

The Creative Destruction of Labor Policy

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Abstract

While the consumer benefits from the new products and improved processes due to creative destruction, the major downside to creative destruction is technological unemployment. However, policies adopted by government and by workers can increase the upside and reduce the downside. Governments can enable entrepreneurial innovation by keeping the labor market flexible. A government safety net is also considered. Workers can become more resilient in attitude and frugal in spending; and can invest in more diversified and enduring human capital. The family can provide a private safety net. The process of creative destruction is not a zero-sum game.

The benefits of creative destruction in terms of new products and more efficient processes are substantial (Schumpeter 1950, DeLong 2000). The person responsible for creating the benefits of creative destruction is the innovative entrepreneur (Schumpeter 1950). On the other side of the ledger, the main costs of creative destruction are in terms of the effects of job loss due to creative destruction. Schumpeter (1950) and DeLong (2000) present persuasive evidence and argument that the benefits of creative destruction are widely distributed in a capitalist society, and in fact primarily accrue to the poor and middle cases. The main costs are borne by those who lose a job because their skills have been made obsolete by creative destruction, especially the job losers who remain unemployed for a long time or whose new jobs are less satisfying or lower paid. Although the changes brought by creative destruction are arguably not pareto optimal, the benefits are great enough that a large majority of us would arguably assent to the changes from behind a Rawlsian veil of ignorance (Rawls 1971), especially insofar as the costs can be made less onerous.

The labor policies enacted by governments and workers, can greatly affect the success of creative destruction in two important ways. First, they can make it easier or harder for the innovative entrepreneur to bring us the benefits of creative destruction. Second, they can lessen the frequency or severity of job loss caused by creative destruction.

In the pages that follow, a variety of policies will be discussed that encourage creative destruction either by enabling the innovative entrepreneur or by strengthening the worker. First, I will discuss policies that can be undertaken by government. Second, I will discuss policies that can be undertaken by individual workers, or by the

families of workers.

a. Enabling the Innovative Entrepreneur

Steve Jobs was one of the great innovative entrepreneurs of our, or any, time. During key moments in his entrepreneurial projects, the success of the project depended on his being able to fire workers based on his intuition of who would make 'genius' contributions. Even in the hamburger business, Ray Kroc argued (1977, pp. 91-92) that a good entrepreneur has developed intuitions about which workers will be able to do a good job, and which not. In the case of Steve Jobs, biographer Walter Isaacson shows (2011) that Jobs' being able to act on his intuition was crucial to his quickly and efficiently building and keeping a team of "A" players from whom much was expected. Sometimes another type of firing was required, as at Pixar. Jobs had bought Pixar for \$5 million, and before it became profitable he invested an additional \$50 million. At Pixar, the survival of the project once required even the firing of some "A" players, to reduce costs (Price 2008, p. 116). The firings were unpopular but Price says they were necessary for the firm to survive and for the innovation of *Toy Story* to enter the world.

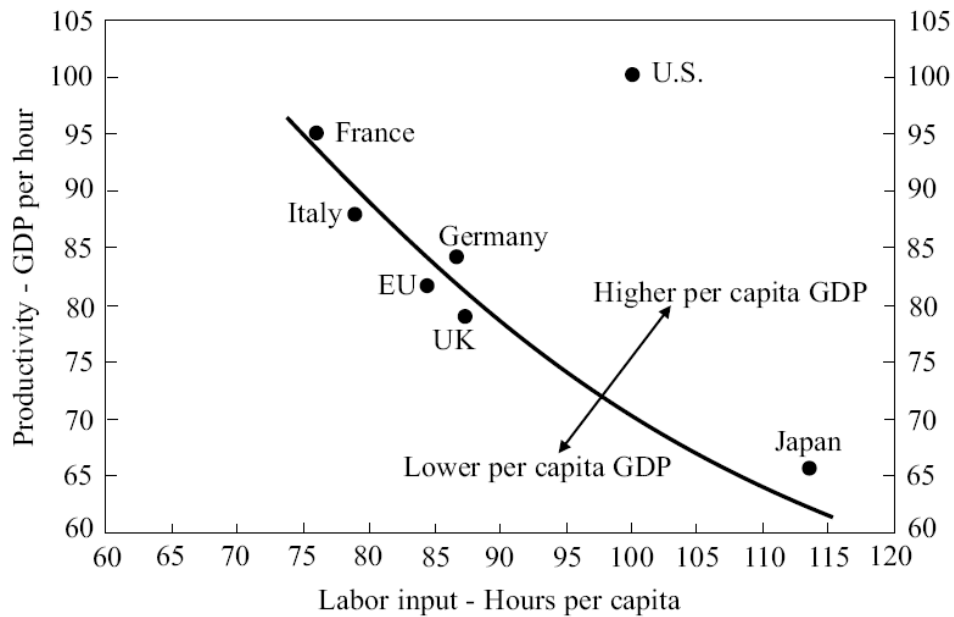
Part of Jobs' success was that he usually made quick intuitive decisions that often enough, but not always, were right. But these decisions were not easy to articulate when innovating at the far edge of 'the adjacent possible' (Steven Johnson 2010). Both the firings to maintain an "A" quality team, and those to reduce costs, were important for the success of the projects that Jobs was seeking to get done. The firings were possible because of the policy in the United States of "at-will employment."

