CRUSOE'S BROKEN WINDOW: A TRIBUTE TO FRÉDÉRIC BASTIAT

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> War socialism unquestionably achieved a production of wealth on a scale far greater than we ever knew in peace, for though the goods and services delivered were destined for immediate and fruitless extinction, none the less they were wealth.**
>
> –John M. Keynes, *The End of Laissez-faire*

> Whence we arrive at this unexpected conclusion: «Society loses the value of things which are uselessly destroyed; and... to break, to spoil, to waste, is not to encourage national labor; or, more briefly, "destruction is not profit"».
>
> –Frédéric Bastiat, *That Which is Seen, and That Which is Not Seen*

I
INTRODUCTION

Frédéric Bastiat was a great economist[1] and writer, but most of all, he deserves everlasting fame as an educator. His 1850 essay «The Broken Window»[2] teaches an unforgettable lesson. Unforgettable,

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** Curiously, the very next sentence reads: «Nevertheless, the dissipation of effort was also prodigious, and the atmosphere of waste and not counting the cost was disgusting to any thrifty or provident spirit» ([1926] 1972, 286).

[1] Contrary to near-consensus among economists outside the tradition of the Vienna School, see Braun and Blanco 2011, 421-422.

[2] «The Broken Window» is the first of the twelve chapters of his last book *That Which is Seen, and That Which is Not Seen*, published in July 1850.

on the one hand, because it is humiliating: humiliating to realize that one had not grasped an idea so simple yet so crucial for a basic understanding of economics. Unforgettable, on the other hand, because once we have learned to «turn the mind's eye to those hidden consequences of human actions, which the bodily eye does not see» (Bastiat [1850] 2011a, 43), an intriguing journey of discovery begins. It has rightly been called «the one lesson»[3] to which all economics can be reduced: to think through not only the visible and immediate consequences of human action and interaction, but also the unseen effects: those which are *not yet* seen, and those which will *never* be seen because they would follow only from an alternative course of action.[4]

Another sign of Bastiat's excellence is that he was the first economist to make extensive use of thought experiments with one or a few actors only, named, and sometimes ridiculed as, «Robinson Crusoe economics». In the imaginary laboratory of the desert island, we are free to set arbitrary conditions. In particular, we can construct the simplest version of any problem, where the essential features stand out most clearly. Simple scenarios, as Henry Hazlitt ([1946] 2008, 91) notes, «are ridiculed most by those who most need them, who fail to understand the particular principle illustrated even in this simple form, or who lose track of that principle completely when they come to examine the bewildering complications of a great modern economic society». These complications can be mastered best by extending the analysis step by step from one actor to a higher number, until real-world complexity is sufficiently approximated.[5]

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[3] In his own words, Henry Hazlitt's classic *Economics in One Lesson* «may, in fact, be regarded as a modernization, extension, and generalization of the approach found in Bastiat's pamphlet [*That Which is Seen, and That Which is Not Seen*]» (Hazlitt [1946] 2008, xii).

[4] Accordingly, these effects can be classified as *distant effects* and *alternative effects*. