randall Olsen: Well, this particular approach, you know, I have – I didn’t have long to put this together and these household panels are a little – they’re kind of different critters ‘cause you’ve got the proxy respondent thing going on and the British BHPS, I think, declared some people out of scope and then, you know, so they kind of trimmed some of the people out that way. So, there’s a lot of irregularity in these hazard rates. And for the NLSY, or for the NLS surveys, you see a lot of high frequency stuff there as well. And it’s, you know, it’s, you know, some rounds are good and some rounds are difficult. And it’s just not a smooth as process. I’m pretty sure I computed these empirical hazard rates accurately for the NLS except for these, you know, these air pockets where the hazard rate, you know, went down. That’s because the completion rate went up.

Question: Right.

Randall Olsen: But, I’m not entirely confident that I did it right for the BHPS or the PSID.