FEDERAL TRADE COMMISSION

COMPETITION AND CONSUMER PROTECTION
IN THE 21ST CENTURY

Tuesday, October 16, 2018
9:00 a.m.

Georgetown University Law Center
600 New Jersey Avenue, N.W.
Washington, D.C.

FEDERAL TRADE COMMISSION

I N D E X

P R O C E E D I N G S

MR. KOBAYASHI: Okay, I think we're going to get started. It's great to be back at Antonin Scalia Law School. My name is Bruce Kobayashi, and I've been a faculty member here since 1992. I'm currently on leave and serving as the Director of the Bureau of Economics. And in that capacity, it's my honor and pleasure to be able to introduce our opening speaker for the two morning panels on antitrust and labor markets, Professor Alan Krueger.

Professor Krueger holds a joint appointment at the Department of Economics in the Woodrow Wilson School as the Bendheim Professor of Economics and Public Affairs at Princeton University. It's a particularly appropriate choice to open our labor market sessions, having published widely on the economics of education, unemployment, labor demand, income distribution, social insurance, and labor market regulation.

In addition to a long list of academic articles, he has published multiple books, including his coauthored book with David Card, Myth and Measurement: The New Economics of the Minimum Wage, and a book that I put on my reading list, Rockonomics: How Music Explains Everything (about the Economy),

especially since I saw in the blurb that he interviewed the manager of the Red Hot Chili Peppers.

Professor Krueger has served in the Government. He was the Chairman of the Council of Economic Advisers and a member of President Barack Obama's cabinet from 2011 to 2013. Just prior to that, he served as Assistant Secretary for Economic Policy, and as a chief economist with the U.S. Department of Treasury from 2009-2010.

And way back in the day when we were all younger -- he's still younger than I am -- he was a chief economist at the U.S. Department of Labor. So Alan certainly knows a lot about labor and public policy. He has held high positions in the American Economic Association, served on the executive committee, won numerous awards, too lengthy to mention. Here's his resume. It's double-sided. But let's give a warm welcome to our opening speaker, Alan Krueger.

(Applause.)

WELCOME AND OPENING ADDRESS

MR. KRUEGER: Thanks very much for that generous introduction, and especially for plugging my book, which will be out in May. But you may especially be interested in the book by Flea of the Red Hot Chili Peppers, which covers the first 18 years of his life, which will be out around the same time as mine. And I'm concerned there may be competition.

I want to thank the FTC for inviting me and for holding this set of hearings. It's a really impressive set of topics that are being discussed by a very impressive set of researchers and others. What I thought I would do is give an overview of how I see competition and lack of competition in the labor market.

I think this is a particularly appropriate time to have this discussion. Research in labor economics has been growing very quickly on noncompetitive practices and on the noncompetitive workings of labor markets. I think this is a topic which is very important. I think it's one in which the evidence is still evolving. We face similar kinds of challenges in the labor market, as industrial organization economists face in looking at product markets in terms of defining the scope of a market.

In fact, in many ways, I think it's more difficult in a labor market because every individual is unique.

That said, I think there's a growing body of evidence which suggests that the go-to model of the labor market, which has historically been one of perfect competition, is probably not the best model to use in many situations. In a perfectly competitive model of the labor market, bargaining power is completely irrelevant because wages are determined by the external forces of supply and demand. Firms just passively accept whatever the market wage is.

In many applications, I think it is more appropriate to model the labor market as imperfectly competitive, and Bob Topel arrived just in time, subject to monopsony-like effects, collusive behavior by firms, search frictions, and surpluses that are bargained over. As a result of these labor market features, I think it's often more appropriate to view firms as wage-setters or wage-bargainers rather than wage-takers.

This perspective can explain many well-documented phenomena in the labor market, such as the high variability in pay for workers with seemingly identical skills, who work in different industries or in different firms, the lack of evidence that minimum

wage increases reduce employment, and the reluctance of firms to raise wages despite facing vacancies.

Now, I've noticed that many economists are reluctant to accept the idea that markets are manipulable, that firms or traders have some power over prices and wages. When I worked at the U.S. Treasury Department in 2009 and 2010, and I had the opportunity to work with some of the best finance economists in the world, who were on leave to help during the financial crisis, my colleagues thought it was inconceivable that foreign exchange markets or LIBOR could be manipulated. After all, these are the largest and most liquid markets in the world.

Only later did we learn that several traders had been convicted of colluding on exchange rates and that LIBOR was totally rigged. Interestingly, the people who I worked with who came from the markets who actually had experience trading thought this was quite the norm.

Now, one economist who thought that labor markets are imperfect and subject to manipulation was Adam Smith. In The Wealth of Nations, Smith wrote, quote, “Employers are always and everywhere in a sort of tacit, but constant and uniform combination, not to raise the wages of labour above the actual rate. To

violate this combination is everywhere a most unpopular action, and a sort of reproach to a master among his neighbors and equals."

Smith ridiculed naysayers who doubted that employers colluded as "ignorant of the world as of the subject." And then in full conspiracy mode, he added, "We seldom, indeed, hear of this combination because it is the usual, and one may say the natural state of things, which nobody ever hears of."

Now, you don't have to look too far to find evidence of the conspiracy that Adam Smith warned about. In an ongoing FTC case involving physical therapists in Dallas and Fort Worth, the language rings very similar to what Adam Smith wrote about, only it's been more modernized with texting. The owner of one physical therapy company wrote another, "Yes, I agree, I'll do it with U." You was spelled U, not Y O U. And "do it" was referring to jointly agreeing to lower wages.

Now, I'll return to some other cases involving collusion in the job market. Broadly speaking, there are two varieties of economic models that give employers some discretion over wage-setting. The first, pioneered by Joan Robinson, is a static monopsony model, where there's a single employer who

faces an upward-sloping labor supply curve. This could be easily extended to a small number of employers, oligopsony. And it could be extended to Smith-like situations, where employers jointly collude to suppress pay below the competitive rate.

The second class of models, which were pioneered by Ken Burdett, Dale Mortensen, Chris Pissarides, Peter Diamond and extended recently by Alan Manning, rests on search frictions. And there were a variety of different types of search models, but basically it takes time and effort for workers to search for job openings and for firms to search for workers. As a consequence, the firm pays a little less than the going wage; it would not lose all of its workers or find it impossible to hire new ones.

In fact, there is no single going wage in these models but a range of plausible offers that firms could make, or bargains that firms and workers can strike. As a practical model -- a practical matter, both classes of models are equivalent to assuming that the labor supply curve to a firm is upward-sloping instead of infinitely elastic. Firms would operate with costly vacancies in these models, yet resist raising wages because pay would need to be increased for all workers, not just the incremental

hired worker. And the employers collude to hold wages to a fixed below-market rate, or monopsony power increases over time, then wages could remain stubbornly resistant to upward pressure, even at a time when the economy is booming.

So with this framework as background, I'd like to make four observations about the labor market that I think are particularly relevant at a time when we're seeing relatively weak wage growth despite 50-year low unemployment. First, average wage growth is weaker than one would expect from historical relationships between wage growth and the unemployment rate.

Janet Yellen alluded to this earlier this week and said that a leading explanation for the shift in the Phillips curve is that worker bargaining power is weaker than it used to be. Although nominal wage growth has been creeping up in this recovery, over the last 12 months, nominal wage growth has barely kept pace with inflation. And there are many explanations for why wage growth may be weaker than we would predict. Low productivity growth, I think, is an important factor, but low productivity growth can’t account for the last year because productivity growth has picked up, yet wage growth -- real wage growth --

has actually weakened.

Based on the specification of the wage Phillips curve that I estimated 20 years ago in a Brookings paper, I would expect wages to be between 1 and 1 and a half percent stronger today than they have been.

Second observation. There's growing evidence supporting an important role of monopsony power in the job market stemming from both employer concentration and dynamic labor market considerations. I won't go into too much detail on this work because one of the main contributors, Ioana Marinescu, is here, but basically this work finds that measures of employer concentration, even measured by concentration within an industry in a county or concentration -- of employment within an industry in a county in work by Benmelech and coauthors, or measured by job openings, posted online for occupations within a small commuting zone, show a relationship with wages which suggests that in more concentrated areas, wages are lower, other things being held equal.

There is also some evidence that concentration has increased, although again, I think it's important that we define the boundaries of the labor market carefully in that work. Other studies

have looked at monopsony power within specific industries. And here I think the most work has been done in the nursing industry. Dan Sullivan in 1989, Doug Staiger in 2010 and coauthors found substantial evidence that hospitals are able to use monopsony power in setting wages for nurses.

Then lastly, there's evidence on dynamic monopsony power. For example, Doug Webber has used the longitudinal employer household dynamics data set to estimate labor supply elasticities to firms. Specifically, he looked at how turnover relates to the generosity of compensation across firms, he found that the average labor supply elasticity to a firm was 1.1. And he also found considerable variability across firms, and the firms that had a more inelastic labor supply tended to pay lower wages, as one would expect if they take advantage of their monopsony position.

Third, monopsony power and search frictions have probably always existed in the labor market. But the forces that traditionally counterbalanced monopsony and boosted worker bargaining power have eroded in recent decades. The most obvious is labor unions. Union membership fell from 25 percent of the workforce in the U.S. in 1980 to 10.7 percent last year.

Collective bargaining used to be an effective counterweight to monopsony power. We used to write papers on the union threat effect, but in most industries, there's hardly any union threat effect, so the spillover effects where companies might raise wages to try to prevent having a union drive is weaker than it used to be. Another counterbalance to monopsony power that is weaker today is the minimum wage. The U.S. federal minimum wage is currently $7.25 an hour. It had not been raised since July of 2009. The real value of the minimum wage is down about 20 percent since 1979.

By contrast, in that period, both the U.K. and Germany enacted their first national minimum wages, and they currently stand at $10 an hour at current exchange rates. The decline in unionization and the erosion of the real value of the minimum wage have been found to significantly contribute to higher income inequality and polarization in the U.S. workforce.

These shifts have also probably contributed to the downward trend in labor share in the U.S. since the 1990s after decades of stability. Now, one might argue that these changes to the labor market have made the labor market more competitive. But the fact that

the employment-to-population rate has trended down, especially for the workers who were covered by collective bargaining and affected by the minimum wage, and that regional shocks are now more persistent, the wages, employment, and labor force participation suggests that we have a less competitive labor market with weaker bargaining power and more monopsony power.

There's been a proliferation of practices that enhance monopsony power and weaken worker bargaining power. I'll highlight five of these practices. First, there's been increased reliance on temporary help agencies, staffing firms, and outsourcing. One implication of this practice is that firms can wage-discriminate. This can facilitate monopsony. If a hospital has persistently high vacancies for a nursing position, it can reach out to a staffing firm, hire a staff nurse from the firm, and pay a higher salary to that particular nurse than other nurses who are employed by the hospital.

Second, a quarter of American workers are bound by a noncompete restriction on their current job or from a previous job. These restrictions, which may be justified in an unlimited number of cases to protect returns to specific training or trade secrets,

have truly run amok. Even Jimmy John's used the practice for submarine sandwich makers until they were forced to drop it.

Just over one in five workers who earn less than the median wage are bound by a noncompete restriction on their current or previous job, according to work that Eric Posner and I have done, and I'm sure we'll hear more about noncompetes later from Evan Starr. Noncompete agreements lower -- reduce workers' options and reduce mobility and bargaining power.

Third, a growing fraction of the workforce is covered by occupational licensing restrictions, typically imposed by state and local authorities. Morris Kleiner and I, for example, find that over a quarter of workers are required to obtain a license to perform their job. These restrictions may be justified in positions that require extraordinary skill or put the public at risk, but they also restrict job opportunities and mobility.

Occupational licensing has also run amok. It's particularly difficult for workers who want to change jurisdictions, change states. It is especially a burden on military spouses. Military families move around often. The most common jobs for military

spouse are nurses and teachers who often have to get licensed in the new state when they move, pay a licensing fee, and by the time they are permitted to work in those states, they often move again.

Fourth practice, my colleague, Orley Ashenfelter, and I have found that 58 percent of franchise companies have a no-poaching clause in their franchise contract that prevents one franchisee from hiring workers from another franchisee or from the franchise company itself if the company operates stores. This is up from 36 percent of franchise companies in 1996. The practice is particularly common in fast food chains. We found that 80 percent of the largest quick-service restaurant franchise chains had a no-poaching requirement.

Since the human capital that is being prohibited from moving around different outlets within the franchise would stay in the franchise company, it is awfully hard to see a business justification for this practice other than trying to suppress mobility and suppress workers' wages.

Washington State took action. The Attorney General in Washington State launched an investigation and managed to persuade 30 of the largest franchise chains to drop their no-poaching agreement in the U.S.

-- in Washington State and the U.S. Almost all of the major fast-food companies with the no-poaching agreement have dropped -- have dropped that from their contract, thanks to the work of Bob Ferguson, the Attorney General in Washington State, over the last couple of months.

Just yesterday he announced that he's bringing a lawsuit against Jersey Mike's, a franchise based in my state, New Jersey, which operates in Washington State and other states for continuing to use this practice.

I should add that in addition to restricting mobility and increasing monopsony power, these types of restrictions on mobility like noncompete clauses and no-poaching agreements, and the no-poaching agreement was just completely blind to the worker. Workers are not aware they're not party to these agreements. They reduce workers' opportunities for finding better job matches, improving their working conditions in other ways, and work by Bob Topel and Michael Ward back in 1992 found that about a third of the wage gains in the first ten years of young workers' careers were associated with job changes.

So apart from the effect of suppressing wages at the firm where these workers work, they also

reduce opportunities for the workers to move up the wage hierarchy. Now, no-poaching agreements would clearly be illegal if they occurred across unrelated firms. It's an unsettled area of the law as I understand it, if franchisees agree to these types of no-poaching agreements. But as I mentioned earlier, there are violations of the law outside of the franchise sector as Adam Smith had anticipated. I could go through many examples, but I think I'm running short on time, so I'll give you a few more.

In the famous case, Apple, Google, Adobe, Intel, and Intuit, Pixar, Lucas Films were found to have colluded on not hiring each others' workers, colluding on pay settings, and paid a half-billion-dollar settlement in 2015. There have been several cases in the hospital industry, addressing pay of nurses. Eight major hospitals in Detroit recently reached a $90 million settlement in a suit alleging that the hospitals colluded to reduce nurses' pay.

Similar cases are in various stages in Albany, Memphis, San Antonio, and Arizona. A couple of months ago, I spoke with Jeff Suhre, who is a registered nurse and was the lead plaintiff in the Detroit nurses case. I wanted to understand from his perspective how he came to recognize that this was

taking place and what impact it had on his career and his work.

He said that he worked at the emergency room at St. John Providence Hospital in Warren, Michigan. He was hired in 1991. He later moved to the critical care unit, and he attended patients who were recovering from open heart surgery and other serious conditions. After working there for 12 or 13 years, Mr. Suhre said he got an inkling that the human resource department at his hospital was coordinating with other hospitals and setting nursing pay because he had an opportunity to see some emails where they were discussing trying to reduce mobility and coordinate on pay.

He said the hospitals -- the nurses at his hospital were nonunionized, and the hospitals in the area wanted to prevent nurses from jumping from one hospital to the another for better pay and better working conditions. The executives would often discuss these issues and exchange pay rates at conferences. One indication that the hospitals exploited their monopsony power that he told me about was that when they had vacancies, which was often, the hospital would reach out to a staffing firm. The staffing nurses were paid $40 an hour, plus the firm

got administrative fees, while employee nurses were paid $30 an hour.

A class action suit was filed on behalf of Mr. Suhre and thousands of other nurses in 2006. He gave a deposition in 2007. He said the hospital, "made my life hell for me after that," increased his patient load to a level he considered unsafe for the patients. He quit in 2008. Other hospitals were reluctant to hire him. He now works in home healthcare.

The antitrust suit was settled in 2010. Mr. Suhre did not receive any compensation until 2012, six years after the suit was filed. So I think this gives an indication of the challenges that workers face in this situation and the retaliation that they sometimes can face.

It's worth noting that collusion is easier when there are fewer firms in a market. The increase in employer concentration in the U.S. has probably facilitated collusion. And collusion doesn't have to be explicit. Employers could collude at a focal point. The minimum wage could be a focal point, for example. Round numbers could be a focal point. And there is evidence that this type of passive collusion occurs as well.

Now, a really tight labor market might make it possible for this collusion to break down. I suspect that's part of the reason for the historical Phillips curve to exist in the first place, so we may see some improvement if the economy continues to improve and the unemployment rate continues to stay low.

I want to conclude by saying I presented a similar set of remarks at Jackson Hole this summer at the Kansas City Fed annual conference on monetary policy. The reaction I got was quite encouraging. I think many of the monetary policy officials thought these issues are important, but probably beyond the reach of monetary policy. I think there was a consensus coming out of that meeting that these are very important issues for the Department of Justice and for the FTC to focus on.

I want to commend the FTC and the DOJ for issuing joint guidance in October of 2016 for human resource professionals clearly stating that wage-fixing and agreements not to poach other firms' workers are illegal. And I think this is an area that needs a greater intention and more vigilant enforcement, because from the evidence that is available, it seems that Adam Smith was right and

there are many instances of employers combining tacitly, sometimes explicitly, as in those emails that I read before, to try to suppress pay. Thank you.

(Applause.)

(Welcome and introductory remarks concluded.)

PANEL 1: ECONOMIC EVIDENCE OF LABOR MARKET MONOPSONY

MR. SANDFORD: Thank you, Alan. And thank you to everyone for coming or watching on the web. My name is Jeremy Sandford. I'm an economist at the FTC, and I will be one of the moderators of this panel. The other will be Devesh Raval, who is also an economist at the FTC and is seated to my left.

We have a very strong panel to discuss the issue of labor market monopsony. We've already heard from Alan Krueger. The other panelists are Matthias Kehrig of Duke University. Ioana Marinescu of the University of Pennsylvania School of Social Policy and Practice, Nancy Rose of MIT, and Nancy recently served as the Deputy Assistant Attorney General for the Department of Justice, and Bob Topel of the Booth Business School at Chicago.

So Alan's already had a chance to give remarks. The other four panelists are now going to each have up to 12 minutes to give opening remarks. And the order will be first Matthias, then Ioana, then Nancy, and then Bob. And following that, we'll have a Q&A session in which Devesh and I ask questions of the panel.

So with that, I will hand it off to Matthias.

MR. KEHRIG: Okay. Thank you very much for the invitation to discuss here with other academics and policymakers, economists of the FTC, concentration and market imperfection in labor markets. I'm a macroeconomist. I work on productivity and firm dynamics and how firm -- high-productivity and low-productivity firms evolve over time, how they hire and what wages they pay.

So in principle, what I'm going to want to bring to this discussion is little bit the firm side, how do firms decide, how do they act in labor markets, how do they respond to market conditions in terms of their employment, in terms of their wages and so on. So the first important thing that I want to say is, when we talk about wages, wages are compensation for something that the worker produces for the firm, which is somehow value-added per worker or gross profits per worker.

So this is what I'm going to add to this, and I basically want to make four points here. The first point is I want to talk about how concentration evolved in markets. I'm going to talk about markets, I want to talk about, first of all, open markets, goods markets, and, secondly, input markets, labor markets. It turns out they're actually slightly

different, and that's important because when you think about how firms should typically respond to standard economic reasoning, they should be related, but they are not since the 1980s.

The second point I want to make is that overall the labor compensation and labor productivity per worker, they have diverged since the ‘80s. So on principle, you can think of this, this is the fact that the aggregate labor share in the economy, the share of GDP that is paid out as wages and compensation for workers, has gone down. And the interesting aspect is when you look at individual firm-level data, for the average firm, this is not the case. It is really a very small subset, a very few what we call hyper-profitable or superstar firms that have tremendous productivity growth and don’t share with the workers.

The third point I want to say, it’s like this productivity growth primarily stems from the output side of firms. So these firms, they make incredible profits by having high relative prices compared to their peers in the same product and market and so on. It is not so much that they pay particularly lower wages. It still could be going on that although wage level is suppressed because of

various factors that Alan Krueger mentioned -- collusion, unionization and so on -- but when we single out these individual firms that have this tremendous productivity growth and no really wage payment, it is not because they undercut the wages, it's because they are at relatively high prices.

And the last point that I want to make is that there's remarkable turnover at this high price end of the market, that the firms are kind of in a mutual competition of overtaking each other, and that has become increasingly volatile, and that might be one reason also why they don't pay higher wages because on the output sides, they face a lot of demand pressure.

So first point, the concentration dynamics. So when we look at the concentration in goods markets, this is from a slide from some work from David Autor and others. The concentration goods market has been unambiguously going up. If you look at the share of sales accounted for by the top four or by the top 20 firms, what you see is that has been increasing secularly. And that's true for many other concentration measures such as the Herfindahl index and others.

So these are -- this is based on census

data, and the census data in principle captures all the businesses there are. So they capture in principle all the sales. They also, of course, record employment, and that's what I want to show to you now, is when we look at the same idea of concentration measures in the labor market, the evidence is much more ambiguous. So there's some recent work by Claudia Macaluso, Brad Hershbein, and Chen Yeh, and also David Berger, Kyle Herkenhoff, and Simon Mongey, that they say actually if you look at the local concentration of employment in local labor markets that's been going down.

Now there's some other work and evidence on the concentration of -- among new vacancy posting of job openings. So that's slightly different. What I'm showing here is these people have worked on the concentration of the total employment. And, of course, when it comes to wage-setting, wages are typically set at the beginning of when a worker starts working for a firm, so when they're hired, when the vacancy is opened, and then there are some interview postings and then filled. So employed workers don't get as much wages, unless they're poached, unless they've alternate offers or they quit.

So the first -- the takeaway is that the

concentration dynamics don't exactly line up. Of course, there are many questions that are dicey here, about measurement, what exactly is a firm, what exactly is a local labor market? Should we look at overall employment, should we look at the net addition of employment. So I want to acknowledge that there are many measurement issues that we want to -- should be mindful of, but in principle what we see is upward concentration and labor market concentration do not move in lockstep.

So, so far this is all data on the entire U.S. economy. Now I'm moving on to my own work based on micro-level data in the manufacturing sector. The reason why I'm doing this is because in manufacturing we have very good data on both input, output, and we can talk about productivity. We can precisely talk about what does the worker produce for the firm, what is value added per worker, and what is the wage of that worker.

So standard economic theory would say, well, if there is a very good -- quote, unquote -- firm that gets very large, sells a lot of products, then in principle that firm should draw resources, should poach workers from other firms, should grow, and that grows the economy. That reallocation of work is

essential for economic growth. This is standard thinking.

And when we actually ask ourselves if that's really the case, there has to be something changing in that relationship. What I'm now showing you is a simple plot about productivity shocks, a total effect of productivity shocks and how firms respond to them in terms of their hiring. So the question is do firms that have a high productivity that are very profitable, do they also expand in terms of employment. That would be the standard way our economic reasoning works.

So from this work here with Cosmin Ilut and Martin Schneider, what we saw is that on the right axis, to the right of the zero, you have the high profitable firms. They expand that hiring. The low profitability firms, they cut hiring. So that was the 1960s, 1970s, up to the early 1980s. But when you start rolling this forward into the 1990s, 2000s, 2010s, that relationship changes. In particular, it changes at the top end.

So this relationship becomes asymmetrical because the high-productivity firms don't hire anymore. Low-productivity firms still fire. So what we see is we have some of these -- quote, unquote --

superstars, they don't pass on their great profitability shocks into employment. Well, the obvious question, then, is do they at least pay high wages, though, because they are -- they should pay high wages for two reasons. A, they are very profitable, they get a high T of P shot. And, secondly, since they don't hire, the output per worker that remains is higher now.

So in other words, talking about wages is basically nothing else -- I want to mention that there's a similar relationship also about investment. So the question now is, when we think about do these firms pass on their high profitability into the wages, it's based on nothing else than the question, what is the labor share? The labor share, in principle, if you go to Y, which denotes here GDP, or output, L is workers, the amount of workers, and W is the wage rate. When labor productivity is high, if the market is perfectly competitive, if there are no frictions, if workers can move around and so on, then the wage also would go up because workers will compete for what they produce.

However we know that in the aggregate, the labor share, the accurate labor share, the total wage flow, WL divided by GDP has been going down since the

'80s. So that has been documented by a bunch of papers. The interesting part is that downward trend in the aggregate labor share is actually driven by a very small set of firms. About 10 to 15 percent of the firms in the economy drive down the aggregate labor share. The other 80 to 85 percent tack on as always. Their labor share is stable but they remain smallish.

One way to see that is the following graph. On the left side, we have again like the 1960s. This is the first year when we have data and the right side is in 2012. What I plot on the X axis is the labor share, so how much -- across firms, now. This is firm-level analysis. So on the axis, you see some firms that have a labor share of close to zero. That means they generate a lot of value-added, and only very small fraction, like 0.2, would say only 20 percent of that value added is paid out as a wage bill.

And you see the thin black line is the overall distribution, where firms are. You see that in the '60s, in the 2000s, most firms are actually middle-of-the-road-type of firms. What is changing is how big these firms are. These are the gray bars. The gray bars denote where in the spectrum of labor

shares is actually value-added economic activity taking place.

And you see by the end of the sample in 2012 most of the economic activity, most of the output that is being produced is produced by these incredibly low labor share firms that have very, very high output, don't pay high wages, and they account for an incredible market share. So the question is where does that come from. Do these guys pay low wages, or do they just generate a lot of profits?

So the way we assess that is we look at the wage scale of these firms. Principally we go back to the distribution of labor shares and ask yourself, how does the wage scale look like across that spectrum of labor shares, do the lowlander firms, do the low labor share firms, do they undercut their competitors in terms of wages because they are very dominant, because they operate in very concentrated markets, and they pay low wages, or is it because they're just compared to the other firms relatively profitable but they pay the same wages as everybody else?

So when we look at the wage scale of that, this is the left graph here, you see that the wage scale, which is the light gray line, is basically almost the same across all the labor share firms. So

that means these few superstar firms at the low spectrum of the labor share that basically don't share with the workers, don't have a labor share because they screw all their workers because of wages. The way they differ is, and this is the darker gray line, is they're immensely profitable per worker. They don't share these profits with their worker. If the labor share was completely the same for all the firms, then these -- the light gray and the dark gray line would be on top of each other and they would be all at one labor share, but this is not the case.

What -- the primary difference of these firms is in their output side, is in the prices. So they generate these profits predominantly by going -- by charging relatively high prices, not by being, like, fantastically physically more better; that they just have faced demand conditions that allow them to charge relatively high prices and you can see these differences are pretty soft, as I said. This is a log point difference here of like .4, .5, so that means exponent of that, that's something like close to twice the price for the same -- for the same product in the same market at a very fine definition, of course, there are many -- many measurement issues surrounding this.

And these firms generate extremely high profits which they don't share with workers, but they are high prices. The reason one can conjecture, which I want to throw in into the discussion, which is behind the -- what's happening on the wage side, is the reason why they might not share with the workers is these high prices for a given firm, if we follow them over time, are relatively transient. So if you look over time, what's going on, these low labor share firms -- please just look at the right graph, that's a bit more intuitive -- the firms that have a relatively low labor share in a given year, if we backtrack them and forward-track them in time, they have a low labor share for about, like, five to eight years, and then that's it.

Or because we know this is all driven by relative prices, they have a relatively good time in output markets for five to eight years, and then it's over, then they, quote, unquote, go back to normal. That might be part of the reason why they don't share with their workers because it's relatively temporary and they say, well, I could either expand, I could hire more workers, but then five years down the road I have to get rid of them again, and that's not that trivial.

I can also pay them higher wages now because they're very profitable for me, but in a couple of years I have to lower the wages again or I have to kick them out. And so that might be one reason why they don't share. Over time, these patterns have become much more pronounced so these relative differences of having, like, a couple of good years in the goods market have become, compared to the peers, relatively strong.

So to summarize, there is some more evidence, which I want -- we'll skip now, but the -- to take away again, first of all, the concentration of outputs in labor markets is not the same. It's not exactly lockstep, and the reason is that they are high-profitability firms that don't respond to good profit conditions in terms of employment as they used to. They also don't pay higher -- the wages that these workers generate for them, and the reason why they may not do that is because these are relatively transient things.

The firms are engaged in a product market product competition where they are relatively good for a couple of years, then they are overtaken by someone else. We see that eventually they might come back 15 years later, but there is this temporary oligopsony

power, which raises questions that we have to think of and how that translates into the labor market.

So these are the basic -- the four main points I wanted to raise and bring to the discussion. And on that, I want to hand off to Ioana, who will discuss more the labor market concentration.

(Applause.)

MR. SANDFORD: Okay. Thank you, Matthias. We will hear from Ioana Marinescu.

MS. MARINESCU: Good morning, everyone, I am very happy to be here and talk to you about the economic evidence for labor market monopsony and what the role of antitrust is in all of this. And first of all, just most of you are aware here, but for some people who might be listening to us on the web, it's important to remind ourselves the role of context here for antitrust.

There is a legal significance of labor market concentration because the same Herfindahl/Hirschman threshold that is being used to assess, for example, mergers, applies to seller and buyer power. So one way to frame this is that for the purposes of antitrust, when we are looking at the labor market, we are looking at buyer power as one particular example of buyer power.

And so in my work, in my recent work, I have been calculating HHIs for the labor market. And as others have pointed out, this raises the interesting and difficult question of defining a market because when you want to calculate an HHI you want to know what the relevant market is.

So our working definition of labor market is a combination of occupation, which would define at the SOC-6, which is a fairly detailed occupational classification comprising 820 roughly occupations, commuting zone, and quarter. So for example, given that my data is going to be based on job vacancies, this would be, for example, job vacancies for registered nurses in Washington, DC in the first quarter of 2016.

And so briefly, why vacancies? Vacancies are highly relevant for unemployed job seekers, the point being that even though there might be employment in many companies, what is of highest relevance to the unemployed job seekers is what companies have openings or are recruiting right now, hence the relevance of vacancies to understand the degree of labor market competition as faced by unemployed job seekers.

So in this first paper that I'm talking about here, we are using data from Burning Glass

Technologies. This is coauthored work with Jose Azar, Marshall Steinbaum, and Bledi Taska, and this data set comprises all -- essentially all online vacancies in the U.S., which itself represents more than 80 percent of the actual job vacancies in the economy.

So using the definition of the labor market that I outlined before, which again reminds ourselves that's a commuting zone by quarter, by occupation, we can, for example, draw a map of the average concentration by commuting zone. And, you know, if you just look at every market, defined in this way in the U.S., you find that 60 percent of U.S. labor markets are highly concentrated, meaning that they have an HHI above 2,500 or the equivalent of four employers recruiting with equal shares.

On average, if you take the average, in fact, there's only about two employers recruiting with equal shares at any point in time. Now, this situation differs a lot with geography. So what this map shows you is that the levels of concentration are very high in less densely populated areas, mostly in the middle of the country, and if you look at where we are here on the East Coast, you see a big green band of low concentration because that's where some of the most densely populated areas are, and, therefore, on

average, you tend to see a lower concentration even though even there there is variation and some occupations can be highly concentrated.

So, therefore, because of this difference by population density, it is also the case that labor market concentration, even though 60 percent of U.S. labor markets are highly concentrated, this affects about 20 percent of workers who work in 60 percent of highly concentrated markets. Of course, for antitrust purposes, it is enough to find one market that is substantially affected, so I think the 60 percent is relevant but when we are trying to explain likes things like the labor share, then we ought to pay attention to how many workers are affected by this degree of concentration.

So the second headline finding is that higher concentration is associated with lower wages. So to look at this, we use a different data set which is from CareerBuilder.com. This is the largest online job search engine, together with Monster, captures about a third of U.S. vacancies. So using this data set, we find that a 10 percent higher HHI is associated with a 0.4 percent to 1.5 percent lower posted wages. So these are the wages that companies say they're willing to pay in their ads.

Furthermore, people have, you know, after we got this working paper out, it became, you know, a whole team of other people reached out and did similar research, and two independent studies with different data and different market definitions confirm a negative association between wages and concentration. One paper by Benmelech and another one by Rinz which just came out very recently, only a week ago or so.

So this is the broad picture of what's been found so far regarding the level of concentration and the association of concentration with wages. I want to raise some issues and talk to you about how I think we're at in terms of addressing those issues. The first one is, and that's a classic, how sure can we be that concentration decreases wages? Is it really that it's concentration, per se, that it is causing lower wages, or are there some other factors that the analysis hasn't accounted for that might lead to lower wages, even though concentration itself is not responsible for that?

And, you know, first of all, it's important to note that HHI is only a proxy for labor market power. Alan Krueger, you know, helped us see the bigger picture, and HHI can be correlated with other factors, potentially unrelated to market power, that

also lower wages.

So what can we do to, you know, assuage our concerns that these other factors might be driving the relationship? So the negative coefficient of HHI on wages is robust to a number of controls. So first of all, one concern is that maybe labor market concentration is high simply when there are few vacancies, so when the labor market is down, there's fewer vacancies, and that mechanically could lead to higher concentration.

So in our paper, we actually are able to control for the state of the labor market. With a time-varying measure, we control for labor market tightness, so the total number of vacancies in the market divided by the total number of applications. And this is a very, you know, good summary statistic for the state of the labor market as we learn from search and matching theory.

The second thing we do is we instrument labor market concentration essentially by the number of firms in other markets, and this other paper by Rinz also does that. The results survived there. In fact, the coefficient gets bigger. And, finally, you might also be concerned that as the correlation between concentration and firm productivity, so in

this other paper by Benmelech, they also controlled for firm productivity using firm data and they still find a negative association between HHI and wages.

So, overall, I would summarize this as saying that these are not perfect experiments. It is very hard to, you know, find a crystal-clear case of HHI being quasi-experimentally assigned, but the evidence is pretty consistent and robust to a number of concerns.

The second issue now I am moving on to the issue of market definition. So obviously this is a tough problem that we need to -- a tough nut we need to crack, what exactly is a labor market? How are we going to define it? So first, just note that even though the three studies I mentioned in the prior slide use different market definitions, some use like my own occupations, others use industries, some use counties, some use commuting zone, you find a consistent negative association between wages and HHI.

So the exact market definition doesn't really matter in terms of the general pattern of finding a negative association between wages and HHI. Of course, the definition will matter for the level of HHI. So if you're going to use HHI thresholds, now it really matters how you define your market because the

level of HHI could be very different. So to do that, and the reason why we chose our definition, is we used a labor market version of the SSNIP test. So the intention for this is that if the elasticity of labor supply is below some critical elasticity, the market is well defined, and otherwise it's too broad.