Tracy Kidder in *The Soul of the New Machine* (1981) describes how Data General worked long and intense hours for months in order to develop one of the first minicomputers. The project might not have succeeded, or even been tried, if there had been regulations mandating vacations, or setting maximum work hours.

Labor market regulations often emerge from good intentions. The main cost of creative destruction is job loss when a new technology replaces an old one. In response to job loss due to creative destruction and other causes, governments often regulate how firms fire workers. Other regulations aim to improve the condition of workers. These may consist of minimum wages, maximum hours, required vacation days, required retirement age, and mandatory unionization, to name a few examples. The larger the number of such regulations, the more rigid, or sclerotic, the labor market; the fewer, the more flexible. One of the key ways in which an economy can be open to creative destruction is to have a flexible labor market.

Consider Martin Neil Baily's graph (Baily 2001, p. 220) in which the United States has greater labor productivity than would be expected, compared to Europe and Japan. He attributes this to a combination of countries having different preferences for leisure and having different degrees of openness to creative destruction. Of Baily's reasons for the differences in productivity, there are good grounds to doubt the importance of differences in preferences for leisure. For example, Rogerson (2008, p. 256) and Dhont and Heylen (2008) have shown that the lower hours worked in Europe, compared to the U.S., can be explained by differences in government policies such as higher European income tax rates. When these differences in government policy are taken into account, little is left to be explained by differences in preferences for

leisure.¹



Source: The Conference Board.

Figure 1: Explaining the Outlier: Openness to Creative Destruction. Quantities in graph are “indexed to US equals 100.” Source: Baily 2001, p. 220.

Although labor market regulations have grown in the United States, they remain less rigid there than in most European countries. This is true for a wide variety of regulations. A study in 2008, for instance, found that the United States was the only “advanced country” that does not legally mandate that companies provide workers with a paid vacation (Ray and Schmitt 2007). The United States also has less rigid rules for parental leave than many other countries (Ray, Gornick and Schmitt 2010).

At the macro level, labor market rigidity slows the reallocation of labor to more productive uses. Caballero has argued that the restructuring of the micro economy through reallocation is a major driver of economic growth that needs to be incorporated

in macroeconomic models (Caballero and Hammour 2001; Caballero 2007).

Specifically: “In Western Europe, the heavy weight of labor market regulation has caused persistently high unemployment and sclerosis” (Caballero 2007, p. 4). In the *Wall Street Journal* Editorial Board member commentator Holman Jenkins (2006) has gone so far as to say that the Europeans have a “pathological revulsion” to the “disorder” in the economy caused by such agents of creative destruction as Apple. The source of such revulsion is not clear. Botero et al show (2004) that leftist political power and non-common-law legal origins increase the extent of labor market regulations. Surprisingly, of the two, non-common-law legal origins matter more.

In contrast, “the greatest single asset that the American economy has always had is the flexibility and mobility of its labor force and labor laws” according to Harvard economist Robert Lawrence (as paraphrased by Thomas Friedman 2005, pp. 284-285).

Cox and Alm have illustrated (1992, p. 5) the point by noting that in 1900 about 40 in 100 workers in the United States were employed in producing food, while in 1992 only three in 100 were needed. If rigid government labor market policy had “protected” the 40 jobs in 1900, labor would not have been freed to produce all of the wonderful new products that made the 20th century exceptional.² Petra Moser suggests that the mobility of inventors moving from declining industries to expanding industries, is important in explaining the vitality of innovation in the United States (as quoted in Rampell 2008).

Paradoxically, greater labor regulations cause higher unemployment, and lower labor force participation (Botero et al 2004), in both cases most strongly affecting the young. In France, laws limiting the work week to 35 hours were intended to increase

employment, but did not do so (Chemin and Wasmer 2009). Within the United States, Texas has one of the most flexible labor markets. From June 2009 to June 2011, roughly half of the net new jobs created in the United States were created in Texas (Davidson 2011).

In the following five sections of this paper, I discuss some of the government policies that will make the labor market more flexible. Then in three sections of the paper I discuss some of the personal policies that workers can adopt for themselves. The policies discussed, advance creative destruction either by increasing the benefits through enablement of the innovative entrepreneur or by decreasing the costs by better preparing workers for job market changes.

b. The Redundant Robustness of Freedom

Allowing greater labor market flexibility will enhance the innovative entrepreneur's ability to experiment, start new projects, and respond to new information or opportunities. But many will worry that such flexibility leaves workers vulnerable to unexpected and unwelcome task assignments, work conditions or firings.

The most general and powerful response to these concerns is that entrepreneurial capitalism, when it is allowed to function freely, creates a redundant robustness that largely protects workers from the worst-earred outcomes. What I mean by 'redundancy' can best be understood by an extended analogy. My understanding of the analogy derives mainly from an under-appreciated reporter and commentator on entrepreneurial capitalism: George Gilder (in *Telecosm* 2002). Some aspects of the analogy are also discussed in Gleick's much acclaimed best seller: *The Information*

(2011).³

The Ethernet is a preposterous technology that should not work. You take a message, disassemble it into many discrete packets, send them by different, unpredictable routes to their destination, and then re-assemble them. It would take a miracle for it to work. But it does work. And not by a miracle, by redundancy: if a packet does not make it through, it can be quickly re-sent.

