THE ILLOGICAL FEAR OF AUTOMATION, FALLING WAGES, AND FALLING PRICES

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ABSTRACT

There is a hoary tradition in economics to the effect that automation will to unemployment. Ned Ludd might have started this, but in the modern era there are numerous supporters of this fallacy (Frank, 2012; Karphal, 2017; Ford, 2016). The present paper is an attempt to allay the fears of many that breakthroughs in technology will promote joblessness. Our method is to consider both historical and modern-day examples of innovation that have led to this fear. Ned Ludd dreaded the knitting loom. At present, self-driving automobiles, taxis, trucks, have driven to despair people who, realizing that jobs in these industries will be lost, over-generalize and think that all employment will cease. Our overall message is that we need not fear robots or automation or innovation. Rather, they will enhance our economic wealth.

KEYWORDS

Automation, deflation, unemployment

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1. INTRODUCTION

Legend has it there was a man by the name of Ned Ludd who lived in England in the 18th century (Palmer 1998). While it is disputed whether Mr. Ludd ever actually existed – perhaps under the name of Edward Ludlam – a group of individuals emerged in the 1810s with the name "Luddites." What was the story of Ned Ludd? The tale usually goes as follows. Ned Ludd was a weaver in England around 1779 (Hammond 1919). The invention of the loom was disastrous in his opinion. The work of many weavers could now be done by just a few of them, and unemployment was the result. Thus, in an attempt to fix the economy, Ned Ludd took it upon himself to destroy the looms, lest the town fall victim to unemployment and poverty. Similarly, a group of frame-breakers became known at Luddites in 1812, attributing Ned Ludd as their namesake (Alsen 2000).

This is a rather extreme tale, but nonetheless one that still gets told today, just in different ways. Fear of automation stems from the same logic. It is believed by many that, while technology can be very beneficial, eventually we will innovate ourselves out of employment and into poverty. Falling wages are viewed in the same light – something deleterious to the economy. This fear arises in the immigration debate. This paper seeks to explain why these things are not only nothing to fear, but something to wish for whole-heartedly. Automation, falling wages, and falling prices – deflation – are not the Boogiemen they are made out to be.

In section II we discuss automation. The focus of section III is on falling wages and of section IV on deflation, yet another irrational fear. The burden of section V is to deal with the objection that only people who own capital will gain and all others will lose. We conclude in section VI.

2. AUTOMATION

On October 26, 2016, we gained word of the first successful commercial trip of a self-driving truck. On that day, a Budweiser semi-truck made a 120-mile beer-run to Colorado (Cava 2016). What should have been received as a momentous advancement in human history was quickly coupled with a sense of fear. Such an improvement can only mean disaster for the estimated 3.5 million professional truck drivers in the United States (All Trucking 2016). This innovation, assuming it becomes widespread in the country, is sure to shake up the trucking industry in the United States. That being said, this advancement should not be dreaded in the slightest.

As humans, we feel trepidation when it comes to change. We wish things would remain the same. Most of us, at least those who "have it made," long for a static world that we can prepare for, but alas, our world is most certainly dynamic. This is the indisputable reality in which we live. Thus, technological advances that threaten anyone's livelihood are seldom met with total applause. However, we must not ignore the tremendous possibilities and progress that innovation offers. Let us take the automobile for example. We could not live today without the amazing, life-changing occurrences that have come into existence because of and as a result of the car. But this invention made serious waves in the transportation industry. Those who worked in the horse-drawn carriage industry were not all too pleased, more than likely, but the positive effects of the automobile far outweighed the negative effects. Yes, it is true, those who drove carriages probably had to change professions.

Were there indeed any negative effects? It depends. If we look at this from the point of view of the horse trainers, bridle makers, blacksmiths, and saddle manufacturers, then yes, of course there were, and serious ones. However, there is an entirely reasonable alternative perspective from which to view this technological advance, from the viewpoint of this aphorism: The market benefits *all* participants. Why is this true? It is because the market consists of all, and nothing but, voluntary trades: buying, selling, renting, lending, borrowing, etc. And yet in each and every such case, all participants necessarily gain, at least in the *ex ante* sense. But what of the labor force in the horse and buggy industry? Simple: With the advent of the horseless carriage, they were no longer market participants. They could no longer make commercial offers to others that were acceptable to them. To wit, the authors of the present paper herein now make an "offer" to all readers: We are each willing to sell you a pencil for $1 million. Are we market participants in this regard? Of course not: No one will take up our offer. Ditto for those put in the shade by the advent of the automobile.[4]

