Will Robots Take All Our Jobs?
Guest: George Reisman
November 15

George Reisman is professor emeritus of economics at the Graziadio School of Business at Pepperdine University and the author of* Capitalism: A Treatise on Economics*. He received his Ph.D. in economics from New York University, under the direction of Ludwig von Mises.

WOODS: George, I had you in mind in particular when I watched this recent *TED* talk by Andrew McAfee about what the jobs of the future are going to look like. The strong implication of this video—it's not an implication; it's an explicit statement—is that robots are really going to take our jobs away. Unlike in the past, when people feared that mechanization would take jobs away, they were wrong: there were more jobs created. But this time is different. These robots can do customer service. They can do so many things that it's really going to hurt the guy who's low skilled and at the bottom of the economic ladder. What was your reaction when you watched this video?

REISMAN: Well, I watched it step by step, and I looked at his examples. I think he starts off talking about driverless cars. He thinks that's going to cost a lot of jobs. And then he's got robots lifting heavy objects to put away on shelves. His examples add up to nothing.

The wider principle is, anytime we have improvements in the productivity of labor, the same underlying foundation of science and technology that makes that possible also brings about new and additional forms of wealth and new and additional uses for wealth.

If we start with the driverless cars, well, I Googled the number of truck drivers in the United States. It turns out there are about three and a half million truck drivers. But there are also, apparently, 230 million registered automobiles. That sounds a little bit large to me, but that's what you'll find if you go Google the subject.

If you think about it, if people were really free of having to drive their cars, well, they're not just going to sit like zombies in the seat. They'll need entertainment centers, maybe an office in their cars with a computer and an Internet connection, maybe a refrigerator, a microwave oven, maybe even an exercise machine. So, you're talking about the passenger vehicle requiring a great deal of additional wealth, far and above what it represents today, ultimately times the number of vehicles on the road.

I think if we were, in fact, to lose three and a half million trucker jobs, we would gain vastly more need for labor in improving the outfitting of automobiles. I doubt that we'd lose that many trucker jobs, in any case, because now we could use the people who had been drivers—they could be doing things with respect to the cargo, other kinds of work affiliated with trucking, and so forth.

And, as for the robots lifting heavy objects onto shelves, I don't see any difference in principle between that and the introduction of the forklift, which got rid of all the super-strong heavy lifters that were needed in the past. Now, if we're able to reduce the need for labor in stacking merchandise, that reduces the overall amount of labor needed to produce and deliver products, and makes it possible to be profitable at lower prices. The lower prices increase the quantities demanded of the various products, and that will result in an increase in the quantity of labor required at all the steps in production, other than warehousing. So it's entirely possible that more people would be employed, all things considered, in the same lines where the warehousing improvements occurred.

To the extent that isn't the case, all the money that people save in buying products because they have lower prices, but people are not buying sufficiently larger quantities to use up as much expenditure as before—that just means they'll have funds left over to buy other things. And the other things they buy will require the employment of additional labor in other lines.

So, the net effect would be, while we have fewer people stacking goods in warehouses, we'd have just as many or even more people at other stages of production, and/or producing different kinds of products. The net effect would be we'd have all that we now have, plus the new and additional output that could be produced by the release of labor from stacking goods in warehouses.

WOODS: Now I can imagine, though, this guy coming back and saying the trouble is that robots are getting to be so sophisticated that they can do all types of labor. They can even do customer service over the phone with you. I would, by the way, suspect that people would be willing to pay a premium still to speak to a human being, even in the age of robots. But, in other words, there's no logical end to what they could do, so what about this fear that I think some people have? They go to the logical conclusion. They say, "What if robots can do absolutely everything?" Would this be like comparative advantage? Would it be like the United States trading with Vietnam? Like the robots can do everything? How would something like that work? I'm just saying that for the devil's advocate sake. Image the robots can do all those new and additional things.

REISMAN: Well, you know, we have creatures that can do all those things. They're called human beings. And the question is, are other human beings a threat to us? No, there's room for all the people in the world who want to work. They can work. And all that robots can succeed in doing is augmenting the productivity of human beings. They can never be a full replacement for people.

Just consider, if robots are stacking goods in warehouses, and we have the driverless cars, well, the question is which one of the robots who's busy stacking goods in warehouses, would he be able to walk out of the warehouse and get in the seat of a car and drive it?

WOODS: Okay, probably not.

REISMAN: No, I wouldn't think so. All that a robot represents, anything that rests on computers, it's essentially similar in nature to dominoes falling over. It's pure mechanistic causation, and every robot needs to be programmed, and it's all in the form of, "If this, then do that." Or, "If not this, do something else." And the programmer has to think of all the possible alternatives. Nothing programmed can be a match ultimately for human beings.