And really the intuition for this is to say that if labor supply elasticity is really low, then firms are able to suppress wages without losing many employees, and thereby it can be profitable to do so, whereas if labor elasticity is very high, it is not profitable to suppress wages because you would lose too many employees. And, so we do have very good evidence, actually, on the labor supply elasticity to the individual firm.

It's typically below two, and a very recent experiment in online environments, where you would think that there are essentially zero frictions, it's super easy to find another job. Even there, the elasticity is only 0.1 for an online job, right? So there is no moving costs. In principle, you can look for a job, and even there, there is very little reaction of workers to differences in wages.

So basically, low labor supply elasticity is strong evidence for imperfect competition or monopsony

as Alan Krueger pointed out in his introductory remarks. And so if we have such a low labor supply elasticity to the individual firm, this suggests that even the individual firm in some cases can be considered a market in itself. It already has enough market power by itself to be a market. So, therefore, an SOC-6 by commuting zone by quarter is likely to be too conservative from that perspective.

And so, finally, the last point is how does that apply to merger analysis in particular? So the FTC already has a policy to analyze mergers based, among other things, on product market concentration, so HHI in the product market. So the question is, do we even need to worry about the labor market? Maybe these are perfectly correlated, and so if we worry about the product market, the labor market will take care of itself.

But the point is, a separate labor market analysis, we think, is needed because a firm, for example, that sells in the national market can have little product market power but a lot of labor market power in local areas right where it hires most workers. So in the meantime, I've done some quick calculations to get you some examples.

So I have looked at manufacturing industries

with more than a $100 million in sales annually, so very big industries. And so an example is on the one end you have the car industry. There, it's relatively highly concentrated in the product market at the national level, but relative toward the industries, it's pretty low concentrated for workers.

On the other end of the spectrum, another example is iron and steel. Iron and steel has very low concentration as per HHI sales at a national level, but extremely high concentration compared to other industries in terms of the labor market situations that workers are facing in those different markets where I define markets as before by occupation, CZ, quarter, et cetera.

So I am running out of time, so just to tell you that in my paper with Herb Hovenkamp, we discuss how labor market affects can be incorporated in the merger review using the HHI thresholds, and we also discuss the significance of anti-poaching and noncompetition agreements that Alan talked about.

So just last point about anti-poaching, anti-poaching agreements are very interesting because the existence of an anti-poaching agreement establishes that, one, firms are competing in the same labor market, otherwise what's the point of agreeing

not to poach? And, two, that collusion is profitable, because, you know, if it weren't then, again, what's the point to poach since other firms in the market, you know, would take workers away from us anyway. So that can be a good way of going at it if we don't know what the market is, but we have evidence that there is an anti-poaching agreement. That's a good argument to use in that context.

So in conclusion, we found that the majority of U.S. labor markets according to our favorite definition of highly concentrated, although as others have said I think more work is needed in refining the definition of a labor market, we and others have found that labor market concentration is associated with lower wages, and antitrust enforcement can use this evidence and readily take into account these anticompetitive effects on the labor market by adapting existing tools that have been used for a long time for the product market. Thank you.

(Applause.)

MR. SANDFORD: Thank you, Ioana. And let me take this opportunity to remind people in the room you will have a chance to ask questions of the panelists if you wish to do so. We will have FTC staffers walking around with comment cards, so just flag one of

them down and write your question on it. We'll get it passed up to Devesh and I, and we'll see if we can ask it.

Okay, with that, we'll now hear from Nancy Rose.

MS. ROSE: I want to thank you for the invitation to participate in these hearings, and I am delighted that the FTC is focusing attention on upstream harm, whether that is from buy-side mergers or anticompetitive actions of buyers, something that I worked on during my service in the DOJ Antitrust Division. I am proud to have been involved in the challenge to the Anthem-Cigna merger, in which DOJ included an allegation of upstream harm to healthcare providers, resulting from the elimination of competition between Anthem and Cigna as buyers of healthcare services.

I met with others across the administration to discuss labor market competition and its crucial role in the welfare of workers and economic growth. And I was privileged to work with both economists and lawyers at the DOJ Antitrust Division and the FTC in drafting and issuing the October 2016 antitrust guidance for human resource professionals that Alan alluded to earlier, which emphasized not just the

illegality of wage-fixing. There had been already government enforcement actions in that space prior to this against colluders, but more significantly announced DOJ's intent to pursue criminal action against naked wage price -- wage-fixing or no-poach agreements.

Those experiences motivated my contribution to the analysis that Scott Hemphill and I developed on mergers that harmed sellers, which Scott testified so eloquently on during the hearing on monopsony and buyer power last month. And I thought that was an extraordinarily interesting session, and I look forward to the rest of today's discussion, which focuses on one particular group of buyers, mainly workers -- I'm sorry, one particular group of sellers, namely workers.

I know my time management skills could use some improvement, so I'm going to start with my bottom-line conclusions so that I get those, get to those by the end. And those are two. First, I would sound a cautionary note on the conclusions that we can draw at this point from the wealth of aggregate studies of labor market outcomes. I think it's terrific that empirical economists are focusing their attention on these issues, both energizing and

informing the policy debate, but despite a wave of academic research that shows aggregate declines in labor share across the economy, growing wage productivity gaps, and correlations between low wages and measures of employer concentration either for a given occupation code or within a given industry, I think we're still a ways from being able to establish a credible causal connection between low wages and employer concentration, let alone a causal connection between low wages and anticompetitive mergers.

Remember that the antitrust laws do not reach the concentration, per se. They reached a concentration that is accomplished either by an anticompetitive merger or by anticompetitive what are sometimes called monopolization or in this case monopsonization practices. So at least for most workers in most settings, we're still a ways from understanding what the cause of the correlation might be, and I would just urge us to recognize that without a cause we have a lot of trouble discerning the appropriate solution.

Second, so not to end on a totally bleak note, I'm encouraged by a recent empirical study by Elena Prager and Matt Schmidt on hospital mergers that suggest that there may be at least modest adverse wage

effects for specialized occupations -- think nurses, for example -- and skilled workers within that sector who are affected by a merger that substantially increases concentration.

I don't think we can yet be certain that the impact they uncover occurs from a reduction in labor market competition as opposed to a reduction in labor demand -- I'll say more about that in just a moment -- that reduction in labor demand could result from output restrictions due to greater market power by the hospitals, pulling back their output and therefore marching down a labor supply curve. Or it could be -- arise from more efficient operations post-merger, again, marching backward on the labor supply curve.

Those have very different implications for policy and antitrust enforcement, but I think that this study is a compelling call not only for further academic research in this spirit, what I might call hand-to-hand combat as opposed to aerial strafing over this landscape, but also for greater consideration in select merger investigations where there may be significant specialized occupations that are dependent upon labor market competition between the merging firms.

So why the caution in interpreting the

empirical labor economics evidence? The first thing I would highlight is that monopsony may not be what you think it is, particularly if you are coming to this from a non-labor-economics background. I learned this lesson the hard way, through talking past a group of labor economists when they talked about monopsony and I said no, no, no, that's not monopsony.

As Alan highlighted and I think quite eloquently explained in his remarks, monopsony, as frequently used in labor economics, is not necessarily the mirror image of monopoly or oligopoly. Monopsony may be used for many deviations from a perfectly competitive outcome in labor market, not just those that arise from having too few employers competing for workers. That's quite different than the way industrial organization economists and antitrust enforcers tend to use the word "monopoly."

While monopsony could be a failure of competition due to too few employers, it could also reflect or instead reflect a wide range of frictions, including information failures, search costs, transaction costs, unwillingness to relocate, idiosyncratic match quality, and so forth. And even when monopsony may be due to too few employers bidding for a set of potential workers, that situation may not

arise from any anticompetitive action by employers, either mergers, which are actionable under the Clayton Section 7; collusion, which is actionable under Sherman Section 1; or attempted monopsony behavior actionable under Sherman Section 2.

What that means is that antitrust enforcement is going to be neither an effective nor an appropriate tool to address most of those frictions. Moreover, some of those work against the existence of and certainly against the argument of monopsony power in what I'll call the classic IO sense of monopsony, too few employers, because if wages are customized to individuals, for example, then there is no effect of a merger. If each firm is a monopsonist to the workers it employees, mergers don't have any further anticompetitive effect. So I think we really need to think very carefully about how these different pieces fit together.

But as I said, one of my big concerns is that we don't even know from the empirical evidence yet whether the correlations between wages and measures of employer concentration, what the implications of those are or whether they are causally related to competition. And to explain that, I thought it might be useful to take a look at a graph

of supply and demand in a labor market, so if you could just -- I don't have the clicker -- just flip to the next one, that would be great.

All right, so this is a little bit messy, apologies to those of you who aren't economists or even to those of you who are. But suppose we have upward-sloping labor supply curve. That's the red curve that slopes upward, and that seems plausible. In most cases, we would think that higher wages are going to elicit more workers willing to work. With high labor demand, that's, for example, the downward-sloping blue curve on this graph, wages are higher than they will be with low labor demand, the red downward-sloping curve on this graph.

That's true whether markets are competitive and wages are just determined by the employment level where labor supply intersects with labor demand, the label "competitive" shows low labor demand in intersecting with the labor supply curve, but it's also true if employers are behaving monopsonistically, which I'm representing by the blue upward-sloping curve.

So in either case, higher labor demand is going to be associated with higher wages, lower labor demand with lower wages. Now, why does that matter?

It matters because we can't just tell, I think, from a correlation between the number of employers or an HHI of employers and the wage rate what's going on. Suppose that we are in a market where a new employer moves into the area, shifting out labor demand, so moving from low to high. Wages go up and measured concentration goes down. That's the concentration is coincidental with the wage change. What's changing the wages is an increase in labor demand. Or suppose a firm shuts down a factory. Labor demand and wages will both fall, as will employment; employer concentration will rise.

We can't tell from these sets of facts or these correlations whether each employer is moving along that red labor supply curve or they are moving along a monopsonistic labor -- what I call marginal labor cost monopsony curve. And I think that problem, that identification problem, which is very similar to what Steve Berry talked about in the first session with respect to concentration studies in general, I think that that's a fundamental problem. It's not solved by instrumenting for HHI, with the inverse of the number of firms.

In the example I just gave you, it's a change in the number of firms that's changing wages

and changing labor demand and changing concentration. It's not going to be solved by controlling for tightness of the labor market, because if you are on the labor supply curve, you don't have excess supply of labor. You have as many people willing to work at the going wage as is consistent with equilibrium. You just don't know how you got to that equilibrium, competition or monopsony. And it's probably not going to be solved for by a control for firm productivity.

I don't want to be too harsh. IO economists ran regressions like this for years, maybe decades, making the same type of inferences from the results. And it wasn't until the late 1970s and early '80s that we began to recognize there was a fundamental identification problem confronting these types of analyses and have adapted now to different methods to try and understand market power. But I think that's important to recognize.

However, as I told you in my second conclusion, I don't think this means that we should just sit back and say we don't need to worry about labor markets, far from it. The Prager and Schmidt paper on hospital mergers exemplifies, I think, a fruitful direction for scholars that are interested in exploring the evidentiary foundation for employment-

based upstream challenges, and it suggests that mergers that substantially increase concentration may have wage effects, on the order of one to one and a half percent lower wage growth per year for some classes of workers.

And I think that this study might also point at a kind of bridge to antitrust enforcement, which is, they show those effects are -- appear for workers in specialized occupations, so in the case of these hospitals, think of nurses or physician's assistants or radiologists, others that are specialized to hospital settings, as well as skilled workers, and they appear only for the most significantly concentrating mergers, changes in the HHI of 3,000 or more.

Now, I think that suggests that we probably haven't missed anything in the hospital setting because a delta HHI of 3,000 is going to get the FTC's attention on the product market side. And we don't need to allege labor market harm if we're blocking a merger because of product market harm, which courts are much more familiar with. I suspect the reason they've got observations in their study is most of those seem to be very small communities during the period when the FTC was having trouble getting courts

to agree with its challenges to hospital mergers, which, thankfully, seems to be largely behind us at this point.

But I guess I would just close by saying it's important for us to identify where we might want to add labor market analyses, so where there might be -- where both firms in a merger are significant employers of the same type of specialized labor, but whose products may not be sell-side substitutes, as Ioana mentioned in her remarks, or where those products may not overlap enough to hit the horizontal merger concentration threshold on the product side.

These could be even potential competition or what we sometimes called complementary product mergers, where you might think what the firms are doing is similar enough that the employment pools might be similar, but there wouldn't typically be an immediate trigger on the product side. The reason I think this is important is that agency enforcement resources, as those at the FTC and the DOJ know well, are quite limited, and if we tell agencies to add extensive labor market analysis to most merger investigations, we should recognize that we are telling them to investigate and challenge fewer mergers overall. In my mind, that tradeoff is not an

obvious improvement for workers, for consumers, or for our overall society.

So the question is, how to target resources most effectively so we are not missing anticompetitive upstream harm mergers but without adding an entire layer of complexity and additional analysis to all the investigations that we decide to pursue or that agencies decide to pursue.

MR. SANDFORD: Thank you, Nancy.

(Applause.)

MR. SANDFORD: Finally we will hear from Bob Topel.

MR. TOPEL: Thanks for inviting me. You know, I got to listen to everyone's comments, and I can cross out a lot of things. I agree with Nancy, so there's my overall comment. Alan and I have been going to conferences like this for 35 years or so, and Alan has a tendency to, whenever he sees a market outcome, he can think of a way to fix it. And I guess I've had a reputation for thinking that market outcomes are sort of intrinsically less fixable.

Now, part of the reason I am probably here is that I have some experience with some of the cases that have been referred to. I worked on a little bit the high-tech case and without really revealing too

much about it, as Alan pointed out, the CEO of one high-tech company called up and said let's not poach the engineers of -- from each other.

Now, when you're teaching classes, you tell your students, don't make that phone call. Just don't do that, because even if you think it has some procompetitive justification under Section 1, you're likely to be in big trouble. The real question then came down to -- in that kind of matter comes down to, well, how much of an impact did that -- is that likely to have in practice?

And it turns out instead of, you know, if you're trying to define market in which people competed, the diversion ratio, if you will, for FTC and DOJ types of where people came from and where they went, if they left these firms, was extremely diverse, that people came from everywhere, there wasn't that much -- before the challenge acts -- wasn't all that much mobility between these employers. They were coming from everywhere.

So it would appear that the consequences of that action were pretty doggone small. But having said that, you want to tell them, don't do that because you're going to end up with a settlement of the size that Alan referred to.

So are there antitrust issues in labor markets? Well, of course, and you would think that they would be -- they would be actionable under the usual -- under the usual criteria of collusion or unilateral conduct. I'll come back to those kinds of things in a minute.

And so, yes to that question, and then the second question you might ask is, does rising monopsony power explain the evolution of relative wages and the relative lack of success, in particular, of less skilled individuals. I think the answer to that is likely to be no. So I am going to differ with Alan on that quite a bit.

So in my view, the evidence for substantive monopsony power that may be of antitrust concern is pretty thin, both as an empirical matter and for -- and for the reasons that Nancy stated. Though I am pretty skeptical of Ioana's evidence, and I'm going to come back to that in a minute, suppose for the sake of argument that she's right, that in all of those red places on the map, they're kind of red politically and they're red in her map because they're highly concentrated. In these narrow occupations, employers possess some monopsony power. Then you have to -- the operative question is, well, what do you want to do

about that? How should the FTC or the DOJ concentrate -- or use their resources in these cases?

And it's true that you might want to be alert to the possibility of anticompetitive conduct in there, but as Nancy pointed out, merely the possession of some market power, which would here be a small elasticity of labor supply to an individual employer or group of employers, is not actionable in and of itself. The possession of market power is not an antitrust violation. There has to be some anticompetitive conduct that goes along with it.

So you treat it much the way you would treat any other case that -- it's just kind of Stigler's theory of oligopoly applied to labor markets. There are some plus factors, and if you've got scarce resources, you might want to devote them to places where you think anticompetitive conduct might arise.

Now, Alan might argue that the putative existence of monopsony power in those red places is a reason for offsetting monopoly power in the form of unions, and I don't think that's really -- it's certainly not an antitrust concern. And the other thing to note, though, is that unions have typically been less powerful in exactly those places. And so, and if it was a no monopsony -- and those patterns

have existed forever -- if it was really a monopsony, you would expect that those would be the places where unions would be most successful.

Now, Alan makes much of the existence of franchise agreements and restrictions within franchise agreements, and I got to read your paper yesterday so I can -- I am going to comment a little bit on that, and some of your comments sort of indicated that, well, I can't think of a really procompetitive reason for doing this. Now, if I had -- if I started Bob's Excellent Hamburgers and I had two franchises, I would probably tell my franchises, I don't want you recruiting from each other. You know, you're competing in the labor market.

Well, why do I want to do that? Because brand name matters a lot, and I am going to have all kinds of vertical restrictions on what people can do and how they can fix the hamburgers and how the store is going to look. And one of the things I want my employers to do is go out and find people, and going out and finding people is hard, especially in a business like that.

I used to work in a grocery store, and one of the things I learned is that 90 percent -- this applies to a lot of things, 90 percent of success is

just showing up. And you want to find the people that are just going to show up. That's an investment in individuals. And if I -- if I allow my people to raid each other, my franchisees to raid each other, there's going to be a lot less incentive to invest in that form of human capital. It's not the type of specific human capital we usually think about, but it's really important. Does it have much anticompetitive impact? No.

And I read Alan's evidence that a lot of franchises do this as more evidence that this has got to have a good procompetitive reason. Small firms do it, small franchises do it, large franchises do it. Now, can it have some anticompetitive impact? If you can prove that McDonald's is a valid labor market for antitrust purposes, then it might, so you've got to weigh, as always, the anticompetitive effects against the procompetitive effects when you're talking about unilateral conduct.

Now, let me come to a little -- just discuss briefly some of Ioana's evidence that -- sorry, Ioana, I'm not buying. And let me find my notes here. So if you'll recall her map, we don't need to put it back up, we had red states and green states. And one of the examples I used to give back when we were talking

about efficiency wages and people saying, well, you know, some firms pay much more than others, is if you think about -- think about the market for economists. And there's -- out in Lincoln, Nebraska, which would be a commuting zone, there's basically one place where a professional economist can work, and the Herfindahl is going to be really doggone high, and if you go off to Boston, it's going to be really low.

Well, the average productivity of the economist in Boston is substantially higher than the ones in Lincoln, Nebraska. And so you're going to expect wages to differ in that regard. So my point is that a lot of the differences that you see simply have to do with the composition, even within the skill composition even within these groups.

Now, in reality, that picture doesn't have any impact on Ioana's real evidence. She has that picture that shows that those markets are more concentrated, the red ones out in the Midwest. Or out on the plains. They're more concentrated. And the ones in Chicago and Boston, in and around San Francisco, you kind of expect that.

And then she's got a graph showing that wages go down as concentration goes up, using that cross-sectional evidence, but the evidence you really

use is within, changes within. And it is worthwhile keeping in mind that she's got data from 2010 to 2013, which is a very short period of time, and she runs her regression because it's got fixed effects.

You're only using the within -- the within commuting zone variation, and what she finds is that for OLS, changes in that concentration have a small impact on wages, about 3 percent. And as Nancy pointed out, a lot of that can come from the fact that when another firm enters you've got greater labor demand and wages may rise, especially because this is a short run elasticity.

And then she -- now, oh, and by the way, how big is that 3 percent? Well, the mean HHI in her data is about 3,300 or 3,200, something like that, and a change in the log of one is going to be 2.7 times that, it takes you up to almost pure monopsony. So that would be a huge change, and it gives you 3 percent. If that were the impact, it would not be worth the attention of the antitrust authorities to go chasing that.

On the other hand, she has an instrumental variables regression where the impact of a unit change in the log of the HHI is on the order of 11 to 14 percent. Now we're talking about something that might

matter. On the other hand, what is that instrumental variable picking up? It's the instrumental variable is itself the change in the number of firms and a lot of other places, and so the regression that she runs is how much of the within this place -- within this area change in the HHI is explainable by changes in the number of firms being created in other places, which is to say you're picking up aggregate demand effects, and those are much likely to be much larger.

So the argument that these findings are due to monopsony power strikes me as pretty doggone weak. So I am going to leave my comments there. And I look forward to our discussion.

MR. SANDFORD: Thank you, Bob.

(Applause.)

MR. SANDFORD: Okay. We'll now move on to the Q&A portion of our panel, and once again, let me remind those of you in the room that there will be FTC staffers walking up and down the aisles to collect any questions we may have from the audience.

Okay, I'd like the first question to go to Ioana. Ioana, Nancy, and Bob both expressed some skepticism of the current state of research, including your own papers, of course. Nancy sounded a cautionary note that we may not be there yet in terms

of having a causal connection between concentration and wage, suggested that concentration is not necessarily of direct relevance to antitrust, given what we have control over and what we don't.

Bob suggested a variation between Lincoln, Nebraska and Boston, Massachusetts might be explaining some of the results that you find. Would you like to respond to any of this?

MS. MARINESCU: Yes, I'd love to. Thanks so much for your thoughtful comments, both of you. So let me start with Bob's points. As Bob accurately pointed out, our regression does not rely on comparing Nebraska with Boston or, you know, Chicago, but relies on changes over time in the HHI within a given market, namely, an occupation by commuting zone. So that's the variation.

Now, it's true that this could still be driven by labor demand as both Nancy and Bob have pointed out, and what we do is control for labor market tightness, and that, I understand Nancy's point. I think in the end what you should control for and how to interpret it depends on your specific model, so, for example, under perfect, you know, competition, workers indeed will also be less likely to apply if wages are lower, but we've seen that the

elasticity of labor supply is very low. So if that's the case, you know, tightness would not react much on the worker side. It might react on the firm side.

But this is something that in any case needs more investigation, and that's why I have started -- you know, Steve Berry, in the same hearings, made a similar comment, and we reached out to him and actually we are starting a paper together, you know, trying to do better on that front by using some of the tools that IO has developed in the meantime to address precisely some of these issues. So stay tuned. Hopefully we can do better there.

Now, there is another evidence that -- there is another point that Bob made, which is regarding the IV, so it is true that it could be correlated with, again, labor demand at the national level. One thing we do is that we, in our OLS, we can control for occupation by time fixed effect, thereby absorbing some of the national changes in labor demand for each occupation.

And that doesn't affect at all the effect of our concentration in the OLS, so it's just one particular way of controlling for time-varying changes in demand in the occupation level. So this is reassuring, but granted, you know, it's the usual

discussion of omitted variable bias. You know, it's a little bit hard to be foolproof there.

MR. TOPEL: Ioana, let me just clarify something about that.

MS. MARINESCU: Yeah.

MR. TOPEL: In the IO estimates, you're using the portion of the within region or within commuting zone variation that's predictable by the national changes. So that says that this part is predictable by what's happening everywhere else. So you'd expect -- what you'd expect to find is that the idiosyncratic parts that allow people to move across areas is going to have a small impact on wages because people are mobile. On the other hand, if everybody is moving together, you'd expect a larger wage impact, and that's exactly what you get.

MS. MARINESCU: Right. And so in the new version of the paper, we do a bounding exercise, which I am not going to bore you with, but, you know, if the variable instrument is partially endogenous, there is a way to give bounds, and, you know, we find that even if it's quite endogenous we still find the negative effect. Of course, the magnitudes change.

Now, what we can bring to the analysis is rely on the new analysis by Prager and Schmidt, which

I think is fascinating on the mergers in the healthcare industry. And there, the nice thing about their work is that, well, you know, as Nancy pointed out, we are using these HHIs everywhere, which is kind of nice in a way because we're capturing everything. But the big downside is that we don't really -- we can't really account for what's truly going on.

Why is HHI changing in a given market? Who knows, right? So that's a problem, and in the study of healthcare mergers, like the one by Prager and Schmidt, at least we can have a better handle on what's really going on, what's causing these changes in HHI.

And I think their study is quite nice because it's able to do a good job, I think, of accounting for some of these demand effects. For example, they look at whether there are pre-trends in wages before the merger happens, which might happen if there was a demand shock that occurred prior to the merger, and they don't find any evidence of that.

They also looked at the effects on wages of out-of-market mergers, so mergers between companies that don't, you know, happen to overlap in markets. Those mergers don't have an effect on wages. Or the effect of mergers that were blocked, also no effect on

wages. So I think this is somewhat reassuring that it is not some, you know, labor demand shock that is driving the effects that they are talking about. So I think that is about it. Thank you.

MR. RAVAL: So this is to Alan and Bob. So imagine you have a policymaker that's concerned about either the falling labor share or the stagnating wage. How would you rank the different policy tools that might affect these, and where would antitrust enforcement, either on conduct or mergers, rank in the list?

MS. MARINESCU: Bob. Do you want to go first?

MR. TOPEL: The question was for Alan and me?

MR. REVEL: Yeah, but --

MR. TOPEL: And the question was what policies would affect labor share?

MR. KRUEGER: And wages.

MR. TOPEL: And wages? First of all, I'm not convinced that labor share is the thing we ought to be looking at. I mean, there's often been a lot of confusion about the decline in labor share and the changing welfare of workers. If, for example, the price of capital declines, that there is some evidence

for or at least prices of certain types of capital declines, or if there is capital bias technological change which is equivalent, and if the elasticity of substitution is a little bit above one, you get a -- you'll get a decline in labor share of national income, but there is more capital, and all -- and the workers get more capital to work with.

So the marginal product of labor is going to rise. Now, it's true, that might take a few years to play out, but simply a decline in labor share of national income is not an indicator of welfare or monopsony power or anything like that. So would I want policies that are targeted at labor share? No.

MR. KRUEGER: How about wages?

MR. TOPEL: Are there policies that could affect wages? Sure.

MR. KRUEGER: That was the question.

MR. TOPEL: Okay. Yeah, what would happen to the wage -- people say at the bottom of the wage distribution. Well, in my view, a lot of what's happened is that -- is due to skill-biased, technological changes. It's been very disadvantaged -- disadvantageous to people at the bottom of the wage distribution. Interventions there are likely to make human capital even more scarce than it was before.

One solution would be an immigration policy that put more emphasis on changing the skill ratio itself because that's been a big disadvantage to less skilled people.

MR. KRUEGER: Why don't I respond a little more generally to what Bob said earlier as well as answering the questions. I agree with Bob on labor share. I think if we focus on policies to raise wages that will probably end up raising labor share. In the short run, having a strong macroeconomy seems to be the best advice. Of course, you don't want to overheat the economy and have another crisis like we had ten years ago. But since the work of Arthur Okun on a high-pressure economy, that seems to help people particularly at the bottom over the long run. I agree on human capital investment, preschool, help for post-secondary education and so on.

I think there is a lot of common ground between Bob and me in that we both would like to see a competitive labor market. I think the difference is I have my doubts about how competitive it is to begin with. In fact, the graph that Nancy showed with the upward-sloping supply curve, to labor economists, that's actually quite controversial in that the explanation for industry wage differences is that

there are different supply conditions to different industries.

We don't have the law of one price, and the model that you graphed, you've got, you know, very different markets for homogeneous labor. That's the way I was reading what you showed. Or in any event, you know, labor economists will call anything where there is an upward-sloping labor supply curve monopsony. It doesn't matter to us how we got there because you get monopsony-like effects, which is why Alan called his book Dynamic -- or Monopsony in Motion because the search frictions give individual firms an upward-sloping supply curve.

And in that kind of an environment, the existence of noncompete agreements and no-poaching agreements can have an effect on wages, whereas if you start from a model where you've got an infinitely elastic labor supply curve, which is the competitive model, those agreements wouldn't really matter because workers are just paid the same wherever -- wherever they're working.

Bob, I think unfairly, said that I look for government interventions to solve these problems. Some are no doubt beyond the reach of antitrust policy. I haven't been an expert in any of these

cases, so I don't have the insights that an expert might have. I also don't have the potential conflicts that an expert might have.

MR. TOPEL: I was teasing you, Alan.

MR. KRUEGER: I wasn't referring to you, per se.

MR. TOPEL: You said unfairly. I was teasing you.

MR. KRUEGER: Oh, okay. Anyhow, you know, in some of these cases, it’s pretty clear what the loss is to the workers. If a hospital reaches out because they have vacancies because they have colluded with other hospitals about hiring, and they pay $40 to temporary nurses and the staff nurses are paid $30, that suggests that the marginal product of the nurses is at least $10 higher.

I agree that in some situations having bilateral monopoly would be a better solution, you know, having more labor unions. I agree with what Nancy said about antitrust having to think about how to use its limited resources.

I also wonder, and I don't know how common this is, since this is not my field, if you have a case which is on the margin on the product market side, if the labor market side could put that over the

top, that if you take labor market side in addition to the product market side into account, so it could potentially end up blocking more mergers that are harmful to workers and to consumers if the labor market side is added to the equation as opposed to focusing exclusively on the product market side.

And I am a bit confused about Bob's argument on Steve Jobs who told Google if you hire any of my workers this means war, that Bob would recommend that that's not a good thing to say and it's not a good practice to put in place. But then when it comes to no-poaching agreements, he said they're fine, they could be in contracts.

And the argument that Bob gave about the brand value, I think, is an argument based on anticompetitive rationale. You want the franchisees to hire good workers, and you want to pay them less than they could get elsewhere, and you say to them, you may add value to our brand, but the only place you could go is outside our brand, we're not going to let you go to another establishment within our brand.

So, again, I'm not an expert in these cases but I would think that that's an argument that this is an anticompetitive practice, rather than a business justification that would pass muster under the law.

MR. TOPEL: I'll just say that you were unfair there, but let's keep going.

MR. SANDFORD: Okay, next question.

MS. ROSE: Could I -- since I'm implicated in Alan's remarks, do you mind if I weigh in on that?

MR. SANDFORD: Sure.

MS. ROSE: So two things I wanted to say. So first, working in reverse order, two weak antitrust cases do not a successful challenge make. So I think if the question was, is there a strong labor market case and a product market case that might not be as strong, and that was why I gave it the -- touched at the end about maybe a potential competition or a complementary product merger, where it's very hard, as the FTC knows well, to successfully challenge on potential competition grounds. If there were a strong labor market case, you might bring that challenge and bring it successfully.

We don't know because courts have not yet decided a merger, even on a buy-side, a litigated merger, even on a buy-side harm that doesn't involve labor market but other suppliers, we don't know how they'd respond to labor market. It would be a challenge, but it's probably one that's worth exploring and testing and developing.

But to say, you know, the product market's at the margin and the labor market's at the margin, I don't think you bring that case because you have the potential not only to go down but for bad law to be made as well.

MR. SANDFORD: Okay, next question. So Bob just said that in his view the labor share doesn't really matter, it should not be a concern of policymakers directly. Yet, Ioana's work, the Benmelich paper and the 2016 CEA report on labor monopsony all cite the declining labor share as a motivating fact.

So let me read from Marinescu and Hovenkamp, "The share of GDP going to labor has been declining at an alarming rate. This may result from several things, including suppression of unions and increasing concentration in product markets, but lax antitrust enforcement could be a major source as well."

So the first question is, should we care about the declining labor share; and the second question is, well, while Matthias just presented results that suggest a decline in labor share is due primarily to a reallocation of production to superstar firms, and that's -- that seems to me to be an explanation that is perhaps orthogonal to antitrust,

would you agree with that characterization, and do Matthias' results cause you to update any priors about how concerned we should be about labor market monopsony. So let me ask Ioana that question first, and then anyone else that wants to weigh in can do so.

MS. MARINESCU: Right. So this evidence has been coming up. Between when I wrote this and now, we've had more evidence, for example, about trends in labor market concentration, which we didn't have at the time, and with my vacancy data it wouldn't make sense to look at long-run trends because the vacancy data has changed so much over time.

So, you know, I still think that this needs more research, but it is fair to say that right now, with the kinds of data that people have just based on employment concentration and typically at the industry level, there has been a decline in labor market concentration, and, therefore, it is not as clear how exactly this plays in the trends. So, you know, to what extent labor market concentration trends, not levels, I think I want to make a distinction between that, explains wage stagnation.

So, but, you know, here are some interesting avenues I think for future research. So first of all, again, labor market definition is critical, and one

issue when you compare over time is to ask yourself is the definition of the labor market -- should it stay the same over time? And that is a critical question, because for example, we have done some preliminary analysis looking at the impact of population density on the scope of geographic search of workers, so basically, in more densely populated areas, commuting times are longer, there is more congestion and people tend to search closer to, you know, where they live, for example, and that is changing over time, differentially over different zones.

And, so after you adjust for that, for example, the decline in HHI doesn't seem to be as strong. Just as one example of an issue that needs to be addressed in terms of thinking about the definition of the labor market. Other things that, you know, might be interesting to think of are things like multimarket contact or changes in common ownership, so, you know, I believe that we need to learn more about the trends and how the whole, you know, story fits in.

I feel more confident about the general relationship between concentration and wage -- you know, even to be less controversial, market power because I think the labor supply elasticity evidence

is much stronger, better identified than the concentration evidence. So I think there is an issue of market power and that it's very clear that there is such an issue of market power and power in the labor market. But exactly how the trends have played out, I think at this point is less clear, and we have to, you know, further investigate to learn more about that.

MR. SANDFORD: So does anyone else want to comment on whether we should care about declining labor share? Matthias?

MR. KEHRIG: Sure. Happy to talk about this. On principle, when we talk here about wages, this is not the point that we -- it's not about wages, it's about welfare. And when we think about welfare, we have to think about, what is your wage and what is the price level. So it's really about real local wages that we should be concerned about. The labor share gets it a little bit closer to that because it relates the wage to the nominal output by the share of that stuff.

When we started our research on the labor share, we tried to come up with for reasons for why the labor share went down. We explored about half a dozen avenues related to labor market factors in the hope that there was an explanation. So we looked at

states that become right to work, is it that now there is lower bargaining power that we see actually the labor share declining in those states, and the evidence is basically very muted.

And we also looked at -- we looked at regions where unionization has been going down a lot, basically manufacturing has been exodus from the Rust Belt, the Midwest, down south where wages generally are lower, the regulations are lower, they have much more free reign. Boeing is shifting production from Washington to South Carolina. All car manufacturers have plants in Tennessee, South Carolina, Alabama. We don't see a big impact on the labor share.

We also looked at concentration to see basically Walmart comes to the county, does that lower the wages a lot in that county? And the evidence again was pretty muted. So the labor share -- we have basically a paper where there's a big graveyard section at the end, where it's like all these unsuccessful hypotheses that empirically don't really hold up.

It took us two years of testing to find out, like, that actually the main action is at the output side, at the price side. So this is in terms of labor share the one thing that we have to understand in

terms of when we think about this in the context of the labor market. We have to think, what does it mean for the consumers, for your real purchasing power? Of the wage that you have?

And that is one -- one thing that I wanted to add to the discussion about local concentrations, so there are two things. Labor markets are regional, they tend to be regional. You have a certain set -- a pool of people that live there and a certain pool of employers that hire there, and that's it. Goods markets are not. So when you consider antitrust cases and you consider the labor market consequences, that is very hard to assess because we have to have -- basically keep in mind that the firm’s action -- they are active nationwide. And -- but they -- in the local market, they act locally. So that’s one aspect.

The second aspect I want to say is, what is the difference between concentration at the local level and at the global level? So locally it might well be that concentration is going down because a new employer moved to town. But if basically we know that at the product level side, there has been a lot of consolidation, so if it is the case that basically if you live in County A or Commuting Zone A, and your options are work for Walmart, become a Starbucks

barista or something else, in the old days, you used to have the option to pack up and move elsewhere and you would face different employers, different firms.

Today, you again have Walmart, Starbucks, and some other local firms. So basically these firms, when they set their wages locally, they keep in mind, they set a whole menu of wages, not only just in that one commuting zone, but also in the neighboring -- in the neighboring regions. So that's important to keep in mind to assess the whole situation about local concentration, what are the neighboring, what are the other options for the workers to go elsewhere, and what are the local prices.

Oh, and to add also the last thing about the labor share, what Bob Topel said earlier, there's the story that capital deepening is behind the labor share decline. This is also not the case.

MR. KRUEGER: I would have described labor share as a symptom rather than the cause. And Matthias showed before that there seems to be less profit-sharing, less rent-sharing or less sharing of the gains in productivity at the superstar firms.

And another development which is consistent with that is that firm size premium is smaller than it used to be, so larger companies used to pay higher

wages, and that gap is much smaller, which is consistent with weakening of worker bargaining power, the places where there are rents where workers could get a bigger share of the pie, they're not able to for whatever reason.

Some of those reasons are beyond -- well beyond the reach of antitrust policy. Some antitrust policy may be able to have a significant effect if the October 2016 guidelines are enforced and so forth. I'm not aware of any criminal cases. That could send, I think, a very strong signal across many different employers.

So I think of it more as a symptom, and one of the causes may have been weakening bargaining power related to anticompetitive practices.

MS. ROSE: So I want to echo that, but, Alan, I don't know why you are going to anticompetitive practices because it seems to me having in my youth worked on rent-sharing and hearing some of the discussion that you've had here today, that weakened worker bargaining power may be due to a whole set of institutions on the labor market side that really have nothing to do with competition among employers or with antitrust.

And I would have thought if we were trying

to choose an answer that required kind of the least steps of logic to get there, that would be the place to begin. I mean, we certainly have, as your earlier remarks indicated, a lot of evidence that there's been a decline, say, in not just unionization rates but union bargaining power as a consequence of that more difficulty in unionizing firms and so forth.

And I think -- I think this discussion of worker rent-sharing also weighs into that. What we're asking for, if we think rent-sharing created a kind of golden age where workers were paid more, I am not saying this as a former antitrust enforcer, but we want less competition, not more, to get those rents created and then shared with workers.

And so I do feel we're chasing after a bunch of symptoms that make us concerned, and somehow for some reason we have glommed onto antitrust, but it is neither, as I said before, the most effective nor appropriate nor probably legally available tool for a lot of what we're concerned about.

MR. TOPEL: Let me respond a little bit. I think that raises a very important point. I don't think they're independent. I think the decline in unions helped to lead to some of the anticompetitive practices, that it's harder for employers to have --

require noncompete agreements if there is a labor union which is negotiating a contract and says we don't want a noncompete agreement. It's harder for companies to have anti-poaching arrangements if franchises are unionized, so I don't think that they're independent.

And I don't want to argue that the significant changes we have had in the labor market have developed because of an increase in anticompetitive practices I think that's a contributing factor. I think there are others which way may well be more important. So I don't want to be -- I don't want to mischaracterize myself in saying, you know, this is the instrument that we should use because this is the problem.

On the other hand, there are very few instruments that are available currently. So if you say what are the tools that we could use, especially if they've been underutilized, which I think has been the case, that, you know, the franchise contracts have been allowed to have no-poaching agreements for decades. It's only recently because of the actions of the Attorney General in Washington State that 30 franchises have dropped it, affecting hundreds of thousands of workers.

So I think these are tools that were in our toolkit that were underutilized, but I don't -- and they're available, but I don't think they are -- I wouldn't necessarily -- I think we don't know enough to say that anticompetitive practices are the main reason, and I suspect it's probably not the case.

MR. RAVAL: That's essentially a nice segue to my next question. So this is about the definition of monopsony. So maybe one of the classical definitions of monopsony would be you restrict the amount of labor hired into the amount of output generated, and then there's going to be a welfare loss of dead weight loss in the output market.

But you could also think about things like a change in bargaining power between labor and management, and workers are now getting a smaller part of the joint surplus from their employment. So should this be considered with -- should we be -- as antitrust enforcers be worried about changes in bargaining power? Is that an interest or concern or not?

MS. ROSE: So I'll say yes. I've got a Yale Law Review paper with Scott Hemphill that says absolutely yes. I think the antitrust law requires us to focus on actions that reduce competition, and if we

are reducing competition and that's what's leading to sort of reduced -- or increased employer bargaining power, say, and an ability to suppress wages, we should worry about that if it's coming from a merger, say.

If it's reduced bargaining power by workers because we have become more hostile as a country to unions, that's not an antitrust -- that's not an anticompetitive effect that's coming through the action of the firms. And that is probably not something that we can reach. But I think -- I think the notion that we need an output reduction as opposed to a transfer of wealth is very misleading. We don't do that on the product market side, typically, and so I don't think we should be doing it on the input market side either.

Bob may disagree.

MR. TOPEL: No, I agree with what you said. If it's due to a reduction in real competition, then it is an actionable thing. It's within the purview of antitrust policy. If it's due to other phenomena, you referred to hostility, but there's a lot of reasons of the decline in the fraction of labor force belongs to unions. I'm not suggesting --

MS. ROSE: Right, right, it could be

anything, but right.

MR. TOPEL: -- that you're -- it could be anything, but none of those really fall within the purview of antitrust policy.

MR. SANDFORD: Okay, next question. So speaking as an antitrust enforcer, I mean, to a first approximation, we block mergers if we think the price is going to go up. A merger that might increase employer concentration is going to, we would think, cause wage to go down. Wages go down, the price of the product purchased by consumers may go down as well.

And so, one, is it clear that -- what is the path to address concern about labor market consolidation from a merger if it would cause the product market price to go down? And, two, how would we balance a merger that might increase labor market consolidation but have other efficiencies that would cause the product market price to go down? And so that's probably most appropriate for the antitrust -- people with antitrust experience. We can start with Nancy.

MS. ROSE: Sure. I'd love to weigh in on that. So I think the first and most important thing to keep clear, and I am not saying that you weren't

recognizing this, but I think in these discussions, particularly among antitrust practitioners, if it's a classical monopsony case where the firm is withholding employment to drive the wage down, the firm does not perceive that lower wage to come with a lower cost of hiring a worker. If you go back to that curve that I showed you, the firm is perceiving the marginal cost of hiring another worker to be very high because it has to pay a higher wage to everyone.

So in a classical monopsony case, there's just an output restriction by the firm that's exercising monopsony power. There's no lower cost to pass on. In the bargaining case, that might not be as apparent or might not be true. There might be no employment effects, no output effects, just a transfer of rent -- just, but a transfer of rents from workers to the firm due to, say, an anticompetitive merger. And as I said before, our merger law requires us to challenge mergers that may substantially reduce competition.

I think it's misleading to say how should we balance. It's like saying there is a merger in the product market that has product market benefits for some set of consumers or some set of products or purchasers, and it has harms in other product markets.

Should we say, well, let's add them all up and say if the total is that the group that wins, wins by more than the group that loses, loses, we just let it go.

And I don't think we typically do that. I think if we see that there are -- and, of course, there's always prosecutorial discretion, but if we see that there are a group of consumers that are harmed by an anticompetitive merger, we challenge. It might be that if the mergers got mostly benefits and there is one small group that's harmed, we accept some kind of remedy that solves the competitive harm and preserves the benefits. But I don't think we tend to agonize over that balancing in the product market side, and I don't think we should agonize over that balancing when the harm is going to workers.

MS. MARINESCU: Yes, and actually in my paper with Herb Hovenkamp we discussed this point and come down to the same conclusion based on case law.

MR. RAVAL: So the next question, so for better or worse, whenever we're doing an antitrust case, one of the basic things we need to do, and which is often kind of the biggest part of the legal case, is introduce market definition. So in terms of labor markets, how should we approach geographic and product market definition?

And in particular, this is a point that Bob picked up, you know, if you think about the market for university professors, Lincoln, Nebraska is probably not -- Lincoln, Nebraska is probably not a market. The market should be maybe more broad or more national. So how much labor mobility do we need in order to define a broad market versus a narrow market?

MR. TOPEL: And over what period of time? Does mobility have to -- or that elasticity have to occur? I think that's really -- really an important question. So as I was outlining in my presentation briefly, one of the tools you can use is a critical labor supply elasticity, and this can vary by occupation. Right? So I think that's what you're getting at, that different types of workers might be more or less mobile, and this is something that we actually are able to get data on for various sources, including, for example, transition, say from the current population survey, across geography for different occupations.

In my current work in progress, with Jose Azar and Steve Berry, we're using a very detailed microdata set of applications from workers, two jobs where we have every occupation under the sun, and we see the distribution of applications, which kind of

allows us, by occupation, to see the variety of geographies and other types of jobs that people are applying to.

So there definitely exists ways of getting at that, if we're interested in estimating those elasticities. And this is something that we are actively working on.

MR. KRUEGER: Just to add as a practical matter, labor markets tend to be more regional for less skilled workers, more national for highly educated workers. It's going to vary a bit by occupation, but that's what one generally finds. And we do have data available to do the kind of analysis that Ioana was mentioning to look at where workers are moving, how are they defining the markets and use that as an input, I think.

MR. SANDFORD: So are mergers that lead to worse outcomes in the labor markets more likely to involve high skilled workers or low skilled workers? I mean, it seems to me like low skilled workers have many maybe different occupations that they could -- it would be easier to shift occupations if you are low skill, but if you're high skill, you're likely to be -- you know, when I was a professor at University of Kentucky, the nearest comparable employer was like

75 miles away, and I couldn't really go anywhere. So it seemed like I was more locked in as a high skilled worker there than low skilled worker.

Maybe I'll pose that to Nancy.

MS. ROSE: So I wanted to weigh in. When I was thinking about what mergers we might have missed, and I have a candidate, the candidate popped at first because the second most highly concentrated occupation in Ioana's work was -- in one of her papers was railcar repairers, and that called to mind an April 2018 DOJ no-poach action against rail equipment manufacturers, in Knorr-Bremse and Wabtec, that alleged that the companies had "for years maintained unlawful agreements not to compete for each other's employees" and moreover had a similar no-poach agreement with Faiveley Transport before Faiveley was acquired by Wabtec in November of 2016.

What this no-poach complaint said was that they'd entered into what they called pervasive no-poach agreements that spanned multiple business units and jurisdictions involving typically -- it said primarily affecting recruiting for project management, engineering, sales, and corporate officer roles.

So I wonder if sometimes we have some indication of what these labor markets might look like

by the extent, when we uncover a collusive agreement by the extent or the incidence of where the no-poach agreements are being pursued, and that does suggest a more high skilled occupation mix, maybe not, maybe not as specialized as I would have expected it to be, but it doesn't sound like they were entering into no-poach for the janitorial staff or even the low-level factory workers, suggesting that maybe we worry more about that typically. Again, not always. We'd have to look at facts and circumstances, but maybe more with the higher skilled and more specialized workers, and that's certainly consistent with what that hospital mergers paper found.

MS. MARINESCU: And, you know, that just gives you the easy way out in the sense that if there is the no-poach agreement, that's a very good piece of evidence to use. You don't necessarily need to -- and, you know, at least the further evidence would be confirmatory instead of having to dig deep into the elasticity of labor supply for that particular, you know, kind of occupation.

MS. ROSE: Well, let's be clear if you were going to challenge the merger, this might be a useful screen. You're not going to win a merger case by just saying, look, it must be a labor market, they had this

agreement here. I think anybody who's been involved in litigation would be leary to go to court with just that argument.

MR. TOPEL: Putting aside collusive conduct, do we have good examples of, like, in the realm of mergers, we have all kinds of examples of possibly mergers for monopoly that can be challenged because it's going to affect prices in the output market. Do we have any examples of merger for monopsony where the purpose was to reduce wages in the labor market? Or are we chasing unicorns here?

MR. KRUEGER: You know, it's interesting. I'm not sure there's an answer to that, and on the chasing unicorns, when the October 2016 guidance was discussed, that very same question came up about, well, how common are these no-poaching agreements, wage-fixing agreements --

MR. TOPEL: But that's the collusive --

MR. KRUEGER: Let me finish, Bob.

MR. TOPEL: -- side, yeah.

MR. KRUEGER: And the assistant attorney general, Makan Delrahim said he's been shocked by how many cases there are. And part of the guidance set up a hotline for people to call in. So I think, you know, I started my remarks by saying this is an area

where I think we are learning a lot, where there has been a lot of active research. I don't think we know the answer to that, but in some areas it looks like the anticompetitive practices are more common than was widely understood.

MS. ROSE: So I think it's harder to get that information on the labor side, but it's not impossible, right? So when you start a merger investigation, you're calling and talking to people in the industry, and you're often getting inbounds, and so I think if there was a merger primarily motivated by an effort to push down wages by the two merging parties, and I'm not saying for sure we'd hear about it if it really affected kind of lower level workers, but if higher level workers thought, you know, this makes no sense except that it's going to really eliminate the only people competing for my talent, I would have thought we'd hear some about it.

I suspect it's not the main or only motivation, but there could be mergers where -- so like in this rail equipment one where maybe the labor market overlap is more significant than the product market overlap was.

MR. TOPEL: Well, you can envision a lot of mergers, let us say for efficiencies, that end up

being labor-saving that because of at least for the short-run elasticity of supply that Ioana refers to there's going to be a large impact on people who've got specific skills with the firm and stuff like that, so that labor costs might decline a lot, and it might not just decline because of a head count but because you have to pay these people less to retain them, so then you've got to balance anticompetitive impact against procompetitive benefits.

But I'm asking about one that would be specifically like, look, we're not going to be more efficient, we just, in terms of the diversion ratio, we've brought this other unit inside and now we can control the price better than we did before, but the price we're controlling is on the labor market side.

MS. MARINESCU: So, Bob, would it be anecdotally thinking about the high-tech sector? We hear about companies buying another company in order to get their software engineers so, you know, that's only anecdotal. I don't know, you know, how much evidence we have on that, but at least you hear those stories regarding, you know, buying the pool of --

MR. TOPEL: Well, that comes back to high-tech, you know, I want to hire the software engineers from the guy across the street because they know a lot

of good stuff that my folks don't know. So that's more like proprietary information I'd like to get my hands on.

MR. KRUEGER: Another example was the film animators, Lucas Film and Disney, which had a big settlement for no poaching, and then they merged. And it's a little hard to say that they did it to get, you know, the human capital before they agreed not to poach from each other.

MS. ROSE: Right, although there you would want to investigate sort of what the labor market looked like, right? Was there something about these two firms reaching an agreement but that were lots of other competing employers or not.

MR. KRUEGER: I don't think there were.

MS. ROSE: I see. I mean, that's -- I think that's the kind of thing that antitrust enforcers know how to do. I think what's great about this literature and this discussion and these hearings is that it's maybe encouraging us to think, to ask some of these questions early on in an investigation to determine whether this might be one of -- you know, maybe it's not a unicorn, but maybe it's one of the rare ones where labor market issues might come to the front.

MR. RAVAL: So if you look at the research,

we talked about a lot of research today, and if we look at the dates of those research papers, they're 2017, 2018. So this is a very new field, and so what kind of evidence would you like to see developed on the antitrust relevance of labor market monopsony? You know, is there a good way to try to get cause of variation of monopsony power and kind of what research needs to be done that hasn't been done yet?

MR. KRUEGER: You know, it's interesting. I think I think about this totally different than IO economists. So what I think we need are good demand tracks to firms so we can estimate through a labor supply curve.

And Ioana cited, you know, the manning estimate of the labor supply elasticity, and I cited one by Webber, but that's one where I think we could probably use more compelling evidence. Now, to us, it's news. To labor economists, I think it is news that firms face upward-sloping supply curves because that's not the standard model that we use. The standard model that we use is law of one price, infinitely elastic supply.

So that may be of no interest to antitrust or IO economists but, to me, that, I think, is a priority for research.

MS. ROSE: Right, but for antitrust, it's not just --

MR. KRUEGER: Oh, it's not for antitrust.

MS. ROSE: Right.

MR. KRUEGER: You know, one of the -- I'm unburdened by not having been a witness and not being -- not being an expert and not being an IO economist. I think for understanding the way the labor market works, which sets kind of a milieu for thinking about where anticompetitive practices can occur, I think that's a really important first step for us, that the mindset is still one, largely, although it's beginning to change, where it doesn't matter if employers collude because they can't affect anything. The market is so competitive. The practice is not going to affect wages.

MS. ROSE: And how does that get squared with all of the work that, for instance, you did in your youth on interindustry wage differentials and rent-sharing and all of that?

MR. KRUEGER: Well, that's why I think it's a much better way to think about the labor market. But I think we're kind of at a turning point now where there is a lot of movement in that direction. But I think it's a turning point rather than a new day.

MR. TOPEL: Can I say something? Alan, you are actually thinking like an IO economist because the first thing on the list when people start thinking, well, what's the likelihood that a collusive agreement might succeed is that demand is inelastic at the competitive price. And so you want to know something about people's ability to substitute, you want to know about the elasticity of demand. All you're saying is I want some movements along a supply curve so I can figure out --

MR. KRUEGER: Right.

MR. TOPEL: -- what the elasticity of supply is. So is -- and the operative word that you just mentioned is potential.

MR. KRUEGER: Right.

MR. TOPEL: That if demand was huge -- if supply was hugely elastic, you'd say, look, attempted collusion here is attempted murder with a wet noodle, and you'd just -- you just wouldn't go after it. But I don't think that the steps you'd go through are any different on the supply side than they are on the demand side. And it has nothing to do with labor either. It could be any input you want to be using.

MS. ROSE: How do you square that with, say, the vitamin cartel or other commodity cartels?

MR. TOPEL: I don't see the contradiction. I'm saying --

MS. ROSE: Well --

MR. TOPEL: -- oh, you mean --

MS. ROSE: -- where, I would have thought the demand was -- for a firm was pretty darn elastic, but we saw collusion. I'm just --

MR. TOPEL: No, but the question is, no, no, no, it's whether the market price is inelastic at the competitive price, which means that -- which means that there is a big return to restricting output and raising price to everybody. And that's the first thing on the list when you start thinking about these so-called plus factors. And it would be exactly the same thing on the labor market side.

MR. KEHRIG: Just to weigh in on the -- what type of research do we need for this, I think typically people either use work-level data or firm-level data. But I think it's actually important not just to look at the wage level but also at worker flows and who works for whom and how long and where do you go. That means you have to work with matched data on -- where workers and firms show up in the same data set. And that's something that at least in the U.S. I find quite limited.

There are some other countries that have much, much better access to match data where we know much more about these worker flows and the incidence of different shocks, the incidence of mergers and so on, and what happens when wages go down here, what do workers do. And in the U.S., we don't know that so well because the worker side of the information typically comes from state unemployment records, and some states are extremely, extremely reluctant to allow the federal agencies to use those data. And if there's any way maybe to remedy this, then we wouldn't know much more about that. Incidentally this happened to be the states which are more red on the map, either map.

MR. SANDFORD: Okay, I have a question for Nancy from the audience. I think it might be from an attorney.

MS. ROSE: Oh, no.

MR. SANDFORD: So you made a comment earlier that if you have a huge, you know, delta HHI, there's no point in pursuing a labor market harm. And the question is, when you have a winnable product market harm that is precisely when you should add a labor market claim, if applicable, to build up the case law rather than to wait for a weaker overall case.

MS. ROSE: Absolutely. Could not agree more. I don't want to say that's what happened in Anthem-Cigna but certainly we included a buy-side claim in that challenge. I didn't -- I may be -- so there is an advance in the case law motive and there's a winning your current case and there is a balance. And so if you think you've got a very strong labor market harm and a strong product market case, maybe that is a great one to bring both of them forward on.

If you think you've got a really strong product market case and you're a little worried about the labor market case, maybe you want to wait for a better opportunity is all, just given the vagaries of trying to convince a judge to make that new case law. Judges, I have discovered, seem not to like that, and attorneys maybe are anticipating that and also kind of averse to getting too far out ahead of the headlights.

But, yeah, I think that would be a great -- look for those. I think that would be awesome.

MR. RAVAL: So I think we have time for one last question. So this is kind of the money question. So given limited enforcement resources, should the agencies be shifting resources from mergers with a product market overlap to mergers with labor market overlap, and, roughly speaking, do you think those

will require more or less resources than our normal work?

MS. ROSE: I'll weigh in and let others. I think we need to be strategic -- we, the agencies -- I can't escape this. I think the agencies need to be strategic in thinking about where to look for this, but I think there is enough concern about what's going on, and we're not sure exactly how important the anticompetitive practices are in the labor or the anticompetitive effects of mergers, say, are in the labor market that we should be looking for it. We should think about, is this an industry where the two firms merging are hiring from a similar pool of, say, specialized workers?

Maybe that's where we start, and add a few questions to the screening to see, is this something we should dig more into. And then if that -- it comes back with yes, it looks like there's a group that could be harmed by this, we probably ought to think about working that up. As I said, I don't want this to be an open -- I don't think you should shift entirely over to this setting because I am not convinced that we yet have a reason to think there is a big return to it, and it will be very costly as we are developing the tools and particularly as you are

developing the case law.

But I don't think we want to have agencies bury their heads in the sand and not worry about the potential harm upstream.

MR. KRUEGER: Could I add? You know, I think one place where DOJ and FTC could have a lot of leverage in the no-poaching and the naked wage-fixing is that one very strong case will send a very strong signal to 6 million employers who, from what I can tell, think there are no penalties because so far there have been no penalties for no-poaching agreements. The penalty has been stop doing this rather than -- as far as I know, rather than paying fines.

And in the Detroit case, my understanding was the human resource people thought this was kind of the right practice to do. They -- the right practice in the sense they knew it was technically illegal, but they thought that's kind of the normal business practice. And I think a strong case where there are actual penalties as opposed to just cease and desist will send a signal and potentially have a significant effect, much more than enforcement actions, because it will -- you don't have the resource -- I suspect given the prevalence of anticompetitive practices you don't

have the enforcement resources to go after all of them. But significant penalties could reduce the practice.

MS. ROSE: I think that's what the assistant attorney general is signaling.

MR. KRUEGER: He's signaling but there had been no announcement yet.

MS. ROSE: No, no -- Alan, so I will say from my two and a half years there, developing a criminal case, you're going to send somebody to jail, takes some time.

MR. KRUEGER: Right.

MS. ROSE: So I at least think now, given they seem to be suggesting that they're working on this, we should take them at face value and say -- and think they're looking for a good case to bring, but --

MR. KRUEGER: I certainly hope you're right, but he suggested it a year ago --

MS. ROSE: I understand. There are different styles. My boss, when I was there, never wanted to promise; he just wanted to deliver. I will say when that guidance was released, there was a lot of attention by human resource professionals to it. So I suspect it has already had an effect. I think your examples of the franchise no-poaches are

different because those probably go through some type of rule of reason analysis even if there is an enforcement action against them, but just the naked no-poach or wage-fixing I think people are on notice.

MR. TOPEL: I was going to make the same point. I think it's important to draw a distinction between no-poach agreements between separate firms and separate organizations and policies within an organization that are vertical restrictions. And the latter has to be judged by a rule of reason. It's hard -- it's hard to find good positive procompetitive reasons for horizontal conduct between ostensibly competing firms, so Section 1 comes into play.

And I don't think you should make a distinction between the product market and the labor market.

MR. KRUEGER: But, Bob, those same contracts say that we're not a joint employer.

MR. TOPEL: Yes, I know.

MR. KRUEGER: Which strikes me as --

MR. TOPEL: But it's a joint brand name.

MR. KRUEGER: -- contradictory.

MR. TOPEL: It's a joint brand name, and I disagree with you on whether it's contradictory.

MR. KRUEGER: And as far as knowledge about

it, I mean, FTC has brought a case against physical therapists where the text messages are pretty clear. So, I mean, we don't know how much of this goes on, but there is evidence that some of it is going on.

MR. SANDFORD: Okay, we are out of time, unfortunately, but this was a great panel, so please join me in thanking them.

(Applause.)

(Panel 1 concluded.)

PANEL 2: LABOR MARKETS AND ANTITRUST POLICY

MR. MOORE: Good morning. We're going to go ahead and start the second panel on Labor Markets and Antitrust Policy, hopefully building on what we heard during the first panel. My name is Derek Moore. I'm an attorney advisor in the Office of Policy Planning, and I will be moderating this very distinguished panel that we have.

To my immediate right is Marty Gaynor, who is a professor of economics and public policy at Carnegie Mellon University. To his right, we have Renata Hesse, who is a partner at Sullivan & Cromwell. And both Marty and Renata held senior positions at the FTC and DOJ, respectively, prior in their careers.

Jon Jacobson, to Renata's right, is a partner at Wilson Sonsini, in the New York office. To Jon's right is Eric Posner, who is a law professor at the University of Chicago School of Law and a counsel at MoloLamken. And to Eric's right is Evan Starr, who is an assistant professor of management and organization at the Smith School of Business at the University of Maryland. You can read more about each of these panelists in the bio documents that we've passed out, but without further ado, I will pass it on to Marty.

MR. GAYNOR: Well, first, just let me thank Chairman Simons and all of the Commissioners for putting on these hearings. I think they're really tremendously beneficial to the agencies obviously, but to the country as a whole and really a credit to both the FTC and Antitrust Division for taking on a bunch of really tough and challenging issues and hearing from a lot of people with very diverse backgrounds and viewpoints on this.

So I have just a few remarks about labor markets and antitrust policies. And the first panel, by the way, for those who were here, was absolutely excellent. We just had a bunch of topnotch and very, very knowledgeable people discussing these issues.

So one thing you heard is there's a lot of concern about wages and wage growth and worker earnings in the U.S., particularly for low-wage workers. And I think one thing that people also gave over well is that the causes for this are not particularly well understood. One possibility that may have something to do -- and it might be important -- is the possibility of growing monopsony power in our economy.

There is some evidence of monopsony power in U.S. labor markets. I think aggregate studies of

labor market concentration wages don't provide much evidence on this, one way or another. And I want to be clear about two things there. I think these studies do make an important contribution because they document what's happening with certain measures of concentration and certain measures of wages. As far as telling us exactly what's going on beyond that, as the previous panel made clear, I don't think they're at the point yet where they're telling us what we really want to know. But there still is an important contribution.

The second point about this is as I think Joe Farrell, when he was a BE Director in the past, was fond to say, absence of evidence is not evidence of absence. Just because these studies don't necessarily show that there's something going on doesn't mean there's not. And I think actually there is quite a bit of other evidence that leads me to think that there are some nontrivial issues with monopsony power.

There's evidence from fast food workers that Dave Card and Alan Krueger did a number of years ago, nurses, up to the recent study that was just discussed, teachers, et cetera. Lots of recent evidence of the use of no-poach agreements, in some

industries wage-fixing, noncompetes.

In addition, we've heard about declining labor market dynamism and unionization, and while those things are not necessarily declines in competition, per se, or antitrust, they can magnify anticompetitive effects or have impacts on the workings of these markets in ways that interact with competition.

So as I said, we don't have a lot of evidence at this point, to my mind, on whether monopsony power is growing. And in particular we don't have evidence on whether monopsony power is an antitrust problem in the aggregate. Even if it's pervasive, we don't know what led to it, and we don't know whether if firms do possess monopsony powers acquired by these firms, say, succeeding in some natural way, which is perfectly legal, or via mergers that harm competition in the labor market or practices that harm competition in that market.

The recent evidence from the Ellie Prager and Matt Schmidt study, I think, does point us a bit in that direction, that certain kinds of mergers can harm workers in certain labor markets. And it's important to make clear that antitrust is not the only policy lever to address issues in labor markets.

One of the things the antitrust agencies in my opinion should consider doing, and resource constraints have to be taken into account, but nonetheless, I think there are some things to be thinking about. So one set of things that's within the power of the agency are retrospectives on mergers, how might that provide information. Well, did sell-side concerns address the buy side as well? To what extent did they not?

There are some cases where there have been sell-side concerns, but -- I'm sorry, buy-side concerns, but there were not actually sell-side concerns. Are there changes over time? Does labor market monopsony via merger appear to be more of an issue now than it has been in the past? And has antitrust been underenforced against mergers based on labor market issues? Right now, I would say we actually just don't know about these things. And some efforts to inform ourselves better about this, I think, are sort of resources well used.

Another way to do this would be to do things prospectively. As mergers are reviewed, take a set of those mergers and add a labor market analysis to those mergers to try and get answers to these questions going forward. What proportion of these things raise

labor market issues? That proportion of these things raise labor market issues that would not have been addressed by product market issues?

Labor market studies, I think that rather than trying to do more aggregate-level work, I think we do in-depth, careful study at the level of individual markets analogous to industry studies on the sell side, and there are a whole bunch of issues that could be addressed this way. I'm not going to read everything off the slide. The slides will be posted online at some point.

What about enforcement? So here, I think, one key thing is that monopsony by definition causes harm to competition. And my view is that’s the antitrust standard, harm to competition. Scott Hemphill and Nancy Rose and some others have called this a trading partner, welfare standard. I think this is one of the many consumer welfare standards going around. There seemed to be at least as many consumer welfare standards. I think actually there are more welfare standards than there are antitrust people, but I think this is just very straightforward and common sense. There's harm to competition in this market; it's an antitrust issue.

What are some low-hanging fruit or no-

brainers? Collusion, wage-fixing. So Alan Krueger referred to this, Your Therapy Source, where there was an invitation to collude via text message. This is the modern era. No-poaching agreements across firms. Agencies are already taking actions in these areas, but these are certainly areas where if there are violations, they are problematic. They can be pursued.

Some things that I think are not as straightforward, but still not -- should be considered are nonbeneficial noncompetes. I think there's pretty much agreement that for low-wage workers, noncompetes have virtually no efficiency benefits, if any at all. But, of course, in matters like this, one does have to show harm, so thinking about that.

With regard to mergers, it might be productive to consider revisiting the Horizontal Merger Guidelines with regard to monopsony power, thinking about analysis of labor market impacts and sort of what that would constitute. Considering whether there may be some shortcuts or quicker analyses that would allow one to make conclusions about whether something should go forward just as there are some on the sell side, and thinking about that.

So and last but not least, concerning whether rulemaking authority, which the FTC does have, might be productively applied in this area. So there are a bunch of things to consider, and I think the FTC and the Antitrust Division can't and shouldn't try to do everything, but I think they should be considering what sorts of things they could do that have a high benefit relative to the cost. And I think there are some things in here that would meet that criteria.

Let me briefly say that antitrust is part of what I'll call a constellation of policy actors and policies. That makes it sound like everything fits neatly together, which in some sense it doesn't, but the antitrust enforcement agencies play a very -- a very important role. Federal agencies play an important role. Various parts of other parts of the Federal Government, state governments play a very important role.

And the key thing here is that communication and coordination are absolutely critical, and this is true for -- pick any kind of area in the economy. If it's a product side, say transportation, communications, healthcare, there are always other actors that have big impacts on what happens in markets and how well competition functions. And it's

important for the agencies to communicate and coordinate with those, and I do want to be clear that the agencies do a lot of that already.

But the other thing again is there's no one actor here, and one should not be considering actions, policies by one actor, in isolation, but be considering how these things fit together.

So very briefly in summary, in my view there are undoubtedly issues with monopsony in labor markets in our economy. We don't know how extensive these are and whether they've been growing, getting worse. That's really not clear. I think that what we need is more evidence. And I think there are some structured ways that one could -- one could pursue that. Some of that can be done by the agencies, whether internally or by commissioning outsiders to do the work. Some of that can get done simply by outsiders -- academics or other researchers.

As far as enforcement, there are some things that are obviously bad and the agencies can go after them. And they've signaled that they -- indeed they are going to do that. And then I think trying to examine and learn about things where it's not quite so clear is an investment well worth making.

And, last, I'll just conclude by reiterating

that policy towards labor markets more broadly, antitrust is a piece of the puzzle. In the past, it has not been a terribly prominent piece of the puzzle, and it may be that it should assume a larger role, but it should not be considered in isolation. It does need to be considered in concert with everything else that goes on and everything else that determines competition and the function of labor markets. Thank you very much.

(Applause.)

MR. MOORE: Thanks, Marty.

All right. Jon?

MR. JACOBSON: And I, too, want to thank Joe and Bilal and Derek and the rest of the Commission for having these sessions. Really informative and important, and thank you for this.

So I'm going to start with just sort of the textbook model of monopsony. It requires an upward-sloping supply curve because only with the upward-sloping supply curve will a reduction of output generate lower prices. So the monopsonist looks at its marginal input curve, which the closer it is to a full monopsony will kind of merge with the supply curve, and profits by reducing its purchases to reduce its cost. This is the standard model.

In nonlabor markets, one of the things we observe is that in markets with significant economies of scale, the supply curve does not necessarily slope upwards. Certainly at the relevant output levels that we're looking at in cases, often you see a flat supply curve. Theoretically, you can see a downward-sloping supply if scale economies are substantial enough. What that means is that in these markets, traditional textbook monopsony does not work because reducing prices -- reducing purchases does not have an effect on price.

Now, what's happening in labor? Labor is traditionally considered the textbook example of the upward-sloping supply curve. For years, most introductory economics textbooks have taught monopsony by referring to the one-company town and other labor market considerations. But the data that we have seen over the last couple years suggests strongly that wages are down but the economy is doing well.

So looking at it on a total macro basis, wages are down, but total industry output, GNP, if you will, is not down. It's up and it's been up significantly. So how do we square increased output with reduced wages in a competition context? And I don't have an answer to that because I think it's a

difficult problem. There are a number of analyses, and I'm looking at Ioana, and hers is probably the most prominent, that associate increased concentration in labor markets with lower wages.