Entrepreneurial capitalism can work this way. When one job is destroyed, another is created. Even better, Davis, Haltiwanger and Schuh (1996) have shown that capitalism creates more jobs than it destroys. And Autor, Levy and Murnane (2003) have shown that on average the new jobs are better than the old ones. And workers can take actions to increase the odds that their new job will be better, and that they will find it quicker. The redundancy of the labor market has implications beyond reducing the pain from creative destruction. One implication is that since jobs are more numerous and diverse in large cities, the redundancy is greater there, which explains in part why cities are particularly conducive to creative destruction.

Another implication is that workers have a greater hope of being paid what they deserve. Like many policy makers, Schwartz and Sharpe (2010, p. 181) assume that any defensible pay system will be based on a calculable algorithm---in the absence of which, pay would depend on prejudice or affection or whimsy. And they plausibly assert that no calculable algorithm exists, or will exist, that results in workers being paid what they deserve. Their cynical conclusion is that to be productive and innovative, workers must sometimes become “canny outlaws,” and at the very least must give up the expectation of being paid what they deserve.

But the stories of Steve Jobs and Ray Kroc illustrate that through experience and intuition, entrepreneurs and managers can develop a usually accurate sense of what pay a worker deserves. Human Resource (HR) departments and government regulators would be appalled at relying on such intuitions, because of the possibility of discrimination. But if the redundancy of the labor market provides an alternative to rigid rules as a protection against discrimination (Becker 1971), then the market can take advantage of the informal knowledge of entrepreneurs, not only to make firms more productive and innovative, but also to make pay more accurately reflect what workers deserve.

A final implication is that redundancy helps reduce the costs of speaking freely. Consider economist Mark Blaug who as a young tutor at Queens College in New York, endorsed a student petition protesting the firing of a left-wing tenured professor for having refused to co-operate with the Un-American Activities Committee. Less than a day later, Blaug received a note from the President of Queens College, telling Blaug that his choice was either to resign or be fired. He resigned. Fortunately, he received a grant from the Social Science Research Council to complete his dissertation, after which, again seeking employment, he obtained a job interview at Yale. The interviewer told Blaug that Yale was private and they did not care what had happened a few years ago at a public university. Blaug concluded that Milton Friedman was right that liberty was more secure where there are many independent private employers, than where everyone works for the government (Blaug 2004, p. 77; Friedman and Friedman 1980, p. 246).

c. Let Entrepreneurs Employ At-Will

For the innovative entrepreneur, flexible policies are better than rigid policies. A great example is in entrepreneur Ray Kroc's autobiography where he explains an intuition he had that a certain manager could not do the job. Kroc allowed himself to be talked out of it, but eventually he was proven right (1977, pp. 91-92). In the meantime, the firm was less productive, and the manager delayed the day when he could find a job where his skills were a good match with what was needed. I argue elsewhere (Diamond 2012) that innovative entrepreneurs often benefit from informal knowledge---knowledge that is real, often based on experience, but that cannot be quickly or easily put into words. An entrepreneur in a flexible labor market can act on such knowledge by employing-at-will. When workers' jobs are "protected" by government policies, the entrepreneur cannot act on such knowledge, and the firm is less productive and innovative.

Case law and legislative statutes have restricted employment at-will in the United States, but the United States remains closer to having an employment at-will policy than countries in Europe. The approximate employment at-will policy has been identified by Epstein (1984) and by Posner (1995) as one of the primary reasons for the higher productivity of the United States economy. Martins (2009) finds that when the rules for firing are more flexible, workers work harder (and to some extent, more workers tend to be hired).

Alan Hyde (2003) has studied the labor market in Silicon Valley, which is arguably the epicenter of entrepreneurial activity in the United States over the past three decades. He concludes that labor mobility, furthered by the employment at-will policy

has been a key feature of the Silicon Valley labor market. Virginia Postrel (2005) has made the case that in Silicon Valley frequent job changes may benefit both labor and firms.⁴ The worker benefits by acquiring a greater diversity of human capital, and possibly achieving a better match between the job and the workers' preferences. The firm benefits by the infusion of new ideas and skills. Notice that this example refutes the common belief that low unemployment corresponds to long job tenure. When there is frequent job-hopping, there can be both low unemployment, and short job tenure.

Steve Wozniak writes with regret of Apple's transition from the flexible processes of an entrepreneurial startup to the rigid processes of a mainstream corporation (Wozniak and Smith 2006, pp. 232-233). One main evidence of the transition is the abandoning of employment at-will. In writing of the pre-1983 management troubles at Apple, Wozniak highlights that large companies usually lose flexibility in hiring and firing. Good managers who have tacit (or just insufficiently documented) knowledge about who the best employees are, have limited ability to act on that knowledge. It is unclear how much of this transition away from flexible processes is due to internal standards of what constitutes good corporate practice, and how much is due to a desire to comply with laws and regulations and avoid potentially costly lawsuits? How much of it is due to an inevitable disadvantage of size, or is due to a doctrine learned in human resource courses in business schools, or is due to other constraints from our laws, customs and institutions?

