

THE BROOKINGS INSTITUTION

BROOKINGS CAFETERIA PODCAST

HOW WILL AUTOMATION IMPACT MIDDLE-CLASS JOBS?

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## PROCEEDINGS

DEWS: Welcome to the Brookings Cafeteria. The podcast about ideas and the experts who have them. I'm Fred Dews. This is an episode in three parts. First off, an interview on how automation and artificial intelligence are affecting middle-class jobs. Then, Wessel's economic update on how government policy might respond to the next recession. Finally, we lodge ask and experts, student questions for Brookings scholars about issues students care about in the 2020 election. In this episode a question about the senate filibuster. If you are a student and have a question for one of our experts, email an audio file to [bcp@brookings.edu](mailto:bcp@brookings.edu). You can follow the Brookings podcast network on Twitter@ policy podcasts, to get information about and links to all of our shows, including Dollar and Sense the Brookings trade podcast, the current and/or events podcast. And now Automation in the Middle Class. In December, the Future of the Middle-Class Initiative at Brookings hosted an event focused on the impacts that advances an automation in AI for having on the labor market and jobs. James Bessen, Executive Director, of the technology and policy research initiative at Boston University School of Law presented a paper on automation at the event. In this episode Bessen is interviewed by Marcus Casey, a former Rubenstein Fellow and now a non-resident Fellow in economic studies at Brookings. Casey is also an economics professor at the University of Illinois at Chicago. And now, here are Marcus Casey and James Bessen.

CASEY: Welcome Jim.

BESSEN: Nice to be here. Thanks for having me.

CASEY: Yeah, we're here to talk a little bit about automation, something that you're interested and I'm interested in as part of the future of middle-class initiative here at Brookings. And you're here to actually present for a paper that you've written with some co-authors on this topic using data from the Netherlands and so I'm quite interested in hearing about that paper but first, let me ask you one question. Is this automation thing and its effect on the labor market overblown? Are we too worried about this or is this something that we think is pretty serious?

BESSEN: Well, there's certainly been a lot of hype about some of it. So, at one level, that's true but I think it's not so much that it's overblown but that people are addressing the wrong question, the wrong issue. So, it's not, in my view, at least, it's not so much that we're about to have imminent mass unemployment and all the problems that brings with it. It's that people are losing their jobs. They've been losing their jobs but other jobs are being created. That's good from the point of view of unemployment but it still places a lot of burden on those people who do lose their jobs and have to transition to something new. This is a problem that's been going on a long, long time and our policy doesn't necessarily address it very well, even today.

CASEY: So, let me ask you, we've always had some sort of automation going on. I mean we go back to the introduction of computers or before that, the introduction of the electric light.

BESSEN: Mechanization.

CASEY: Mechanization and so on and so forth. So, why are things different this time?

BESSEN: Since the 1950s things have been different with computers. Computers have affected a bigger swath of the economy, more different industries than changes in the past. I mean that's maybe debatable. Certainly, agricultural automation in the 19th century effected agriculture with 70 percent of the economy and it affected a lot. The other thing is that possibly things are accelerating. I think it's very hard to tell and the evidence that we see and embedded about is not conclusive in my view but things may be happening fast, early, somewhat faster and in certain places they're definitely happening faster. You think about software changing very rapidly or standards changing very rapidly. Those place a burden on people and that in terms of new skills need to be learned much more frequently. So, that's different. With that said though in the past you go back to the 19th century, those textile workers had to learn new skills.

CASEY: That's right.

BESSEN: And it took a long time to figure out how, as a society, to best do that and it also took a long time before they gained wages that were commensurate with their extra productivity. So, these aren't the first time we faced these challenges but we're facing them in a new and different way.

CASEY: I see. I see. And so, what generated your interest in this topic?

BESSEN: I guess I've been interested—I actually ran a software company. We built systems to help automate —

CASEY: Right. Right. Right.

BESSEN: — the production of publication, magazines and newspapers, catalogues.

CASEY: So, you've been in this on the ground so to speak from the start.

BESSEN: We built a system that automated the Sears catalogue production.

CASEY: Oh, wow.

BESSEN: Which was a huge, huge publication. You know, back in the day—

CASEY: Right. Right. Right.

BESSEN: —twice a year this 1600-page publication would come out and you had hundreds of people working on it. At the same time though, there was this huge growth in graphic design, the people who were using these systems, so the total number of jobs of typesetters for instance and graphic designers the total number goes up but it's a different set of jobs and to some extent a different set of skills.

CASEY: Can you distinguish for us a little bit digitalization and AI in terms of its effects on the labor force?

BESSEN: Actually, automation is probably a better term. Digitalization tends to refer to anything digital which includes almost all AI. I think it's true with any technology. They have some potential for automation and generally what people mean by automation is, there's a machine that takes over some tasks that humans previously performed. But technology including AI does lots of other things and those other things may actually be more important. So, new products are created, new services are created. We're able to improve the quality of existing products and

services. We're able to enhance human capabilities as well as simply replace them and those also have big economic impacts. I'm tending to think that in fact, some of those impacts in terms of things like inequality or the growing dominance of large firms which are all of that boosted by information technology and accelerated by AI. Those implications may be far more serious than automation, at least in the next 10 or 20 years or so.

CASEY: Right, so that's sort of where I've been thinking. So, one of the areas that really interest me is thinking about the type of AI that's being developed. Are we moving in a direction or are some people who are working on this moving in the direction of developing AI that might compliment relatively lower skill workers or is it fundamentally all sort of focused on making higher skilled workers more productive because that will have big implications for inequality and wages in the economy.

BESSEN: Yes, we did a survey last year of AI startups to see what they were working on. A lot of AI is being done inside of large companies like Google or Amazon. I think you can get a perspective of what's going on more broadly in economy from what start-ups are doing. And so, I'd say it's probably a mixed picture that you see some applications like facilitating call centers. A lot of these things are double-edged swords. So, they could automate some jobs and at the same time facilitate greater demand for other jobs. Overall, we're still seeing an increase in call center employees and that's not only in the face of automation but also a lot of work has gone overseas. You've seen other things where it enhances marketing, where it's

complimenting higher-skilled workers in terms of doing IT type tasks. I think this was something that we saw in the international revolution. It took a while before the technology seemed to really compliment mid-skill workers and you see applications out there that have the potential for doing that. So, you think about teachers. AI can certainly help teachers. You can think about AI being used to customize lesson plans for individual students so that a teacher can become much more effective and much more valuable if they have the right sort of AI tools.

CASEY: Right.

BESSEN: And there are people working on that. You think about some of the healthcare occupations or again, things can be customized more triage type of work can be done by lesser-skilled people. So, you may build some more opportunities for mid-skilled workers. I think that's happening in the healthcare sector generally. We don't see AI playing a big role in that yet but I think there are possibilities.

CASEY: And so, in thinking about teachers the potential of AI and AI algorithms and helping teachers or healthcare workers and things of that nature. I noticed recently there was a recent *New York Times* op-ed by Sendhil Mullainathan and some of his colleagues on potential bias in these algorithms. Is that something we should be worried about in terms of say employment that AI algorithms are constructed in such a way to complement certain - to really accentuate certain skillsets that might be say distributed unevenly throughout the population because of differences in and ability to get certain types of education and so on and so forth. Are we worried that essentially the people coding these algorithms up to enhance

productivity are sort of coding up these algorithms for people like them and not like people at large in the population?

BESSEN: I think a lot of these companies they focus on a problem that they think they can solve. Once you're focused on that particular problem, you can't skew it necessarily one way or another a whole lot. Now there are issues of bias with particular sorts of applications where things are very well defined. So, there's problems where bias is being used on parole decisions or policing decisions and there's lots of reasons why bias can be built in.

CASEY: Sure.

BESSEN: There's lots of reasons why humans are biased in those situations also too. So, I don't think it's a different problem than we faced in the past. I think there's maybe an economic skew going on because if I'm thinking about applications, I'm a start-up which applications and the biggest market for me, they're going to be the ones where I'm doing something that either compliments or replaces a highly paid person.

CASEY: Right. Right.