We often get the example that now robots are so smart a computer chess master can beat a human being. Well, if the human being is playing just by himself without the aid of anything, that may be true. But now imagine that we have a human being who himself got the aid of a computer chess program, which he can consult and use. I would say the human being, having the aid of some computer chess program that's devised by human beings, would beat the computer program by itself. You can't program for every possible alternative situation. You need beings around who can do fresh thinking, and robots can never do that.

WOODS: In the video, he's saying that one of the concerns might be that if the robots can produce so much because they're so productive, where do we get the purchasing power—his view is that because everybody will be unemployed, nobody will be able to buy all the extra goods. But, I suppose that's answered by your claim that, to the contrary, they won't be unemployed. There will be other things opening up for them.

REISMAN: Yes. And the key thing is there's fundamentally no limit to our need and desire for wealth, and the amount of labor required to accomplish that.

We possess the faculty of reason, and because we possess reason we are able to have a knowledge and awareness of things ranging from subatomic particles to entire galaxies, and all kinds of patterns and similarities and differences in relationships in between. That being our range of knowledge and awareness, that sets the limit to our range of action and experience.

We have the potential to act with respect to outer space, and to a very modest degree, we're doing that. We have the Martian Rover. We have a satellite that's now photographing Saturn, and so forth. And if it were possible, if the Martians could do for automobiles what gravity does for holding tables and chairs solidly on the ground, and what atmospheric air does for our ability to breathe without having to produce the air, that simply releases our time and efforts for the achievement of other things.

Ask yourself, will we reach the day when we can no longer imagine anything that can benefit us in any way that we don't presently have? Well, I don't think we can imagine such a thing. So long as we are able to visualize things that would improve us in any way, those things require the application of labor. And instead of producing the kinds of things we've customarily produced, we'll produce totally new and different things.

That's the situation with the Martians. Do the Martians have nothing that they can produce beyond what they're now producing? Imagine everything has the status of free goods, the atmospheric air, sunlight, and we don't have to do anything. We don't exist and function

automatically. We'll never be indestructible. We always have to be on the lookout for ways to prolong and enhance our survival. And that's a problem that will always face us, and there's no limit to the labor that can be expended in improving that area.

WOODS: Well, let's suppose somebody, for the sake of argument, granted you these points. They could still come back with the inequality argument—and that was a central point of that video, which is that people who are skilled in this type of economy are going to do super well, and people who are not so skilled are going to do not as well. It seems to be the case that we have seen increasing income disparities and on and on.

Now whether or not we should be concerned about inequality, that's a separate issue. I mean I couldn't care less about it. But how do you think we can account for, if we indeed have seen income inequality over the past, say, half century—where do you think that's coming from?

REISMAN: Well, let me address that in just a moment.

The truth is these advances enable people of lesser skill and ability to accomplish what used to require people of greater skill and ability. If you walk into a fast-food restaurant, I'm sure many of the people who will take your order, thanks to today's school system, really can't add or subtract. Nevertheless, they will almost always give you absolutely correct change when you give them a bill to pay for what you've ordered. And how do they do that? Well, they're working with little tablet computers, so they know what you've ordered. They press an icon or a key or something, and they have to be able to press the size of the bill you're paying them with, and the computer or tablet does the subtraction. So it enables people who themselves can't add or subtract, to accomplish addition and subtraction.

Now, with more intelligent people using the computer program Excel, in a moment, you can solve compound interest problems, calculate interest rates on mortgages and whatever, that, in the past, would take a tremendous amount of time by someone who knew a fairly substantial amount of mathematics. Today anyone can do it in an instant.

If you look at what people can accomplish, you know human beings physically are very weak compared to gorillas, elephants, whatever, but we can accomplish greater physical results than any animal, because of our use of machinery and equipment of various forms.

The basic overall point is that technological and scientific progress, instead of representing any kind of threat to people of lesser capability, are augmenting his abilities. They are not a threat.

Now, there may be some people who are superior to others in every relevant respect. The example I like to use is Bill Gates. I'm willing to imagine that Bill Gates could do every conceivable job we could think of ten times better than anyone else. Is Gates a threat to people of modest ability? Suppose Gates, if he wanted to be the janitor at a Microsoft factory or building, could be a ten times better janitor than anyone working there. Well, that's not a

threat. The people whose abilities are limited to being janitors can easily outcompete Gates, and they do it through their lower income.

If Gates can make a million dollars an hour running Microsoft, and he is ten times better than the average janitor, well, if you only have to pay the average janitor ten dollars an hour, then you can have Gates doing the job of ten janitors at the cost of a million dollars, you'd have ten more great janitors doing it at the cost of one hundred dollars. So who outcompetes whom? The less skilled janitors outcompete Gates. What enables them to do it, without any question, is that their incomes are so much lower. Gates needs to have an income commensurate with his areas of greater advantage, so that rules him out of competing in other areas where he still has an excellent advantage.