At any given moment, we as a society are only capable of producing enough to satisfy a certain small amount of our unlimited wants and desires. Technological advances allow us to move further down our "wish list," if you will. The same occurred with the invention of the car. Our transportation needs were now capable of being met in a different way. Our options were either keep the current amount of transportation, or increase it. Since the amount of transportation provided via horse and buggy could be provided with fewer people via automobiles, choosing this route meant the loss of employment for carriage drivers if we wanted to keep the same amount of transportation. But this would not mean they would be unemployed forever. Rather, they could shift their occupation to other parts of the economy where transportation was more heavily needed since the necessary amount of laborers in that field had dropped significantly. Since our desired amount of transportation could be provided at a lower cost than before, labor would be reallocated as we moved down our "wish list." While there could be some pain in the transitional stage, society would advance further. Keeping people in jobs that were no longer needed would be a drain on the economy and a waste of resources. Nor would this transition by any means be confined to transportation. The ex-horse trainers, whip and bridle makers, blacksmiths, etc., might find employment in any number of industries.

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4 What happened to those in the horse and buggy industry after the advent of the horseless carriage? It is difficult to say. The easy answer is that they took up other occupations. For more on this, see Motavalli, 2015; Chiu, 2008. At one time, early in the history of the U.S., most of the labor force was in agriculture. Nowadays, that figure has fallen to a miniscule proportion. Where did all the farmers go? This, too, is difficult to answer. Presumably, into engineering, teaching, psychology, medicine, literature, music – all the things that make life very different, and far more pleasurable, in the modern era.

A common counter-argument is that the invention of the car did not completely render human-provided transportation obsolete – in essence, the horse and buggy industry simply turned into that which manufactures the automobile. However, *complete* automation would make these people unemployed without offering them any alternative industry to enter. This argument ignores the fact that these people are now freed up to enter the labor market in other industries where they would now be needed more than the transportation industry. Moreover, even for those who are made worse off by automation, their wages will have increased via enhanced purchasing power. The automation of something, including transportation, means that the costs of production for that product has fallen. Budweiser can now deliver their product to consumers at a lower cost, allowing that firm to do one of several things. They can offer their alcohol at a lower price, they can increase the quality of their product, or they can funnel the money into research and development. All of those would mean that the consumers' relative wage as it pertained to Budweiser would have gone up. What should not happen, however, is for this technology to remain idle and the economy static.

We live in a world of scarcity. We as a people have unlimited wants and desires, but the world is one of limited resources. These two things are incompatible, so sacrifices and decisions have to be made. Increases in technology allow us to make fewer sacrifices. Refusing to utilize new technology when it is available would make all of us poorer, and would be a waste of resources. Cars driven by people commercially 100 years from now will more than likely be viewed in the same way that we view the horse and buggy industry – a quaint relic from the past that we outgrew. If something can be produced at a lower cost, then these technologies ought to be adopted lest we fall victim to Frederic Bastiat's "Candlestick Makers' Petition."[5] If the Sun is providing light for free, it would be a waste of resources to ask the French people to board up their windows during the day and use only candles for light. Refusal to accept automation embodies the identical line of illogic.

But if everything is automated, will not widespread poverty and unemployment result? If everything is automated, there will not be any jobs left for people! But the wants and desires of each and every single person on Earth are unlimited.[6] There will always be something in demand, for we are not capable of being static. In *Nicomachean Ethics*, Aristotle argues that we as humans do not wish merely to live, but to live well (Aristotle and Ross (translator) 1999). We are not content with mere existence. Thus, we are called upon by our desires to act in a way that we perceive will improve our conditions – that would move us out of the realm of living, and into the realm of living well. Austrian Economist Ludwig von Mises wrote about this in his magnum opus, *Human Action*. "His mind imagines conditions which

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5 Frederic Bastiat wrote a satirical petition to the French government asking for special privileges for candlestick makers since they had befallen grotesque competition from a competitor dumping its product onto the French people for free. It is revealed at the end of the essay that the competitor to the candlestick makers was... the Sun. You can read the petition at: http://bastiat.org/en/petition.html