I am very skeptical. The data come from a single source, CareerBuilders.com, on wages. And I don't know that that captures a lot of the superstar wage firms that recruit without using that website. And one of the things that we observe just anecdotally is that the industries that are being attacked as leading the march to increased concentration, these are largely the FANG companies. Those are the companies that pay the highest wages.

One of the reasons you saw no-poach agreements in high tech is that the wages are, in fact, so high, not so low. You don’t need to have a no-poach agreement if wages are low. You tend to be more indifferent unless it's a really unique talent, which actually explains some of the cases that were brought. And so we have -- we have Fox is suing Netflix for poaching employees. Amazon increased its minimum wage to $15 an hour.

All of this suggests to us that these studies are very preliminary, and it's hard to draw really robust conclusions from any of them. There is

just too much that we don't know, and we need to do a lot more study before making significant policy conclusions.

Now, where labor monopsony is a problem, it's not clear that the consumer welfare standard is the best way to address it. Consumer welfare -- and we're see many varieties of it, but it traditionally comes down to lower prices for consumers. Now, if a labor monopsonist reduces output in terms of the purchases of labor, that may, in fact, reduce output and lead to higher prices at the consumer end. In fact, that's the standard textbook model.

But life does not always conform to models, and most firms with significant bargaining power over laborers will tend to reduce the amounts that they pay or more realistically not give raises but not reduce the output that they produced. And that seems consistent with the national trend towards greater output and comparatively lower wages.

One of the things that folks have commented on is that labor's share of GNP has declined over years. To me, that is not a particularly important data point because we are in what the Samuelson economics books that I used as a kid and many of you used -- none of you is as old as me -- but many of you

studied Samuelson's textbook. And he talked about a post-industrial age where technology was more important to productivity than labor.

And we are seeing that. We are in the beginnings of the post-industrial age. And one of the consequences of a post-industrial age is that labor's share of GNP is going to decline. That doesn't necessarily associate it with increased bargaining power for employers or traditional monopsony power. It's just an issue.

So getting back to consumer welfare, if in a lot of these cases the result of paying less in terms of wages is going to be to reduce the firm's costs and therefore reduce the prices that it’s charged, I'm not saying this is the normal case or even the standard case, but it happens in enough cases that you have to question whether to apply consumer welfare as the appropriate standard.

And the standard that I think captures the benefits of the consumer welfare standard without at least that particular potential flaw is an output standard. And let's look, is this practice decreasing market output? Is it neutral? Is it increasing market output? And I think you can apply that to labor markets in the same way that you can apply to

traditional industrial markets.

And if we do that, I think we generate better outcomes in a larger percentage of cases than with the “low prices for consumers is all that matters” standard. So I would urge the Commission to consider output as a -- if not a substitute at least a relevant consideration in terms of determining whether a practice is unlawful or not.

Now, what is the consequence of this? What should the Commission do? That's why we're here. I think clearly the no-poach cases are ones that are valid. Other activities involving collusion should also be policed. I also agree that it should have more prominent consideration in merger reviews. I'm not sure I would add a labor specification to the second request. That’s going to increase costs.

But I think the staff lawyers at the Commission are savvy enough to understand or receive complaints on whether a merger may have a negative effect in a labor market. And when that's the case, that should be pursued. In most cases, and we heard about this from the first panel, taking care of the merger from the sell side is also going to address the labor issues, but that's not always true, and I think that if the staff is simply more sensitive to these

issues, that that will be a plus.

But at the end of the day, at the end of the day, labor wages is really not solvable through competition solutions. There need to be additional solutions. Now, one that the FTC could consider -- and this would surely be challenged in court, but I believe it would be upheld -- is simply a rule banning noncompetes or no-poach agreements for low-wage professions. And I think the FTC could do that.

There would be terrific procompetition effects from that. And after the five-year court battle is resolved and the rule is upheld, I think there will be great effects for the economy.

The Commission could also consider rules having greater wage transparency, maybe something together with the Labor Department. But at the end of the day, low wages is an important social problem. Whether it's an antitrust problem, there's significant reason for doubt, but there are tools that the FTC has and that other agencies of government have to address the problem. Thanks.

(Applause.)

MR. MOORE: Thank you, Jon.

Eric, you're up.

MR. POSNER: Thanks very much. Okay, so

six, seven minutes, is that the --

MR. MOORE: Yes.

MR. POSNER: So I guess to draw a contrast with the previous speakers, I'm going to urge the FTC not to be cautious but to recklessly forge ahead to deal with this problem, which I think is much more significant than many people are suggesting. I'm going to make a few arguments, but the theme of my argument is the contrast between labor markets and product markets and the obvious contrast between the amount of attention that product markets have gotten by the FTC and the DOJ and everybody else and how little attention labor markets have gotten historically as well as recently.

I also want to put aside two red herrings that we've heard. One is that wage suppression or wage stagnation is not simply the result of concentration or other anticompetitive actions. I agree with that. But at least some of it clearly is the result of anticompetitive actions, and that's why the FTC has a role here.

The other related point is that antitrust law can't do everything, and I agree with that as well, that a lot of the wage suppression or income stagnation has resulted from other factors, but

nonetheless, there's a role for antitrust law to deal with the increment that is attributable to anticompetitive behavior.

Now, I don't want to go over the evidence again. That was discussed in the first panel. So I will just put it aside. And I actually want to provide some theoretical considerations and some legal considerations for people to think about.

So the first point is simply that firms have just as much incentive to suppress wages as they do to raise prices. It has the same effect. Both actions generate profits. And if they can raise prices through anticompetitive behavior and they can cut wages through anticompetitive behavior, they’re, you know, roughly going to be indifferent between doing either one of those.

But the fact is that historically there's been much more enforcement on the product market side, as I said earlier. And so any rational profit-maximizing firm is going to look at possible anticompetitive actions on the product market and be a little bit worried that the FTC or private plaintiffs or the DOJ will go after it.

On the other hand, if they look at the labor market side and they see ways that they can reduce

labor casts through anticompetitive action, well, until recently, they wouldn't have worried at all about the Government getting involved. The same point can be made about mergers, which was discussed earlier. If two firms are merging, they really do have to pay attention to the product market side.

They know the Justice Department and the FTC are going to review the merger to see whether it will raise prices for goods. They also know that the Justice Department and the FTC will not review the merger to see if it has any effect on wages, so they don't have to worry about that. And you'd think, if they're rational and they want to make money, that that's where they would focus their efforts.

There's a somewhat subtler point, which is that for reasons that were discussed in the previous panel, labor markets can be very thin. A big source of labor market monopsony, as I gather labor economists use the term, is the result of search costs and job differentiation. You might think of matching problems as a source of thinness in labor markets as well. And these problems are less significant in product markets.

And I would think, then, that we would be more worried, given a certain HHI for a labor market

and a product market, with the labor market, right? So for a given HHI, you might think that the effect on wages will be much more significant than the effect on prices because of these problems that seem to be characteristic of labor markets.

Another point to keep in mind is that although I realize the FTC isn't really, you know, a welfare-maximizing institution, that it has a narrower mission, it seems very likely that labor market monopsony causes more harm than product market monopoly because workers tend to be -- you know, the workers who may tend to be the victims of monopsonist conduct will see their wages go down, whereas when prices go up, these are goods that may very well be bought by all kinds of people, wealthy and poor. So I suspect you'll see a greater impact on workers from anticompetitive behavior in the labor market than for consumers generally in terms of welfare.

Okay. The last thing I want to talk about, some legal considerations, which I don't think have been brought up yet and I think are interesting. So we know from people's work, including Evan and Alan, that there's a lot more anticompetitive behavior going on than people believed. The question is, why isn't there more litigation?

Well, and if you read the cases, the first thing that you can just type in, "labor market monopsony," or words to that effect in a database of cases, and you'll get a small number of hits, whereas if you do searches for any type of product market monopoly case, you get millions. Okay, so why that difference? Why if there is anticompetitive behavior in labor markets and that it's rational for employers to do it, why are there so few cases?

Now, of course, one possibility suggested in the previous panel is, well, maybe there isn't that much labor market anticompetitive behavior so there aren't cases for that reason, and that's possible. But there are barriers -- there are legal barriers on the product market side that are not as severe -- sorry. There are legal barriers on the labor market side that are not as severe as the legal barriers on the product market side.

So, for example, labor class actions are a lot harder than consumer class actions. Workers are much more diverse. That means that it's harder to put together a class that reflects a kind of commonality among the victims than in the case of product markets where the products are often just commodities and the effects on people from a higher price are much easier

to calculate.

Labor class actions are also more difficult because wage data is more frequently secret, harder to get than in the case of product markets, which is probably why you see less economic research until recently in labor markets that show anticompetitive behavior. Product markets also tend to be national, whereas labor markets are almost always local. Okay, so if you're a plaintiff's lawyer and you need to, you know, make enough money to finance the costs and the risks of litigation, it's going to be much more attractive to use a national market than a small regional market.

And then the almost final point is that in the product market case, there are often natural corporate plaintiffs, and I believe they're the most frequent types of plaintiffs. So often the victim of a monopolist is another big company that can afford to bring a lawsuit. Consumers might be victims as well, but it’s much easier for just a private company to bring a lawsuit.

But there are no private companies that are natural victims of labor market monopsony. The victims are just ordinary people who often don't even know that they're victims, who have no idea. And so

they're not going to bring a lawsuit; they're not going to consult a lawyer.

And then my final point is that because there are so few labor market cases, there's very little demand for experts, and there's very little demand for academic work that looks into them. And there's a, you know, circularity here. As a result of that, less information comes out and people never learn that this problem is as pervasive as it appears to be.

By contrast, if you look at what the experts are doing and what most of the economic research is about, it's all on the product market side, and that has this reinforcing quality, which probably accounts for why there's so much more product market litigation than labor market litigation. And with that, I will stop. Thank you.

(Applause.)

MR. MOORE: Thank you, Eric.

Renata?

MS. HESSE: So I thought I'd take us -- well, actually, first, thank you. Thanks for having me, Bilal and Chairman Simons and Derek, thanks for organizing us.

I thought I'd start first with a little bit

of history, and I promise I won't go on long, which is to say how did we at DOJ and the FTC come to thinking about these issues and then issuing the guidance that we issued at the end of 2016, which I think has been, you know, picked up by the new administration and at least carried forward in the sense that the Assistant Attorney General at the Antitrust Division has said that he is going to, in fact, investigate and prosecute some of this conduct criminally.

So, you know, the natural starting point for people in positions of leadership in the antitrust agencies is not one of humility and self-reflection. It tends to be more defensive. And so I confess that when Alan's paper and some other papers came out citing that the antitrust agencies had missed the ball in this area, that the natural reaction internally was to say, well, of course we haven't missed the ball.

The next thing was to do a little bit of a step back and do -- be a little more humble and do a little bit more self-reflection and ask the question whether there were things that we were, in fact, missing. We knew that we had brought some cases, we knew that we saw these issues arise in certain highly specialized markets, I would say -- nurses, tech markets -- but we really didn't know if we had missed

a bunch of cases somewhere.

So one of the things that we thought we would do was work to create some guidance to put out and just to raise the profile of these issues, because one way that you learn about cases is if you hear from people who have been the subject of anticompetitive conduct or otherwise they come to you with their cases.

And we set up a hotline and all sorts of ways for people to get into contact with us as a way of trying to check to see whether there was a lot that we were missing. I will say that we did see an uptick in behavior that seemed to be translating from more classic civil conduct to things that looked more criminal. So behavior that looked more like wage fixing, for example.

And that was a big component in the thinking that we had about saying that we were going to start these investigations going forward criminally rather than civilly, because the conduct appeared to be less rule of reason in nature and more just straight up cartel-like.

So where does that take us? So I think the guidance itself is, I think, quite clear, and I think it has been helpful in terms of raising the profile of

these issues. I know that in a number of meetings with clients that I've had, these are issues that people are talking about and asking lots of questions. We do a fair amount of counseling around these issues now, whereas I think before they did not get a particularly high profile.

But I think there is still a lot of work to be done here. I tend to agree with -- I think I always feel like I'm charting the middle course in things. I tend to agree with Jon and Marty that I don't think antitrust -- and even Eric said this, too -- antitrust is not the be-all and end-all in this area. There are a lot of issues that this country faces in terms of income inequality and wage stagnation that should be a very high priority for our legislators and otherwise to try to handle.

I think antitrust is one piece of that, but I certainly don't think it's the biggest piece, and I encourage those of us -- those of you who are making laws and thinking about legislation to really focus on other ways that we could address some of these issues. There's no question that the power of labor, vis-a-vis employers, has changed in the United States. And I think that’s had an impact on wages.

The other thing, though, that I think has --

was sort of -- has gotten a little bit lost is that I don't actually think the agencies have ignored this issue. It's just that it's been looked at as a pro in mergers and not as a negative. So one thing that I think as people think about lower wages, fewer jobs, all of these things, that typically that has been characterized as an efficiency. And the agencies have analyzed it as an efficiency and they've looked at it as a positive that can come from combinations because it reduces the costs that the companies have and it therefore makes them more efficient and makes lower prices available to consumers.

And I think we will need to really rethink how we think about efficiencies if we are going to say that that kind of cost saving is now a harm and not a good. So I will leave it there. We have lots of things to talk about.

(Applause.)

MR. MOORE: Thank you, Renata. And now on to Evan.

MR. STARR: All right. Thanks, everyone, for having me. And rather than taking a big-picture approach in the discussion of labor market competition, I'd rather take you guys on a deep dive into noncompete agreements which explicitly prohibit

workers from working at competitors. And so this is an emerging area of research, and there's a lot to say, but I want to give you guys kind of the broad overview so you have an understanding of what we're seeing.

If you've never had the joy of signing one of these agreements, let me just read one for you. This is from an Amazon packer in 2015 that the contract says, "During employment and for 18 months after the separation date, the employee will not engage in or support the development, manufacture, marketing, or sale of any product or service that competes or is intended to compete with any product or service sold, offered, or otherwise provided by Amazon that the employee worked on or supported." Okay.

Now, I mean, although noncompetes have been around since the 1400s, the public interest in them has really only increased after the Jimmy Johns case where minimum wage sandwich-makers were prohibited from working within three miles of any Jimmy Johns establishment, which basically nips the whole city of Chicago.

And after that, policymakers began to question why firms were using these things, how they were being used. And their interest was pretty clear

that firms could use them unscrupulously with low-wage workers even simply to restrict turnover and reduce wages, and just like firms did in the kind of Silicon Valley no-poaching case. But unlike those no-poaching agreements which are per se illegal and invisible to the worker, noncompete agreements are generally not per se illegal because there's a presumption that workers voluntarily agree to them and that there's a clear efficiency motive, which is that firms have an incentive to invest in information and share that information with workers that could make them more productive.

If the firm could not use the noncompete, then competitors could hire that worker away and experience the benefits of the information they provided to him. So because of the sufficiency motive, the result is that most states enforce noncompetes according to a rule of reason except for a few states like California and North Dakota and Oklahoma, where they're banned.

So how should you think about noncompetes? Well, I think you should think about them in the same way that you would think about labor market competition, and what I mean is this. Consider the following example of a worker who is -- just accepted

a job offer, and he didn't know about any of these noncompetes, and he walks into the office on the first day, and the HR guy is running through the paperwork, and they ask him to sign his employment contract.

Maybe it's a document that he has to flip through, and maybe it's on a computer screen where he's got to click through and then electronically sign. And he stumbles upon this contract like the Amazon worker that says you can't work for two years in your chosen industry.

And so if you think labor markets are competitive, if you think that the worker can quickly and easily get another job offer, if you think that he can go and credibly threaten to quit and earn the same elsewhere, then the worker is only going to agree to that provision if he's better off, right, if he gets some of compensated differential.

But if you think that the labor market is not competitive, then the worker might just sign that contract because maybe he doesn't have another offer and he's got to put food on the table tomorrow, okay? And so the point that I really am trying to crystallize here is that noncompetes are a source of monopsony power and that they increase the expected moving cost to competitors, but the price that firms

pay for that monopsony power depends upon the competitiveness of the labor market.

And, in particular, if labor markets are perfectly competitive, workers are going to get that compensating differential where the future monopsony power is transferred back to them. But if the labor market is not perfectly competitive, then firms can retain that monopsony power.

Okay, so with this backdrop, I want to summarize some of the research that we're seeing, and I want to emphasize that this research is really still in its infancy in large part because the use of noncompetes is not -- the data on use of noncompetes is not really available. In 2014, along with J.J. Prescott and Norman Bishara, I wrote and implemented kind of the largest survey of noncompetes across the U.S. labor force. And until then, we only really had studies of CEOs in a select few occupations like physicians and engineers. And there's a recent study of hairstylists as well.

So here are just a few takeaways from this kind of emerging stream of research. The first one is that noncompetes are pretty pervasive. Let me just give you some of the numbers. Recent studies suggest that nearly one in every five U.S. labor force

participants is bound by a noncompete and that roughly 40 percent have signed one at some point in their career. Noncompetes are more prevalent among high-skilled workers -- 80 percent of CEOs, 46 percent of physicians, 40 percent of engineers -- are bound by them. But they're also found in low-wage jobs as the recent publicity suggests. Twenty-one percent of those earning less than the median wage signed one at some point, as Alan and Eric found, and 30 percent of hairstylists are bound.

But noncompetes are also found in states that don't even enforce them like California. Nineteen percent of Californians are bound by noncompete agreements, including 62 percent of CEOs in California. And so sometimes the California model is trumpeted, but we also find that noncompetes are being used there as well.

And to give you an example, just to show you that I'm not crazy, this is a noncompete from a Silicon Valley-based nonprofit that hires volunteer coaches to take grade-school girls on runs after school. And this is the noncompete. It says, “As a coach and volunteer with Girls on the Run of Silicon Valley, I may not create or help develop a program that has similar goals and structure to that of Girls

on the Run International within a two-year period of my involvement of Girls on the Run." Okay, so this is a volunteer coach in a nonprofit in Silicon Valley.

Okay, so second, when workers are asked to sign one of these provisions, 82 percent of them indicate that they simply read it and sign it. And some actually admit that they don't even read it. Only 10 percent of workers attempt to negotiate over these types of provisions when they're asked to sign them. And one-third of them actually come after the worker has accepted the job offer already. More importantly, 86 percent of workers indicate that they weren't promised or they don't perceive that they were promised anything in exchange for agreeing to these types of provisions.

Among the existing studies, two of them do find that the use of noncompetes is associated with higher wages and longer tenure, so there is some evidence of these compensating differentials. Although, one of the studies that I wrote with J.J. and Norm suggests that the timing issue is really important, that if you surprise workers with these provisions, then workers don't see any of these benefits. They stay longer in their jobs, about a year longer, and they're less satisfied.

Most of this literature doesn't involve data on the actual use of noncompetes. Instead, it exploits differences in state policies. And there's significant heterogeneity across the U.S. In some states, like Florida, noncompetes can be enforced even if you're fired from your job. And if you are in California, of course, they wouldn't be enforceable if you got to court.

So what this literature generally finds is that the vigorous enforceability of noncompetes is associated with slower moving, less dynamic labor markets with reduced wages. And just to cite one study that I coauthored recently, we found that -- we followed workers for eight years, and we found that just starting your career in a state with average enforceability, after eight years, you experience 5 percent lower cumulative earnings and you had 8 percent fewer jobs relative to an equivalent worker in a nonenforcement state. And, so that's kind of the state of the evidence.

I have two more things I want to say and then we'll move on. So one -- another study that I recently wrote looks at -- if you just look at labor markets where the use of noncompetes is high and the enforceability is high, what do those labor markets

look like? And what we find is that those labor markets are also slower moving, including those not even bound by these kinds of provisions.

In fact, there appear to be spillovers that reduce the rate of job offers and the mobility and the wages of those who are not even bound by them but happen to be in a labor market where they're used prominently and enforced regularly.

Okay. And the last thing I want to say is that noncompetes chill employee mobility -- appear to chill employee mobility, even when they're totally unenforceable. In one study, we found that in states where noncompetes are not enforceable, 40 percent of workers who turned down job offers from competitors said their noncompete was a key factor in that choice. And this research, it goes on to say that it's workers' beliefs about -- beliefs about whether the firm is going to go after them or whether the firm has reminded them of their obligations that causes them to turn down these job offers, not actual enforceability.

And when you ask workers what do you know about these laws, you may or may not be surprised to know that workers don't know very much. In fact, they -- even in California, workers don't really know that noncompetes are not enforceable. Of course, there

could be differences in a few sectors.

Okay, so to summarize, you know, even though sometimes the evidence points to compensating wage differentials here, overall the key theme in my opinion is that the use of these provisions and the enforceability of these provisions tends to reduce the dynamism of labor markets and reduce the wages that the workers receive.

And I just want to end on two notes. First, I'd just like to note that noncompetes also belong in a conversation about final product markets because they're also constraints to entrepreneurship, and they prevent workers not only from moving to a competitor but also starting a competitor.

And the second is that noncompetes are just one constraint within a whole bundle of other provisions, including nonsolicitation agreements, nonpoaching agreements, arbitration agreements, intellectual property assignment agreements, class action waivers, nondisclosure agreements. And I think what's important to recognize here is that noncompetes are very blunt instruments because they literally tell workers you cannot go work in this industry.

And it's possible that that protects legitimate business interests, but once you account

for all these other less restrictive provisions, it's unclear what legitimate business interests actually remain. And so it could be that noncompetes only serve monopsonistic ends once you account for all those other complementary constraints. And we don't know much about those. So I'll end there.

(Applause.)

MR. MOORE: Thank you, Evan. We are now moving on to the Q&A portion of our panel. And I'd like to remind everybody that staff from the FTC is going up and down the aisles passing out notecards. If you have a question you'd like to ask, please write it down on a notecard and it will be passed up to me.

So the first question I'd like to ask relates to welfare standards. Jon mentioned that there may be more welfare standards than there are antitrust commentators, which might be true. But I'd like to talk a little bit about some of the problems that Jon identified with applying the consumer welfare standard to monopsony issues in labor markets.

And specifically I'll point this to Renata and Eric. Do you think that the consumer welfare standard as defined by the courts is flexible enough to address concerns about monopsony power in labor markets, or does there need to be some sort of sea

change in how the courts interpret the consumer welfare standard?

MS. HESSE: All right, I'll start by giving the not surprising response that I actually think the consumer welfare standard is, in fact, flexible enough to address these issues. I mean, I read what Jon said, and I was not sure why, if you're thinking about an anticompetitive conduct that harms labor or laborers, why you necessarily need to think very much about what the impact of that would be on the end price of the product that the consumer buys. I'm not -- it's not clear to me that you need to go all the way downstream in order to think about where the harm is.

This is a debate that has happened many, many times between lawyers and economists, I will say, but it strikes me that the harm is being felt at the employee's level and that the consumer welfare standard is perfectly adept at thinking about that and addressing it.

MR. POSNER: I agree. I've read as many labor monopsony cases that I can, and I didn't find a single one where a court even brought up the consumer welfare standard or thought that it might block an otherwise plausible claim. In the merger context, I

mean, you know, if the worker -- the relevant issue here will be when you look at a merger, the effects on everybody, consumers and workers. If the workers' welfare goes down as a result of the merger, I think, you know, anybody can understand that that's anticompetitive under the Sherman Act, and that's relative -- that's relevant, even though they're called workers rather than consumers.

There could be other aspects of the merger that are positive, but as Nancy mentioned in the earlier panel, a merger that has monopsonist effects will tend to raise prices, not lower prices for consumers, so that's not an issue for the consumer welfare standard.

MR. JACOBSON: Can I get ten seconds of response here?

MR. MOORE: Sure.

MR. JACOBSON: So the problem is the one that you identified earlier, which is that people have been using lower wages and firing people as efficiencies because, they argue, lower prices to consumers will result. So, you know, I do think there's a tension here. Yes, strict textbook monopsony will lower product output and will therefore raise price, but the world is not a perfect monopsony

model, and we do see a lot of bargaining contexts where wages are lower or fewer people are hired. And under the traditional consumer welfare standard, that's a plus, not a minus. And that's why I think it's not a perfect standard.

MS. HESSE: Yeah, I mean, I guess to me, the issue is whether you're thinking about it in the -- in isolation or whether you're thinking about it as part of a transaction where somebody's saying we're going to identify this as an efficiency and we want you, the Government, to give us credit for this efficiency and balance it against the harms that may or may not occur on the product market side.

I think if you think about these issues in isolation as a monopsonistic conduct that harms labor, then the consumer welfare standard does its job.

MR. POSNER: Yeah, and I just want to add, I mean, I was surprised when you said that earlier. If it was really the case that, you know, the merging parties would say, well, we're going to be able to lower wages, and the Government said, well, that's terrific, you know, go ahead, I mean, that's a disaster. All that should be relevant is that they're lowering prices.

Now, it may be -- you know, there could be

reasons why -- there could be all kinds of reasons why prices could go down that are not objectionable, that are not the result of monopsonistic behavior, but that's what you want to figure out. The mere fact that wages could go down, I don't see how that could be a reason for approving a merger.

MR. MOORE: Go ahead, Marty.

MR. GAYNOR: Yeah, if I may, just let me echo that point. And this is where this issue comes up, and it's very important, it's really critical to distinguish between those two forces. So if a merger enables the parties to do something like invest in technology, that leads them to, say, using different kinds of labor and that results in cost savings, then that's fine. That's an efficiency. That's savings.

But if the merger enables them to be less competitive in the labor market, in that market, reduces wages, that's a harm. You don't get to call that an efficiency. You don't get to count those ill-gotten gains in the plus column.

MS. HESSE: No, but you do get to count firing employees as an efficiency.

MR. GAYNOR: Well, I think, again, it --

MS. HESSE: And that's what I'm talking about.

MR. GAYNOR: -- depends on the source -- I would say if it's from harm to competition, I would say, no, you don't get to count that.

MR. JACOBSON: I understand, but for the last 20 years, the main argument that people have made to bless mergers is how many people are going to be fired. Now, it's not -- it's absolutely true, no one's used lower wages --

MR. POSNER: It's rather troubling, I would say.

MS. HESSE: Right.

MR. JACOBSON: It is troubling, but it also goes to the heart of the issue that we're talking about here, whether the consumer welfare standard is really the be-all and end-all for this kind of problem. And --

MR. POSNER: But it doesn't help consumers if the firing is the result of increased monopsony, right? That's the -- if that's --

MR. JACOBSON: Well, that's assuming the answer.

MR. POSNER: So I --

MR. JACOBSON: But the firing --

MR. POSNER: -- but that -- but it would seem -- it would seem to me that when the FTC

evaluates a merger, it's got to figure out why people are being fired and why wages are going down, right? That has to be part of the analysis.

MR. JACOBSON: That, I agree.

MS. HESSE: I agree with that, too. But typically the claim is we have tons of duplicative laborers and we're going to lay off half of them because we don't need two headquarters and we don't need two, you know, stores in the same -- that's the kind of firing that we're talking about. And that has typically been considered to be an efficiency, or at least it's been -- actually, it has been considered and it's been, I think, accepted.

I mean, it's not -- when the agencies -- to Marty's point, I think, you know, when I'm representing a client at the agency, in terms of efficiencies, what you're trying to look for are things like, well, this is going to allow us to build better products, or it's going to allow us to do things faster. There are all sorts of procompetitive benefits that you can highlight and that you want to highlight.

But there's no question that in the synergies column, reducing labor costs is one of them.

MR. POSNER: But I have to add here, because

I didn't know this, I mean, what a striking comment that is because people in the earlier panel were saying, well, you know, if we ask agencies to look at labor markets, they're not going to have enough resources to challenge as many mergers, and that would be a terrible thing. But it sounds like the agencies are already looking at labor markets and are doing it badly. So they shouldn't, you know, look at labor markets --

MS. HESSE: I think -- I don't think that's an accurate characterization at all.

MR. JACOBSON: They're looking at the ultimate product price to the consumer, which is the textbook consumer welfare standard, and that's what I'm saying is -- you know, works in 98 percent of the cases. But in these labor cases --

MR. POSNER: We don't know that.

MR. GAYNOR: I think there's perhaps a little bit of confusion here. So, one, just coming back to this, look, the agency should look critically at efficiencies claims, and everybody knows they do. On this one, perhaps this is an area where a bit more attention is in order. That's not necessarily the same thing as a full-blown monopsony analysis. So I don't think that's what people were talking about on

the first panel.

And, again, I don't think that in my view that one has to show that prices get passed all the way through to final consumers. And that's not what happens. Look at the Sysco case which I worked on when I was at the FTC. Those are intermediate product sellers, right. We didn't look at whether consumers paid more for packets of crackers at the end of the day. The question there was whether the merger of these two huge food suppliers would affect the purchasers, which were retailers, institutions, a whole bunch of things.

Pick any healthcare case, almost always involving a hospital named St. Luke's because St. Luke’s apparently is the patron saint of monopolists. And all of those cases have that same characteristic. It is not required by the courts to show that the final consumers, the patients who were getting care, are facing higher prices. So I don't think that's really at issue here.

MR. JACOBSON: Although the American Express case makes what you just said a little more complicated.

MR. GAYNOR: Well, that would be and I’m sure is entirely another panel.

MR. MOORE: Let's stay away the American Express for this panel.

MR. GAYNOR: So the Supreme Court blew that one big time in my view.

MR. MOORE: We spent quite a bit of time on AmEx yesterday, and we will tomorrow, so I think this is probably not the panel for AmEx.

I'd like to talk a little bit about noncompetes because we are running out of time. So this is broadly a question about rules versus standards and in thinking about standards, how we might apply them in the context of litigation. So Evan described how noncompete agreements can be harmful or beneficial depending upon the circumstances. One way to address that would be through a rule or a piece of legislation banning noncompete agreements in totality, like they do in California.

Another approach would be similar to what Marty suggested, which would be an FTC rulemaking procedure to ban noncompete agreements for certain classes of workers. Yet another approach -- this is what I would call the standard approach -- would be to attack noncompete agreements through antitrust litigation.

And you might think of a noncompete agreement, which is between an employee and employer, as a vertical agreement. And typically vertical agreements are governed by the rule of reason. So in such cases, it's quite difficult to win those cases because you have to prove market-wide harm and you have to define a relevant market and you have to show market power. And when we are talking about companies like Jimmy Johns, it might be difficult to establish that Jimmy Johns has market power in a relevant labor market.

So it's a three-part question. Rules versus standards in trying to prevent the bad noncompetes while retaining the possibility for good noncompetes to occur, and then what sort of things might the FTC think about if we were to pursue the litigation approach. And I will -- I'll throw this out to anybody on the panel. We can start with Evan.

MR. STARR: I mean, I have a cajillion thoughts on that. So let me just say a few things, I guess. So, you know, in the past few years in terms of the rules and the role of states and standards, you know, we have seen kind of an unprecedented amount of enforcement actions by the state AG's offices, and especially in Illinois and New York.

And when you talk to or you listen to those AGs, many of them open a hotline, and especially the Illinois AG told me that they got an unprecedented number of calls and hits on that hotline about what's going on, and numerous situations where workers were being threatened with noncompetes but they couldn't make it to court. And they've had a number of high-profile investigations.

And so I think that the FTC could do something very similar where you open some of -- a call line just to learn more information. And I think that's a key here, which is that it's 2014 and we're just discovering how prevalent these things are? And I think that that's a tragedy because workers don't know what they get into -- what they're getting into when they get into a job.

And I think that in general there is a lack of transparency and information about the use of all these sorts of provisions. And so I think a combination of clear policies, whether it's the state or the FTC making the policy and public information, along with lines where workers can call and report abuses that can then be investigated, is a natural step forward.

MR. POSNER: Yeah, let me add a couple

thoughts. I think it might make sense -- it would be sensible, as some states have done, to just flatly ban covenants not to compete for lower income workers. Illinois just did that, for example. What I think is interesting, though, is that the lawyers are accustomed to thinking of covenants not to compete from the common law standpoint, and you alluded to that.

I think that Amazon's covenant not to compete certainly would not be enforced in virtually any state. It's absurd. And states tend to be actually pretty strict. You can read a lot of these cases. The judges are pretty tough about forcing the employer to identify the interest and then seeing whether the restrictions are, you know, tailored to that interest.

But nobody -- but common law judges don't look at covenants not to compete from a real antitrust perspective, and as a result, you know, one result, of course, is that there's no real remedy. So a regular worker has very weak incentive to bring a case. The only remedy is that the covenant not to compete is not enforced. You don't get damages or anything like that. And so most workers don't bring these cases in the first place. Only highly paid workers do who have

some, you know, new opportunity.

The other thing, and Evan alluded to this as well, is I don't think people realize how covenants not to noncompete may be used on the product market side. And so there are these cases where a business has kind of tied up all the relevant workers, let's say nurses or doctors or technicians of some sort, people who do have skills. And what that means is that when some other firm tries to enter the market, maybe it's an established firm out of state and it wants to come into this market, it can't hire people.

And the workers themselves may not even be aware that they're constrained in any serious way. You know, they don't know about the not yet existing competitor who hasn't entered into the market. And so they don't object; they don't demand a compensating differential. I think this is actually quite a serious problem. And more so once, you know, we get Evan's data suggesting how -- that these covenants not to compete are ubiquitous. I suspect a lot of firms have realized that these clauses are really an effective way to extend one's market power in product markets.

MR. GAYNOR: I'd just like to actually amplify a little bit what Eric said. So we tend to

think that for low-wage workers, again, we think, yeah, little to nothing by way of efficiencies. But for highly skilled people like, say, doctors, engineers, whatever, we think, well, there may be some real efficiencies, but this is where your point actually comes home.

So a hospital acquires a bunch of physician practices and they make some investments in them. And we say, hey, you know, kind of looks like a noncompete might actually facilitate that. But then those doctors, who are key inputs, are foreclosed from a potential competitor coming in, and that can harm things substantially in a downstream market. And I think that's something that we do need to be thinking more seriously about.

MR. JACOBSON: Yeah, so in terms of whether the FTC should file litigation against noncompetes, it's hard to imagine a case broad enough where the impact on a relevant market would be significant so that you would prevail in Section 1-type case. And the other cases are going to be so narrow that it's not really a huge use of resources. And that's why I suggest a rule.

And, you know, rulemaking is always difficult. Here, you know, a line would have to be

drawn between the lower wage earners for which there's no efficiency in this or very little and the CEOs who are inherently in position of trade secrets that are difficult to protect once the CEO leaves the company. But I do think hearings and a rule from the FTC, albeit it would be challenged in court, I think it would hold up, and I think it would solve these problems without a lot of lost litigations in the meantime.

MR. MOORE: So I'd like to move on to talk about mergers again. So an example of a merger that would substantially lessen competition among employers as buyers in labor markets is the merger of the only two hospitals in a particular geographic area. This is an area where the FTC is quite active on the output side. One relevant policy issue for our purposes is how to handle mergers that have labor market effects but do not also have output market effects.