Now, I think a major point of the explanation for unemployment, especially on the part of low-income people, is that the government and labor unions prevent them from competing. What they need to be able to compete is to accept lower wages. If they could accept lower wages, then they would outcompete people of greater ability than they have for the jobs they can do.

If the government requires that they be paid a minimum, to hire the minimum that the government requires them to pay, the more difficult it's making for them to compete. They're simply not worth that much. Now this applies to minimum wages, labor union scales. The higher you set the minimum, the more difficult it is for people at the low end of ability to be competitive with people of greater ability.

The same thing works in their capacity as consumers. The higher the minimum standards you set the product, if products have to have more and more features, if apartments have to have more and more space and windows and so forth, you're requiring that the cost of getting something that you want is higher and higher, and the people who can't afford that are the poor. Imagine if we had a regulation that no automobiles could travel the public roads that were older than ten years. Now, who would be hurt by that? Would it be the people who buy a new car every three years? Would it be the people who can afford a recent model used car? Well, it would be the people who can't afford more than a car that is over ten years old. They're the poorest people. They would be denied the ability to buy a car.

Now something else that works along these lines is the government requiring more and more things that employers have to pay for. Safety regulations. Environmental regulations. You know, the typical public attitude is that profits are an infinite slush fund, and any time there's something the government wants done, the payment for it is going to come out of profit. Well, that's a fallacy.

Profits are very limited in amount, and the rate of profit has not been going down. You can't get very much from profit. So when the government imposes regulations that have higher and higher costs, whether environmental or safety or whatever, where it comes from is at the expense of wages. And that means that in order to still be employable, the workers would have

to accept lower take-home wages than they otherwise would have been able to get. The cost of these safety and environmental regulations is really at the expense of the wage earners.

WOODS: Now on that point, I very much am fond of the way you explain the subject of safety regulations and workplace conditions, because at least, speaking for myself, I can say when I was in junior high, our textbook made clear that, in the old terrible days of laissez-faire, people worked in terrible conditions in factories and so on, but thank heavens, the implication goes, the government intervened and now we have much better conditions.

I like the way you explain this, so I hope you can discuss it with us. How did we really go from a case in which people were indeed working in very difficult circumstances, but now it's much better? It's not because the government has grown larger in the interim. What was the process by which working conditions were improved?

REISMAN: Tom, the fundamental process is a combination of scientific and technological progress manifesting itself in improved capital equipment. This is what set the pace of productivity of labor.

When we started out, before the industrial revolution, I think perhaps something on the order of 90 percent of the labor of a society was required just to grow its food, to produce enough food to keep the population alive, and, of course, some extra for the nobility. But as we increased the productivity of labor and agriculture, that labor was no longer needed to grow food. It could start to produce other things. Some of the other things that were being produced started to further increase the productivity of labor and agriculture, like the early railroads, the steam engine and so forth. Today, we need only about three percent of the population to produce more than enough food to keep the population of the United States very well supplied with agricultural commodities.

As this process occurs and the productivity of labor rises, the rise in the productivity of labor is the foundation of rising real wages, what a wage earner can buy with whatever money he earns. The key thing about real wages, what you can buy with the money you earn, is the relationship between the wages you earn on the one side, and the prices you have to pay to buy goods on the other side. What happens is, as the productivity of labor rises, the same number of workers can produce more and more, and a larger number of workers produce more in the same proportion, or even in greater proportion. That operates to reduce prices relative to wages. It's increasing the buying power of money wages. And as this occurs, the standard of living rises. And as the standard of living rises, people can afford to work shorter hours.

In the early years of the Industrial Revolution, with a horrifically low productivity of labor, it might take 80 hours a week just to produce the equivalent of enough to stay alive. But a generation or two later, if you're continuing to work 80 hours a week, well now you can produce, two, three, or maybe four times what's needed to keep you alive. In that environment, you can afford to have a shortening of hours. But, if you could earn four times as much continuing to work 80 hours a week, now, if you work sixty hours a week, you earn three-

fourths of four times. You will triple your standard of living, instead of quadrupling it, but you'll only have to work 60 hours instead of 80 hours.

And, in fact, workers, if they really want to work shorter hours, the earnings of shorter hours can be so much less than proportionate to the longer hours. That means you're like building in a premium on overtime. Imagine that the wages of a 60-hour week, instead of being three-fourths of those of the 80-hour week, are 70 percent of an 80-hour week, or two-thirds of those of an 80-hour week. Well then it actually becomes cheaper on a per-hour basis for employers to offer the shorter week. It's to their material self-interest to do that, and so they do it.