Wozniak describes how then-Apple-CEO Mike Scott fired a large number of engineers, and then was himself fired by the board for acting without "a lot of backing and due process" (Wozniak and Smith 2006, p. 231). Another leader of the company,

Mike Markulla, told Wozniak that “Mike Scott had been making a lot of rash decisions” (p. 231). But Wozniak says that Mike Scott had researched which engineers had been working and which not, and that with Mike Scott running Apple, Wozniak “didn't see many things fall through the cracks” (pp. 231-232). Most importantly Wozniak, who was in a position to know, thought that Mike Scott “fired all the right ones. The laggards, I mean” (p. 231).

Wozniak's observations at Apple, have been confirmed more broadly. Bird and Knopf (2009) have looked at the effects of court limitations on the employment at-will doctrine. States in the U.S. differ in how many, and which, of three common exceptions to the doctrine they enforce (the public policy exception, the good-faith exception, and the implied-contract exception). Controlling for state economic conditions, they look at the effect of more exceptions on bank profitability, and find that the greater the exceptions to the employment at-will doctrine, the lower the profitability of banks.

In Europe, and most famously in France, laws and culture have made it harder for firms to fire workers. In 2009 workers for Caterpillar, Inc. in France held managers hostage after the managers had announced a plan to fire some of the workers (Gauthier-Villars and Abboud 2009, p. B1). When 3,000 French firms were surveyed in 2004, 18 firms reported that managers had been held hostage by workers (Gauthier-Villars and Abboud 2009, p. B1). The situation in Europe has gone so far that Rob Grant has satirized it in his novel *Incompetence* (2003) in which an organization modeled on the European Union (EU) passes a law to make it illegal to discriminate against the incompetent by firing them.

Gust and Marquez (2004) have delved deeper into the effects of employment protection. They find a negative correlation between employment protection and information technology (IT) expenditures, and a positive correlation between IT expenditures and labor productivity growth (2004, p. 35). The causal chain suggested is that employment protection leads firms to invest less in IT, and less investment in IT leads to lower growth in labor productivity. Feldstein (2003) proposed a motivation behind the causal chain. One main source of benefit from personal computers is that they can substitute for some forms of routine labor (e.g., Levy and Murnane 2004a & 2004b). But if jobs are protected, these benefits cannot be realized. So if job protection forecloses the benefits from IT investment, entrepreneurs will invest less in IT.

d. Do Not Regulate Pay and Workplace Practices

To get their projects done, entrepreneurs make their best judgments about who to hire, how much to offer them, the hours and environment of work, the kind and number of meetings to hold, and a host of other variables. Some process innovations consist mainly in trying new or unpopular ways of deploying, supervising and rewarding labor. Wal-Mart, for instance, has been praised for the meetings in which associates communicate with each other about what items are selling well (e.g., Walton 1992, p. 222); and for having executives travel to visit stores more frequently than competitors (Walton 1992, p. 224).⁵ Southwest Airlines developed deliberately unpretentious (sometimes silly) gatherings so that employees would not have too high a fear of those up the hierarchy (Freiberg and Freiberg 1996, pp. 202-215).⁶ When the

government adds regulations to the labor market, they close off entrepreneurial options. They may thus keep some projects from getting done. Others will be done more slowly, or less well, or at greater cost.

The evidence from particular cases is also supported by analysis of broader data. For example, Autor, Kerr and Kugler (2007) find lower productivity when there are more regulations protecting labor. Bird and Knopf (2009) show the same result for the banking industry. Hallward-Driemeier and Rijkers (2011) find that higher minimum wage laws (interpreted as labor market rigidity) resulted in the exiting of the *more* productive firms.

Minimum wage laws induce entrepreneurs to use a more costly or less efficient mix of skilled and unskilled labor, and mix of labor and machines. In weighing the pros and cons of the policy, these cons might be justified, if there were sufficient benefits for workers. Card and Krueger (1994) caused a substantial stir among economists by suggesting that minimum wage increases benefited workers without causing a rise in unemployment. But their conclusions have been credibly challenged, and most economists still believe that minimum wage increases hurt some of the poorest of those seeking entry to the labor force (Deere, Murphy and Welch 1995; Becker and Posner 2007; Neumark and Wascher 2008). Mayor Daley of Chicago accepted this belief when he vetoed an increase in the Chicago minimum wage on the grounds that it would increase unemployment (Hudson 2006).

Guilds and labor unions, at their worst, stop the efficient reallocation of labor that is part of the process of creative destruction. Patrick Allitt (2002) suggests that labor union work rules provided significant and increasing constraints on productivity

and efficiency during the Victorian era in Britain.⁷ Allitt gives as a specific example the continued enforcement of work-rules from decades earlier in British ship-building facilities. Increasing union rigidities would be supporting evidence for McCloskey's defense (McCloskey and Sandberg 1971) of British Victorian entrepreneurs against the charge that their failings were the cause of the relative decline of industry in the Victorian Britain. If Allitt is right, then the problem was not that British entrepreneurs failed, but rather that British entrepreneurs faced labor rigidity constraints that were absent in the United States.⁸

e. Reduce "Creeping Credentialism"

The government increasingly interferes in the labor market by requiring or encouraging that a person have a certain set of credentials before they are allowed to be employed in a certain occupation, or set themselves up in a certain business. This can be done directly, but also indirectly. The indirect way occurs when the government makes entrepreneurs more vulnerable to charges of discrimination, wrongful firing and the like, if they cannot formally justify their actions. An easy form of justification is for the entrepreneur to cite to the government either credentials or lack of credentials as a justification.