So the question is, what do you think is the incidence of such mergers? And do you have any examples of mergers that might present such a narrow labor market question? We spoke a little bit about this in the first panel, but I'm wondering if any of you can think of any questions. And I'll throw that out to the panel.

MR. GAYNOR: Yeah, so I think that -- as I said in my remarks, I don't think we know the extent of those things, and I think that's actually an important thing that the agencies should strongly consider doing, is trying to inform themselves better about how extensive those things are. But, so, a classic example of a product market merger that would not create concerns on the sell side but create concerns on the buy side, let's say you have two coal mines -- independent coal mines in a relatively small town in West Virginia, pretty close to where I live. And the coal is sold in a global market. So there's no sale-side concerns with that merger, but there very well may be substantial impacts on the labor market. And that is a classic example.

There also could be similar kinds of things where there's not a substantial product market overlap on the sale side. Let's say nursing homes or long-term care facilities and hospitals or doctor's offices. If a nursing home merges with a hospital, you'd look at it carefully, but it doesn't seem to me terribly likely you see a lot of overlap on the product market side, and that probably would not likely raise concerns, but there very well may be real impacts on the labor market side.

MR. POSNER: I can think of a couple real-world examples. One would be there was a wave of mergers involving chicken processing, meat processing companies a number of years ago. These plants are typically in rural areas where the labor markets are thin. That would -- those would be a good example. I mean, it was a while ago.

One that was somewhat more recently because I've been looking for these myself, there were two oil companies that merged. BP was one of them and then, I guess, some smaller oil company. And they -- and then you might think this is complicated, but they had operations in the Gulf. Was that a labor market that may have been consolidated as a result of the merger? So those are a couple possible examples.

MS. HESSE: I'll just say, I'm confident that you could come up with an example of a merger where you have harm in a labor market but not in a product market. I do think, and I will just reiterate what I said before, that this -- if you begin to think about transactions from that perspective, I think people need to step back before they start doing that and really reassess how we are thinking about merger enforcement and what we are thinking about consolidation and how

we measure harmful consolidation.

Because I think if you're -- in order to find harm in those markets is actionable, you do have to revisit whether the kind of classic Chicago School way of looking at transactions is the right way to do it, because I think you're going to find that in many of those situations, what the argument is on the buy side, I guess it is, is that this is making the company more efficient and, in your coal example, able to compete better in a global coal market.

And I'm not taking a position on whether that’s a good or bad thing, but I do think you have to recognize that that will be a change in how people are thinking about transactions, and it will be a step away from the Chicago School.

MR. MOORE: So we are limited in the amount of time that we have. I'd like to do some rapid-fire policy questions and just run down the line. So the first question, the FTC operates in a world of budget constraints. So let's stipulate that in the near term those budget constraints are fixed so we're not getting any more money. And we can also stipulate that the agency spends a much higher percentage of its competition-oriented budget on addressing concerns in output markets and not on addressing concerns in labor

markets.

Given what we've heard this morning and what we've been discussing on this panel, if you were in charge of allocating resources at the FTC. Would you divert resources from the output side to the labor side by a little, by a lot, by none at all and why? So let's start with Marty.

MR. GAYNOR: So I think as I indicated in my remarks, I would find some targeted places to make some investments in generating more knowledge and then proceed from there. So I'd start with a little but in a very targeted way and think of these as investments.

MS. HESSE: So I'll give the classic lawyer answer, which is it depends. And I think part of what it depends on is what else is going on at the agency and where the other resources would be deployed. I certainly think diverting a little bit of resources to these issues and thinking harder about them and trying to understand better about how to take enforcement actions if they're warranted is worth it.

But I know from my time at the Antitrust Division there were many, many, many very challenging, very significant output market consolidations going on that required a lot of resources, and there weren't many to spare to look at some of these other issues.

MR. JACOBSON: Yeah, so as I said, I would spend the money on rulemaking. I think a retrospective or two focused on labor markets would be good bang for the buck as well.

MR. POSNER: I would divert substantial resources, as I was arguing earlier, to labor market anticompetitive behavior, product market anticompetitive behavior, they're just, you know, substitutes for the firm. And so just think of, like, the police force trying to catch drunk drivers. You know, if you've got all of your resources on Highway 1 and Highway 2 goes the same place, your drivers are just going to take Highway 2.

What you have to do is you put some resources on Highway 1 and some resources on Highway 2, and I think the same thing has to be done here.

MR. GAYNOR: If I could convince Congress that the FTC does not need to continually monitor gasoline markets, then I think that would free up some resources that could be better spent in a lot of other ways, this among them.

MR. STARR: I definitely think that a moderate amount of resources should be spent on understanding more about labor markets, and in particular I feel like it would be straightforward to

develop some screeners that would indicate at least the use of these nonpoaching agreements, noncompete agreements, and understanding what's happening at the -- within those firms that are merging. That seems like pretty low-cost and easy to do. And, yeah.

MR. MOORE: So the second question is going to relax one of stipulations from the first question. And let's suppose that Congress has appropriated funds to the FTC earmarked specifically for addressing concerns about monopsony power in labor markets. And this is on top of the budget that we already have.

So you have a pile of money to spend on addressing labor market issues. How do you spend that pile of money? What -- Marty mentioned some of this in his opening talk, but what are the first places or where are the first places that you'll go to address concerns about monopsony in labor markets?

MR. GAYNOR: So I'll just reiterate what I said, go after the stuff that's obviously bad and do it now and don't let it sit. Think about crafting rules on noncompetes as have been discussed, and put some resources into really understanding better what happens on the merger side where I think that it's potentially highly important and significant, but we have a pretty big gap in knowledge.

MS. HESSE: I think I would invest the resources in doing a more broad-scale investigation of the question of whether or not you can correlate growing concentration to wage inequality and wage stagnation. I think if we could actually find studies that people won't always agree on everything, but where, you know, there was some sense amongst a core group of smart antitrust economists and lawyers that there was really a correlation between those two things, that would go a long way.

MR. JACOBSON: Of course, there was such a correlation with the FCP paradigm back in the ‘60s and look where they got us, but -- so I'd spend the same money on retrospectives and rulemaking. Sorry to be simple.

MR. MOORE: Okay.

MR. POSNER: I would spend it on merger analysis. I think one way to think about this is that there's been an immense amount of consolidation in this country going back decades with the FTC and the DOJ looking at the product market. I think probably a lot of what was going on is they were saying, well, there's a national market, there’s an international market, this is fine, we can let these mergers go through.

And all through these mergers, they ignored the labor market effects, which are local and regional and were probably -- I mean, we don't know, but could very well have been very big. So I think there's a big, you know, chunk of missing social welfare and the Government has to catch up.

MR. STARR: I agree with Eric on the merger review, and in particular I think that resources should be spent on understanding actual concentration for workers, and in particular because labor markets are two-sided markets. And I think that poses some unique matching difficulties that search costs are really high, and I don't know if we have a good way to generalize that across studies, and I feel like it would be valuable to put some resources there.

MR. MOORE: Any last comments in the 35 seconds that we have before lunch?

MR. MOORE: So I totally agree that I think understanding what happens is important, and I think more research is. I would not do -- spend more time on looking at concentration. For reasons given on the previous panel and actually on other sessions here, I don't think that's a productive activity. I don't think that's going to yield useful research evidence, but I do think that we need to do more about this and

we think when you do this and focus studies on specific markets analogous to the study that was mentioned about the effect of hospital mergers on certain nursing markets, that's where I think the effort should go.

MR. MOORE: So please join me in thanking all of the panelists.

(Applause.)

MR. MOORE: And now we have a lunch break.

(Panel 2 concluded.)

PANEL 3: WHAT CAN U.S. v. MICROSOFT TEACH ABOUT ANTITRUST AND MULTI-SIDED PLATFORMS

MR. ADKINSON: Thank you for coming to today's session. If you could take your seats, please. My name is Bill Adkinson. I'm an attorney advisor in the Office of Policy Planning at the Federal Trade Commission. It's my pleasure and privilege to introduce the panel on What can U.S. against Microsoft Teach about Antitrust and Two-sided Platforms.

We will have people collecting cards. If you have questions you want the panelists to consider, please write them out on the cards and pass them to the folks in the aisle who are collecting them.

So 20 years ago this past May, the Department of Justice brought its seminal antitrust case against Microsoft, which culminated in a 2001 opinion by the DC Circuit and a subsequent consent decree. The case was groundbreaking in many respects. It was the prototype for applying antitrust in dynamic innovation-intensive industries. It raised challenges regarding how antitrust can protect competition and promote incentives for innovation both by dominant platforms and edge players in the tech sector.

Of particular relevance to these hearings, Microsoft's dominant position was the product of indirect network effects. The Windows operating system was a two-sided platform serving applications, developers, and computer users. However, the economic literature on the network effects was in its infancy, as David Evans reported yesterday. Similar antitrust issues are currently arising in the context of a new set of tech-sector platforms, such as Facebook, Google, Amazon, and Apple.

As we heard during yesterday's panels, these platforms also post challenges in applying antitrust in dynamic, rapidly changing industries. Enforcers and courts strive to protect innovation incentives of both platforms and platform participants and evaluate conduct by two-sided platforms and the impact of network effects.

This afternoon's extraordinarily distinguished panel will discuss how the benefit of greater economic learning and hindsight can help us better understand aspects of the Microsoft case and, more importantly, how the experience and understanding from the Microsoft case can inform and guide proper antitrust enforcement in this area today.

The panelists will each give opening

statements of approximately five minutes each. They are, starting from my right, Professor Daniel Rubinfeld, New York University School of Law and University of California at Berkeley School of Law; Professor Douglas Melamed, Stanford University School of Law; Susan Creighton, a partner at Wilson Sonsini Goodrich & Rosati; Professor Randy Picker, University of Chicago Law School; Leah Brannon, a partner at Cleary Gottlieb Steen & Hamilton; and Professor Timothy Wu, Columbia University Law School.

Dan?

MR. RUBINFELD: Thanks very much, Bill, appreciate the introduction. During the time of the Microsoft case, I was the deputy at the Department of Justice in charge of economics, and I spent a good deal of my time, along with a lot of help from a team of lawyers and economists, thinking about the Microsoft case. And I want to try to describe a couple of important elements that I think are worth reviewing.

First, of course, we were not talking about the world of two-sided markets in those days. We were talking about platform competition, however. The Microsoft case is about a two-sided market. There are customers both on the side of users of the Office

suite and users of the operating system, as well as developers for apps. But the two-sided market doesn't have anything like the characteristics of the two-sided market we see with transactions because there aren't single transactions that affect both sides of the markets at the same time. There are network effects, there are externalities, and there's a kind of feedback loop, but it's not one that has any direct impact.

And as I will explain, what I think is important, you'll see that nothing I'm going to say depends on the fact there is or there is not a characterization of a two-sided market. I think that's largely a misleading characterization for purposes of looking at the Microsoft case.

What was important to me was network effects. And at the time that I was doing work on this case, along with the staff, there was a significant literature in the economics world on network effects. People like my colleagues Carl Shapiro, Mike Katz, Stanford's Garth Saloner, NYU's Nick Economides, and a lot of other people were writing about network effects, but it was new and it was controversial.

That was an important point to develop, and

network effects turned out to be an important part of the case. They helped to describe the way in which Microsoft maintained its market power and its operating system. And it was in a way the key to the case. And it was the key to the case because the Government believed and developed the argument that network effects could generate substantial monopoly power and could lead and support practices that would allow Microsoft to maintain its market power and monopoly power in the operating system market.

So the key to the case was to develop network effects. And the other thing that was important and essential was to show how network effects drove the important barrier to entry. And the barrier to entry, as most of you would know, was that in order to compete in the operating system market, you had to actually have useful important applications, so entry really occurred in two steps. You had to generate an application and an operating system.

And that application's barrier to entry became the term that was the norm of the case for us. As far as I know, it was a term never used before the case was filed, and I can tell you by the end of the trial, Microsoft, as well as the Government, was using

the term every day in the trial. And I think that was really a significant part of the case.

There was a platform argument made in the case, and it is true, I think, that the operating system and the apps upon it can be described as a platform. But the two-sided nature is really not important. What was important was that the platform really supported this monopoly power. Interestingly enough to me, the issues about platforms that came up during the case were issues -- relevant issues as to whether this market power, substantial market power, really was sustainable and significant. And the argument was raised by Microsoft in the case that that monopoly power could be overcome. There would be competition for the market that would be powerful.

But what's striking to me, and it turned out to be important in the case as the facts developed, was that it was very hard for Microsoft to specify what that competition was. And for me, one of the really striking exhibits in the case was a Microsoft exhibit saying we face substantial competition from known and unknown sources. And my view is when you have to rely on unknown, unnameable sources to defeat monopoly power, you really have a weak case. And that really struck the tone for me. And I will stop and

pass to Doug.

MR. MELAMED: I'm going to focus on what I think of as the legal implications of the case. The theory was conventional and straightforward -- well, it wasn't conventional in the sense that Section 2 had been pretty moribund at that point, but it was conventional in the sense that it was entirely consistent with longstanding Section 2 principles.

The theory was basically this. Microsoft had monopoly power in operating systems -- PC operating systems. That monopoly power was protected by substantial entry barriers, specifically the indirect network effects and the so-called applications barrier to entry. The point is you need lots of applications in order to have people buy your operating system. You won't have applications until lots of people buy -- have already bought the operating system in particular, a problem that was an entry barrier.

Okay, Microsoft, therefore, has a monopoly protected by entry barriers and it engaged in conduct that increased the entry barriers compared to the but-for world. The important point here, the premise of the Government's case was not that the entry barrier was impregnable, not that Microsoft would have a

monopoly forever rather that it had -- there were entry barriers, and it was a question of raising the entry barriers compared to the rest of the world.

Okay, how did Microsoft raise the entry barriers? With Netscape and Java which were two uniquely important potential platforms, application platforms and thus potential facilitators of new operating system entry. The conduct was the kind of conduct that would pass any ordinary test for anticompetitive conduct under the antitrust laws, and it was to serve no efficiency enhancement purpose at all. There are one or two footnotes I'm not going to bother with, and thus the conduct made no sense except as a device to increase entry barriers. Plaintiff wins. Perfectly straightforward.

So what was the controversy about other than the sort of importance of going after this exciting new company and the world's youngest $40 billion person and so forth? And I think it was because the case entailed the application of these very traditional principles in a very new context that had not previously been the subject of antitrust scrutiny. So there was the issue of network effects, as Dan said, widely discussed among some economists in the

literature, hotly contested in the litigation and in the public controversy about it.

People actually wrote articles taking issue with the story -- one of the fables about that that was used to tell the story of network effects was the qwerty typewriter keyboard. The notion was it was really inefficient and it was just first mover advantage that the original developer of the keyboard that was developed for a very different purpose game. And there were people who went in and said, well, that's not true, that’s really not the story of the keyboard, as if that had anything to do with the vitality and importance of the theory.

So that was contested and now it’s a part of everybody's everyday vocabulary. The notion that antitrust laws maybe shouldn't apply to dynamic, high-tech industries -- Schumpeterian competition, winner take all. Hotly contested. The court resolved that and now we don't argue about that.

Is intellectual property a trump card because they are protecting their intellectual property rights? Well, the DC Circuit said that boarded on the frivolous so people don’t make those arguments anymore. Product design, part of -- an important part of the case was the court's finding

that a critical part of the design of the operating system, mainly the commingling of operating system and browser code, was anticompetitive. There had been a tremendous argument in some precursors in the law suggesting that product design is sort of safe harbor from an antitrust point of view -- points of view.

The most important significance, I think, of the case beyond the specific findings of that type are basically this. The court analyzed the facts at a very fine level of granularity. It did not say this is a case about product design; this is a case about intellectual property. This is a case about putting the -- having the browser packaged with the operating system. It got down to very fine details. It had to do with moving the browser from the add/remove utility, thus making it harder for OEMs to distribute other person's browsers. At that level of granularity.

It is about principles rather than rules. And every point that a party argued that there was a rule of thumb that should decide the case, whether it was the Government arguing for a per se tying rule in one of its theories or defendants arguing exclusive dealing can't be regarded as anticompetitive unless it

entails a 30 or 40 percent foreclosure, the court said, no, we are not interested in legal rules like that, in effect.

A key sentence in the opinion, which I happened to read over the weekend when I was preparing for this, is the following. The court said in this quote, “It is difficult to formulate categorical antitrust rules absent a particularized analysis of a given market,” a caution that I wish the Supreme Court in the AmEx case had borne in mind.

Okay, just two other things and I’ll end quickly. Causation. Hugely important causation theory. It’s interesting that Dan said the unknown, it was a kind of a laughable position for Microsoft to point to. But a lot of people used that very argument against the Government and said what's your story? What difference would it have made? It's all speculation, doing in Netscape, this is just theorizing. Why do we think it's actually going to matter?

And the Government, of course, didn't have the answer because one never knows what innovations would take place in the but-for world. But the Government’s theory was quite different than that. It was that by eliminating these potential facilitators

of new entry, they were raising the entry barriers and in a probabilistic sense, reducing the likelihood of new competition.

It was a theory available only in a monopoly maintenance case, it wouldn't suffice in a creation of monopoly case. And it was a theory that by its very terms embraced and depended on concepts of Schumpeterian competition.

So the big lesson in my view from the Microsoft case. It's not about its particular holdings. It is about the proposition that I -- we were all taught the first day of law school right? It's all about the facts. The antitrust principles were proven to be robust in that case in part because the court didn't get hung up on last year's rule of thumb developing a different factual context for different problems, and rather applied the principles to a careful analysis of the facts.

MR. ADKINSON: Thanks Doug. And I neglected to ask the panelists to remove the microphone so they can speak directly into it, please. Thank you.

MS. CREIGHTON: So my name is Susan Creighton. I wanted to thank the FTC for the privilege of getting to appear on this panel today. So unlike Dan and Doug, who are kind of authoritative

about what does the Microsoft case mean and they were critical in formulating the case, I was only -- I was involved in the case in sort of the input phase. I was representing Netscape, which was one of the complainants at the time.

So in five minutes, it's hard to cover all the things that the Department got right. Doug and Dan have mentioned some of them. Some of the points I was going to highlight overlap with some of the points they did make, but Doug and I did not actually coordinate but I wanted -- the meta thing I thought that you guys got most right and drives a lot of the rest of the analysis is clearly the Department took the time to actually look at what the evidence was showing regarding the nature of competition in the operating system market.

And what it showed, I think, was that while browsers were a complement to Windows for users, they were a potential threat to Windows for application developers. So the browser was a potential competitor as an applications platform. And then trying to -- rather than take that simple fact pattern and then try to jam it into some preexisting set of boxes like leveraging, the Department actually followed the evidence where it led and reached a number of

conclusions that I think have remained foundational for how we should think about platforms 20 years later.

Let me highlight just four. First, DOJ recognized the products that may have the potential to compete even if they don't look like each other. I think that's really important because even to this day, regulators can find it a challenge to recognize the company as maybe actual or potential competitors even if they look different or if in some respects they are complements. That tendency to narrow the set of competitors only to those that just look the same can result in under-enforcement, or over-enforcement, Microsoft itself being a great example of how if you had just looked at saying do browsers compete with operating systems, the answer is obviously no, end of case.

Second, as both Dan and Doug, I think, have mentioned, the Department recognized that the key to the operating system competition was the indirect network effects between users and app developers so the OEMs and ISPs were important distribution channels, but the key dynamic by which operating system platforms competed was by the number of applications written for OS, which in turn depended on

attracting users on one side and app developers on the other.

The third feature I think that was really critical was that they focused on platform competition as a horizontal rather than vertical problem. So internet browsers were a threat not because they were a profitable complement. They were very simple pieces of software that eventually everyone gave away for free. Rather, Microsoft itself recognized the browsers in Java threatened to make it much easier for app developers to write across platforms than having to engage in the cumbersome ports from one OS to another that were characteristic then.

And that multiplatform access in turn would make it much easier for users to switch devices and thus operating systems. Think about how much easier it is to switch devices, for example, if you're streaming music rather than trying to port your music downloads from one device to another.

Finally, the DOJ recognized the platforms were dynamic, as Doug mentioned, so they needed to understand which business practices were problematic without chilling those that were not. In the process, they advocated for a test that asked whether Microsoft's conduct would make business sense but for

its tendency to exclude rivals. Although I'm not sure that this test is always and everywhere the best one, it works well in distinguishing between procompetitive innovation and anticompetitive conduct when dealing with dynamic innovative markets.

It thus enabled the Government and ultimately the court to distinguish, for example, between bundling IE with Windows at no charge, which was permissible, versus implementing restrictions that had no possible benefit to any platform participant and served only to make it difficult to load rival software on the machine and hence for users to multihome.

Now, the court did not agree with the department on all things, but the department's analysis laid the basis for it to be affirmed on all of its key points. First, the court didn't adopt the Department's no-business-sense test, but it did strike down product design changes that served no legitimate purpose, and which Microsoft did not show a plausible competitive justification.

On the other hand it permitted those for which Microsoft did offer a legitimate benefit. The court took the Department one better in its horizontal analysis by rejecting a Section 1 tying approach to

product integration given the ubiquity of bundling on software platforms and the plausible procompetitive benefits of such integration.

And, finally, the court affirmed the department's key insights regarding the nature of OS platform competition for users and developers and a threat to cross-platform switching posed to Microsoft's market power. Thank you.

MR. PICKER: Hi, thank you. Thanks for having me here. I'm Randy Picker, a professor at the Chicago Law School. So I'll note as everyone, I would assume, saw that Paul Allen died yesterday. The Microsoft story is a great story, and Paul Allen was so central to it, so I'm sorry to see him gone.

When I teach the Microsoft case in my antitrust class, I start with the Internet Tidal Wave memo, which is the memo -- it was Government Exhibit 20 in the case. It's really Gates at his best in the sense that he is looking forward in the industry, seeing where it is right now and where he thinks it's going to go. And I think he makes two critical points there.

So I thought what Dan said about, you know, we don't need to talk about two-sided markets. That may be fine. Gates obviously understood powerfully

the interaction between what was going on on the developer side and what that meant for the consumer side. So his first point is he says, look, Netscape's got a 70 percent usage share and what they are doing is, as he puts it, is they are moving Key API, the application's programming interface, into this middleware layer, and the great risk to Microsoft there is is that that will commoditize -- his word -- the underlying operating system, and no one will care what operating system they're using.

The question I always ask in class is what brand of plumbing do you have in your house? Not faucets, we Americans have a peculiar fascination with faucets. I mean actually the plumbing, and no one ever knows. It's not that plumbing's unimportant, right, but it's a commodity, okay. So Gates saw that Netscape posed this risk of changing where competition was taking place with regard to developers and the way in which this browser, sort of this adjacent market, was going to maybe then or in future generations going to directly compete with Microsoft in the OS market. That's the story the Government told.

I think that was exactly the right story but that's what Gates saw as well. The second thing he says is, and this is where Dan talks about these

unknowns, Gates says, oh, some people are talking about this really frightening -- that's his word -- possibility where someone will come up with a kind of device that you can use to browse the internet, and it will be a lot cheaper than a PC, and you won't need the Microsoft operating system. It is really hard to imagine what that world might look like, right, so other than today, right?

So Gates understood exactly what was going to happen and saw that and the threat that that posed. It's not that I think -- I don't know what Microsoft's current market share is on PCs, I suspect it's pretty high still. What's happened to Microsoft is not that somehow their position has been lost in PCs, but rather this whole other world of computing devices has exploded and the PC is just, you know, a piece of it but not the dominant position it was.

So Gates saw all that and responded to Netscape in a powerful way because of that. The Government's case, I mean, we've talked about the success of it. I want to hear more about some of the failures. So there was an attempted monopolization claim of the browser market, that died. How we think about what an incumbent -- a dominant incumbent does with regard to new adjacent markets, I think that's a

really important platform issue, and the attempted monopolization claim was in that spirit.

So I'd love to hear more from -- what did you say they were, that they were the definitive sources -- on that. And then obviously the tying claim, which again relates to this question of to what extent are we going to constrain an incumbent into moving into these adjacent markets. That issue dropped on remand, and I thought that was exactly the right strategic choice, but from a standpoint of knowing what the law is, that remains a little frustrating.

I think the question we should ask today is now with the benefit of all this development of two-sided markets is to ask, well, if we bring that analysis to bear on the Microsoft case, do we get any different insights into the behavior that we saw there, right? So when you teach two-sided markets in class, I have this very simple sort of example of why pricing below marginal cost might be very sensible in two-sided markets. We don't usually allow that in one-sided markets. You build it up, and what you're trying to convey to students is, is that you can’t just apply your single-market intuitions to two-sided markets. You’ve got to be more sophisticated.

So go back and ask the questions. If we look at what Microsoft did through a two-sided market lens, does it look any different? I think the answer to that is sort of no. I thought what Doug said was right, which is the granularity with which the case was presented and which the DC Circuit found compelling, I talk about add/remove in class, too, you know, the commingling of code, the embedding of the IE icon.

Microsoft didn't offer a procompetitive justification for any of those. And I think even in a world of two-sided markets it would struggle to do that now. Oh, I'm out of time, so I should stop.

I do think, you know, the bolder story would be to argue if you're Microsoft back then as to why fragmentation in these markets would be bad, that's what Google has tried to do unsuccessfully in Android. And I think if you made those arguments in a two-sided market maybe you'd be able to try to bolster their position. I think ultimately those are losers, but that's the direction I would want to go, I think.

But I do think it's interesting to relook at what they did, ask what could they have done had they simply tied and not engaged in all these other silly behaviors, what would the case have looked like and

how would we see that through a two-sided framework.

MS. BRANNON: Hi, I'm Leah Brannon. I want to thank Bill and the FTC for inviting me to join on this panel. At the time of the case, I clerked for Judge Ginsburg on the DC Circuit. So I'm really excited that we're talking about the case 17 years later, that it's held up pretty well over time. It's been cited -- I checked in Westlaw the other day -- it's been cited more than 1,500 times in cases and law review articles, including twice by the Supreme Court in Trinko and linkLine, more than 100 times by the Federal Courts of Appeals, around 300 times by the District Courts, and 1,200 law review articles. So it's been cited many times. I like to think that's because it was groundbreaking, but it's probably also because it was just a really long opinion and it covered a lot of topics.

So as you probably all know, the opinion touched on monopoly power, the standard for monopolization, licensing restrictions as an active monopolization, predatory product design, exclusive dealing, deception, attempted monopolization, tying, course of conduct, causation, and that's just the antitrust discussion. It actually gets cited -- a lot of those citations are for the judicial misconduct

section, which was an odd sideshow part of the case.

I think, you know, my opinion is that one of the most important contributions of the case was the court's decision to apply the rule of reason, just the basic rule of reason, to monopolization claims. There were other standards. I think Susan touched on this, and Doug. There were other standards floating around at the time. Even in connection with Microsoft, a couple of years earlier, Judge Williams in the consent decree case, had written an opinion basically indicating that if the defendant has any procompetitive effect for its conduct, no matter how small, that immunizes all of its conduct. That was one possible standard.

There was also the test the Government was pushing that Susan called the business sense, you know, does something -- does conduct make no economic sense but for a tendency to monopolize. So there were a lot of other standards, and the court adopted and applied the rule of reason. So I'll turn it over to Tim.

MR. WU: Thank you very much. Tim Wu, and I want to thank Bill and also the FTC. It's a pleasure to be here. My involvement in the actual Microsoft case was somewhat tangential. I was a research

assistant for Larry Lessig right when he became the special master and then later was a clerk for Dick Posner, right about when he -- so if anyone remembers the strange chapter when all these guys got involved, but, of course, that all amounted to nothing and so that was that.

I have studied -- actually maybe more important is I was working in Silicon Valley when the decision came down. And that's what I think is -- and felt some of the after-effects. And that's what I want to focus on in my comments here. I think -- you know, I think there are many lessons from Microsoft. But I think it teaches us something very important about enforcement policy in particular. And the -- essentially the courage and the determination and the -- as was already described, the great care with which the Government brought its case is I think an important model for the agency, for FTC, for the Justice Department, for anyone who is serious about enforcement of the antitrust laws.

You know, to make the point obvious, the antitrust laws don't have any effect unless they're enforced, and they go through periods of great quiet and calm when enforcement doesn't happen. You know, in the very beginning of the law's passage, it wasn't

seriously enforced for almost a decade. And so it always takes, you know, a certain, I'd say, courage to bring these cases.

I think it's worth remembering that the Microsoft case, I happen to think it was antitrust at one of its finest hours, maybe along with AT&T, and I think other people have said that. But at the time, there was enormous resistance to the idea of bringing this case. Doug already highlighted some of the reasons. People said it's a new and dynamic industry, you know, someone else will come along and swallow Microsoft in ten minutes.

There was also -- and I want to emphasize this -- no really clear price effects for what they were doing. Explorer was being given away for free. You know, Microsoft was like a charity, giving this new product to everybody. You know, so why would anyone argue with that? Bill Gates was kind of a darling at the time, a symbol of American entrepreneurship. And so it required sailing into the headwinds to some degree to bring this case.

And I think that was an act of courage, and I think the lesson for today's enforcers is that they need to have the courage and also have the -- let me make three particular points about this -- have the

courage to take cases in these kind of situations. So here are the three things I think are particularly important.

One is the fact that Microsoft was brought without clear, at least as far as I know, clear evidence of price effects. So, you know, it wasn't obvious that the campaign against Netscape was actually inflating prices to consumers. And, therefore, the case was brought -- you know, had to be brought in this more complex theory that, in fact, that it was affecting competition for the platform and was monopoly maintenance.

And, so, you know, that took a certain -- I think we've in subsequent years sometimes been too nervous, unwilling to bring cases when we don't have a clear price effect, and it's worth going back to Microsoft to notice, even if the product is given away for free, that doesn't necessarily tell us the whole story.

Second and related to that is the observation -- and everyone knows this -- is that the greatest benefits for successful antitrust enforcement have to did with dynamic benefits with innovation effects, for example. And that means the beneficiaries may be unknown, in fact, and not

obvious. This is my second point. So when you look at the aftermath of Microsoft -- actually it didn't really help out Netscape very well. Netscape plunged in market share, Explorer did, in fact, gain a monopoly. It was at something like 95 percent in 2002 or so. So, you know, it wasn't -- I mean, Netscape became Mozilla and so forth, but it didn't actually save that company.

The real beneficiaries at the time when you look back were the companies that were beginning and starting to make -- to view the web as a development platform to try to make their fortunes on top of the HTML protocol and on the internet. In other words, the great beneficiaries are really Google, Facebook, Amazon, and some other companies who might have been in a very different situation with an unpoliced browser.

And I think -- you know, I don't think, maybe -- I think people were thinking about that in abstract terms, but Google was a college project when the -- or grad school project when the case was begun. So it was impossible to realize some of the value that might be created but required the sort of faith and not just faith but some ability to realize that the dynamic benefits might be lost.

I realize I'm out of time, so I'll just say my third point. The last lesson, I think, for enforcers or, frankly, innovation policy from Microsoft, I think, is taking a careful effect -- a careful look at the effect of what I call the policeman at the elbow for the conduct of a monopolist. Many people have noticed, sometimes said, well, you know, no one -- they didn't break up Microsoft. It kept a monopoly.

But one of the most -- I really think the most important effects, as I've suggested, was the fact that Microsoft after the suit was chastened and operated with a policeman at the elbow and therefore never did some of the most obvious moves they could have on an unregulated browser, such as making sure, for example, that their search engine was a default and was impossible to remove or any of the other things you might have done with a completely unsupervised browser.

So I've used up my five minutes but those were some of the things I thought.

MR. ADKINSON: I want to thank the panelists for keeping it on time. That was a great job. I also want to thank my colleague, Derek Moore, for having thought of this topic for a panel. He deserves a lot

of credit for that.

I'm going to set various groups of questions and in the hope that I'll elicit responses. The first set will broadly cover issues surrounding liability under Section 2, exclusionary conduct, incentives to innovate, and harm to competition.

The Microsoft court identified the application's barrier to entry as the central source of Microsoft's market power. And the Government asserted that Microsoft illegally maintained the operating system monopoly by protecting this barrier from nascent competition from the Netscape browser. Among other things, the Government alleged that Microsoft undermined the competitive threat posed by Netscape by technologically tying its browser to Windows and by placing restrictions on distribution of competing browsers.

The Court of Appeals upheld the District Court's finding that Microsoft's conduct illegally maintained its Windows monopoly, while noting the difficulty of assessing the extent to which that monopoly would have been eroded absent Microsoft's exclusionary conduct. The Government also claimed that this conduct constituted an illegal attempt to monopolize the browser marker, but the Court of

Appeals overturned the District Court's finding of such a violation.

And with that background, let's first talk about innovation incentives. How important to the Government's case were concerns that Microsoft's exclusionary conduct, particularly towards browsers, would reduce incentives by small industry players to innovate? What light does Microsoft shed on the current concerns that incentives to innovate at the edge are undermined by fears that a dominant platform can use its position to discriminate against or otherwise exclude competitors in related markets?

And, Dan and Tim, you can start us off please.

MR. RUBINFELD: Sure, thanks. It's a great question. So, for me, the characterization of the case as an innovation case would be accurate. What motivated me and I believe the decision to bring the case was the concern that absent some of the practices that we've been talking about, there would have been a substantial innovation. But as Doug pointed out, it's very hard to say exactly what the future will be in a highly rapidly changing world.

So the innovation case was pushed through by talking really in an ex ante point of view about the

likelihood or probabilities of various things occurring. And for me -- for me, the story we would tell about innovation was to say suppose we're in a world where Java was successful, Java carried by -- Java software carried by Netscape and maybe other browsers at a different point in time -- would allow competitors to compete, both by finding alternative operating systems that were not Windows-based and the apps to support it.

Now, why is this harmful to innovation? Well, we know from an economics point of view that if you've got a large installed base it makes good sense when you're innovating to innovate to protect that installed base. And the installed base was generating billions of dollars of revenue for Microsoft and it was pretty clear that much of the innovation was directed in that direction. So it's not that Microsoft wasn't innovating and, in fact, continued to improve Internet Explorer during the period we were looking at, but the innovations were directed to protect rather than to grow and take on these new unknown sources that I talked about earlier. And that is a problem.

Now, the reason why the problem for me became really striking was that during the

investigation period, at the behest of my boss, Joel Klein, I made a number of trips, mostly to Silicon Valley, in which I both publicly gave rather innocuous speeches and privately met secretly with many of the players in the market. And during those secret meetings, which were spy-like, by the way, I had to travel incognito and meet in hotels and things of that sort, I never thought when I went to DOJ that I would be going through that process.