6 Multiply this by some 7 billion people, and the goals of our entire species are truly gargantuan.

uit him better, and his action aims at bringing about this desired state. The incentive that impels a person to act is always some uneasiness (von Mises 2008 [1949])." Since we are naturally inclined to act, we will all find things to do. What greater automation would mean is that we could focus on tasks that we actually want to get up and do every day. If we do not need anyone to drive trucks cross-country, if we do not need anyone to make our food anymore, then people can focus on jobs other than truck driving and food preparation. If the production process of the majority of our needs were automated, then people would be free to focus on music or art or sports. We would have more free time, not only to do those activities, but we'd have more time to *frequent* them. We'd be able to go to more concerts, more musicals, visit more museums, and attend more NASCAR races.[7]

Consider, *arguendo*, that machines in some far distant future can do *all* the jobs we need done. They can cure all disease, enable us to live forever, ferry us to distant solar systems, etc. Would not this be a curse, not a blessing? For there would then, under this heroic assumption, not be the need for any more employment. We would all be unemployed! No, this would not be the disaster feared by many. For we do not really want jobs. Rather, the *desiderata* are the goods and services that work produces (Hazlitt, 1946). However, per assumption, we already have those to our heart's desire. Thus, there would be no more *need* for labor; we could all play, e.g., have fun, instead.[8]

3. FALLING WAGES

That leads us to another idea that strikes fear into the hearts of most: falling wages. That fear is misplaced, however, since it ignores the economic distinction made betwixt real and nominal wages. The common response to a drop in wages is enmity. That is coupled with the questioning of one's financial security. Responding to the dollar amount on your paycheck is reacting to your nominal wage, not your real wage. The distinction here is extremely important.[9]

Assume that due to union activity, wages exceed productivity levels. Typically, the best way to cut costs is to decrease the cost of labor.[10] Employers will try to reduce the salaries of their laborers as close to their marginal value product as possible. (In other words, as

7 Or whatever pastime you fancy. NASCAR is the number one spectator sport in the United States, QED.

8 Even now, at the beginning of this 21st century, there are numerous people who play, and get paid for it, rather than work, which is defined as something we only do for the money and do not intrinsically enjoy. For example, professional athletes, singers, dancers, actors, etc. In this science fiction-ish future we depict in the text, everyone would be in this position.

9 For more on this concept of money illusion, see Boes, Lipp, and Winkelmann, 2007; Fair, 1971; Fehr and Tyran, 2001, 2007; Schmeling and Schrimpf, 2011; Shafir, Diamond, and Tversky, 1997.

10 This is because labor accounts for over 60% of the GDP; https://fred.stlouisfed.org/series/LABSHPUSA156NRUG

close to the worker's productivity as possible — the amount of added value they add to the company per hour.) The obvious criticism of that statement in the text is that no, the firm wishes to pay the employee as little as possible. The rejoinder to that objection is that if it does so, it will tend to lose its labor force to other companies who set wages closer to productivity levels. (Of course, if an employer pays above that level, it will lose profits and tend to become bankrupt.) If one company is able to lower its prices by reducing input costs this way, they will become more competitive. That will incentivize their competitors to follow suit, sending ripples throughout the economy. Therefore, while workers may have taken a reduction in pay, goods will become less expensive. While their nominal wage may have fallen, their real wage may have stayed the same, or perhaps even increased. (This, of course, it not to deny that the real wages of some laborers might have fallen. But, if productivity rises, the presumption is that on average we are all better off, economically speaking.) That also has positive benefits, saliently, for those people in the economy not in the industry under consideration. Perhaps not the laborers who specifically took the wage cut, but virtually everyone else in the economy registered an increase in real wages because prices had fallen. With everyone's income increasing, this would allow them to increase both spending and saving in the economy. The rise in expenditure would boost the economy in the short run, while a similar movement in saving would do so in the long run. Both of those would cause further economic progress, which would repeat this entire cycle again. What matters is *real* wages, not nominal wages. (All this, of course, is with a running assumption of a genuinely free market economy, which we do not have in the United States. In the "mixed" economy, those improvements would be greatly attenuated.[11])

The same reasoning applies to immigration.[12] There is the very popular narrative that immigrants are taking jobs away from Americans, and if we allow too many of them into the country, then the market will become over-saturated with laborers, driving down their wages. The notion that jobs are being stolen relies on the fallacy that the amount of jobs available is fixed.[13] To think that the job market is fixed ignores economic logic as well as history. The number of jobs available today is not the same as 2,000 years ago. A statistic

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11 For critiques of the mixed economy, see Mises, 2008; Rothbard, 2004.