Gilder (1993) discusses how cover-your-rear "credentialism" on the part of firms, reduces opportunity. To reduce the odds of lawsuits, the firms rely on credentialism rather than their real judgment of who could get the job done. Immigrants, poor blacks, dyslexics, and felons, are less likely to have the credentials, and are thus less likely to get jobs or be able to set themselves up as free agent

entrepreneurs.

The direct form of credentialism can take different forms. One form is to require the receipt of a particular higher education degree, or a particular degree with a particular major. Another is to require an occupational license. Occupational licensing makes it more costly for people to become free agent entrepreneurs by creating barriers to entry (Buchholz 2004, pp. 97-117; Kleiner 2000). For one particularly bizarre example, consider the California law saying that hair braiders need to have a cosmetology license in order to legally braid hair (Postrel 1997). Other states require licenses for personal trainers, florists, and tour guides (Simon 2011).

Credentialism also increases the costs and reduces the flexibility of innovative entrepreneurs. Experience often makes it possible for innovative entrepreneurs to make bets on unusual combinations of inputs and unusual processes for workers to interact and create. One form of creativity involves hiring employees who others would shun. For example, Nucor hired rural workers without credentials, but with a culture of hard work (Collins 2001); Sam Walton thought that with the right management process, a wide range of workers, including the shy and unsophisticated, but friendly workers who were his base, could be very productive associates (Walton 1992, p. 138)⁹; Southwest's process is summarized as "hire for attitude, train for skills" (Freiberg and Freiberg 1996, p. 64). Sometimes entrepreneurial firms that hire "risky" less-educated workers, and then offer more training, expect in compensation, to be able to pay lower salaries, or to otherwise ask more in terms of working conditions (e.g., Wal-Mart asking longer hours).

Several academics and intellectuals have observed that credentialism is on the

rise. The phrase “creeping credentialism” is often used to describe the phenomenon.¹⁰ Economist Richard Vedder describes it more colorfully as “credentialing gone amok” and suggests that, “In 20 years, you'll need a Ph.D. to be a janitor” (as quoted in Pappano 2011, p. 17). Dwight Garner, reviewing a book by “Professor X,” dares to doubt that college is beneficial for everyone. He observes that college “drives many young people into debt. Many others lack rudimentary study skills or any scholarly inclination. They want to get on with their lives, not be forced to analyze the meter in “King Lear” in night school in order to become a cop or a nurse's aide” (Garner 2011, p. C3).

Kleiner and Kudrle (2000) compared the performance of licensed and non-licensed dentists and found no difference. More generally, Kleiner (2006) concludes from the literature that there is not much evidence that licensing has any major effect on the quality of services provided by the licensed occupations. Licensing, however, raises the wage rate in licensed occupations by about 15% on average (Kleiner and Krueger 2010). According to Kleiner, those already practicing an occupation “prefer to be licensed because they can restrict competition and obtain higher wages” (Kleiner as quoted by Simon 2011, pp. A1 & A16). And unlike unions, which have been diminishing over time, occupational licensing has been growing substantially (Kleiner and Krueger 2010). In 1950 only 5% of workers in the U.S. needed a license to practice their occupation; by 2008 the percent had more than quadrupled to 23% (Simon 2011, p. A16). The licensing of occupations adds at least \$116 billion every year to the costs of services in the U.S. (Kleiner as quoted by Simon 2011, p. A16).

Many have described how the Crystal Palace in Victorian England was a symbol

of hope for a bright future in which new technologies would make life better (Beaver 1986). (Walt Disney included a downsized replica of it in the Magic Kingdom as a sit-down dining location.) The breakthrough design took advantage of the strength of new building materials and was loved by visitors, in part because of the way it let in the light. Surprisingly, the designer of the building was a gardener who had no credentials in architecture (Bryson 2010, pp. 10-11).

f. A Bigger Government Safety Net?

Thomas Friedman (2005) identifies the greatest threat to continued Schumpeterian growth to be obstacles to creative destruction due to workers who fear that the process will make their skills obsolete, and that they will end up with a worse job, or no job at all, or too painful a transition. This threat leads Friedman to advocate a larger safety net for workers, in order to earn worker's buy-in to an unimpeded process of creative destruction. Other advocates of creative destruction, who also support a larger safety net, include Gene Sperling (2005a; 2005b) and Robert Reich (2007).

Hayek argued (1976, pp. 122-124; see also pp. 207-208), to the contrary, that the more generous the worker safety net, the more slowly workers will acquire new skills, and move to new jobs, and the more slowly the economy will grow. This is perhaps the main difference between government "safety nets" and the private safety nets provided by families---the government nets provide workers with incentives to delay taking the steps necessary to transition to new jobs.