But what was striking about the meetings was not that everything I heard was true. There were many claims that I decided and we decided were invalid. But what was striking was that they were secret. The firms that thought they wanted to enter into the market to compete with some of the products, either direct products that Microsoft generated or ones that they might be in markets where they would be competing, those firms were afraid to publicly even talk about their concern.

I think there's a strong indication -- to me, there was to me, that the fact that firms that were likely to be entering, small innovative companies, were afraid to talk and, B, were likely to move their innovations in different directions suggested there was a strong problem. And many of

those firms later, with a little pulling and tugging, testified at the trial. But I can tell you it took a long effort to get those witnesses to become public. And, for me, that served as a strong motivation to try to develop the argument that, ex ante, there was a strong probability that many of these firms would be innovating and we would see a different world had we not acted.

MR. WU: Well, it turned out you were right, I think. And, you know, I think what we learn about the -- from the case particularly in this area is how sensitive, and I think that the methods to go and interview people are a good one of understanding the process of innovation on platforms and the effects -- and the particular techniques of exclusion that you tend to see on platforms. You know, I'm interested in the history of major platforms -- major tech platforms.

And when you look at the history of Microsoft a little bit over a longer period, you see they had sort of developed a pattern, which is to say that they, you know, sought to control the platform. Bill Gates, I think, did have the genius that Randy described. He had this incredible ability to see the future and the ambition to want to control it.

So he, you know, always sought -- since the early dealings with IBM, saw the platform as all-important and invited the developers to the platform, but then had the pattern of then copying the most successful of the -- copying the most successful of those who developed on their platform and then one way or another ensuring that the Microsoft version of it won.

Now, that wasn't what the Microsoft case ended up being based upon. And I'm not talking about the antitrust theory, but I am talking about the industry effects. So after a while, the industry, I believe, began to think of Windows as a place where you were invited for dinner and ended up being dinner. You know, it wasn't a safe place to innovate and which is why everybody was jumping over to the web as an opportunity to develop freely without Microsoft interference.

And so then you had this -- you know, whether -- I think the Justice Department did realize it, but there's this crucial moment where Microsoft might have just repeated the pattern which it had repeated on several occasions, gain control of the major platform, which by then would be the browser, and use that control to see which -- first of all,

understand which applications were the most successful and then copy them and make sure it became dominant, in which case, we'd have a future where, you know, Bing would operate the general search engine, maybe there'd be some version of Facebook browser, but it would all be Microsoft all the way through.

And I submit that would be a less -- that would have been worse for the environment and worse for innovation. So I only bring this up to say that maybe, and since this is the hearing, we're talking about ongoing cases, that's a pattern that we should pay attention to and look for. You know, are there currently firms that are trying to control, you know, a major platform, that major platform, and are they taking some of the Microsoft-like moves to try to make -- to open themselves up and then -- to open up the platform but then ensure that they control the most valuable sources of profit on that platform.

MR. ADKINSON: Susan, did you want to say --

MS. CREIGHTON: Yeah, sure. Thank you. So just on the anonymity point, Dan, you brought to mind that I actually in connection with the first Microsoft case, the one that led to the consent order, ended up filing a brief on behalf of three anonymous amici, which I think is -- one would have to look at whether

or not there's ever been anonymous commenters to a Tunney Act proceeding before or after. It seemed very amusing to everybody in DC; was not so funny to people in Silicon Valley.

And having represented companies down in Silicon Valley for about 30 years, my general experience has been that if people are lining up around the door to complain about you, you're probably not the ones you want to worry about. It's the people putting their bags over their heads that are the scarier ones.

I did want to pick up on a point, Bill, that was, I thought, implicit in your question, which was I don't actually think -- maybe the Department was, but I don't think the court was concerned about intraplatform competition, per se. You mentioned edge competitors, if that was what you were referring to. Or at least it seemed to me that what the court was really focused on was preserving interplatform competition, the horizontal point I made earlier, in the notion that what would preserve competition on top of the platform was that kind of interplatform competition.

And I think that's certainly what we see today if you consider, you know, sort of for those of

you who were here when Catherine Tucker spoke yesterday, she was talking about the competition between Uber and Lyft, for example. That's the competition that's taking place on top of the platforms, and you see intense competition on both the driver side and the user side, which she had pointed out, and that intense competition, in turn, is facilitated by the fact that it's so easy to switch and multihome. And why is it so easy to switch and multihome, it's because on both sides of that app platform or app, you know, service, they run across so many different devices that no device maker or operating system platform really could try to lock them down on either side.

So I think that that -- it's the interplatform competition that gives us that freedom for just sort of results in that vigorous, you know, sort of competition on top of the platform as well. But, you know, a further point, and I mentioned this in my opening remarks but wanted to emphasize it, was I think for you to get that kind of robust interplatform competition, platforms do have to be able to innovate, and that that innovation historically has taken the form of integrating previously separate functions.

So, you know, as I mentioned in my opening remarks, the DC Circuit expressly rejected the application of per se tying rules to software platform markets on the ground that productive integration was a common feature in competitive software markets and companies often competed by gaining a first-mover advantage by being the first to integrate what had been previously two separate functions.

So the court concluded that "This ubiquity of bundling in competitive platform software markets should give courts reason to pause before condemning such behavior even in less competitive markets such as desktop OSs." So I think that the court was exactly right in its focus, and if we're going to play kind of "what the world might have looked like if the court reached a different conclusion," let's say they had not ruled that way, people sometimes can forget that what happened after browsers is there actually was then the next sort of round of vigorous competition that was taking place, really right as the Court of Appeals decision came down was between online portals. Right?

So there was vigorous competition amongst AOL, which was perceived as dominant, MSN, and Yahoo!, really kind of from -- really late 1990s up through

the mid 2000s. And all during that time, they were vigorously integrating new features. They were adding travel, messaging, search. If the DC Circuit's decision had come out differently, might those platforms have been sued for unlawful leveraging into edge services? And in making that assessment, how would we know where true portal services left off and vertical services began? So we know in retrospect that platform -- various platform competition amongst the portals actually ended up greatly accelerating competition in edge services.

So Expedia was founded as part of MSN and it was spun off separately. You know, I think Tim mentioned, you know, Google, Facebook. A lot of those companies got -- started as point providers in providing apps, if you wanted to call it that, where clearly the consumer demand had been surfaced by this interplatform competition among the portals. So I think the DC Circuit was right to let that portal competition thrive. The evidence was that that, in turn, was what really enabled competition to take off from there.

MR. ADKINSON: Doug?

MR. MELAMED: Yeah, let me just add a brief thought. I agree with everything that Susan said. I

just want to add this, in the spirit of let's not forget the lessons we learned in the Microsoft case. So at the time of the Microsoft case, there was a tremendous kind of chorus of people who were concerned about the case, thought it was misguided or paid to say that, I'm not sure which, who were saying, oh, gee, if you do this, you're going to interfere with the ability of Microsoft and firms like Microsoft to innovate. You're second guessing their product design. You're second guessing their innovation path, and so forth. A legitimate concern, to be sure.

What was striking is that the Government responded quite explicitly by saying the issue is not what set of rules will enable Microsoft to maximize its innovation but what set of rules will enable the market to be most likely to innovate. We were concerned with maximizing market-wide innovation. And I think the court got it right for all the reasons that Susan said.

And I know I'm sounding like a Johnny One-note here, but by contrast to the AmEx case, where the alleged victims of the wrongdoing -- Discover, Visa. and Mastercard -- didn't pay much -- the court didn't pay any attention to them. The court just focused on the defendant.

MR. ADKINSON: Thanks. Let me just have one followup. Susan correctly distinguished between the competition among platforms as opposed to competition with edge players on a platform. We did -- we haven't heard a fair amount of complaints, something like the fury you're talking about about Microsoft back during the building up of the case.

There's fear expressed by edge players that they will not be able to innovate in certain areas, but it is a different circumstance. So I wanted to ask if people wanted to comment directly on those sorts of concerns. We heard it in the panel on platforms in action yesterday, for example.

MR. PICKER: Yeah, I'd be happy to. So and I think part of that goes to what Susan was saying about integration. So when we see a dominant firm entering a space where you see someone on the edge who's come in, I think the questions you have to ask is is this a failure of antitrust policy, is this a failure of IP policy or not a failure at all. So software patents emerge in the 1960s, precisely because IBM at that time was selling everything on a bundled basis.

You got the mainframe, you got the services, and you got software. And people who wanted to enter

the software business didn't see a good way for them to “propertize” their innovations. IBM would imitate it immediately. Antitrust failure, IP failure. The software patent emerges in response to that.

And so I think when we see people who say we're not seeing this innovation, one possibility is is the incumbent’s actually incredibly well situated to go into the market, and keeping them out of the market would be a mistake. That’s one characterization of the 1956 AT&T final judgment where we blocked AT&T from going into computers.

The other is is the people who run the IP regime have said, actually, we want competition to take place there and you don’t get a property right there. And then the question is what's antitrust supposed to do about that, if anything?

MR. WU: I come back and I, you know, on just on this particular edge, on this edge issue. I wouldn't disagree with Susan at all that interplatform competition is very important. I’m just nervous, I think, sometimes that it becomes the only concern when we talk about policing of innovation platforms. You know, in some ways, it was an unusual setup, Microsoft, in the sense that you had a platform that had an application that itself could become a

platform.

And if that's the only -- if we just look for that particular, I don't know, four-leaf clover, we may overlook problems, other types of problems. Microsoft also included an attempted second count, or I don't know which count it was, but the attempted monopolization count as well. And that was not, I don't think, necessarily based on a purely inter -- so I just think we should not overlook the challenge of policing where innovation actually happens and the conditions of innovation.

I would accept the fact that you do have to be very careful about whether integration is actually procompetitive or not. But to say we're only going to look at intercompetitive platform cases, I think, would draw the wrong lesson from Microsoft.

MS. CREIGHTON: I guess I would just add maybe one other thought for people is though when you first had announced sort of multisided platforms and stuff, I was actually thinking this was going to cover hardware as well as software, because actually, you know, going back to the IBM peripherals cases, the problem of product integration is actually at least as intense in hardware as it is in software.

And those cases, as many of you know, I'm

sure, involved stuff like, well, you know, if IBM integrates, you know, sort of the disk drive with the CPU and the interface disappears, how are you possibly supposed to compete as a separate disk drive manufacturer?

You know, and that's a tough spot to be in if you're a competing disk drive manufacturer, but, you know, most people are not lugging around separate keyboards and disk drives. And, you know, so -- and I actually think probably the point I'm going to make in a few minutes, I actually think the problems with stickiness and lack of multihoming and so forth are actually much harder in hardware than software.

And so I think we need to be careful in thinking about as we're concerned about, well, gee, we need to preserve the importance of complementarity. How would that world look like if we're talking, for example, about integrating in hardware as well as software, because it's hard for me to explain why you would have one rule for one and not for the other.

MR. PICKER: And IBM eventually won those cases.

MS. CREIGHTON: Yeah.

MR. PICKER: I mean, they've lost sometimes below, but they won on appeal.

MR. ADKINSON: On the facts.
MR. PICKER: On the facts. Absolutely.
MR. ADKINSON: It was just to try to put together another panel for those cases.
(Laughter.)
MR. ADKINSON: And now I'd like to ask us to consider aspects of the Microsoft case in hindsight. First, how might the legal learning in the recent AmEx decision have influenced the Court of Appeals if that case had been decided before Microsoft? And, Doug, it sounds like you might be interested in that one.
MR. MELAMED: Well, the alternatives would be not at all or badly.
(Laughter.)
MR. MELAMED: Well, AmEx is not literally applicable, I suppose, because it purported to be addressing the rules that would apply to what they called a two-sided transaction platform, which is one that involves simultaneous transactions between parties on both sides. And I don't think anybody would have said back then or today that Microsoft is facilitating simultaneous transactions between purchasers of the operating system on the one hand and apps developers on the other. So one, I suppose, facile answer is to say it’s not applicable.

I do think, though, or I worry, though, at least, that the decision could have perversely affected the case if it had kind of induced the court to get all tangled up in the question of is two-sidedness something that requires a different body of law, a whole different conceptual apparatus. How do we think about this? You know, Lorain Journal involved a two-sided platform as well, but I think we all agree that the court got it right there without getting too bogged down, because these things really have to turn ultimately on the factual inquiry as to whether two-sidedness does or does not matter.

Now, in the Microsoft case, Microsoft actually made a two-sided defense. It made one specific one. It said, we need to integrate the browser into the operating system in the way that we did and the way the court ultimately found to be anticompetitive because that will enable us to establish a uniform stable platform which will benefit app suppliers on the other side of the platform. The court rejected that on the facts.

Now, if Microsoft were right that its platform was more efficient, in a technological sense for apps writers, then it would have legitimately brought two-sidedness into the conversation, and it

might be, you know, a very difficult factual question of how you resolve it. They lost it on the facts. But the broader argument that was implicit in what Microsoft was saying went something like this: I need to strong arm OEMs and others to exclude rivals by conduct that is not otherwise efficient so that I can increase network effects benefits available to writers of apps.

That should fail, it seems to me, as a matter of law. Without any worry about two-sided jargons and platforms, any fancy hand-waving for the simple reason you can't justify anticompetitive conduct on account of the fact it’s going to lead to realized scale benefits. That’s kind of -- pretty implicit in the National Society of Professional Engineers. The market is supposed to decide the tradeoff between scale benefits on the one hand and heterogeneity of suppliers on the other hand.

So I guess what I'm saying is AmEx could be dangerous if it unleashed a series of arguments that would say, well, what I'm doing benefits the other side. It is not literally applicable, but at the same time, I think we all have to recognize, just the way we recognize the significance of network effects, that two-sidedness can matter on the facts as a way of

explaining in a very genuine way whether the conduct was anticompetitive because inefficient or whether it really was efficiency enhancement.

MR. ADKINSON: Leah.

MS. BRANNON: Yeah, I'm actually not sure if it's not literally applicable. I think it will be interesting to see how the courts interpret AmEx. The Supreme Court obviously did talk about transaction platforms, but it also said that a court needs to consider both sides of a market, except when indirect network effects are minor.

So I'm not really sure where you come out on it. It will be interesting to see what happens with AmEx. But I think setting that aside, I think the conduct would be viewed the same way by the DC Circuit, even if AmEx had been handed down. Obviously, AmEx applied a rule of reason; the DC Circuit was, you know, very aggressive in applying the rule of reason.

As Doug mentioned, Microsoft did have some justifications that it threw out that took into account effects on both sides of the market. So one of them was for the license restrictions that prevented OEMs from altering Windows. And one of the things that the OEMs couldn't do was have, you know,

another browser icon or present another browser to the user in the boot sequence. And Microsoft argued that that would undermine the principal value of Windows as a stable and consistent platform that supports a broad range of applications and is familiar to users.

So their justification is pointing at both value to apps developers and to consumers, and the DC Circuit was open to that. It considered that argument, and like Doug said, it failed on the facts. The court noted that Microsoft had not substantiated that claim at all. It also noted in passing that -- it was a little bit hard to believe that adding a desktop icon was critical because that doesn't affect the code already in the product and does not self-evidently affect either the stability or consistency of the platform. But Microsoft really hadn’t attempted to back up that justification.

Interestingly, Microsoft also put out a justification for one of its -- Microsoft had designed Windows to override the user's default browser choice in certain scenarios. And one of those was when the user moved to the internet through the My Computer or Windows Explorer panes. And Microsoft argued that while that might be bad for browser competitors, it was good for users because it helped them move

seamlessly from local storage devices to the web in the same browsing window. So they were making a consumer-focused argument. And the DOJ didn't rebut that argument, so Microsoft's argument was determinative.

So I think because of the way the court looked at it, it was taking those types of arguments into account. There was also obviously the tying discussion, which we have touched on, where the court very explicitly said it wasn't inclined to apply a per se condemnation of tying because courts should only do that after considerable experience with a particular type of conduct.

And Microsoft's technological tying and what it was doing in this case was new, and the court noted that it could have important efficiencies both for third-party developers and for consumers. And because of that, it was not appropriate to use the per se rule. The court remanded for the lower court to look at the actual effects of Microsoft's tie. And unfortunately for, I guess, the rest of us, the case settled and the lower court never got a chance to grapple with that.

MR. ADKINSON: Daniel.

MR. RUBINFELD: Sure. I've said previously

that I didn't think that things would look very different had we seen the AmEx decision before we were investigating Microsoft, and I think that's the case. But I suspect that if we look to the private side, the story would be different because one of the areas of concern in private litigation, of course, is what the but-for world would look like in terms of pricing. And so it would be natural to ask yourself, how did pricing of the various licenses for the operating system relate, if at all, to what the developers had to pay to get access to the tools to develop their software for operating system.

And what strikes me about that is, even 20 years later, I still dream parts of this case, and I remember the exhibit numbers, Randy, and I can cite to you various footnote quotes from Jim Allchin, the head of Windows, and so on. I have no idea exactly what fee was paid by developers to get access to the tools to develop apps because that was really irrelevant. I'm sure there was a very small modest fee, so that would not -- that certainly did not affect my thinking in looking at the case.

But I could imagine now that in the result of the opinion in AmEx being unclear as to how focused it is on transaction markets may lead to a lot of

discussion about pricing, a good portion of which may turn out to be not very useful.

MR. ADKINSON: Thanks. I'd like to move to the next group of questions that are related, basically questions about the extent to which new economic learning may make us view the Microsoft case differently or whether it reinforces our view, has literature -- the new literature on two-sided network effects that confirmed or contradicted the analysis of the applications barrier to entry in Microsoft? What about the assessment of switching costs and multihoming? Was it consistent with what we look at in the contemporaneous analysis?

What does it suggest about the importance of indirect network effects as a possible source of market power? And whether -- in assessing whether a dominant platform has violated Section 2, how do we assess whether a nascent competitor could or might have significantly eroded the platform's dominant condition?

And I guess the only thing I'd add to that is how has technology changed and how have changes in technology assessed that assessment as well? And, Susan, did you want to speak to that?

MS. CREIGHTON: Sure. I can get us started,

at least. Yes, so I think -- I'm not an economist. Dan would have to correct me, but, I mean, that the subsequent economic literature certainly has confirmed the importance of indirect network effects. What I think maybe is a little bit new or at least from what I remember of what was understood at the time, is there was an element in the Microsoft executives' thinking -- actually Randy mentioned it -- sort of like in the Internet Tidal Wave, there was a real key fear about the internet and browsers kind of accessing to the internet that made it sort of qualitatively different from, like, just another OS platform.

They weren't concerned about it the way they would have been concerned about Apple, even if Apple had been more robust or something. And I think it was -- their intuition was, and Randy's probably read the Internet Tidal Wave memo more recently than I have, but that you're going to detach -- you know, I mentioned about sort of hardware, software, this notion that you were going to detach the software from the hardware.

MR. PICKER: Absolutely.

MS. CREIGHTON: And that that was really going to be profound. And I don't remember seeing that being kind of in the economic literature, until I

guess more recently, like I just, you know, was reading Professor Catherine Tucker's work, for example recently. And she was talking about, I think, that something that she's been emphasizing in her work more has been sort of that the really key component to how effective indirect network effects are is how much they're tied to localized hardware.

Like, so she gives the example I think I mentioned earlier about, like, the iTunes Store, but she said, you know, when she was teaching, she always used to give as like the classic example of, you know, nobody's ever going to move out of iTunes Store, because they have all these, you know, downloads. And then along comes music streaming, and who cares?

So, you know, so I think the reason that sort of often business executives intuit to things, it takes us a little bit longer to kind of articulate what was that core fear. I mean, I think if you compare -- I mentioned Uber and Lyft, for example, you know, so it's been interesting the last 18 months. Obviously, Uber has had some PR issues, but despite that, you know, 18 months ago they had like 80/20 market share relative to Lyft. And, you know, I was just looking last week, and now it's more like Lyft is, like, at 35 percent, going -- trending towards 40

percent. You know, that's a big shift in a market that you think of as having a lot of indirect network effects in 18 months.

You know, and I think it's that -- I think this is what Professor Tucker was talking about about, you know, in a purely virtual world. I don't know if we realized -- or I don't know that it's widely recognized, but it seemed interesting to me that if you're completely detached in this virtual environment that indirect network effects may be less locked in than if you have kind of that localization to hardware that Microsoft enjoyed.

MR. ADKINSON: Doug?

MR. MELAMED: So I just want to pick up on something that Susan said which I thought was interesting. She made the observation, which I think is clearly correct, that sometimes the intuition of business folks is ahead of the conceptual abilities or experience of the economic observers. I think that's a really important insight in this particular context.

The literature, as I understand it, on two-sided markets has been extremely illuminating. And it ha given us a vocabulary and a contextual way of thinking about the feedback effects between people on both sides or entities on both sides of the platform.

But that's just another way of talking about what was called the chicken and egg problem in the Microsoft case, indirect network.

I'm not saying there's nothing new. Catherine Tucker's work which certainly suggested it's not just the size of the network but it's also some cost -- switching costs and maybe market penetration that affect the stickiness of those networks. Those were all the important insights that helped people understand the next case involving a platform and helped them decide, among other things, whether two-sidedness is material to the analysis of the conduct at issue.

But I don't think they -- they presented us with a whole new conceptual framework that says, gee, let's just tear up the Microsoft decision and start over because we now understood the world doesn't work the way we thought it would. I think what's happened instead is that the lights that we had to illuminate the world are a little brighter than they used to be.

MR. ADKINSON: Tim.

MR. WU: Sure. I'm going to echo something Doug said, which I think you can as well as going forward go backwards in the way you think about things, and I think there might be some evidence of

that happening. You know, to the credit of the Microsoft era on the enforcement side, and some of this was already emphasized, people are very serious about interplatform competition, very serious about thinking about the competition in the entire market or even the entire industry, and as part of that thought carefully about the potential of Netscape as essentially a potential competitor, though we didn't use that -- you didn't use that language, but in some ways were thinking hard about the fact that Netscape might emerge as a competitor on the platform to the Microsoft operating browser.

In recent -- and I think I want to contrast that with some of the -- not all this thinking is public, but some of it is -- the thinking surrounding some of the mergers over the last ten years in the tech industry. I'll focus on Facebook's acquisition of Instagram, for instance. If you think about Facebook acquiring Instagram, in fact, it has some similarities in the sense that Instagram was maybe not an active competitor, at least a potential platform competitor, to Facebook. But they -- it clearly was a situation where you would have interplatform competition. But if I'm not mistaken, the FTC did a second request but approved the merger with no

conditions.

The analysis of that merger by the British Office of -- I can't remember what they were called, Office of Fair Competition.

MR. PICKER: Fair Trading, I think.

MR. WU: Fair Trading or something, is public. And if you look at it, it actually shows how two-sided market analysis can work against you and, in fact, act as a kind of a cage. So the agency looked to -- or the Office looked at the Facebook-Instagram merger. They concluded that on one side of the market because -- on the advertising side of the market, because Instagram had not yet started selling advertising, it was not competing with Facebook at all.

And on the other side of the market, they decided that Facebook's photo app was not yet important enough to be a constraint on Instagram. And so they concluded that Facebook and Instagram were not actually competitors at all. Now, if you had that kind of thinking in Microsoft case, I think, you know, it would have been an entire -- so in some ways, you can go backwards. You can get misled by, in my view, I think it was a mistake to not take a more serious look at that merger.

And in some ways, I think we can too eagerly embrace new tools and get away from the bigger questions, which I think we were properly looking at in the Microsoft era.

MR. ADKINSON: Thanks very much. One last question on liability. It's the chicken and egg problem that Doug brought up. To what extent did Microsoft, by introducing DOS and Windows, solve that problem for program developers and computer users, and did any of its alleged exclusionary conduct arguably serve those sorts of objectives?

And then how, if at all, does the Microsoft experience inform the assessment of claims by current platforms that their potentially exclusionary conduct is, in fact, needed to attract participants to one or the other side of the platform?

MR. RUBINFELD: Well, I'll just say quickly that I spent a lot of time talking about -- thinking about chicken and eggs. And just as a side light, if you were to read my econometrics textbook, I have an empirical example of which came first, the chicken or the eggs. And I used relatively sophisticated time series methods to conclude that we don't know the answer.

(Laughter.)

MR. RUBINFELD: And so my comments here will be similar in the sense that we were worried deeply about the chicken and egg problem. And I agree with Doug, it was really thinking about two-sided markets, but I certainly didn't have enough sense to realize that I should be developing the theory much more deeply and trying to sort out the two sides and understanding the nature of the feedback effects between what's happening on the developer side and what was happening on the user side, was the key to the case because the nature of that feedback effect is what was motivating Microsoft in its behavior.

And I just want to say the facts that we focused on really were facts that really got at the issue of how important that chicken and egg problem was. And it wasn't until we really looked deeply at the facts that we understood that there was a two-level entry problem here and that created a really huge barrier to entry. I think that would typify why the network effects in the Microsoft case were quite different than some of the network effects we see in other markets which are more localized.

MR. ADKINSON: Susan, did you want to --

MS. CREIGHTON: Sure. So I don't know who came first, the chicken or the egg, or Windows or app

developers. But sort of more generally I think it's awfully important, as the chicken and egg problem suggests, to be -- when you're trying to figure out kind of what are the business executives up to, to be looking at sort of business practices in light of their effects on both sides of the platform. And I think sometimes that gets misunderstood as sounding like it's sort of a defense move. But I actually think it's -- it's just as likely to cause you to miss things sort of for under-enforcement as for over-enforcement.

So just like as on an under-enforcement example, so David Evans, who spoke here yesterday, and I worked on behalf of Netflix on the Time-Warner/Comcast proposed acquisition. And people were tending -- you know, sort of the justification for the deal was that since the companies operated as local cable systems, but never in the same zip code, there was -- on the user side, there was no overlap, so how could there possibly be a problem?

But if you actually -- but if you looked at it as a two-sided market since those same cable systems also provide -- were multichannel video distribution providers, they connected households with video programming providers like, for example,

Netflix. And so if you focused just on, well, gee, we're just, you know, gaining scale on the user side, you would have missed what would have been a hypothetical, you know, sort of a hypothesized competitive harm from the deal that this was actually bad, increasing the merging parties' ability to extract more market power over the other half, other side of the platform like video providers, which I think is, in fact, what DOJ and the FCC ended up concluding when they challenged the deal.

So conversely, I think, a failure to recognize sort of that how business practices may be needed for sort of chicken and egg issues, there's a prominent example in the recent Microsoft Android decision about, that I think that the E.C. missed. So at issue in that case was a restriction that prohibited OEMs from introducing incompatibilities that would cause fragmentation and drive app developers off the platform.

Now, I think if you bring a Microsoft analysis to bear and say, well, gee, why would a platform provider want to, you know, sort of prevent practices that would drive app developers off the platform, it's not very hard to think about why that might be a legitimate concern by a platform operator.

But since the E.C. basically defined the relevant market as being instead of -- in sort of the chicken and egg end-users and app developers, they defined the relevant customers as being OEMs. And so effectively, app developers kind of disappeared entirely from the analysis.

So I think if you -- so getting those dynamics right and understanding sort of how business practices might be interrelating, can help you both understand kind of when you should and when you shouldn't be challenging particular practices.

MR. ADKINSON: I think we have, like, two to three minutes more on this subject, Randy.

MR. PICKER: So the answer to which came first, the chicken or the egg, the answer is IBM came first. So -- and what I mean by that is, is recall how the IBM PC is released and what that means for Microsoft. IBM decides they're going to build a PC. They don't have a chip. They don't have an operating system. They don't have languages. IBM goes to Microsoft and says, can you give us the languages you have? Microsoft says yes.

IBM then turns to them and says, can you give us an operating system. And Microsoft says, oh, you should go down the road and talk to Gary Kildall,

we don't have one of those. So at the point where Microsoft is being offered a key to the future kingdom of the PC, they say no. And when the IBM PC is released, it's released with three operating systems, not one.

So I don't know that Microsoft solved anything. I think Gates and Allen did a great job of getting into languages at the right time. And when the language deal was going to die, then they scrambled to sort of buy an operating system from somebody, and that's what happened.

Don’t also forget the competition as we moved from DOS to the world of the GUI. There is robust, interesting competition there. IBM has TopView and eventually PS/2 and OS/2, the first time they’re sort of released to build the system they want to build. They built the 1981 machine with the pending 1969 antitrust suit, and that clearly influenced what they did there. So I don't want to overstate what Microsoft did.

MR. ADKINSON: Leah or Tim?

MS. BRANNON: I was thinking about lessons from Microsoft in light of this panel and what I would draw from it. I don't want to insult anyone who was with the DOJ at the time or Microsoft or the court,

but I think, you know, one lesson that I took from it is the importance of thinking everything through carefully, all of the elements of the claim. And it was a marathon. I mean, it was such a large case with so many different pieces.

And, you know, from my perspective, it seemed like at some point everyone ran out of steam. And maybe that's inevitable. But, you know, on the attempted monopolization, the DOJ's failure to allege a browser market or Microsoft offering justifications for its conduct that it didn't substantiate at all. Or where they did substantiate certain things, the Government failing to come back and say, that's ridiculous, that’s pretextual, you know. It was a really big case, a massive record. And I think, you know, a lot of litigators did an excellent job on it, but there are so many pieces, it just seemed like important elements of claims got lost in the shuffle.

And I think by the time they got to the remedy phase everybody, including the court, was just completely out of energy. So it's something to think about, I think, in these big cases.

MR. WU: One more minute? I think also why this is almost the exact opposite perspective, when you look at the individual moves that made the

Microsoft case, it's always -- also very important to look at Microsoft in the context of a big trilogy of cases, IBM, AT&T, and Microsoft, which effectively, were the United States' tech policy for almost 20 or 30 years and had, I think, really substantial effects. And this stuff is very hard to -- you know, it's all anecdote, how do we prove that how much of, you know, the big boom in tech and the return to American dominance had to do with these three antitrust cases. Well, they didn't stop it, I could put it that way.

And, you know, in each of them -- I mean, each of those cases, you know, there was a policy which, you know, was really the policy of the Sherman Act, which is we're concerned that monopoly can act as a narcotic. We're concerned with stagnant markets. We're interested in the overarching question of innovation in these industries.

Now, those aren't legal tests, but they're policy. And I think it's -- as we examine this, it's very important not only to look at the 5,000- but also the 100,000-foot view of what is the U.S. doing in antitrust, doing in tech policy, and also to contrast that and ask what are we doing now.

MR. ADKINSON: I'd like to now move to a few remedy questions we had, both the specifics of the

remedy and also the overall effect of the Government case. So looking first at the remedy orders, there was both the structural remedy that the District Court imposed and was then reversed by the Court of Appeals, and then there was a settlement adopted on remand.

How effective and appropriate were the various proposed remedies such as the structural separation of Windows, Office and -- of Microsoft Office and Windows and the consent decree? Was designing relief complicated by the difficulty of predicting the extent to which Microsoft's market power would have been undermined, absent its exclusionary conduct?

And in light of the experience of Microsoft, how would courts approach designing injunctive relief to remedy concerns that a dominant platform has enhanced its market power by illegally excluding a nascent competitor?

Randy, you want to start us off?

MR. PICKER: Sure. You know, I think -- and I know there's going to be a panel on E.U. and the U.S. I do think when you think of remedy in the Microsoft situation, you should look at sort of the two iterations of the U.S. remedy and then the two remedies we saw in the E.U. with regard to Windows

Media Player, and then the browser choice or browser ballot with regard to Internet Explorer.

On the U.S. side, I think the conceptual question you want to ask is -- I think you always want to ask this in an antitrust case or in a class is had we implemented the remedy at the beginning, would it have prevented the behavior from happening, right? So if that's what the structural remedy is supposed to do, would it have worked in that but-for world? And if you'd split Microsoft into an OS company and an Office company, let's say, I think the OS company would have still had the same incentives to protect its monopoly, vis-a-vis Netscape. So in that sense, I think that's a conceptual remedy that doesn't seem to work.

I'm completely with Leah in her sense that people got tired and that you get this remedy. Now, I can't tell if the remedy in the U.S. was effective for the reasons Tim gave earlier, which is this policeman thing. Maybe that is, right? Why did Microsoft not go after Google in a powerful way? That's a really, really important question. I think we're sort of all guessing in the dark on that.

On the two E.U. remedies, if I could just mention those briefly, as you'll recall what happens

there with regard to Windows Media Player, the E.C. is willing to say to Microsoft, you have to create versions of Windows with and without the Media Player, but you don't have to charge different prices for those. And I wrote a paper before they did that saying I thought that was a sensible remedy. It has to be seen, I think, in many ways based on what we know from a public standpoint as a complete failure. They sell 35 million copies of XP with and 1,787 without.

And then on the browser ballot issues, you'll recall what happens there is is Microsoft is rolling out Windows 7, the E.U. jumps in and says, oh, we don't want you to tie Internet Explorer to Windows. Microsoft cuts a deal, where in Europe, when you turned on a computer the first time, you would be presented with a choice of 14 different browsers.

And given that the U.S. case was litigated on the premise that having two buttons was confusing, both Internet Explorer and Navigator, I think the only conclusion from that is the Europeans are just a lot smarter than United States citizens, so -- or maybe the market had evolved or something, but that remedy was something of a failure as well in the sense that Microsoft breaks the browser ballot when they release

Service Pack 1 for Windows 7 and no one seems to notice for 17 months.

MR. ADKINSON: Doug.

MR. MELAMED: I just want to comment on one aspect of what Randy said, which was the conceptual basis for the proposed divestiture remedy in the Microsoft case. So let's back up. Microsoft is about protecting markets for competition so we don't have to have regulation, we can allow competitors to discipline firms in the market. So in that context, it seems to be structural remedies are at least presumptively superior to conduct remedies. Okay.

There are four purposes for a remedy in antitrust. One is compensation, rarely used for equitable remedies although you can have restitution or something. One is to stop the illegal conduct. That's fairly straightforward. The third is to prevent the recurrence of the illegal conduct, and that raises often a very difficult question of the level of generality of extraction at which you want to describe the wrongdoing.

So was the wrongdoing in Microsoft doing in competing browsers? Was it doing in middleware alternatives? Was it doing away with any kind of platform software with APIs, or any operating system

complements, any of which could by some, you know, logic have been seen as facilitators of competing operating systems?

So that was a difficult issue if the Government had gone in that way in its initial proposal. The guts of the initial proposal, however, was addressed to a different remedial purpose, which is restoring competition that was damaged by the conduct found to be legal. So the theory of the divestiture remedy was not that the operating systems' motives or incentives would be different if there were a divestiture but that the owner of Office would have a different incentive to license and port Office to competing operating systems rather than refrain from doing so for fear that those operating systems would grow into competitive threats to Microsoft.