12 There is a gigantic literature as to the effects of immigration on various cohorts in the labor force, particularly the unskilled, of which this is only a very small sample: Abowd and Freeman, 1991; Bhagwati, 1991; Blackburn, Bloom, and Freeman,1990; Borjas, 1990, 2003, 2006; Borjas, Freeman, and Katz, 1997; Borjas, Grogger, and Hanson, 2008; Butcher and Card, 1991; Card, 1990, 2001, 2007; Card and Lewis, 2007; Cortes, 2008; D'Amuri, Ottaviano, and Peri, 2010; Dustamnn, Frattini, and Preston, 2008; Friedberg and Hunt, 1995; Friedberg, 2001; Jaeger, 1996; Longhi, Nijkamp, and Poot, 2005; Markusen, 1983; Mundell, 1957; Murphy and Welch, 1992; National Research Council, 1997; Ottaviano and Peri, 2006, 2008; Peri and Sparber, 2009; Samuelson, 1948. Our point is totally separate from this. We are not at all interested, at least not in the present paper, in how immigration impacts the economic welfare of the poor. We only maintain that as long as irrelevancies such as crime, welfare, voting, etc., can be ignored, and as long as the marginal revenue product of the average immigrant is above what is necessary to feed, house, and clothe him, etc., that necessarily GDP per capita will rise.

13 For an antidote to this basic economic fallacy, see Hazlitt, 1946.

beloved of all politicians is job creation. Those who stress that issue are blind to their self-contradiction when they then turn around and claim immigrants are stealing our jobs. To believe that the job market is fixed is to believe that the economy and the world are static, which cannot be further from the truth. In a free market, there is room for everyone thanks to scarcity and the division of labor. There is always something that someone is comparatively better at than everyone else, thus inclining them to undertake that task. There is always something that someone wants but does not have, "thanks" to scarcity. It is therefore baseless to fear immigrants on the grounds that they will steal our jobs.

Basic supply and demand analysis tell us that an increase in supply will necessarily lower price. When it comes to the labor market, this price is the wage paid for labor. An influx of immigrants is no exception. Costs of production per labor would fall, causing prices to decrease, which would in turn lift average real wages.[14]

4. DEFLATION

Then there is the Boogieman of deflation. There are a couple of different arguments that people such as Paul Krugman make against deflation.15 The first is that when people expect prices to fall, they tend to spend and borrow less. Why buy something today when it's going to be cheaper tomorrow? Second, falling prices necessitate either falling wages or unemployment by workers refusing to take a pay cut.

Let us first deal with the first criticism. Consumption will fall, sending the economy into a depression. According to Spendmatters.com, computer prices are continuing to fall (Contributor 2015). Not only computers, but technological products in general, have continued to decline dramatically over the last 20 years.16 This is the deflation Krugman speaks of. Yet, in spite of this deflation, as of June 30, 2016, roughly 89% of the American population used the internet and about 50% of the world population can say the same (Internet World Stats 2016). The reason is simple: We cannot postpone consumption *ad infinitum*. Yes, it is very true that we would prefer to pay less as opposed to more, but eventually the cost of not owning the product outweighs the gain of forgoing consumption. We purchase the laptop, the cell phone, etc., knowing full well they are going to drop in price in a couple of months. The value obtained by using those items, whether it be because of the pleasure it gives or the necessity of having it to function in our modern world, outweighs the gain we

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14 Obviously, we are assuming a free market economy in making this claim. If there are regulations preventing such market activity, then all bets are off.

15 http://krugman.blogs.nytimes.com/2010/08/02/why-is-deflation-bad/?_r=0

16 See also Byrne, et. al, 2017; Schreyer, 2002. And long before that as well. For example, the automobile, the air conditioner, the television set, etc., were all far more expensive in real terms when they were first introduced to consumers than at present.

would receive if we waited. It is specious to believe that deflation would have the effect Paul Krugman says it would.

It is also believed that deflation is bad for businesses in that firms will make less profit, which will send ripples throughout the economy. This is not true either. Just because the price may have fallen does not mean that the ratio between the cost of production and revenue changes. If the difference betwixt revenues and costs hasn't changed, nothing has happened to profits, so businesses are in the same boat they were in as before.[17]

5. MICROECONOMICS VERSUS MACROECONOMICS

A referee of This Journal makes the following remark regarding an earlier version of this paper: "The argument is clear regarding efficiency or aggregate impact but less so regarding distribution. If all labor is replaced by capital and we are all unemployed – well, it is certainly nice to have all that leisure time – but only the capital-owners will have any income. The proletariat will be in trouble, wouldn't it?"