BESSEN: So—

CASEY: That makes perfect sense.

BESSEN: That's where—

CASEY: Right.

BESSEN: —that's where I think you get the most serious skew.



CASEY: And that's in large part because the most bang for your buck in terms of getting adopting is the cost savings on the labor side.

BESSEN: Yeah.

CASEY: Right?

BESSEN: Well, the cost or the enhancement—

CASEY: Or the enhancement, yeah.

BESSEN: —that comes from the, you know, the extra abilities that a radiologist can have.

CASEY: Exactly. Exactly.

BESSEN: Yeah. I think that's part of the reason why some of the focus tends to be on higher skilled jobs. In our research that we find, automation at least, affecting low wage, middle wage and high wage—

CASEY: Right.

BESSEN: —all. And if anything, slightly higher, on the higher wage workers and at least in the Netherlands.

CASEY: That's interesting. Let's go out a little bit to the macro level for this next question. So, what role are demographics and the demographics trends in countries like the US and European countries, what role are these demographic trends in terms of say aging of the population. Japan, I know, this is a big issue and pushing companies to move towards automation.

BESSEN: It's absolutely a big thing. There's a real correlation between those countries that have aging populations in option of robots or other forms of automation. Again, it's the economics speaking.

CASEY: Right.

BESSEN: When you have a labor shortage, it's very valuable to have a tool that can either augment or replace a human.

CASEY: And so, in some respects it's counter-productive for some people to push for say laws or restrictions on the introduction of these automating technologies. If it's going to put the businesses and other types of firms that are operating at a disadvantage in some respects in terms of finding labor. Right?

BESSEN: Yeah. Exactly. Exactly and of course there's always the argument they can pay more but if the economics aren't there—

CASEY: Yeah, they can pay more but at the same time if there's a labor shortage there's a labor shortage.

BESSEN: Yeah.

CASEY: You can raise wages—

BESSEN: Yeah.

CASEY: —forever if there's no one to do the job. Right?

BESSEN: Yeah.

CASEY: I think that's an interesting conundrum that will become more important especially in the next coming decades. I know that the forecast about the aging of the population here in the US.

BESSEN: And it's far worse in other countries.

CASEY: Oh, yeah, indeed. Indeed. So, let's talk a little bit about your actual paper that you're going to present on automation. The title of it is automation a—

BESSEN: A guide for policy.

CASEY: —A guide for policy. What I found interesting in reading your paper is that you guys have this unique data on firms and workers in the Netherlands. And can you tell us a little bit about what you actually did in that paper?

BESSEN: Right. So, it turns out that the Netherland government statistical agencies have been collecting data on automation expenditures. At the firm level each year since about 2000 they also have this excellent data where they track the firms from year to year and the work is at those firms and we can actually track the workers to their subsequent firms and whatever. So, this provided us an opportunity to look in a big way as to what's happening with automation. What are its impacts on the workers at least? So, there have been other studies that have looked specifically at robots but in terms of robots is really just a very, very tiny part of automation. Half of all robots are in the automotive industry.

BESSEN: Right.

CASEY: Automation is something that is affecting every industry, some more than others but it's certainly in the service sector and financial sector. This gave us an opportunity to really take a very close micro look and the technique we came up with was the idea of looking at what we call automation spikes. So, the idea is what happens when a company wants to make a big investment in automation or

wants to invest in automation, they tend to do it a whole lot all at once. It's very lumpy as the investment economists say.

BESSEN: Right. Right.

CASEY: So, this provides us an opportunity, there's a big bang. The company makes this big expenditure and so we can use that to look at what happens to the workers before and after the bang and we do that by comparing the automating firms to firms that are very similar that are not automating at the same time.

Actually, we use a set of firms that automate five years later.

CASEY: Right.

BESSEN: This provided us a unique way of sort of teasing out what was happening and with this very rich data we got to look at not only their wages, their employment, where they went to, then they get disability benefits, all of these other things about these workers so we got a picture of what is the burden of automation on this—

CASEY: So, were the workers hurt?

BESSEN: This again speaks to this issue that the real issue is not necessarily unemployment because workers left these firms, a certain percentage, about 13 percent after five years but the firms also hired more people, maybe not quite as many. So, it's not so much an issue of the net employment but these workers were hurt. So, on average we looked at what we call incumbent workers, these are workers who had three or more years' experience at the firm, they lost over a five-year period about the equivalent of 11 percent of one year's wages which turns out to be 3800

euros or about 4,000 bucks. So, that's not insignificant. We find that it's not because their wages were reduced, it's mainly because some of them left employment, either they were laid off or they chose to leave and they had days of unemployment.

CASEY: Right.

BESSEN: Non-employment, I should say.

CASEY: So, we always talk about these European countries with these nice social safety nets. Right?

BESSEN: Right.

CASEY: In terms of welfare, I don't know if you could actually measure because they would have received something in terms of unemployment insurance.

BESSEN: Right. Right. So, we actually have the numbers on what they receive in unemployment, welfare, disability benefits and we can compare them to the control group and what we find is, yes, they certainly did get increased benefits, mostly from unemployment but it only amounted to 13 percent of what they lost in income. So, it's really—

CASEY: Wow.

BESSEN: —not a very thick safety net.

CASEY: Exactly. I mean that's actually somewhat a surprising result.

BESSEN: Yeah. Yeah, I was surprised.

CASEY: And how long were their typical unemployment spells given that there's a staggered sort of automation investment schedule here?

BESSEN: Yeah. So, we don't have measures on the length of the spells conditional on them actually leaving but what we know is if you look at the original bunch of incumbent workers, they lost maybe 11 days of work on average. So, that's averaged over the ones who left and the ones who stayed.

CASEY: And were there any differences across the age groups?

BESSEN: The older workers were more severely hit. We looked at age, we looked at gender, we looked at wage, we looked at firm size and we've had very few differences except for age. As you might expect, the older workers basically had more days of non-employment. It was probably a story where they had a much harder time finding work after they left.

CASEY: And so, what were your key policy take-aways from your findings in this paper?

BESSEN: So, the key policy issues are, you know, again, a lot of people talk about policy being something like universal basic income—

CASEY: Right.

BESSEN: —because we're about to all be, 47 percent of us unemployed.

CASEY: That's what Andrew Yang is talking about—

BESSEN: Yeah, exactly. Exactly.

CASEY: —he's being (inaudible) for that.

BESSEN: Well, there may be some benefits to universal basic income but there's no need to do that because of automation. No, it's things about helping workers make these transitions. So, what is it? That's training, that's work-study

programs to get them new skills. It's temporary support of some sort, better unemployment benefits so that they have some economic support while they need to acquire new skills. It's not something we looked at in the Netherlands but probably in this country, there are, I think, barriers to geographical relocation and we've seen a big slow-down in employ mobility both geographic, occupational and that's a sign that things are very much going in the wrong direction.

CASEY: Actually, aligns with some of my intuition on reading the literature in this area and beginning to work in this area. And one of the things that always sticks with me going back to this training issue is, earlier Paul Osterman from MIT wrote a paper for the future middle-class labor and automation conference one, the preceding conference of this conference that you're here for. He talked about the wild, wild west of training programs that—

BESSEN: Yeah.

CASEY: —the United States needed to really focus on and both the federal and the state level of sort of lining those things up better because not only do we need re-training, legitimate retraining especially for older workers but we also need a way through that training to provide credentials that people can actually travel with.

BESSEN: Yeah.

CASEY: And I think this sort of speaks to what you're getting at is that not only do we have lower mobility, we need to solve that problem, but part of the way that we solve that problem is giving people skills and credentials that they can carry across space. And I think that's something that's under-realized to some degree—

BESSEN: Yeah.

CASEY: —even when you talk to policy makers.

BESSEN: Yeah, I strongly agree. And it's not just older workers. You go back to the people I was experienced with in business, you're talking about graphic designers, they have to learn new things if they want to stay at the front tier of their field every few years. So, five, six years ago flash was something that was required by people in a whole lot of jobs. Well, flash is obsolete now, they have had to learn other things.

CASEY: So, my final question to you, what are sort of the big open questions that you would like people to think about in this space?