Concerns similar to Hayek's have been expressed by Polish economic reformer

Leszek Balcerowicz, famous for his shock therapy for transforming the Polish economy from Communism to free markets. He had pondered human psychology and concluded: "People are more likely to change their attitudes and their behavior if they are faced with radical changes in their environment, which they consider irreversible, than if those changes are only gradual" (Balcerowicz as quoted by Yergin and Stanislaw 1998, p. 271). A similar view has been expressed by Michael Mandelbaum, Professor of Foreign Affairs at Johns Hopkins: "People don't change when you tell them there is a better option. They change when they conclude that they have no other option" (Mandelbaum as quoted by T. Friedman 2005, p. 462).

Baily (2001) and Feldstein (2003) have argued that countries with bigger safety nets, experience slower economic growth. An informative graph from Baily's study appeared earlier as Figure 1. In that graph, the United States appears as an outlier in a graph related worker productivity to average hours of work per week. Part of Baily's explanation was that the United States had a greater openness to creative destruction, which implies that the United States, more than Japan and the nations of "old" Europe, allows jobs to be destroyed.¹¹

Also supporting the Hayek view is Edward Lazear (2006) who summarized his 1990 paper by saying "I found that job security provisions were instrumental in limiting employment in developed countries." More broadly and recently, other researchers have used cross-country comparisons to reach a similar conclusion (Botero et al 2004; Lafontaine and Sivadasan 2007). Another consideration that should be mentioned is that increased job security for the less competent requires decreased upward mobility for the more competent.

In the end, a government safety net may be implemented, either out of a belief in its economic desirability, or out of a belief in its political necessity. It would then be useful to analyze what forms of a safety net would be least costly and most beneficial. The safety net proposal of Thomas Friedman (2005), for example, attempts to preserve the workers' incentive to seek new employment. And Rajan and Zingales (2003, p. 300) note that safety net payments should take the form of lump-sum side payments to workers, rather than the form of subsidies to firms. This would preserve the worker's incentive to seek new jobs; and would not slow the exit of dinosaur firms, and the growth of "sunrise" firms. This would "prevent the victims of creative destruction from being transformed into human shields for special interests, . . ." (p. 300).

g. Workers Can Become More Entrepreneurial

In the earlier sections of the paper, I have focused on what policies the government should adopt to enable innovative entrepreneurs to carry out successful projects in an environment of creative destruction. In most of the following sections, I focus on some personal policies that workers themselves can adopt in order to ease their pains, and enhance their gains from creative destruction.

One broad personal policy we can adopt as workers is for each of us to become more personally entrepreneurial. What does that mean? I argue elsewhere (Diamond 2012) that entrepreneurs are willing to learn. When jobs are creatively destroyed, those who are willing to learn will bounce back sooner and at a higher wage than those who are less willing to learn. Another way to become more personally entrepreneurial is to adopt an attitude of resilience.

This response to worries about job loss from creative destruction, might be termed the 'courage and resilience' answer. Yes, losing a job is painful, but the gains are great, and it is noble to display courage, strength and resilience.¹² And reasonable scholars, such as Deirdre McCloskey (2006), have made reasonable arguments that courage and strength are admirable virtues (though McCloskey does not consider them the *most* admirable virtues). Todd Buchholz (2004, pp. 177-179) is another who argues persuasively that Americans used to have more backbone, and that we would be better people, and better off, if we had more backbone again.

Key entrepreneurs have exemplified an attitude of resilience. When Brunelleschi lost the sole right to design the Gates of Paradise, he bounced back by building the Duomo of Florence (Diamond 2009); when Edison failed time-after-time to find a good filament for his light bulb, he kept trying (Nye 1991); and when Ford bankrupt two start-up auto companies, he used what he learned for his successful third try (Nye 1991).

Vice President Joe Biden in his autobiography (2007) encourages resilience in powerful personal terms: he recalls his father telling him that when life knocks you down hard, you "*Get up!*" Biden specifically recalls his father's resilience in the labor market: "The world doesn't owe you a living, Joey," he used to say, but without rancor. He had no time for self-pity. He didn't judge a man by how many times he got knocked down but by how fast he got up" (Biden 2007, p. xxii; italics in original).

Masatoshi Shimi was a key developer of an early microprocessor chip, the 4004. Earlier in life, as a chemical engineering student, he had experimented with gunpowder in order to launch a small rocket. The gunpowder exploded, blowing off

most of his right hand. The loss of most of his hand made it hard for him to function as a chemical engineer, so he switched to computer architecture and helped create personal computing. (Shima's story is told in Gilder 1990, pp. 104-105.)

One way through which more workers might pursue the virtues of courage, strength and resilience is if they see a connection between pursuit of those virtues and being more in control of their lives. Inglehart's survey research (Inglehart and Welzel 2005, p. 288) suggests that people want freedom to choose, to feel in control of their lives. Other surveys, and the reports of individual entrepreneurs show that entrepreneurs experience a greater sense of control over their work time (Shellenbarger 2009, p. D1; Barrier 2007, p. 152; Erdbrink 2012, p. A12). Once employees experience being entrepreneurs, they find it harder to go back to being employees, they have learned to handle and to enjoy the choices and sense of control of entrepreneurship.

With the job market, more choice may initially be overwhelming, but in the long-run, increase the probability of a happy match between worker and job. And some may have been too overwhelmed to ever leave the fear behind.¹³

But based on his long and extensive world-wide surveys, Inglehart has concluded (Inglehart and Welzel 2005, p. 288) that most people are more satisfied when they have a sense that they can choose their future. We are constantly barraged with the statistic that the risks of death are greater driving a mile than flying a mile. And yet having heard that, many of us still prefer to drive, probably because we prefer riskier situations where we have some choice of what happens, over less riskier situations where we have no choice. The Post Office and higher education provide

very protected work environments, and yet postal workers and those in higher education are often stressed and unhappy. Perhaps that is partly because each of these work environments provides workers with too little choice over what they do and how they do it?

Sometimes some of us take risks, either because something about the risks thrills us, or because we believe that some important projects or values make the risks worth taking, e.g. in the service of some noble BHAG (Big Hairy Audacious Goal).¹⁴ It is paradoxical that in the spring of 2006, while some young Frenchmen were in the streets protesting the alleged “precariousness” of a labor market under Villepin’s proposed mild labor market reforms (Smith 2006), other young Frenchmen were seeking ever-more extreme ways to rapidly descend mountain slopes (Vinton 2006). People go to casinos for the excitement, and the chance to win big. But if they want excitement, and a chance to win big, they are better off in the labor market. In the casino, the odds are stacked in favor of the casino, and winning or losing is almost entirely a matter of luck. In the labor market, in a system of entrepreneurial capitalism, the odds are stacked in favor of the laborers, and labor can influence the outcome by its choices. Labor can accumulate human capital in the form of formal education, or in the form of experiences, and labor can accumulate savings, as a protection against bad luck.

Finally, the case for resilience is easier to make than it might at first seem, because usually workers do not have to be *too* resilient in order to thrive in a labor market of entrepreneurial capitalism characterized by creative destruction, with its robustly redundant opportunities.

h. Frugality and Hard Work Can Reduce the Labor Pains

Besides the redundancy of the labor market, fortunately there are often actions that workers can take that reduce the amount of resilience they will need to do well. Such actions can reduce the pain from the destructive side of creative destruction. Stanley and Danko (1996) have argued that most workers have it within their power to achieve significantly higher levels of financial security.¹⁵ The methods are not surprising. Primarily, the “secret” is frugality. This does not mean a life of stoic self-denial. One can live quite comfortably, with many material and psychic pleasures, but do it frugally. But to be frugal, you do need to forego some of the pleasures of conspicuous consumption, and expensive tastes.

There are a variety of ways to live frugally. You can forego new wardrobes every year or two. You can buy from discount and “club” stores. You can buy big-ticket items (e.g., cars) used rather than new. You can buy a somewhat more modest home, with a mortgage that you could afford to continue to pay during a period of lower earnings. Stanley and Danko provide many examples that those who live below, rather than above, their current means, achieve a level of savings that gives them peace of mind, even in a changing environment.

They also show that, at given income levels, entrepreneurs are most likely to adopt habits of frugality, and to achieve correspondingly high levels of personal wealth and financial security. This is a significant finding, since entrepreneurs have chosen a calling that makes them among the most vulnerable to the obsolescence that arises from creative destruction.

The family can serve as a form of unemployment insurance (Di Tella and

MacCulloch 2002). One member can have a 'safe' standard job, while another can be taking greater risks as a free-agent entrepreneur, or as the employee of a fragile start-up. Part time jobs can serve as a safety net, especially during the early start-up period for a free-agent entrepreneurial enterprise. A person's own personal savings can also serve as a resource (or safety net) for entrepreneurial activities. Apparently increasing numbers of retirees from standard corporate jobs are following their dreams to open entrepreneurial ventures (Pink 2001; Olson 2006). So policies that increase the ability of workers to increase savings, would also increase their resilience.

Besides frugality, other policies that workers can adopt can reduce the pain from creative destruction. The Nucor and Southwest Airlines examples discussed earlier, illustrate that a work ethic may matter more than training in landing good jobs. Recall that Nucor did well by locating in rural areas. They found that it was more important to have workers who showed up early and worked hard, than to have workers with high levels of relevant skills. (They knew how to train them for the skills; they did not know how to induce them to have a work ethic.) Particular job skills may be made obsolete by creative destruction, but creative destruction will never make obsolete the value of showing up on time, working hard, and being willing to learn.

Malcolm Gladwell (2008) emphasizes that to get really good at something often seems to require spending about 10,000 hours working at it; a similar point is made in Colvin (2008). Collins (2001) emphasizes that the slow constant pushing of the flywheel usually matters much more than the sudden epiphany or stroke of good luck. Charles Murray (2012) has recently presented evidence for the United States that only the well-off are practicing a work ethic and no one is preaching it. He turns the usual

aphorism on its head by advising that the well-off should, “preach what they practice” (Murray 2012, pp. 295 and 299).

Being more entrepreneurial means perfecting the character traits that make entrepreneurial success more likely: resilience, frugality, hard work. But it also means alertness to opportunities to become an entrepreneur, or to work at a job that permits great creativity and autonomy. Even under hard economic times, free agent entrepreneurs report higher levels of happiness than those in other occupations (Shellenbarger 2009).

i. Human Capital Investment

If parents anticipate that their children will live in an environment where creative destruction is common, they can give advice and make choices that will help their children acquire the human capital that will most help them in a changing environment. Pink (2001) and Peters (2003) each have chapters on education where they point out that the current Dewey-inspired educational systems are designed to turn children into obedient, static, organization men and women. Other forms of education are more likely to aid and abet budding entrepreneurs and free agents. Pink suggests that home-schooling is one constructive alternative. I believe that some versions of Montessori education provide another.¹⁶ Montessori education provides children with the opportunity to constructively make choices, and develop the skills and confidence that will allow them to better function as free agents. Resiliently educated children will as adults be better able to bounce-back from job-loss; and the bounce-back will be faster, and higher.