Now, at the same time, workers can afford to keep their children home longer, because they're not desperate for every last possible penny of earnings. So the age at which children went out to work initially might have been four years of age in some cases, or even less than that. But it gradually starts rising. It becomes six, seven, eight, ten, twelve, and now today, maybe 25.

But that's the process. The rise in the productivity of labor shortened the hours of work and did away with child labor. And, in the same way, it served to improve working conditions.

There are basically two kinds of improvements to working conditions, and they both pay for themselves. And employers can be expected to put them into place just out of pure self-interest. If an employer wanted to apply a new machine, if it cuts his costs, well, he'll certainly do it. And if installing electric lights will cut costs by reducing accidents and enabling the workers to accomplish more, they will do that. It's just a cost calculation.

Now there are other improvements in conditions that make life easier for the worker that are not of a kind that can pay for themselves through reduced costs. They don't reduce costs sufficiently. Workers can still have such improvements probably if they pay for them indirectly by taking lower take-home wages. And they are more and more in a position to do that as improvements in the productivity of labor raise their real earnings. So today in the United States, if you ask someone to work without air conditioning in sweltering summer heat, he might be willing to do it, but only if he can earn 20 or 30 dollars a week more in such a job than he can earn in another job that is available to him. Well then the question is, which is cheaper for the employer to do? To pay a premium wage of 20 to 30 dollars a week to induce workers to work in these terrible heat conditions, or to install air conditioning, which, if the air conditioning only costs him five dollars per worker per week, it's certainly cheaper to install the air conditioning than to pay the worker a premium wage of 20 or 30 dollars a week. So air conditioning will be installed.

But in Bangladesh, while it might still cost four or five dollars a week to install air conditioning, workers' whole wages are not yet five dollars a week, so it's unthinkable to install air conditioning in Bangladesh under present conditions. Someday, if their productivity rose sufficiently and their real earnings rose sufficiently, they could afford the comparatively lesser earnings of working in air-conditioned conditions, but not today.

Any time the government is trying to jack up wages arbitrarily through minimum wage laws, through turning labor unions loose, and compelling employers to bargain with them or have their factories bombed or made inaccessible, it's not raising the standard of living of the workers. It's causing unemployment, and less production, and higher prices. And if it requires that workers work less when they are not yet in a position to afford it, it's just forcing their income down lower than it would be. Let's think of Robinson Crusoe on his desert island, and Crusoe has decided that to live he needs to work 80 hours a week. Now, imagine he could be visited by a social worker who is sending a report back: Crusoe is overworking. We have to compel him to work only 60 hours a week. Well, what would be the effect of that on Crusoe? He would simply die of starvation.

And does anything change if we substitute for Crusoe the Swiss Family Robinson? Here we have this family that's self-sufficient. They have some children that are working, and now, why are they working? Well, their contribution is needed to help the family survive. If they are prohibited from working, thus reducing the output of this desperately poor family, then we threaten their survival, or make them accept a lower standard of living than they already had. Well, that seems like the child labor laws that are imposed before people are in a position to afford to do away with the labor of their children.

The same thing goes for imposing improvements in working conditions. The government is not creating the improvements in working conditions. All it is doing is forcing people to behave against their judgment of what serves their self-interest. It actually reduces the standard of living in the belief that it can just create improvement out of thin air.

The supporters of government intervention and socialism live in a world of floating ideas that have little or no connection to reality. They think that all they need to do is manipulate work, and so the government can magically shorten the workweek, raise the standard of living, abolish child labor, improve conditions, and they have no idea what is in fact required to accomplish these things. Their interference serves to cause wreckage.

We have an excellent demonstration of the devastation of this mentality that we can read about in the newspapers. It's called Obamacare. The government decided they wanted to reduce people's insurance costs. They wanted to improve the quality of their insurance coverage. And the upshot is people are being denied insurance they already had, in the hundreds of thousands. Or if they're not going to be denied it, they have to pay a much higher price. This is a government that thought all it had to do was make decrees, that it could decree everyone will now be better off, because the great Pharaoh Obama has so decreed. Only it doesn't work that way. When you come into the market and are violently requiring that people change their behavior, you're making them act against their self-interests. You're causing harm, not improvement.

WOODS: Well, George Reisman, this is why I wanted to have you on the program. This is why I enjoy reading your work, why I enjoyed reading your important book, *Capitalism.* I love the

relentlessly logical and step-by-step nature of your arguments. If people want to follow you and find out more about your work, is capitalism.net the best place to go?

REISMAN: Yes, it is. And I've just joined Twitter, and my handle is @ggreisman.