The broken window: Fallacy or fact – A Kaleckian–Post Keynesian approach

Taha Chaiechi *

Discipline of Economics, School of Business, Faculty of Law, Business, and Creative Arts, James Cook University, PO Box 6811, Cairns, QLD 4870, Australia

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ABSTRACT

The "broken window" of Bastiat (1850) can be extended to any amount of destruction and can be extensively spotted in the works of mainstream economists, particularly those of Joseph Schumpeter who derived the term "creative destruction". While natural disasters are different from other economic events; the research concerns that the impact on macroeconomic performance from disasters is increasing substantially. Consequently, one may consider disasters similar to economic frustration (Okuyama, 2003) such as a recession phase in a business cycle, while some research findings show natural disasters can bring about some long-term economic "benefits", which potentially may lead to Schumpeterian gale of "creative destruction".

Motivated by this, the paper utilises a Post-Keynesian framework and uses historical data Structural VAR model, and impulse response analysis to explore the relationship between natural disasters, productivity and investment within a two-simultaneous equation system, then it attempts to examine if findings lead to creative destruction (or broken window). The finding allows to conclude that occurrence of major natural disasters in the state of QLD do appear to have resulted in improved "innovation", indicating the technology is improving, as a result of the natural disaster, this can be due to increase in the speed at which new innovations are brought to market.

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1. Introduction

Bastiat (1850) broken window tells the story of unfortunate baker, whose window is broken out by someone careless. So a glazier gets the job of making a replacement window for the baker. The glazier spends this money at the store expanding his business meaning that a job (or a business opportunity) is created, additional income is earned, and therefore not only the glazier but the society is better off because more is produced ("That which is seen").

> "…Everybody must live, and what would become of the glaziers if panes of glass were never broken."[1]

The broken window parable can be understood in terms of the Keynesian multiplier effect, introduced by Kahn (1932). This concept proposes the glazier may spend some of his earnings from the job on other suppliers who are, in turn, likely to spend some of it on other suppliers and so on. In this way, the initial transaction between the glazier and the baker creates a new wave of money circulation that provides further business opportunities for a number of people in society.

The other side of the story, however, involves opportunity cost. If the baker did not have a window to replace, he would have spent the time and money in some other ways ("…and that which is unseen"). If what-is-unseen is taken into consideration, it can be suggested that there may

be no benefit to individuals, businesses and/or national employment whether windows are broken or not. So Bastiat concludes that "society loses the value of objects unnecessarily destroyed".

Furthermore, one can apply the parable of the broken window to any amount of destruction in the form of intended or unintended consequences, with the former extensively explored in the works of mainstream economists. The Austrian–American economist, Joseph Schumpeter (1942), for instance, derived the term "creative destruction" to refer to outdated production units that are replaced by new production mechanisms through the innovation process. Schumpeter (1942) introduced this term in his book, *Capitalism, Socialism and Democracy* in 1942 and used it to refer to the disruptive practice of industrial transformation that accompanies revolutionary modernisation and innovations. These innovations range from the invention of new equipment, production processes and organisations, to the emergence of new markets, and methods of communication. Schumpeter (1942) defined destruction in the context of lost jobs and redundant skills which are necessary elements in economic evolution. In Schumpeter's view, creation and destruction always transpire together like two inseparable parts of a single process that lead to a stronger economy in the long run. This process is not likely to be instantaneous and is never smooth. Consequently, the Schumpeterian view of creative destruction can further refer to the regeneration process after a disastrous event.

Supporting historical evidence of such a view can be found in the statistics released on the U.S. agriculture sector in 2006 which showed that while 90% of the labour force in America worked in agriculture in 1790, this diminished to a mere 2.6% by 1990 (Reinert and Reinert, 2006). These figures demonstrated that the agricultural industry had

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* Tel.: +61 7 4042 1495; fax: +61 7 4042 1474.
  E-mail address: taha.chaiechi@jcu.edu.au.
  [1] Bastiat (1850).

been largely destroyed relative to its previous high employment rates. However, these statistics also showed that during the same period of time, other industries bloomed and the living standards of Americans significantly improved.

Unlike economic events and transitions in market structures, natural disasters are unintended by humans and unpredictable in terms of their frequencies. The extent and damage from disasters vary significantly from one disaster to another, and significantly depend on the pre-impact socio-economic conditions. Research has been gaining impetus from growing concerns that climate change and global warming are increasing the rate of occurrence and severity of natural disasters (Anderson, 2006). As a result a large body of literature on climate change and natural disasters in the social and natural sciences has been dedicated to improving methods of forecasting and devising ways that adaptation can be achieved. Remarkably, however, the economic research on natural disasters and their after-impacts is considerably limited (Kim, 2010).

The existing research on the relationship between natural disasters and economic growth is mainly based on simple causality tests between the two variables, mostly using the cost of disasters and gross domestic product (see for example: Loayza et al. (2009) and Ahlerup (2013)). Most of these studies, however, fail to adequately integrate this relationship into a solid macro-economic model. Thus, it would be a worthwhile attempt to remedy this limitation and extend this research by demonstrating the impact of natural disasters on macroeconomic performance. To this end, this paper pursues a modelling strategy that incorporates assumptions derived from the post-Keynesian theory of economic growth and distribution.