At higher levels of education, Gary Becker has argued (1975, p. 190) for liberal education as a means to acquire the general human capital that consists of ‘learning how to learn.’ Such general human capital is less likely to depreciate through unpredictable changes in the job market.

As indicated elsewhere (Diamond 2009), most episodes of obsolescence through creative destruction, happen gradually and with some advance warning. This gives some time for the alert to begin retooling in anticipation of their jobs becoming obsolete. To facilitate the retooling of specific human capital, Alan Greenspan has advocated an expanded role for community colleges. Also aiding worker retooling, are the growing offerings of within-company courses, and also the growing array of online learning tools (Christensen and Raynor 2003, pp. 244-246).

Formal education is not the only way to acquire skills and experiences that are useful as an employee or entrepreneur (Ellsberg 2011). Information technology entrepreneurs Sean Parker and especially Peter Thiel, have been urging high school graduates to forego college, and immediately try their hands at becoming entrepreneurs (Ellsberg 2012). Peter Thiel has gone so far as to set up a \$100,000 “scholarship” for young entrepreneurs who pledge NOT to attend college for two years (Miller 2011). And as mentioned in an earlier section, one unexpected form of human capital investment, in the context of creative destruction, may be job hopping (as observed especially in Silicon Valley).

j. Conclusions

Capitalism is sometimes compared to sports, because both involve competition.

In the short-run competition of capitalism, sometimes one "team" wins and another "team" loses. But in the longer run, the essential fact about capitalism is not competition, but innovation. And in the longer run triumph of innovation, all can win. Certainly, as consumers we win from the new products and processes that creative destruction creates.

In the labor market, there will be short-run losers. But we can adopt government and personal policies to reduce the duration and severity of the short-run losses. When Ghiberti and Brunelleschi competed to design the Gates of Paradise, Ghiberti ended up designing the Gates. But it would be a mistake to see him as the winner and Brunelleschi as the loser. Brunelleschi moved on to build the Duomo, and everyone won.

Footnotes

* Earlier versions were presented in 2012 to the Association of Private Enterprise Education and to the International Schumpeter Society.

¹ Dhont and Heylen (2008) find that besides income tax rates and “productive” government expenditures (on items such as education and R&D), government transfer payments to the nonemployed also help explain lower work hours among Europeans (leaving little variation in work hours to be explained by differences in tastes for leisure).

² For evidence on how exceptional the 20th century was, see Brad DeLong’s “Cornucopia” working paper (2000).

³ Besides the Ethernet, Gleick also describes (2011, pp. 13-15) the African talking drum language as working because its rich detail provide redundant paths to understanding the main message.

⁴ Postrel bases her discussion largely on Fallick et al 2006.

⁵ The meetings were discussed, and a couple of minutes of one shown, in a Peabody-award-winning David Faber 2004 CNBC documentary *The Age of Wal-Mart*.

⁶ Freiberg and Freiberg document the silliness, but imply it is intended mainly to make work “fun” for Southwest employees. That may be, but I believe that it serves a subtler purpose of easing communication up the hierarchy.

⁷ "Trade unions . . . impaired British competitiveness by designing rigid demarcation rules and fostering an environment of mutual distrust between workers and management" (Allitt 2002, p. 42 of Course Guidebook; ellipsis added).

⁸ Lemieux (2007, p. 762) reports that Lipset and Meltz (2004) attribute lower unionization in the U.S. to a greater individualism that results in skepticism toward collective action.

⁹ But he also thought that with the right management process, more sophisticated city workers could be good associates too (Walton 1992, p. 138).

¹⁰ One source of the phrase “creeping credentialism” is Ansalone (2009, p. 10).

¹¹ A related cross-country comparison appears in a graph on p. 4 of Siems (2006).

¹² If Shackleton could lead his men across the Antarctic in physically horrendous conditions, shouldn't you be ashamed of worrying about a little labor market uncertainty? See, for example, Morrell and Capparell's *Shackleton's Way: Leadership Lessons from the Great Antarctic Explorer* (2001).

¹³ In a famous psychology experiment (Seligman and Maier 1967), dogs were given a painful electric shock whenever they tried to leave a box. After a long enough series of shocks, the dogs would no longer try to leave the box, even if the shocks were ended. Humans may also experience this “learned helplessness.”

¹⁴ As far as I am aware, the concept of a “BHAG” was first introduced, and elaborated, in Collins and Porras's business classic, *Built to Last* (1994).

¹⁵ Other authors have made arguments similar to Stanley and Danko. E.g.,: Wilcox 2008.

¹⁶ Jeffrey Bezos (Amazon) and Sergey Brin (Google) are two prominent information technology entrepreneurs who participated in Montessori education as children (see: Hof 1998; and Malseed 2007).

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