Mr. Carstens: I found the document very interesting. The real sector is very refreshing. I have two questions. One, you mentioned that you took away a great culture, and I think major changes have happened. If you drive today to Nebraska, you’ll see many ghost towns, and now you see huge farms. So, I don’t know if it’s a problem of data. But I think some major destruction has taken place, and obviously innovation has replaced that. Then there is the international dimension. For example, how do you think the proliferation of value chains in growth nations could have affected or do affect your results? And third, I think a little bit of this was said by Gita Gopinath, but did you measure the mortality rate of new entrants? If the mortality rate is much higher, less firms are willing to really become firms. There might be many starts out of a garage, ideas that stay there because it might just be too risky to do the formal step into a new entrance.

Mr. Kohn: I want to pick up on Gita Gopinath’s last point which struck me as I read the paper. There may be very important relationships between creative destruction and innovation, they’re not really independent, and the decline in creative destruction could be indicative and might well be indicative of a decline in competitive pressures on existing organizations. Just because resources aren’t majorly being reallocated doesn’t mean that the decline in dynamism isn’t having an
important effect on innovation because it’s reducing the competitive pressure. Now to some extent, that might be a natural market reaction, but to some extent it could result from government licensing and things like that, that as policymakers we should be taking a look at how we can increase the competitive pressures.

**Mr. Liikanen:** Thank you very much for interesting papers. I add one complexity. Gita said that entry costs are high, that perhaps the new companies are not so innovative. When you follow business news, you hear often that the pharmaceutical incumbent, who has a very weak innovation portfolio, buys the most vibrant startups. How do you see these acquisitions of startups by incumbents, because their justification is that they improve productivity and innovation?

**Mr. Blinder:** I have two things that I’d like any of you to react to. The first is to praise the paper. This is a very important paper for a reason that I think you guys didn’t emphasize. That’s why I’d like to see your reaction. We economists think of churning, or dynamism, as a good thing, the wellspring of innovation, and very important for capitalism. And capitalists should surely live that kind of tough life because they get rewarded for it. But then there are all these workers, for whom churning is not exactly the greatest thing on earth. The thrust of your paper is not only “can we,” but we actually have, surprisingly, generated a lot of allocative efficiency and growth with less churn of labor—which seems to be a nice combination if you’re a laborer rather than a capitalist. The second thing I’d like to get any of you to react to, especially what Gita was saying at the end, is about TFP and why it went up and down. The “old days” these days are the 1990s. In the 1990s, we talked a lot about B2B, business to business, and B2C, business to consumers. It seems to me that a lot of the recent wave of innovation has been C2C, consumer to consumer, and some of that is fun (Facebook or something like that). Fun was never supposed to be a part of the GDP or of industrial productivity, and it’s not. So, that’s not a measurement error; it was never meant to be in the GDP. And some of it may be on-the-job leisure, which comes straight to the productivity issue. Firms are finding their employees doing various and sundry things on the job rather than doing the job. I’d like to hear your reactions as to whether that could be a reason.
**Mr. Spriggs:** It’s a shame you don’t have the 1990s. One thing that is striking is that from 1976-86, median household income is rising. From 2003-13, median household income is declining. So, while this broad period that we’ve been studying on creative destruction, inequality overall has been going up. But 2003 to 2013 really stands out as a period where inequality really has been worse. Part of this is, if you have rising inequality you actually have a shrinking creation of new customers. And part of what I think would be important about your finding is that creative destruction can be a powerful engine if you have growing equality. If you have broad-based income increases, you have broad-based increases in the number of potential customers. If you have declining equality, as we did from 2003 to 2013, you actually see that you’re not getting new customers. The customer base is shrinking. And so creative destruction can have a very different outcome in an environment in which the customer base is shrinking instead of expanding. I think it would be important, Alan Blinder’s point was very key—creative destruction sounds great if the reallocation of workers really means the movement of the same workers, but often this is more disruptive from the workers’ perspective. Regional frictions can create real meaning for inequality in the face of creative destruction. It would be interesting to see you look at this also from a regional perspective to see how much of this is reallocation across regions, not just a reallocation across industry.

**Ms. Pavcnik:** I very much enjoyed the paper and the discussion. This paper reminds me of the older literature that asks the question, “Does monopoly power encourage innovation or deter innovation?” This literature is also related to the last point that Gita Gopinath made. What’s the cause of the declining dynamics? There’s a large literature in international trade that identifies how much of the churning happens depending on firm exposure to international markets. Perhaps one way to address the issue of market power is to look at the examples where international trade affected market structure in a particular industry or particular set of firms to see whether or not the documented dynamic responses are due to increases or decreases in market power.
Mr. Feldstein: I was struck as I read the paper by this sentence: “Most innovation comes from existing firms improving their own product.” That to me is so important because of its implications for the measurement of real GDP growth, or more accurately for the mismeasurement of real GDP growth. As I explained in a paper in a recent *Journal of Economic Perspective*, government statisticians ask companies about their changing products, and they ask, “Did your product change?” And they say, “If so, how much more does it cost to make this year’s product than it would have cost to make last year’s product?” And if the company says, “Well, it doesn’t cost any more,” well then the official statistic says there’s no improvement in the quality of the product. So, we throw away much of the quality improvement. I think the fact that most innovation comes from existing firms improving their own products means that we are underestimating for that reason the real GDP growth, and therefore the growth of productivity and of real incomes.

Mr. Taylor: One of the things that seems missing from the discussion is just capital itself and reallocation of capital. If you look at the recent productivity slowdown there’s really a close association with decline in capital growth per hour of work. Its timing is just amazingly close. So I think that should be part of the other explanations that are there, and more importantly may interact with the other measures of new entrants and existing firms.

Mr. Buti: I enjoyed the paper and enjoyed the discussion. Also, building on Gita’s final comment, causes and symptoms, there is a strand of literature that you may want to integrate in your analysis which point to the United States in particular—I think Europe is a different story—for increasing market power. If you take papers like Gutiérrez and Philippon and Grullon and others, these papers point to the evidence of increasing market concentration. This is in part attributed to increased regulation in the United States, and in part linked to reduction in enforcement of antitrust policies. Strikingly, these papers show a very strong inverse correlation between the Herfindahl Index and Chapter Two, Section Two investigations. You see clearly that there is a dramatic fall in Section Two investigations in the United States and the rapid increase in the Herfindahl Index.
This marks a change precisely compared to the period that you do not cover in the paper. I think this goes very much closer to the causes Gita was mentioning at the end.

**Mr. Dotsey:** This is a question related to one of the points that Gita made regarding the retail sector and the IT sector and the similarity in productivity gains. If the retail sector was largely a Wal-Mart effect where this one big guy was just sucking up mom and pops that were inefficient, but the IT is sort of things like Apple, Dell and Microsoft sort of pulling stuff from big incumbents with large gains in productivity, in your models would that generate something like we see in the data that she pointed out or not?

**Ms. Collins:** I’m going to take the prerogative of the chair to make two comments. One is that I was struck by Chart 1 in the paper, and in particular by what it shows about the timing of increases in dispersion and labor productivity. They seem to surge in both the early 1980s, which is of course around a deep recession, and also more recently during the crisis. It seems to me that the timing of those movements and then the very recent decline might be part of an interesting story. My other comment relates to creative destruction, which I do believe plays an important role in generating growth. However, as I thought about this, I realized that my views come primarily from looking at emerging markets and countries trying to reach the technological frontier and not so much from thinking about what the most important dimensions of dynamism might be for countries that are already at that frontier. It seems to me that an understanding of country lifecycle might help to generate an interesting, broad-based and longer-term story to think about what might be going on here. Let me turn next to Kristin Forbes.

**Ms. Forbes:** You document clearly some decline in creative destruction in the more recent period versus the period quite a while ago, in the mid-1970s to mid-1980s. Between those two periods there was also a fairly substantial shift in the sectoral allocation of production. Manufacturing was a much bigger share of production in the 1970s and 1980s than today. As shown in Gita’s graph, there are also fairly substantial differences in creative destruction within sectors. You get much higher, over 50 percent higher rates of creative destruction in IT
than you do in manufacturing for example. If you carry that forward, holding the rates of creative destruction within sectors constant, we should have seen a large increase in creative destruction today versus in the 1970s and 1980s. Instead, we’ve seen the opposite. That suggests to me there’s a much, much sharper decline in creative destruction within sectors. That might be more worrisome. I was wondering if that chain of logic applies, and if so, if there’s more to worry about than in the aggregate numbers.

Mr. Costa: I want to stress the importance of this paper. The first point I want to stress is the idea that we need to distinguish between a product life and the firm’s life. Product life is linked with the radical innovation, and when you have radical innovation, you have a new need or a product that will disappear and a new one will come. It doesn’t mean necessarily that the firm will not be able to cope with this challenge. This means the firm’s life is not the same as the product’s life. That’s why product destruction is one thing; job destruction is another. We can have product destruction without job destruction. The second point that is very important is to think about the linkage between radical innovation and incremental innovation. A lot of radical innovation that is done is absorbed by firms through incremental innovation, namely in terms of productivity. And this means that there is no trade-off between the two things. They are complementary. What we can ask is, are firms prepared to deal with radical innovation and to stay alive? Or, are they dependent on a product, one product, and they will be dead with this product if there is a radical innovation? And this raises two points that for me are very important. First, the innovation strategy followed by a firm matters a lot and management matters a lot. And the second point that is very important for me is the approach to the financing of firms; their short-term or long-term perspective in financing will do a lot to create or not create space for absorbing innovation. If the firm has no capacity to absorb innovation, because it has a short-term perspective oriented to the distribution of dividends, it will mean that it will be very difficult to preserve jobs. Job destruction is a firm-level question; product destruction or new needs is a different story that comes directly from radical innovation. And the radical innovation can be used by a firm that exists in a new way that preserves jobs.
That’s why gazelles are not the end of the story, and we need the right combination between gazelles and incumbent firms. Thank you.

**Mr. Hsieh:** I’ll just make a point about allocative efficiency which Pete Klenow didn’t talk about. I want to say two things. I want to be clear on the point that we are making about allocative efficiency. What we’re saying is that we do not believe that improvements in allocative efficiency have been a source of U.S. growth in the last few decades. I believe there is some evidence that allocative efficiency has worsened in the U.S. economy. I have some work that suggests that some of that may be driven by housing constraints in coastal U.S. cities. Pete has some work, and there’s a figure from that work in the paper about worsening allocative efficiency in the U.S. manufacturing sector. Some of this can be due to just worse data, but maybe some of it is not—and this is a good time to talk about John Taylor’s question. I believe that measure includes a measure of the efficiency of the allocation of capital. It’s not just the dispersion of labor productivity, but it’s a weighted average of the dispersion of labor productivity and capital productivity.

Second, I want to be clear that our point is only about the U.S. economy, but there’s a time to talk about the international dimension of this. I think there is evidence when you look at other countries that changes in allocative efficiency have been an important source of growth and an important source of growth slowdowns as well. We have other work where we show that an improvement in allocative efficiency was an important source of China’s growth from the late 1990s to roughly 2007-08, and there also is evidence that worsening in allocative efficiency has been an important source of a slowdown in growth in other places. China is one country post-2010. I believe that there’s evidence that allocative efficiency has gotten worse in China since 2010 because of the financial structures that were created after the fiscal stimulus program in 2009 and 2010. In the case of Mexico, I have some work that when you look at the Mexican economy, after about 2008 I think is where the evidence is the clearest, that there’s been a pretty dramatic worsening in allocative efficiency in the Mexican economy after 2008. I think a big part of it is about the expansion of certain types of social programs in the
Mexican economy. I don’t think that we want to say that change in allocative efficiency is not important; we just want to say an improvement in allocative efficiency has not been a source of growth in the last few decades.