BESSEN: There's a short-term one and a long-term one. The short-term one is we need to really nail down the numbers on what are the impacts today and I think a lot of that has to do with demand affects where you see automation coming in to industries which have pent-up demand, you can actually see employment grow. And we've seen that in some industries today. Other industries, jobs are lost. We need to get a much better fix on which industries are which and what can we expect from those in the next 10 or 20 years. I think that's a very doable thing and we're seeing a lot of research coming in towards that. I think the bigger question, longer run on automation is what are the limits on human demand. Ultimately, it's this very philosophical question about can we ever have too much healthcare. Right? Well, if people are always willing to pay more for longer and better health, better quality of life or longer life, any sort of technological improvement is always going to be job



enhancing for a long time to come. On the other hand, if technology is able to automate one thing after another after another, eventually, is there going to be anything left that we're going to want that technology isn't providing. Maybe it's healthcare, maybe its status goods or I buy something because it makes me look better or different—

CASEY: Right.

BESSEN: —from my neighbor.

CASEY: Apple watches and Teslas. Right? As my neighbors seem to—

BESSEN: Oh, you live in a fancy neighborhood. Okay.

CASEY: No, actually, I think that's a really important question, I think. I mean both of those questions are really important but I think that last one is something that people really need to think about because that has the sort of long-run implication for what society is going to look like.

BESSEN: Yeah. Yeah.

CASEY: Okay. Well, thanks again Jim for coming and I really enjoyed this conversation and I look forward to seeing your presentation.

BESSEN: It was fun. Thanks.

DEWS: You can learn more about the event on automation, labor, market institutions and the middle class on our website. And also download papers by Casey, Bessen and others from the Future of the Middle-class Initiative.

Another recession is inevitable. So, how can the federal government best respond. Senior Fellow David Wessel, director of the Hutchins Center on Fiscal and Monetary Policy tackles that question in this Wessel's economic update.

WESSEL: I'm David Wessel and this is my economic update. Fears of the United States is on the cusp of a recession have faded. The job market remains strong and with inflation calm, the Fed has no reason to raise interest rates. President Trump has cut a phase one trade deal with China. So, it might surprise you to know how much economists and some politicians are worrying that we're not well-prepared to cope with the next recession which will arrive eventually, we just don't know when.

The textbook remedy for recession is (a) the Feds should cut interests rates; (b) the automatic stabilizers built into Federal law should kick in. More people will get unemployment benefits so they can keep spending. Taxes will fall for those people who work fewer hours or lose their jobs and (c) if necessary, Congress should increase spending and cut taxes to offset the decline in private demand as it did back in 2009 but interest rates are so low now the Fed's target range for its key short-term rate is between 1.5 and 1.75 percent that the Fed cannot cut interest rates by 4 or 5 percentage points as it usually does in a recession.

In his recent presidential address at the American Economic Association, former Fed Chair Ben Bernanke, now my colleague at Brookings, said the Fed could get the equivalent of 3 percentage points of short-term rate cuts by using unconventional monetary policy tools like quantitative easing or bond buying and

forward guidance. As long as the recession doesn't come too soon, he said, as long as it doesn't come before the Fed can get interest rates up in the two or three percent range, he figures the Fed has enough maneuvering room to fight a recession. You can read more of his argument on Ben Bernanke's blog on the Brookings website but you should know that some other experts including former Treasury Secretary Larry Summers are skeptical that the Fed can do as much as Ben Bernanke thinks.

So, what about fiscal policy, tax cuts and spending increases? Well, the automatic stabilizers will kick in. The beauty of automatic stabilizers is they don't require any action from the president or Congress to initiate and they turn off automatically when the economy improves but there's a substantial case that the current automatic stabilizers are inadequate and that they need to be beefed up, if only to avoid a repeat of the counter-productive sequester spending cuts that hobble the recovery in 2010, '11 and '12.

Harvard's Karen Dynan and Doug Elmendorf for instance suggest that Washington adapt states specific policies cutting payroll taxes for states when unemployment in that state rises, even if there's no national recession. My colleagues at the Hamilton Project have published a catalogue of possible improvements to automatic stabilizers, including changes to the food stamp program, to the way that Washington shares with states the cost of Medicaid in recession and even ways to make direct payment to give people money if the economy sours. But none of those seem to be moving through Congress very quickly.

If automatic stabilizers aren't sufficient and if the Fed's ability to use monetary policy is limited then the only other option is for Congress to consider cutting taxes and increasing spending which means bigger budget deficits and adding to a federal debt that is already large by historic standards and growing. Now if interest rates remain low as economists and markets expect, although that's a big if, then the US Treasury should be able to borrow lots of money to fight a recession when it arrives. But given the partisan gridlock in Congress, particularly if it turns out the recession hits when one party has the White House and the other has control of at least one house of Congress and given all the doubts that some politicians have about the efficacy of fiscal stimulus, no one can be confident that Congress will act in a timely and efficient manner to increase spending, cut taxes when the recession hits. Let's just hope the next recession doesn't come soon.

DEWS: Finally, today, as an expert, that's part of our Policy 2020 initiative this year. We invited some of our interns to ask their classmates what questions they had about policy issues in the 2020 election. Then we found Brookings scholars to answer the questions.

JANE: Hello, my name is Jane and I'm from Seattle, Washington. I've heard a lot of conversation about the pros and cons of the filibuster in relation to the 2020 candidates. I'd like to know if a Brookings' expert could explain the Senate filibuster and why so many people are calling to eliminate it.

REYNOLDS: Thanks for that question Jane. I'm Molly Reynolds, senior fellow in Governance studies at the Brookings Institution. The filibuster was not part

of the founders' original vision for the Senate. Instead, its emergence was made possible in 1806 when the Senate, as a simple housekeeping matter removed from its rules a provision that would allow a simple majority to end debate. This wasn't a strategic decision; it was simply part of an effort to streamline the rules.

Filibusters then became a regular feature of the Senates' debate starting in the 19th century as a way for opponents of a particular agenda item to engage in obstruction.

Finally, in 1917 the Senate adapted its first version of what's known as the cloture rule which then allowed two-thirds of all senators present and voting to cut off debate on a pending measure. Several changes to the cloture rule followed in the coming decades. More recently in 1975 the number of votes needed to invoke cloture on legislative matters was reduced to three fifths or 60 if the Senate is at full strength. As a result, for many matters of the senate, debate can only be cut off if at least 60 senators support doing so.

Among current Democratic presidential candidates, Elizabeth Warren and Tom Steyer have endorsed eliminating the filibuster while Pete Buttigieg, Amy Klobuchar, and Bernie Sanders have indicated they're open to eliminating the filibuster or to other modifications to senate rules that might make legislating easier.

But at the end of the day, what happens to the Senates' rules isn't up to the president, it's up to the Senate. And senators' views about rules are shaped by their views about policy. So, to eliminate the filibuster there would likely need to be a specific measure that a majority of majority parties senators both agreed upon and

cared enough about to make banning the filibuster worth it. In addition, individual Senators may find the filibuster useful to their own personal power and policy goals as allows them to take measures hostage with the hopes of securing concessions.

For majority party leaders meanwhile, the need to secure 60 votes to end debate helps them to shift blame to the minority party for inaction on issues that are popular with some but not all elements of their own party. Finally, Senators may be concerned about the future in an era of frequent shifts and control of the chamber, legislators may worry that a role change now will put them at a disadvantage in the near future. So, while we'll likely to hear more conversation about the future of the filibuster in 2021 and beyond a particular set of stars would likely have to ally and for it actually to be nominated.

DEWS: The Brookings Cafeteria podcast is the product of an amazing team of colleagues, starting with audio engineer Gaston Reboredo and producer Chris McKenna. You'll find in the director of the Brookings Institution Press does the book interviews and Lisette Baylor and Eric Abalahin provide design and web support. Finally, my thanks to Camilo Ramirez and Emily Horne for their guidance and support. The Brookings Cafeteria is brought to you by the Brookings Podcast Network which also produces Dollar and Sense, the current and/or events podcasts.

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Until next time, I'm Fred Dews.

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