So I think it was conceptually a coherent and sensible remedy addressed to the idea that entry barriers had been raised by Microsoft and we were now looking for a strategy to lower them. The problem is that no one knew the facts. We didn't know what would happen if there were a divestiture, and we didn't have any clue about the costs of breaking up Microsoft in that way.

We had some outside experts who opined, but

what we didn't have was discovery. And, frankly, I think the judge -- and maybe Leah's right -- was just tired at the end of all this. The judge's peremptory decision to enter the order and order divestiture without discovery, without any kind of process was just an outrage in my view, completely inexcusable. But I don't think we should lose sight of the fact that there was a conceptually coherent remedy story in that proposed divestiture.

MR. WU: Go ahead.

MR. RUBINFELD: I just want to add, I agree with everything Doug said, perhaps not surprisingly. I just want to add a couple other things to that. First of all, I actually do think there is a role for conduct remedies in general. And there was a small role here, but this is one case where, in my view, a structural remedy was essential for some of the reasons Doug described.

And I spent a lot of time 20 years ago thinking along with quite a few others about exactly what would happen if we imposed this aggressive structural remedy, and I came to the belief that we would see, as Doug suggested, the apps folks who had a strong office suite looking to contract with other operating systems. It's not all that hard to generate

an operating system. The hard part is finding the apps that would support it. So I actually felt strongly at the time we would see new competition, and the remedy had some appeal.

Like Doug, I was disappointed actually and regret perhaps not being more outspoken about the need to ask Judge Jackson to listen to our plan for extensive discovery on the remedies. We did have several experts. There were two economists, one of whom just won a Nobel prize, who were prepared to testify about exactly what would happen in that world.

And I believe that the concern about having complementary assets -- the advantage of having complementary assets within a single firm would not be lost with the remedy that had the firm broken up. I thought there were contractual solutions to that which would work quite effectively. But we never got to hear that discovery and I think that was unfortunate.

MR. ADKINSON: Leah and Tim?

MS. BRANNON: Sure, I just figured I'd touch on the consent decree briefly since that's the remedy we all got stuck with. It was a really weak, bad decree, but I think it was important, and maybe it goes to Tim's point about the policeman. But I think it also -- it meant Microsoft had -- it had violated

the antitrust laws. It had a track record. So this was -- the consent decree was no longer the baseline antitrust laws. It was an additional layer on top of that, taking into account the fact that Microsoft had cut off the air supply of its competitors, it had affirmatively misled Java developers in order to maintain its monopoly, and so it got the DOJ, the states, the technical committee all looking over it, and also, of course, the European Commission.

But I do think the decree played an important role in the growth of a new generation of platforms. I think, you know, the new generation of companies read the case, they read the Microsoft case, and, you know, they read the decree to understand what protections they had, but I think they also read it, you know, to understand where the rules of competition are. I think the case showed the importance of focusing on building better products and different companies really focused on the user and delivering a better experience. That is competition on the merits, and that should come through.

So I think it created guidelines for a whole new group of companies and it also meant that Microsoft could not go back to using the same tactics that it had been using. So as badly written as that

decree was, I think the whole process was meaningful.

MR. WU: Yes. So let me speak a little bit about the policeman at the elbow theory because I think it's sort of overlooked sometimes because it's so informal. But I do think if you look at the -- carefully at the history after Microsoft and some -- also some of what happened during the IBM case, you know, you have remedies that were not what we would usually call -- I mean, they were conduct remedies in a way, but I think the most important factor was that they offered a credible threat of the antitrust litigation starting again, or the idea that you were being watched, on parole, as you put it.

And I think that the fact that Microsoft changed its conduct and didn’t engage in some of what would be the most obvious uses of its Explorer monopoly is important. You know, it had -- as I said earlier, it managed to gain -- it wasn’t -- it succeeded in monopolizing the browser market and from that vantage point had all sorts of opportunities to do what had been its previous business practices, but it didn't, for various reasons. But mainly I think -- I think that maybe it's not the only explanation, but I think the most straightforward explanation is that it was afraid of restarting antitrust.

So I think everyone, you know, in terms of lessons from Microsoft, should be thinking about how you create that policeman at the elbow effect, if you have a convicted lawbreaker, like Microsoft was. I like the separation -- sorry, the structural remedy and the divestiture remedy for slightly different reasons, maybe a little disconnected from antitrust but having to do with innovation policy. You know, I've said earlier, stressed earlier, that the history of innovation in the United States is often in the tech industries. It's centered on platforms and successful platforms. I don't deny that sometimes integration can be part of that.

But one thing I think you saw after Microsoft, sort of the failure of the Microsoft case, is you continued with the situation where the operating system was basically in the view of industry and in the view of investors and entrepreneurs, a hopeless place to innovate, a dangerous place. And so you never really had until much, much later the birth of serious competitors to the office suite and even much, much later serious competitors to Explorer.

Now they showed up eventually, I think thanks to the good work of the Microsoft case, in making the browser itself an important platform that

people innovated on. But you did have this -- I don't know whether you call it dead weight or lost years where we were all presented with Word as the only option for a very long, long time. And I realize that didn't necessarily connect exactly to the reason for bringing the Microsoft case but I think ended up being important.

MR. ADKINSON: Thanks. I want to pose one last question for a quick response, and it's one about more broadly the impact of the Microsoft case, and Tim's discussion of the elbow effect is certainly one striking example of it.

To what extent did the Government action apart from the relief awarded inhibit Microsoft from using its market power? To what extent did the case advance Section 2 law in ways help deter exclusionary conduct by dominant IT firms in the future? And did the case compare or complement the legal actions either by the E.U. or by the private lawsuits? And how has this affected subsequent developments in the IT industry.

Doug, do you want to --

MR. MELAMED: Well, okay. It seemed to me that there were two problems the case was addressing. One was the Microsoft problem. What do you do about

desktop operating system competition, and I think a lot of people bought that that train pretty much left the station in terms of at least the browser as the facilitator.

And the other was the antitrust problem, which is what are we going do to make the antitrust laws effective as a policeman, if not at the elbow, at least, you know, up in the sky watching Microsoft and other big firms. And I thought at the time and continue to think that the most important contribution of the Microsoft case was on the latter point as a law clarification and law revitalization success.

And I leave it to those who know more about the tech industry than I to argue whether the remedy actually was material to subsequent developments in technical competition.

MR. ADKINSON: Thanks. We have about a minute more if other people want to --

MS. CREIGHTON: Just I wanted to agree with Doug and Leah about the importance of the decision as a precedential guide. I think that was really quite important because it can be lost that it's important to be able to give practicing lawyers a clear roadmap about what works and what doesn't work when they're advising companies.

And I thought an important part of Microsoft's success was doing that, that's it's been a clear benchmark for us.

MR. RUBINFELD: I was just going to add one thing. For me, there was an important lesson for people who do get involved in these investigations. The economists and the lawyers worked together from beginning to end, and we all agreed that economic theory, wonderful as it is, only gets you halfway there. You really need to apply the theory to the facts of the case from day one, and that's what we did.

MR. ADKINSON: Thanks very much. We now have, I think, maybe a minute and a half left for our closing statements. I think Tim and Leah may have started theirs based on what I earlier said, but I would ask each panelist to keep the closing remarks short, please, and starting with Tim.

MR. WU: Oh, starting with me. So I think I did actually start on it, which is I do believe that it's important to take the 100,000-foot view and think about these big cases as broader parts of frankly American tech and innovation policy. And, you know, I think Microsoft was the third of what ultimately -- although people disputed it at the time, ended up

being a very successful trilogy of big cases.

And I hope the lesson that the FTC takes and other antitrust enforcers take is one that does prioritize the big view, that thinks of innovation as working in long cycles, and thinks hard about what it takes to provide those nudges or effective supervision, policeman at the elbow and other effects that have meant so much for the health of the American economy.

MS. BRANNON: I'll just add that I think a really important part of the case was the focus on effect on competition and the fact that the plaintiff needs to meet a burden of showing harm to competition at the outset. The court emphasized that Section 2 is not about intent. Microsoft clearly had the intent to crush its competitors, but what the court really looked at was the effect of that conduct and some of the conduct also had that effect. So I think that legacy with a focus on competitive effects is important.

MR. PICKER: So I guess I want to echo what Dan and Doug just said. I mean, I think that these kinds of situations are incredibly complex and tricky, and it means that there needs to be repeated iteration between economics, law, and the facts. And I think

Microsoft's an incredibly successful example of that.

I do think that means that it's less about grand theories of antitrust. So we're sort of in the midst of a discussion about that, is consumer welfare good, bad. I can answer -- I can decide the Microsoft case without reaching that level. And I think that's probably the right way to go on that.

MS. CREIGHTON: Yeah, so I was going to go to the 100,000-foot level, too, but maybe somewhat different from Tim, which is I think if you look over the big benchmarks for people advising tech companies and the tech industry, there was the Microsoft case, which I've indicated obviously I think provided a balance and coherent analytical framework, and conversely, there were the IBM peripherals cases, which, you know, as Randy indicated, IBM won every single one of those.

And so I think between the two of them, that has provided American technology with really a nice framework about kind of what is permissible and what isn't. And, you know, if you step back, kind of how is American competition doing globally today, I'd say you see a lot of American companies competing intensely amongst each other, with a lot of other innovative companies, particularly in China. You

know, there are certainly sectors where American companies are not in the lead. I think in China, they're probably leading artificial intelligence, for example, but American companies are probably in the lead on things like 5G.

So, you know, having been in the industry for a long time, now, where do I see the kind of sleepy complacency or bags over the head that I saw at the time of the Wind Hill duopoly, and just, you know, by contrast, maybe somewhat differing and disagreeing with Tim a little bit here, you know, I think during that same 40-year period we've seen a lot more intervention from Europe consistently and that, you know, sort of the interventionist trend has only increased, I'd say, in recent years.

And during that same period, we've also seen sort of a receding rather than increasing of the role of European technology companies generally. So for those, I think, who'd be saying sort of that more is necessarily better, I think we'd need to -- you know, sort of we should be having a more European style of protecting edge companies, for example, even at the cost of weakening productive integration of platform competition.

I think it would seem to me that the burden

should be on those advocating for that kind of change to show it's not reasonable to expect that in the event they're successful we'd see an accompanying diminution in American competitiveness as well.

MR. MELAMED: I'm struck by how often in this conversation we have referred to the unmeasurable and the unobservable. No one knows what the price effects were over the time that we've been talking about. We talked about innovation, but no one really knows what innovation would have taken place but for the wrongful conduct.

We talked about entry barriers, but no one knows what the entry would have been. We talked about the unknown and so forth, the unknown competitors. What's striking to me is that those who say antitrust law can deal only with bread-and-butter price cases where we have readily observable and measurable variables, I think are wrong. Microsoft demonstrates that the basic principles of antitrust, is it a conduct-efficiency-based or not, did it intend to reduce the discipline of rivals in the future are robust enough to deal with facts, even where we don't have some of the traditional observable variables.

MR. RUBINFELD: I'll just say I agree with Doug absolutely. And thanks to Bill for doing a great

job moderating all of us. It wasn't easy.

MR. ADKINSON: Well, thanks. This was a privilege, and please join me in thanking our panel.

(Applause.)

(End of Panel 3.)

PANEL 4: DO THE U.S. AND EUROPE TREAT COMPETITION CASES INVOLVING PLATFORMS DIFFERENTLY?

MS. COPPOLA: Okay, everybody, I think we're going to go ahead and get started. My name is Maria Coppola. I am from the FTC. And this afternoon's panel will look at the differences and similarities in approach between the U.S. and the E.C. with respect to platforms. It's a great pleasure to be here and to have such tremendous panelists. I'm only moderating, but to the extent that I express views, they are my own.

I'm going to very, very briefly introduce the speakers. Cristina Caffarra, to my right, is the head of competition -- European competition for Charles River Associates. Simon Constantine is the Director of Policy and International at the U.K. Competition and Markets Authority. Nick Economides is a professor at NYU Stern School of Business. Nicolas Petit is a professor at University of Liege. And I think many of you know Josh Wright, who is a university professor here.

I'm being told to advance slides. These are the complicated things I can never figure out.

So throughout the hearings we are thinking about international issues. We're talking to our

counterparts in foreign authorities. We are clearly engaging and consulting with experts from around the globe, but this is the only panel, at least so far, that's really dedicated to comparative analysis. And I think that reflects a little bit the fact that it's awfully hard to have a conversation about platforms these days, and in particular, I think, digital platforms without Europe coming into the equation in some way.

So we today will try very hard to go beyond the headline that Europe is the only active enforcer or Europe is overly aggressive and try to really think about how Europe approaches these issues differently from the U.S. and what we, at the FTC, might learn from that as we go through a reflection process of our own approach and tools.

I ask for a little bit of tolerance because we are covering, in one session, what will be covered in six or more sessions to do the U.S. So we're going to try to cover cases and look at things like market definition, burden of proof, effects, et cetera, and we're also going to try and think about how Europe is reacting to the public disquiet around platforms -- digital platforms. So we're going to really try to address a broad swath of issues.

The format will be like you've seen before. Each speaker will make some initial remarks, and then we'll have Q&A. My colleagues are collecting cards with questions. Please start now. We welcome them, and will turn to them shortly after the opening presentations.

To kick off the platform, I started with maybe a somewhat controversial idea, which is that Europe tends to protect competition in platforms, by keeping pathways open for new competitors, new business models, et cetera. And so I've asked each of the speakers to react to sort of that premise and their views on it and the pluses and minuses. And I'm going to start with Simon Constantine.

MR. CONSTANTINE: Thank you, Maria and thank you to the FTC for inviting me here today. I guess I'm going to start by sort of taking my position as the regulator on the table to try and challenge some of the views or at least the cliched statements that are sometimes heard around the debate on these issues.

That said, I'll start with a bit of a cliche of my own, and the reason I use it is because it has the benefit of being true, and that's, you know, as regulators, we believe that the large platforms, you know, they provide a huge amount of consumer benefit;

they provide benefits for businesses. And I think you'd struggle to find a regulator that would say differently. And while that may sound like a statement of the obvious, I think it's something that does occasionally get lost when we get into debates about levels of intervention.

Coming then to the cliches, I suppose, is the first is this idea of an E.U. approach and a wholly different U.S. approach. While I think there are differences on both sides of the Channel, I think there's a multiplicity of views within Europe and within the U.S. And I think actually there's really -- when you look at the headlines, quite a lot that -- quite a lot of commonality really amongst some of the -- about some of the general principles. So that's sort of the first.

And the second is what Maria just touched on, which is the idea of protecting competition rather than consumers. Again, I think that sort of accusation is rather misplaced. While it's true to say that under E.U. law, for example, a company in a dominant position has a responsibility not to distort open competition, that idea of keeping open competition is quite different from somehow seeking to prop up inefficient and all the more so European

rivals. The effect on the consumer is really, personally I think, at the heart of everything we do.

If companies seek to distort that competitive process by excluding rivals, then that is depriving effectively consumers of the choice to choose between the models that best serve their needs. So, you know, this sort of totem of competitors and not consumers, I think, again, is rather too broad.

And, finally, sometimes that same argument finds another form, which is the idea that this is some kind of anti-Americanism. Now, I can only speak for what I see and observe, and within all my dealings with people at the European Commission and elsewhere, I don't see any evidence of this. I mean, certainly the large platforms that people are looking at, you know, they are largely American, but, I mean, I think to turn this into a debate about the nationality of any particular company rather ignores the sort of genuine questions that are being asked throughout the world and, you know, publicly as well as in antitrust circles about, you know, for all their benefits, what are the longer term effects and implications on consumers of some of these large platforms.

Those discussions, which we're having now about platforms, we equally have about our energy

companies, our banks, grocery stores, none of whom, in the U.K. at least, are American. Really, these are all E.U. and U.K. businesses. So I think to bring it down to some principle of nationality is a bit simplistic.

So, then, as Maria said, sort of broadening it out a bit and sort of thinking about, you know, what's the role for antitrust, then, in these areas, I think it's right to say that antitrust shouldn't make up for failings in other laws. So whether it be data protection law or consumer protection law, if there are issues with those laws, then I think your starting point should be to address those issues rather than somehow seeking to extend antitrust law to areas where it shouldn't really tread, as it were.

But I don't think that's the same as sort of saying somehow that antitrust should just step back entirely or that when you're looking at issues of data and privacy that antitrust law is somehow completely irrelevant, competition issues aren’t relevant. I mean, on the one hand, it's quite possible and indeed one might hope that the level of privacy protection that a company offers might be a metric on which it seeks to compete.

Similarly, you can envisage a situation in

which a company might use its acquired data or the data sort of gathers from consumers to either increase barriers to entry or to potentially exploit consumers who are less able to switch than others, for example. And to me, it seems like these are absolutely the areas for antitrust to be considering.

So then you come on to the question of, well, are the laws right for dealing with the problem if there is an antitrust question here. I think we heard it earlier from Randy who was saying, you know, at heart, the broad principles when you apply them to the fact, very robust and flexible. I think that's quite different from saying that we shouldn't ask ourselves some pretty tough questions about whether laws are in need of some kind of refresh here. But I do think that the underlying principles have proven to be quite successful.

And then you come on to the final part, and I'll just touch on this briefly before wrapping up, is looking at what the role of regulation is here. I and my colleagues, I think, we remain of the view that competition generally remains the best way of driving beneficial long-term outcomes for consumers. But I think when you look at regulation, and to borrow the terminology of our chief executive, I think we have to

be -- we have taken more of an agnostic approach, I think, to whether regulation may in certain circumstances actually drive better outcomes for consumers done at post-enforcement.

There may be areas where anti -- sort of traditional competition or open competition in a market may not drive really well-functioning markets or may not -- the law may not stretch and extend so well. One might look, for example, at asymmetries in bargaining power between companies, circumstances which if it were between a consumer and a business might be considered unfair between a large platform and a small to medium business. Do we need laws to cover those?

Now, the antitrust laws themselves don't necessarily go there. You might on occasion need regulation in the U.K. For example, in the grocery sector, we've seen specific regulation to address that market failure. So I think that while obviously any regulation should be targeted, proportionate, especially designed to ensure that it doesn't somehow sort of fossilize incumbency or impose excessive burdens on small players rather than large ones, I think that even with those caveats one can definitely see here that it may be through a blended approach of

both regulation and effective enforcement of the antitrust laws we might get the best outcome for the consumers.

MS. COPPOLA: Thanks, Simon, including to remind us about all we do have in common, and I think I may have focused a little bit more on the differences, forgetting that the vast majority of areas we are very much aligned.

I'd like to hear from Nicolas.

MR. PETIT: Thank you, Maria. And thanks to the FTC for the invitation and more generally for reaching out to the global antitrust community and beyond to talk about this hugely important issue.

So I really want to make three points. The first one is that it is wrong to search guidance in European competition policy for sort of antitrust hipster or new brandized counterrevolution. So some in the U.S. talk a lot about structural dominance or they suggest when they talk about that that, you know, we have a sort of tradition of ordo-liberalisms that can provide guidance. This is not serious.

In unilateral conduct cases, we have some case law which suggests that indeed dominant firms have a special responsibility not to impede competition. That case law subjects dominant firms to

very strict constraints, asymmetrical behavioral obligations. But the problem is that this case law has sort of been recast by the European courts of justice last year in the judgment in Intel where it explicitly said that an empirical assessment of economic effects should guide the analysis of anticompetitive conduct.

So that's really sort of, you know, the first cliche that I wanted to debunk here, which is that there is no such thing as sort of ordo-liberal thinking in European competition policy, and there's nothing to see there if you want to think about the future of U.S. antitrust.

The second point that I really want to make is that European competition policy can be better described as sort of experimentalist policy rather than a structuralist policy in the tech sector and the high-level idea that European competition law is less risk-averse in situations of uncertainty. So antitrust cases can be started in situations of imperfect information, emergent behavior and in clear judicial precedence.

This sometimes leads the European Commission to adopt a precautionary approach to antitrust policy, especially in abuse of dominance cases. A member on

other panel, Doug Melamed, said a more probabilistic approach to antitrust enforcement, and we really can see that. And that actually owes to a range of sort of endogenous European idiosyncrasies.

Just to run you through a few of them, the standards of evidence that we have in conduct cases are quite flexible. The case law does not require proof of actual anticompetitive effects. There's less reliance on quantifiable estimation of harm. Plaintiffs must generally show capability of anticompetitive effects. The standard that we apply is a totality of the circumstances standard to evidence.

Another factor which, you know, could sort of mislead external observers into thinking about European competition policy is that there is probably less vice in Europe in the tendency of markets to self-correct and probably more trust in government and in the ability of government to correct and improve market outcomes. That means that the agencies are actually looking at type one and type two errors, maybe in a more balanced way than the agencies or plaintiffs look at them here in the U.S.

Judicial review is less intensive over economic assessments. We have sort of -- well, maybe

I'm just mischaracterizing U.S. law, but we have sort of Chevron deference in the area of antitrust in the E.U., and that also has a lot of impact on how the agencies can feel confident or not in bringing those complicated cases against large corporations.

And maybe last but not least, distributional choices are more legitimate or easy to sort of think about in antitrust in Europe. Remember that Article 102, our equivalent to Section 2, talks about the ability of dominant firms to unlawfully charge excessive prices on buyers. So we have all those features in the design of our system which make it that maybe our antitrust policy is more experimental and maybe more confident in going after cases in which there is a lot of uncertainty.

So now to your -- really to the core of your question about, you know, trying to characterize the European tech policy in the platforms world, I think there's really three, say four, important policy messages to extract. And, again, that's really sort of a bird's-eye view because there's no sort of clear and formulated message in policy talking.

Message number one, tech policy is essentially to be addressed through ex ante regulation. GDPR is the obvious case, but that’s not

all. I mean, platform cases in Europe, they are often followed or seconded by regulatory propositions, and they seem to sort of position antitrust enforcement as a fact-finding exercise or as a regulatory kickstarter, like, you know, putting pressure on regulators to think about bigger solutions.

So you can think about illustrations. I mean, you know, proposals to introduce a general platform regulation in tech to ensure sort of, you know, rights of redress to developers and trust and transparency, the tax on revenues from digital activities, initiatives taken in the area of copyrights. So all those things sort of show that there's a sort of, you know, big regulatory campaign in the area of tech and we should not surely miss that.

Message number two, the long game of the European tech policy seems to be -- so, again, this is not really explicit -- but it seems to be to protect players active in the content development segments of the markets. I'm thinking here about artists, publishers, developers, vendors and so on and so forth. And, again, this can be seen if you combine platform-adverse antitrust enforcement initiatives together with all sorts of regulatory proposals, you

know, net neutrality, copyright reform, online platform regulation.

You can tie this to sort of political economy considerations. Remember, you know, we hear a lot when in the U.S. that Europe has no tech companies. The two main tech power players in Europe as are more in the content segment of the market, you're talking about Spotify and Deezer. The publishing industry has a lot of clout in Brussels, so, you know, if you think about tech policy, I'd say think about content. That's probably where there is a lot of faction.

Message number three, trust matters. Tech platforms must honor the trust placed by third parties placed in them, and, if not, they might risk antitrust exposure. The two Google cases, shopping and Android, that we have seen in the past three years really show that -- or sort of stand to imply that it's bad for, you know, Google to rig internet search results and not provide search results that users are expecting to have based on relevance only. And Google Android has a bit of that spin as well, where policy messages have been made that, you know, Google was not really selling an open-source operating system and that was wrong.

So the fourth message, and I'll close here, and that ties to the previous discussion in the previous panel, it seems fair to say that the European Commission puts emphasis on intraplatform competition maybe more than interplatform competition. And so this is very clear in the shopping case. It's really about protecting comparison shopping websites. It's a little less clear in the Android case because there is some saying in the press release that the European Commission is also trying to protect competition search engines. Not too sure about that, but clearly an emphasis on intraplatform competition. Thank you.

MS. COPPOLA: Thanks very much, Nicolas. I note that there's a lot of different interpretations of Intel, and I applaud yours but note that it's one of many and has been a source of controversy -- at least it seems so -- among the enforcers.

I'm also glad that you referenced the previous panel. I don’t know about others, but when I was listening, it sounded very much like they were talking about European competition law today when they were talking about Microsoft. And that was a really kind of interesting perspective.

And, finally, on the point of ex ante regulation, I hope you and others will weigh in a

little bit today on the proposed platform regulation in Europe.

Okay, so now we have Nick, who I think is going to do a deep dive into a recent case.

MR. ECONOMIDES: Thank you very much. Okay, so I'll talk about dominance and tying in the Android case in the European Union. Just to be sure that we are on the same page, the Android operating system is an off-the-shelf operating system that an OEM can freely install on a cell phone or other computing devices.

And Google Mobile Services is a collection or a bundle of applications including Google Play, Google Search, Google Chrome and others. And all these applications, of course, are complementary to the Android. And there are a number of third-party apps competing with the apps of GMS. Google Play is a crucial application, very desirable to manufacturers because it’s an application that allows search, purchase, download, update, and so on.

Essentially, what Google offered to the OEMs is to choose whether or not to install the whole collection of GMS. So if the OEM installs GMS, Google's contract obligates the OEM to preinstall all the apps in the GMS bundle; therefore, Google Play is

contractually tied to other apps in GMS, including Google Search and Chrome.

Additionally, Google wants the OEM to preinstall Google Search as a default search engine if it accepts GMS and also to preinstall Chrome. Additionally, an additional requirement is not to preinstall apps that compete with GMS apps in any other device. So if I'm Samsung and I make 25 devices and I accept the GMS in one, I have to accept it in all and not install competing apps to GMS in any of the 25 devices.

So the European Union complaint came in April ‘16. It's what Americans would call abuse of dominance. There was a similar complaint in Russia, and among other facts there besides the very big market share, so Google Play, Google Search and GMS, is the fact that Google paid the OEMs to exclusively preinstall Google Search under the condition that no third-party search will be -- other third-party search could be preinstalled.

Okay. So it appears that Google’s strategy is to protect and strengthen Google's dominant position in the general internet search and adversely affect competition in the market for mobile browsers. The European Union wrote in the complaint that in

their opinion the antifragmentation agreement, which was to not preinstall apps that compete with GMS apps, is not objectively justified. And there is some outside research that says that Google pays $12.85 per phone to Apple to make it the -- to make Google the search default.

Now, is there harm? What are the allegations of harm? First that consumers are harmed because they have less choice in browsers and search in general; that there is going to be less third-party entry into apps so that innovation is harmed; that competition is harmed because of fewer third-party apps; and, again, in American terms, we would be saying something very similar to the allegation against Microsoft, that the bundling GMS strategy preserves and enhances the dominance of Google Search.

Okay, so what were the theories of harm that were proposed by the European Union? Theory one, that Google is better off and search rivals are worse off under tying. Consumers and competitions are harmed through tying. Theory two, consumers are harmed because tying left them with less choice. Theory three, innovation was harmed since fewer third-party apps were developed. Theory four, tying of Google Search with the very desirable, as we said before,

Google Play is used to enhance and preserve the monopoly of Google Search.

So in some way, this case is similar to Microsoft. The dominant company, Google, forces acceptance of Google Search through tying with Google Play, similar to Microsoft tying Media Player with the operating system in Europe. Additionally, dominant company Google enhances and preserves the monopoly in search through tying, very similar to the Microsoft case of Internet Explorer tied with the operating system.

What has Google -- what have been Google's defenses? One, that consumers can easily download other browsers, so the default doesn't have a lasting effect. This is, in my opinion, a factual or empirically testable hypothesis that can be proven or disproven.

The second defense of Google has been that the present world is the only way to make money in this ecosystem. Again, this is testable, in my opinion unlikely, because Google has been very successful in PCs, in search, without tying to anything.

The third defense is that the OEM has the option not to install GMS, which is true, but not

relevant because the tying happens once GMS is installed and, therefore, you know, what happens when GMS is not installed is totally irrelevant.

Okay. So what happened in the case, they do fine Google 4.3 billion Euros in July '18, and the main three points that the European Union underlined in its press release -- and we have not, unfortunately, seen publicly the whole decision. The three points were, one, that Google has required manufacturers to preinstall Google Search, App, and Browser (Chrome) as a condition for licensing Google App Store, the so-called Play Store, one.

Two, it made payments to large manufacturers of mobile networks to condition and exclusively preinstall Google Search to -- in their devices. And number three, it prevented manufacturers wishing to preinstall Google Apps from selling even a single smart mobile device running an alternative version of Android that was not approved by Google, so-called Android forks.

Okay. So remedies. The most likely minimum remedies are going to be that Google will have to untie the Play from Google Search and the Chrome browser. Second, that Google has to stop paying OEMs for exclusivity, and there is some evidence that

Google has already stopped doing that. And, three, Google cannot stop an OEM from selling devices with Android forks, even if the OEM uses Play in some devices.

So this is more or less where we are. Today, Google has also announced that it will -- it has announced remedies like the ones I just mentioned. And it has said that it will start charging for use of Google Play. So at the end of this picture, after looking at this, one gets the feeling that Google has snookered the regulators, especially the U.S. regulators. The U.S. seem to have dropped the ball on this issue.

Essentially, Google used an illegal tying tactic to increase its market share to the detriment of consumers and rivals for many years. It's very possible that this will have lasting effects on search, and the remedies that I have discussed before do not take care of that. And it's kind of an open question whether there should be additional remedies. Thank you.

MS. COPPOLA: Thank you, Nick. And I'm glad that you had a chance to have a quick look at the remedies that just came out today.

Next we'll hear from Josh Wright. Josh?

MR. WRIGHT: Thank you. And I wanted to cosign with my colleagues who have thanked the FTC for putting this on, and I'm especially grateful that it is here at George Mason. And I know I speak for the law school and the GAI in saying we're pleased to be participating in this debate.

So platforms, for a variety of reasons, and I think spelled out by my colleagues on the panel, a fun and hot and even maybe for antitrust terms anyway a sexy topic in antitrust. My job for the next seven and a half minutes, I think, is going to be to make the point that the differences that we really see in U.S. and European antitrust treatment and Article 102 and Section 2 have little, if anything, to do with platforminess I think was a word frequently invoked yesterday. I really don't think the panels have much to do with specific differences about platforms.

So in some ways, my goal for the next six minutes is to make the topic far less sexy than it sounds, but I think I probably can get the job done. I do think, and I'm glad that Simon started with the proposition that there really are much more in the way of similarities here than differences. I think that's an important place to start, whether it is methodologically on basic principles of market

definition or at least a statement that we are all doing the consumer welfare standard.

I think now more or less everybody says that, but I think sort of a layer beneath the observation that we're sort of interested in harm to competition and effects in doing consumer welfare, there are some important -- I think I'll use the term "methodological differences" that one can see sort of stylized empirical regularities and decisions involving single-firm conduct that come out of the E.U. and the U.S. that I think are interesting and important for discussion Some have already been raised.

Nicolas raised the sort of emphasis on intra- versus interplatform. I think the idea, the importance of the role of judicial review as an institution in single-firm conduct cases is obviously, I think, incredibly important to determining how regulators and courts behave sort of in the first instance. But I think those subtle distinctions in the way we talk about how to analyze single-firm conduct cases are tremendously important. I just don't think they come from platforms.

And it is true that there are unique features of platforms that end up being important in

cases, right? We get -- and we have that in U.S. law and some places whether one reads AmEx that way or the DC Circuit's interpretation of Jefferson Parish as a tying test for sort of integration of what would be separate parts.

So this is not to say that platforms don't have some fun, unique special features for antitrust analysis, but I think the difference is that we observe in the types of cases that people are mentioning, so whether it's Google or Intel or what have you, are really the same fundamental Section 2. I remember way back when it was the Section 2/Article 82 debate over divergence between the U.S. and E.U. on single-firm conduct.

And there are a whole host of possible explanations for those differences. I think Nicolas mentioned some of these in his talk. These are sort of the standard menu of items for possible differences -- different priors with respect to how frequently tying or vertical integration or exclusive dealing is anticompetitive. Those are topics upon which economists, I think, have quite a bit to say.

Differences, whether ideological or cultural or political or economic, on how one weights type one versus type two errors, I think all of those are

important, and we'll focus just on one difference that I think is important to invoke in these sorts of conversations.

And that is sort of a fundamental question on when it is appropriate or optimal in the design of antitrust standards, keeping open the idea that the optimal standard might be different in different countries and different settings, but when it makes sense to infer harm to competition from harm to a rival that is in large part my read of European decisions is a greater propensity to infer harm to competition from harm to a rival that has a place in U.S. law and sort of U.S. agency jurisprudence as well. It's sort of more and more likely U.S. agencies and courts are to demand evidence of actual effects as opposed to inferring likely effects from harm that can be demonstrated to a rival.

I think I've got two minutes to go, maybe two and a half. So I will -- I did not plan on doing this, but Nicholas said "snookered," and it got my attention. So I left the FTC. I did not participate in the Google case. I came a couple days after it closed, maybe coincidentally. But I do object. I think we said we would sort of make an effort to escape from cliched treatment of cases, and I think

the idea that the FTC got snookered or captured or some such is a cliche that deserves to be abandoned.

At the agency, I think I set the record for dissent over a seven-year term in three years. I can tell you it's really hard to get five-nothing decisions. I tried to ruin lots of five-nothing decisions. And it's very difficult to do. That is a five-nothing decision, and I think the agency statement, which talks in part about my light's not enough; I sure wish -- you know, this is the case where the agency accidentally released a half-page of the Bureau of Competition memo, you know, the one to let go of, and I've said this in public before, the Bureau of Economics memo that actually shows the work that the agency did.

I think John Ewing is not in the room, but my colleague here, John Ewing, who was the staff economist on that case, has a paper, it's up on SSRN.

Obviously can't talk about what the staff did in that paper because the data are confidential, but for those actually interested in what the agency did in the case, I think it starts with reading that paper and the FTC's closing statement. And the FTC makes clear that what they relied on was they took the theories of harm seriously, they tested them against

data and looked for actual effects, and they found the evidence lacking using real economic evidence.

Now, could be the answer is you get a different result in Europe than the U.S. I'm sort of open to that. You could very well run sophisticated analyses in both places and come to different answers. I think that's a possibility. But I think we ought to take the agency for its word in what it describes, sort of what it did in those cases. So, that, I think, gets us a little bit closer actually talking about what the standard of competitive harm is, what evidence is sufficient to substantiate claims that there is harm to competition, when is harm to a rival without showing an effect on competition sufficient to substantiate such a claim.

There are lots of different views there, some which I think can be resolved, some that can't. But I think talking about the work that the agency actually did rather than talking about whether or not it was snookered is probably a more fruitful avenue.

MS. COPPOLA: Thanks, Josh, and thanks for reminding us, too, that we want to be thinking, to the extent that we can, about platforms as opposed to simply single-firm conduct.

I think now I'll turn to Cristina.

MS. CAFFARA: Thank you. And, again, my thanks to you and to the FTC for the privilege of being here today. I will touch inevitably on the multiple themes that have been already touched upon by other panelists. I'd like to give you a sense for really what it is that may be different in Europe at the moment, where the narrative is and where the conversation is going, with the proviso I agree with Josh and others that we have a lot in common and any differences is not specific to -- particularly to digital platforms.

It is also true, though, that in the current debate about enforcement around digital platforms is these differences are becoming amplified in the discussion, inevitably turns, also, around them quite a lot. In the spirit of disclosure, I work, of course with Charles River. I have, in the past, advised third parties in the Microsoft case in Europe. I have been involved for third parties also in the Google shopping and Android case, but, of course, what I'm going to say here is entirely my view and does not in any way represent that of other CRA colleagues. I need to say that.

I also need to say that although when we talk about Europe, this is obviously a shortcut.

Inevitably when we talk about Europe, digital competition and European Commission are the center stage, but it is important to sort of bear in mind that there is a very diverse and, in my view, broader environment of agencies at the national level that are very active in the space.

Simon represents the U.K., we have the French authority, the German authority, very influential, the Italians. So there is, in fact, a broader narrative and a broader picture out there which will collapse a little bit into simplification when we talk about Europe as a single entity.

Now, with that said, I think I would also like to start with perhaps what is not necessarily a caricature but it is a description of what the European position in these kind of cases is often described as in conferences and in debates around policy. There is a sort of a description that essentially goes, Europe is mainly protecting competitors rather than, you know, that is the goal of competition enforcement but protecting competitors rather than anything else rather than consumer welfare. We are pursuing fairness as an enforcement goal as opposed to a more legitimate one of consumer welfare again, and we have a host of other policy

objectives, like digital single market. Nicolas hinted at some sort of content support for local content, which may be bundled up in some of the antitrust cases.

And, finally, there is also this driving sentiment that there is tech envy in Europe. We don't have our own Google, we don't have our own Silicon Valley, we don't really produce these type giants for a host of reasons. There was an interesting article in The Economist last week that explained the history. We don't have unicorns in Continental Europe at the moment. There are a couple in the U.K. but nothing to challenge the U.S./Chinese sort of supremacy.

So all of that is the kind of narrative that is often sort of put forward in these kind of discussions. I want to pick up on a couple of misconceptions, and this is my first one. The first one is really this notion that somehow Europe is pursuing some other goal, some protection of competitors as opposed to consumer welfare. I think that is simply not true, nor is it true that in cases like Google or Android there has been a protection of competitors in preference of the notion of consumer welfare.

It has been mentioned before, there is no

question that in Europe we have a special responsibility, which is allocated in a dominant company to not undermine competition. But the notion of consumer welfare is very central to what Europeans do and how they think about it. It's only a notion of consumer welfare which is not narrowly focused on output and price, and the discussion about the boundaries of consumer welfare that sometimes one sort of sees here seems puzzling to us because, for us, consumer welfare is very centrally price, output, choice and innovation.

And I hear Josh when he says it is very difficult to infer consumer harm from harm to a rival, I realize this is a discussion which is the core of this, but if I think about what the previous panel discussed, I mean, Doug Melamed talked about the Microsoft case and very clearly said we took the view that in a probabilistic sense, markets in which you have more competition, more active competition, tend to favor more innovation rather than markets where we just sat around a very strong monopoly and a dominant firm.

And this is not a novel view. This is -- we have absolutely pursued back in Europe at the time of the Microsoft case, there was a big debate at the time

from Microsoft, and I'm talking about the server case, about being expropriated by intervention. Our intellectual property is being expropriated. There will be a reduction in our incentive to innovate, which was the response what about the overall incentive to innovate, what about implications for competition and the overall effect on innovation in its totality.

So I think that it is fair to say that we do not see any abuse around introduction of innovation. There is no notion of an exclusionary innovation. There is a notion that what is problematic is conduct around innovation that may be tilting the playing field. And certainly in Google shopping the concern was the discriminatory sort of way in which some of the new features of the product appeared to have been introduced is the objection that really carried weight in Europe.

So this is the first, I think, misconception that needs to be cleared up. We certainly pursue consumer welfare, and we see innovation as being central to that.

The second misconception is that somehow we don't know our economics in Europe. We're a little bit fluffy, we do these kind of theories of harm that

are a little fluffy, and we don't really do them in a tight way. We need to go back to school. Well, this is an insult, because, you know, although there may be some question around some of these theories, I think that it is absolutely clear that any one of the concerns that have been pursued in these cases as being -- and can be expressed in a very standard, Chicago-type model, dotting all the Is and crossing all the Ts.

There's has been a lot of academic work supporting, for example in the Android case, notions of dynamic exclusion, dynamic foreclosure. There are models that show static foreclosure. So I think this is also sort of some notion that we do things because we like strange ideas like self-preferencing is a caricature of how things are really.

The next point, and I'll try and be brief, is, of course, this doesn't mean that the tool that we use has no limitations. There are significant limitations, particularly in thinking about Article 102 to pursue -- to pursue conduct in the case of dominant firm. One -- and it will appear surprising to some of you perhaps in light of the previous discussion on the Microsoft case, is, in fact, the Microsoft legacy in Europe.

And when I say that, it is very much the Microsoft server case that I'm talking about. The reason is that good as that case absolutely was, it has embedded and established a precedent which is the one that everyone in Europe, but certainly the European Commission, is very favorable to, the notion that you build an anticompetitive story around leveraging and around time. And so every single one of these stories ends up being fashioned as a time story.

And, now, this may well have merit in the case of Android, I think it does. In the case of shopping, I think it's a bit of forcing the discussion to describe that as a tie and see that there's a tie, this type of vertical foreclosure case. But, you know, what it means is that it may be a bit of a straightjacket when we think about cases, because it means that everything needs to be fashioned in that way, things couldn't get off the ground if they don't have that structure. And that doesn't capture the totality of the cases that we may be worried about or tied to the circumstances that we maybe sort of faced.

Second limitation, which I think is very, very clear, is the nature of remedies. In these cases, we pursue a theory of harm, but how effective

are really the remedies that we're able to put in place? And there is a variety of reasons why these remedies don't seem to be doing very well. I mean, effectively, you say to a dominant company, off you go, cease and desist, and come up with something better.

And, in part, it is the asymmetry of information between the regulator and the company. There is very little ability to really drive what is going to be adopted. So I don't think it's a surprise that the shopping case is delivering absolutely nothing. It has generated a sort of emotional-type mechanism, with all good intention, but no one -- there is a monitoring process going on, but I think there is great skepticism that this is doing anything particularly worthwhile. And I think it's a recognition on all sides.

So what is the purpose of these cases once we find a theory of harm if we really cannot put in place a solution that makes a great deal of sense? And I have to say we will see how it will play out, but, of course, there is a possibility that Android will also sort of remain in that kind of space. Do I have another couple of minutes?

MS. COPPOLA: Yes.

MS. CAFFARA: Okay. So the third point I'd like to make is that, okay, so these are the limitations of the tool and we know them and we understand them. At the same time, I think it's very important to understand also the kind of observation that Europeans are making -- European regulators and European observers. What is clear or what appears to us is that all this kind of awesome digital world that we were expecting was going to unfold sort of before us in which, you know, there was going to be leapfrogging every five minutes, people were multihoming, people are just totally downloading frictionlessly without any problem, it's not kind of happening.

And there is a great deal of concentration in terms of bottlenecks and channels, often tension into limited, very big, very big giants, and that is a question that we are putting ourselves: Why do we observe this? Why are we observing these kind of much multifarious, multiwonderful world of changes? So that's -- that's an open question.

Another question is the fact that we observe acquisitions going on all the time, buying other small companies, and that may well be very legitimate, but there is also this question, are these killer

acquisitions. There's papers all around looking at this. There is the question of extending the position in multiple adjacent markets, which is absolutely the heart of the digital economy. Combining complements is the thing. But, you know, what's the line between that and some form of occupying a space or foreclosure. Dual monopoly profit theory doesn't necessarily work that well when you have a zero price constraint.

And the big question, and I'll end on that, is really what do we know about the effects of all of this on the rate of innovation? This is the question that empirically we don't have a good handle on, and it is to me at the absolute core of all of this. Do we know whether in all of this we see innovation sort of thriving on the shoulders of giants, or do we see it wilting in the shadow of giants?

There is very little that is actually done in this. I have seen Stipkin's (phonetic) studies that he's -- something we shall see recently that sort of looks at the rate of VC investment in startups and looks at a specific segment, so internet retailing, internet search, and social networks, and would appear to suggest that this sort of -- the startup VC investment in new companies in these segments is going

down every single year.

If you take that literally, that would appear to suggest that there is perhaps not so much benefit to small companies innovating in the shadow of giants because there is not much funding, and whether that is because there is a fear of expropriation is unclear. But, of course, we need to look at funding for complements as well as substitutes.

So to say this is absolutely the core question, which should be, of course, more research is needed, but it is one that we should absolutely pursue if we are going to be shaping the tools -- and I'll go to the tools later -- in a way that is meaningful in the future.

MS. COPPOLA: Thank you, Cristina. I have about a hundred questions, but before I start, and I have a few from the audience as well, did any of the panelists want to comment on any of the opening presentations?

No. Okay, well, I suppose I have one very quick question and then a series of longer questions. The first one is I think, you know, a lot of what we're talking about here is harm and what do we mean by harm and, you know, the link to the consumer welfare standard.

Cristina, you talked about something that was a little intriguing. You said conduct that doesn't -- that's harmful but it doesn't neatly fit into the Microsoft tying or bundling, just briefly, what type of thing did you have in mind?

MS. CAFFARA: Well, I'm just saying that if you think -- I mean, it's important that we think about the concerns that we might have, what are we seeing and how that may look like a competition problem. In Europe, the problem is that you are, then, having to try and fit that into the boxes of tying, and not everything is a tie. That's the point.

So if you think about -- if you think about the concerns of, for example, publishers that Nicolas mentioned, there isn't a tie. There is a concern about traffic allocation and that might drive the choice of business model in a way that perhaps doesn't fit in the underlying preferences of consumers but reflect the preferences of the allocator. So how do you fashion that into a theory of harm? It's not a tie. No one is tying anything with anything. So I'm saying that, you know, that's one limitation that I see in Europe in the ability to actually be effective in designing a theory of harm that will get traction.

MS. COPPOLA: And we can think about whether

some of these issues are better addressed by regulation in a minute. I just wanted to turn to Josh, actually. Cristina had suggested that the Europeans think about consumer welfare, but they include not just price and output but also choice and innovation.

I suppose there was sort of a subtext there that maybe the U.S. antitrust authorities aren't thinking as much about those. Did you want to reply to that?

MR. WRIGHT: Sure. And not so much as a reply to Cristina. I will defer to her description of the European approach, for sure. It is sometimes raised, and I do think -- I think Cristina referred to it as a caricature of the claim that Europe is not doing consumer welfare. I think that's right. They obviously are, and there are sometimes subtle differences in the way that we sort of weight different types of evidence or different types of theories. You will sometimes hear as part of that discussion, well, the U.S. approach only does price and output and we're somehow, you know, sort of blinded to innovation cases.

I don't think that's right either. I can think of a number of innovation cases, both in the

merger context and the unilateral context, for sure, that the FTC has brought. So I don't -- I don't think that there is anything in either approach to consumer welfare that would prohibit either set of institutions in the E.U. or U.S. from going after cases that involve theories of harm to innovation.

Again, I think there the differences are more methodological than conceptual. The proof is in the actual application of the concept to the evidence. What evidence substantiates some theory of harm, we all read the same math models and can sketch out a theory of dynamic foreclosure or harm to innovation or harm to an edge provider or whatever else. We sort of all kind can do the same models.

I think the question has much more to do with what evidence is sufficient to substantiate those claims. And there, I do think there is some difference. I think there is more reticence in the U.S., and we can talk about whether this is a good or bad thing, but some reticence to use models that are commonly invoked in the theoretical IO literature but sort of less often substantiated with empirical evidence.

I think there is more reluctance. I think there is certainly -- and Nicolas' comments to start

with emphasized this -- I think there is certainly more of a requirement in the U.S. to show actual effects and a little bit more of a suspicion, over likelihood effects -- over likely effects. That may be a function of judicial review in some places; it may not be. So that will be sort of one big endogenous bundle.

But I think the way to think about which of those approaches is superior almost has to get at outcomes, right? It has to get at trying to measure performance in the actual marketplace, and that is a place where I think the FTC has some comparative advantage in trying to -- these are really hard questions, and we all have our favorite cases or favorite examples of type one or type two error to tell, but I think these are really hard, thorny questions that require a lot more empirical evidence than they do theory.

MS. COPPOLA: Thanks, Josh. And I would just add to the evidence -- the evidentiary standards are slightly different and also the burdens with the agencies, where the burden lies, burden of proof.

Nicolas, you wanted to say something, I saw you --

MR. PETIT: Yeah, so I think there's -- I

mean, there's probably not so much, you know, support to the notion that you really need to bring a categorized theory of liability to fly in an antitrust case in Europe. And, actually, the decision of the European Commission is very long. It's 220 pages more, shows that the defendants said, Google said, well, you have not shown me an essential facilities theory of liability, you have not shown me a sort of duty to deal kind of story here, Commission, so you have no case.

And the Commission said, and, you know, rightly so on the -- precedence the Commission said, and, you know, rightly so on the basis of judicial precedence, the Commission said, well, you know, there's no laundry list of theories of liability on which I have to rely once -- you know, pick one to run a case. This is open-ended. This is fluid.

You know, views depend primarily on anticompetitive effects. So then the question is, you know, what Josh mentioned earlier, what kind of degree of -- anticompetitive nature of anticompetitive effects you can rely upon to bring Section 2/Article 102 case. And in Europe, the feeling seems to be, well, you know, capable is enough, and uncertainty is less of an obstacle to antitrust enforcement.

MS. COPPOLA: Thank you, Nicolas.

We have some questions from the audience that I think are relevant, in particular for Nick, but others should feel free to weigh in. And one is, how serious of a consumer harm is it when the consumer simply has to download a different search engine? They have the benefit of preinstalled and they can still choose a different one.

So this is getting at some aspects of the Android case, obviously, not the entire case, but a piece of it. So maybe, Nick, if you'd like to respond to that.

MR. ECONOMIDES: Sure.

MS. COPPOLA: And maybe I'll ask the other panelists to think a little bit about remedial challenges in some of these digital platform cases and we can have a discussion about that.

MR. ECONOMIDES: Sure. Well, first of all, I should have said it from the beginning that I don't have any particular company or entity that I work for except NYU, and these are the only people who are paying me to do this research.

The second thing I was going to say is that I said the word "snookered" about the FTC. I didn't say the word "captured." That's something that I

don't want to say. This is more onerous implications which I don't want to get involved with, and I don't really believe it.

Coming down to this question, I am old enough to remember exactly the same defense by Microsoft when there was the issue that Internet Explorer was inside Windows and, you know, was that an advantage to Microsoft or not. And Microsoft would say, look, I mean, it takes one minute to download Netscape and anybody can download it.

Whether it's as easy as people say, it's an empirical question, and I think at least my feeling, maybe I'm too old for cell phones, but my feeling is that it's much harder to download a new browser on a cell phone than it was to download a new browser under Windows, or is under Windows. So it's an empirical question.

I don't want to presume the full answer. This is something that anybody who brings a case and anybody who argues a case should really specifically look at. But even if the harm is small there, there is an issue of the consumer not having readily all the alternatives and ways in which companies with very large market share, over 90 percent, have written exclusive deals so that other browsers are not

available or other search possibilities are not available on cell phones.

MS. COPPOLA: Thanks so much. And, actually, Simon wants to speak, but it is perfect because I had a question. As Nick was speaking, I was thinking about sort of the digital competence, the technical competence that we have within our agencies. You -- I know the U.K. CMA is sort of making itself digitally fit for the new age. So as you comment on what Nick has said, if you could bring in a little bit about what your agency is doing in that respect.

MR. CONSTANTINE: Sure. Well, part of my reason for wanting to speak was so that I didn't have to answer the question of how exactly you remedy these issues, because I think it’s a particularly difficult one and inevitably will be, you know, something you have to decide on the facts of each case.

Going to the original question about how easy or otherwise it is to download apps, I mean, I think there is research that suggests that the only area in which Bing has a significantly higher share than Google Search is on Windows phones, where it is preinstalled. And so, I mean, going to Nick's point about the empirics, I mean, I think you can admit we all say it’s quite easy to do. You know, even small

amounts of friction, I think, can be shown to really have quite a large impact on consumer behavior, particularly when you extrapolate it and multiply it across the millions of devices sold and the millions of interactions that we have with these devices. So that's that point.

I think Maria was asking about some digital expertise. I think this is a key issue, as alluded to earlier, about the sort of information asymmetry that exists between regulators and tech companies. And one of the inherently -- because all of these cases are so fact-specific, you really have to get into the weeds of the case, and that requires us to understand how these markets work. And taking our inspiration in some ways from the FTC actually and their Office of Technology, we've recently appointed head of digital and are forming a data and technology and analytics team, which will be a sort of mix of not just the sort of usual lawyers and economists that populate antitrust authorities, but also data scientists, analysts, and the like, and so really trying to understand what the implications are of data, how we can use that data ourselves, how we can better assess it, and then also looking at how one might use data.

And this, I think, is an interesting

question perhaps to which to come back to in the future hearings, is how we can use data actually to drive better competition in the market.

MS. COPPOLA: Well, that's the topic of our November hearing, so in case you want to come back to Washington.

I don't know if others want to comment on the remedial challenges or whether we want to turn to regulation. I have a question from the audience and I know we've had a few rounds of emails about regulation, and so anyone want to comment on remedial challenges or should we move to regulation? Okay.

So the question from the audience was, do you need sort of an identifiable market failure in order to regulate ex ante regulation, and what are sort of the costs and benefits as compared to case-by-case enforcement? And I think hopefully panelists will address that question, but also more broadly, you know, what are the competition harms that we're worried about that can't be addressed by antitrust enforcement actions? And what would that regulation look like?

Does anyone want to start?

MR. WRIGHT: I can do the first one, yes. Yes, you need a market failure to have ex ante

regulation. I'll let my copanelists do the heavy lifting on the rest.

MS. COPPOLA: It might be one of your students that submitted the question.

MR. WRIGHT: I would pay them for harder questions.

Don't do it, guys.

MR. ECONOMIDES: I might say that I agree with Josh. I mean, this is -- when we're talking about sector-specific regulation, we need -- we really need to prove that antitrust doesn't work and there is some sort of what we usually economists call market failure. One of the areas in which it seems that there is a market failure and antitrust cannot fix the problem is in the collection of data by companies such as Facebook or Google or others, without payment. So usually you would expect when some exchange happens that there is actually a price, but here the price is -- has been set to zero.

So in my book that counts as a market failure, and, there, we need to think seriously about how to regulate that market and even create the possibility of a real market there in which money changes hands.

MS. COPPOLA: Thanks very much.

Cristina.

MS. CAFFARA: I am happy to jump in. Well, I would like again to give a sense for what is the broader debate which is taking place in Europe now. I think the question of whether we need to just -- we need to default to regulation on how we think about regulation in the event that we decide that the antitrust tool isn't sufficient I think is not quite well put.

I think in Europe the debate at the moment is very broad and very live about how we need to think in a holistic sense about all of these tools and not necessarily think about them sequentially or separately. The initial discussion was, of course, like everywhere, do we have the right tools in antitrust and how should we somewhat sharpen them, adapt them in this new world. And, you know, the standard answer that you got until fairly recently was, we just have the tools. We have all of the tools, we just need to prime and populate. And don't lose your head, there’s nothing to see.

And I think that that kind of certainty has become quite shaken by the notion that we observe phenomena. I mentioned earlier that we are questioning, why don't we see this kind of thing, a

seamless world of overtaking and leapfrogging, and why don't we see these kind of phenomena sort of out there.

So there is a sense that a broader approach is needed, and this is not sort of a populistic, extremist fringe that takes this view. This is kind of mainstream at the moment in Europe, Jean Tirole just mentioned someone whose credentials are obvious, and Nobel Prize has been talking about the necessity to rethink a bit the approach in these cases. He's talking about participative antitrust as a potential way to think about it. So no longer sort of a prosecutorial but a way in which perhaps companies could sit together and can come together and address some of the issues.

There are bodies of very respected orthodox academics in Europe, economists and lawyers, thinking about how indeed the tool needs to be significantly abated. In Germany, you have this next-level antitrust paper. You may or may not agree, but this is very influential in the way we think about it. There is the group of people advising the Commissioner saying we just need to be less insular in the way we think about antitrust because we are kind of constantly thinking about, do we have the tools, can

we sharpen them a little bit, we need to stop thinking of what the issues are and then thinking again about what the best tools are.

Now, and then, of course, as you mentioned, there is, in fact, you know, an additional point. The U.K. Treasury has launched a digital platform initiative just to again try to identify the big questions before we really think about the use of the tools.

So I think as the initiative or regulation is trundling through the European parliament, there are various regulatory initiatives at the national level. And I think that that is certainly going to our head. It is going to fill any vacuum that antitrust enforcement needs. One of the models that, you know, you hear people talking about is, well, we've been dealing with, with telecom company in the past, we've adopted an end-to-end interconnectivity approach, in which we mandated number portability, we mandated all sorts of axis regimes, and that's what we've done. Why can't we find an equivalent in this world? I think this is more than a question of detail. It's very important. But just to say that I think that discussion about instrument mix is super-live in Europe, and it isn't just about fiddling at

the edges with antitrust. It is a broader and more ambitious sort of...

MS. COPPOLA: It's interesting to think about why some of the discussions in Europe are different from those here, and whether there's kind of a more openness to regulation. The discussion about different tools had me thinking a little bit about the U.K.'s power in their sector inquiries.

Do you want to weigh in on that at all, what that might look like for digital platforms or how your experience might inform this kind of multidisciplinary approach?

MR. CONSTANTINE: Yes, I mean, we in the U.K. have the benefit of sector market study powers that not only allow us to look across a sector as a whole, where the market may not be functioning well, but also at the end of it allows us to impose remedies, orders that are quasi-regulatory remedies. And I think in this sort of circumstance, that can be a very powerful tool.

Both Nick and Josh talked about the need for a market failure. I mean, I agree, and the markets tool, I think, can achieve that. It's a two-year investigation that really looks to understand how the market is operating, what are the factors that are

driving the assessment -- the way in which competition is operating. And that -- so that allows you to look at competition issues; it allows you to look at consumer issues and then not have to try and shoehorn things in through the very tight antitrust lens.

One might see in a recent banking study we looked at where previous attempts to sort of make switching easier and the like haven't necessarily worked, so we looked at the market again and actually have there introduced a remedy which brought forward what's known as open banking, which is about allowing people to port their data, their financial data from one bank to another and engender competition that way.

So I think it allows you really take this detailed look at a market based on the evidence to address it and thereby put in regulation that's really sort of tailored to exactly the harms you're trying to get at.

MS. COPPOLA: Thanks, Simon.

You know,, the discussion we had earlier on intra- versus interplatform, I was thinking about the question a little bit from a slightly different perspective. And that is should we in the U.S. be more concerned about intraplatform competition? I keep hearing, say, well, you're this concerned about

interplatform but I guess there's a different question, which is is the U.S. sufficiently -- do we pay sufficient attention to intraplatform competition?

Does anyone want to take that on? Yes.

MR. PETIT: So, yeah, just to come back on, you know, the previous points which haven't been made about what agencies should do in situations of uncertainty, I think what they should do is, you know, have a set of first principles to think about in certain markets. And I think one of those first principles is to say, well, you know, we are going to go to these markets if we see there is not enough interplatform competition. We're going to look into intraplatform competition, sort of, you know, kind of reasoning that we've had in vertical restraints, in Europe at least, for a long time.

And so your analysis of intraplatform competition becomes important and the scrutiny becomes important if you feel that a market doesn't have sufficient degree of interplatform competition. And on that, it's often sort of, you know, difficult to make that preliminary assessment because the question is what is the platform you're talking about?

So for instance if you take the Google/Android case you could say, well, you know, the

platform is search and there is not enough competition because Google has, you know, between 90 and 100 percent market share. But at the same time, you can only come to that reasoning if you've excluded from your analysis Apple and its closed ecosystem from the analysis. And you could say, you know, Apple's siloed ecosystem is also a platform which competes with the platform of Google, which is search plus Android.

So it is a first question to ask. It's not an easy question. Sometimes I think the tool of antitrust, like market def, can be misleading in that assessment.

MR. ECONOMIDES: I was going to say that, you know, an interesting issue of intraplatform competition could arise in the distribution of -- the distribution that is now dominated by Amazon when you have some sellers that are selling directly to consumers and also selling through Amazon. So there, there is at least a possibility of anticompetitive effects in intraplatform competition. But, again, I haven't studied this so I'm just discussing a possibility of a platform where this might be looked at.

MS. COPPOLA: Thank you.

We've got a couple of questions here from

the audience, and I am also conscious that time is ticking and we're at the end of the day. So I'm going to ask both the questions at the same time. And when you think about your responses, also feel free to respond to the questions that have just been posed prior to this.

So one of them is, essentially, even if there's not specific cases, you know, are we seeing at least in terms of rhetoric a return to an ordo-liberal or structural approach to antitrust in Europe. Cristina is raising her eyebrows, so I have a feeling she may go first on that.

And the other one is, the panelists have been asked to look ten years ahead and consider emerging technology, so algorithm AI, big data, et cetera, et cetera. Can you comment on these new theories of harm on the U.S. and the E.U. and the outlook for these? And I suppose thinking in particular about platforms. That's quite a tall order, so hopefully a couple of you can rise to the occasion, but I understand if not everybody wants to.

So, Cristina, do you want to mention anything on the ordo-liberal?

MS. CAFFARA: Well, I feel called to respond to this. Well, look, I mean, of course, there has

been a history in Europe in which the sort of traditional German ordo-liberal position has been in effect looked at as somewhat of an oddity in the sense that there's sort of the drive towards adoption of consumer welfare, which has been overwhelming across all other jurisdictions as being the prevailing one.

And in all of this, the German position, although it has been influential in shaping competition law in Europe in its beginnings, has inevitably -- had lost a little bit of traction and indeed was not center stage. At this point, there are voices that say in this discussion in which we are worrying about these large giant companies, is it the case that we are seeing the ordo-liberal position kind of rearing its head again.

Well, I suppose if you are in Germany, you can feel quite vindicated by that discussion and take the view that somehow this sort of investigation of Facebook is not something that is so eccentric after all. I think that is sort of the more sober way of thinking about it is that we worry about a number of things, and size is one of them, because it is not size, per se, but it is the fact that we don't see, once size has been achieved, a great deal of dynamism in the sense of challenging perhaps that kind of large

established position.

And it's going back to what I was saying earlier. There is no sense that there is, at the moment, any leapfrogging likely or any sort of change in that sort of -- in that market structure that's before us. So it's that which is -- is that sort of an ordo-liberal principle? No, it's that we are worried about what we see, size and the fact that there is clearly a number of -- a limited number of large players controlling attention in very limited channels.

It raises a question, a question that we need to address, not a return to ordo-liberalism, but taking just the questions we need to address.

MS. COPPOLA: Well, I've just had another question come in, that's probably slightly more nuanced. If you have the structural ordo-liberal approach here and then you have the effects here, the question is that the panelists, both this panel, previous panel have sort of observed that European enforcers might be more willing to or more comfortable facing enforcement on likely effects. I mean, certainly, the case law allows them to, and they may have greater comport doing that, whereas in the U.S. typically we focus on actual effects. And the

question is which approach is better for digital platforms?

Would anyone like to comment on that? Nic?

MR. PETIT: Yeah, so, again, on first principles, I think there's no reason to exclude as a principle the ability for the agency to advance on a capability or likely effects theory. But if you do that, you need to -- so the first principle is you need to provide symmetry to the defendant. And so you need to -- so if you are -- if you are in the game where you are saying the effects are uncertain but we go for it, and this is -- you know, this is probabilistic, as was said before, well, then, you should allow the defendant to also say that there is competition but it's probabilistic, so it's going to hit somewhere, right?

We heard before people say, well, it's all make-believe, that, you know, those guys say, we have competitors but we don't know them. Well, maybe it's not. I mean, Schumpeter has written about that, you know, competition felt, the intensity of competition that you can't locate in a market, but it might be there somewhere.

And so I think when we think about its likely effects, we also need to provide the defendant

symmetry to advance probabilistic competition as a defense.

MS. COPPOLA: Thank you.

Simon, I'll ask you to weigh in, and then I think starting at the end with Josh, I'll ask everybody to give their closing remarks in addressing that ten years ahead question, if possible.

Go ahead, Simon.

MR. CONSTANTINE: Very good. Well, I will combine your third question and the ten years ahead one, and so this can be my closing as necessary. But I sort of think of this through the mergers lens is an interesting way of looking at it. And I caveat this with the statement that, you know, I consider it a success to have made it to the end of the day, so looking ten years ahead I find quite difficult.

But sort of that aside, I think when -- I don't think when we're looking at, say, a merger of -- involving the acquisition of a startup, we know there's going to be a lot of discussion about that tomorrow. You know, inevitably, there is going to be a degree of uncertainty as to what the future might hold, both with and absent the merger.

And I think -- I do wonder whether sort of over time we have worried too much about over-

enforcement, particularly if you have a number of potential theories of harm, each of which is relatively low likelihood, but, you know, the likelihood of one of them happening is rather higher, and if it does, it's a very significant effect.

And I think the other thing about mergers, and it goes to the second question about looking ten years ahead, is that we see two aspects. One is the -- what was described yesterday as horizontal expansion, so this is sort of really the stretching out of the platforms into new markets. There's a lot of talk about Fintech at the moment and how we can see the traditional banks using new technology. Well, one can equally switch around to Techfin and see how it's the traditional tech companies suddenly seeing that there's a potential financial services market.

And the other element of that, I think, is when you look at where is the innovation happening. And, you know, when you have increasingly sort of the centers of innovation, the innovation poles, all being located within a smaller and smaller number of companies, then I think you do have to wonder how the sort of Schumpeterian competition or whatever you want to call it, where, in fact, that's going to come from.

MS. COPPOLA: Thank you.

Josh. We'll just go down the table, yeah.

MR. WRIGHT: I'll go quick. I'm frankly not totally positive this will answer the question, but it's the thing I want to say at the end, so I'm going to say it. So I think the principles and getting into these cases where we kind of test the limits of our predictive powers at the agency, whether that's two years, five years, ten years, or what have you, there are a couple of different ways to approach that conceptually.

And one is we could, I mean, we could stack theories of harm and sort of add up the probabilities, but the defendant's got theories of efficiencies, too, and if we stack them, we have two events with the probability of one and that's hard math. So I think the better approach is when we don't know, when we have these theories and we sort of don't know and we find ourselves with big confidence intervals around our guesses, you know, one thing that the agency and I think the FTC is uniquely situated to do, is to try to participate in competition policy R&D, go out and identify important questions.

There's a bunch of young IO and labor economists around the world who need stuff to work on, and these are important questions where the theory to

empiric ratio was, like, infinite. And I think that's -- that means there's sort of fun and important work to do, and people ought to do it, and I think the FTC or competition agencies around the world identifying it as an important area is a really important thing that those agency can do.

MS. COPPOLA: I hear a lot of Bill Kovacic in those remarks, and I applaud them. Okay.

MR. ECONOMIDES: Can I say something about the ten-year prediction?

MS. COPPOLA: Sure.

MR. ECONOMIDES: After all, it's the end, so I might as well make a prediction. I think that if we look at platforms, we have to look at the sectors that have stayed behind and that are the most likely to convert to platforms. And these are the health sector, banks, payment systems, part of the banking world, and currencies. So within ten years, I'm pretty sure that all of these are going to become platforms, going to be transformed by platforms, and the companies that will not be able to get in, I mean, to transform themselves, are going to have a very hard time.

Let me say one last thing about it. And that's I'm probably the most sure thing I am, is that

the labor share of GDP is going to become smaller because platforms use less labor. So this is important. It is going to show up again and again. It is going to show up first in the United States, because platforms are very, very important here, and we have to think of ways to -- we have to think of the social consequence of this and ways to alleviate it. Thank you.

MS. COPPOLA: Thank you.

Nicolas.

MR. PETIT: Yes, so ten years from now, what we're going to see, I know what I'm seeing today is mushrooming of new theories of liability like copycat innovation or acquisition for infanticide, also called the Kronos effect by some after, you know, the Greek titan who had this oracle prediction that he would be -- he would be killed by his son, so he basically ate all his sons. So we are reading those the claims in essays, newspapers. The press is an abundant purveyor of those theories.

And, you know, like Josh said, I think all that is science fiction for now. We'd like to probably promote some competition R&D in that space and try to understand a little better before we jump into the sort of Nostradamic predictions that the

press advances. You know that all too well. I mean, you know, good news don't sell, so why not throw in there some theories of liability and harm and, you know, just get away with it.

So I think we need to put economists and data scientists in a room and have them to look into that seriously.

MS. COPPOLA: Thank you very much.

Cristina.

MS. CAFFARA: Well, we are out of time, so I will not assault any predictions on the next ten years. I'll just say a couple of words on one of the last questions that was put, this notion again, which is coming up from the audience that somehow, and I don't accept it as a characterization that is popular, you know, the U.S. looks at actual effects and we in Europe somehow speculate. And that is something which I find a little bit, again, a caricature.

Relative, too, for example, the panel we had earlier, if you think about very much what was discussed on the panel, a very clear discussion about Doug Melamed, Susan Creighton, very clear, that what was at stake at the time was a prediction that effectively the conduct of -- that was being looked at was going to in prospective terms, in probabilistic

terms, be likely to undermine innovation, which is what we care about.

So exactly why are we not seeing that this sort of analysis has got to have some element of probabilistic view, that more competition tends to mean more innovation? I don't think it's eccentric. So I would just invite that as a reflection and indeed end up on what I think is something we can all agree on, which is Bill Kovacic's invitation to do more R&D in this space is absolutely the best way to end.

MS. COPPOLA: Thank you, Cristina. And thank you to all of the panelists, a number of whom came from very, very far to participate in these hearings. We are enormously grateful, having your participation in person is so meaningful. So thank you very much, and if all of you would join me in thanking the panelists.

(Applause.)

(End of Panel 4.)

(End of Hearing 1.)

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