We respond that the "proletariat" would not be in trouble at all under these assumptions. If we are all "unemployed," this means that our marginal revenue product is zero, or below. If this is true, we have banished scarcity: We are no longer unemployed, but, rather, have no need of our own labor services. In this post-scarcity world, there will be riches for everyone. No one's desires will go unmet. Of course, this is highly problematic from an economic point of view. Even when we think of science fiction-ish super-robots, we cannot imagine they will fulfill our *every* desire. We will not be able to live infinitely long lives.[18] We may all wish to bed the same heart-throb of the day.[19] Robots may be as good as, or even better than, real people in this regard. But if we all wish to involve ourselves with an actual person, automation, necessarily, will fail.

States Newman (2017) on this matter:

> "The robophobic are also worried about income inequality – all the greedy capitalists will take advantage of the increased productivity of the automated techniques and fire all of their employees. Unemployment will rise as we run out of jobs for humans to do, they say.

17 If deflation is unexpected, it transfers wealth in much the same way as inflation, just in the opposite direction. We owe this point to a referee of This Journal.

18 We are tempted to also assert that "We will never be able to be in two places at the same time. No one will ever be able to draw for us a square circle" but will resist this temptation. These are merely philosophical fallacies, similar to asking if God can create a stone so big that He will not be able to carry it.

19 The future Marylin Monroe? Lady Gaga?

> "This fear is unreasonable for three reasons. First of all, how could these greedy capitalists make all their money without a large mass of consumers to purchase their products? If the majority of people are without incomes because of automation, then the majority of people won't be able to help line the pockets of the greedy capitalists.
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> "Second, there will always be jobs because there will always be scarcity. Human wants are unlimited, diverse, and ever-changing, yet the resources we need to satisfy our desires are limited. The production of any good requires labor and entrepreneurship, so humans will never become unnecessary.
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> "Finally, Say's Law implies that the profitability of producing all other goods will increase after a technological advancement in the production of one good. Real wages can increase because the greedy robot-using capitalists now have increased demands for all other goods. I hope the following scenario makes this clear."

Let us look back in history to gain some more perspective on this issue. Before the advent of the automobile, the rich man had a carriage and six horses, and the poor man had the use of his two feet. Afterward, the former can drive a Rolls Royce, the latter a Smart Car. Both gain. But who benefits more relatively? Although as a matter of technical economics we of course cannot say, a common-sense approach will see, clearly, that it is not the wealthy whose well-being is more greatly improved. Similarly, before the light bulb, the well-to-do had chandeliers filled with candles. The poverty-stricken went to bed in the dark. Afterward, both had light, albeit that of the former was more ornate and luxurious than that of the latter. But who benefitted more relatively? It does not strain the imagination too much to claim that the poor gained more. If the future resembles the past in this manner, the spaceships of the affluent will be better than those of their impecunious fellows, but we will all be able to dash off to Mars, or wherever.

6. CONCLUSION

The world is full of economic fallacies and alas, they tend to be widespread and their purveyors elected into office. Those beliefs are superficially plausible, but a shallow dive into the field of economics and logic dispel them rather quickly. Among those myths are the fears of automation, declining wages, immigrants,[20] and falling prices. There is nothing logical in fearing them. Automation merely frees up labor to shift to areas in the economy

20 On purely economic grounds. For the libertarian case in favor of immigration as a matter of rights, see Berg, 2010; Block, 1983A, 1983B, 1988, 1990, 1998, 2004, 2011A, 2011B, 2013, 2015, 2016, Forthcoming; Block and Callahan, 2003; Ebeling, 2015A, 2015B; Esplugas and Lora, 2010; Friedman, 1973, 2006; Gregory and Block, 2007; Hornberger, 2016; Hudson, 1986; Krepelka, 2010; Rothbard, 1962; Rozeff, 2005; Salin, 2000, ch. 11; Schoolland, 2001; Todea, 2010.

where it is more greatly needed and allows us to move further down our "wish list." A fall in nominal wages is nothing to dread, for it is real wages that matter, not nominal ones. Immigration is just an extension of the groundless fear of falling wages. Deflation, lastly, is something to be cheered, not denigrated. Goods and services becoming less expensive is invariably good for society.

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