Accordingly, this paper aims to contribute to the literature on the economic impact of natural disasters by directly assessing the impacts of disasters on the drivers of economic growth, including investment and productivity growth, through the application of post-Keynesian theory. In particular, the paper attempts to answer the research question: How does the typical value of productivity and investment rate change after natural disasters occur? Although the destructive forces of nature are extensively greater than a 'broken window', the paper explores whether the relationship between these events and productivity provides support for the Schumpeterian "perennial gale of creative destruction" (1942, 1950, p. 84).

Accordingly, this paper aims at contributing to the literature on the economic impacts of natural disasters by directly assessing the impacts on drivers of economic growth including investment and productivity growth, through the application of post-Keynesian theory. In particular, the paper attempts to answer the question of "How does the typical value of productivity and investment rate change when natural disasters occur?" And while destructive forces of nature are extensively greater than a 'broken window', the paper tends to explore if the relationship between these events and productivity leads to Schumpeterian gale of 'creative destruction'?

2. Literature review

A body of research into the economic effects of natural disasters has been emerging since the 1980s, and has considered both the socio-economic impact caused by natural disasters, and the effect of the socio-economic conditions within a country prior to a natural disaster on the response to the disaster.

There is a large body of empirical research supporting Schumpeter's concept of creative destruction and has been considered a core component of economic growth in market economies (see, Aghion and Howitt (1998)). Creative destruction has also been applied in sustainable development studies. Hart and Milstein (1999, 2003), for instance, discussed the ways new profitable opportunities arise in a round of creative destruction driven by global sustainability. Few studies have applied the concept in the economics of natural disasters. Okuyama (2003) and Aghion, and Howitt (1998) have reasoned that when a disaster hits, the older physical capital is more exposed to destruction and, therefore, the

replacement of these facilities creates a positive productivity shock that may play a permanent positive role in the economic long term growth. Skidmore and Toya (2002) and Skidmore (2001) put forward an argument that supports the existence of the positive relationship between natural disasters, total factor productivity (TFP), and gross domestic product (GDP) per capita. Moreover, some empirical literature has established that disasters provide opportunities to upgrade capital stock, and to adopt new technologies that in turn increase long-run productivity, inducing higher economic growth compared to pre-disaster levels (see Bennett, 2008; Hallegatte and Dumas, 2009; Skidmore and Toya, 2002; The Economist: The cost of calamity, 2011).

According to Skidmore and Toya (2002), the lower rate of return on physical capital investment, along with the increased probability of more frequent near-future disasters will draw attention towards the importance of human capital investment. Hallegatte and Ghil (2008) extended Skidmore and Toya's (2002) analysis to consider differences in the economic impact of disasters, depending on whether these events occurred during a time of economic boom or recession. They found that a disaster occurring during a recession was likely to have a far more favourable impact on the economy due to the availability of human and physical capital for the rebuilding work required, compared to a disaster during a boom when shortages of capital can delay rebuilding efforts and cause inflation. A study of The World Bank (2011) found that floods, while negatively impacting agricultural production in the short-run, can, indeed, increase productivity in the longer term as a result of improved soil fertility (also see Reserve Bank of Australia, 2011a; The Economist: The cost of calamity, 2011).

Nevertheless, one should distinguish between the Schumpeterian concept of creative destruction and the effects that natural disasters are likely to have. Schumpeter's view (1950) emphasised competition dynamics as the engine behind technological progress while, as Cuaresma et al. (2008) argued, the term in natural disaster studies refers to "a more literal interpretation with similar ex-post effects", when technology replacement takes place after disastrous events. Using a slightly different approach, Cuaresma et al. (2008) measured the effect of catastrophic risk on the degree of absorption of foreign technology and knowledge spillovers (foreign Research and Development) for 49 developing countries plus the G-5. They found empirical evidence for the technological upgrading of equipment following natural disasters, but only for relatively developed countries. Johnson (2010) showed that a surge in production projects which follows extensive destruction of a nation's commodities seems to act to create prosperity. However, if this finding is more closely examined with Bastiat's parable in mind, it can be seen that only the direction of production shifted, the resources used to replace the lost capital and infrastructure were not available for use elsewhere ("that which is unseen"), and increased productivity (that is, if it occurred) progressed temporarily.

Although natural disasters are different from other economic events, the research findings suggest that the impact from disasters on macroeconomic performance is also likely to increase extensively. Therefore, one may consider disasters similar to economic frustration (Okuyama, 2003), such as a recession phase in a business cycle. It is understood that, to a variable extent, natural disasters impact the level of physical capital stock in the short-run through the destruction of infrastructure (Noy, 2008). Some research findings show natural disasters can bring about some long-term economic benefits (Baez et al., 2010). Schumpeter's "perennial gale of creative destruction" (1950, p. 84), then, prompts the economic impact of the destructive forces of nature to be reconsidered and, in particular, to examine whether they lead to major technological innovation, higher rates of accumulation, and consequently, economic growth.

3. The model

Based on the foregoing discussion, the key macroeconomic variables that are likely to be immediately affected by natural disasters are capital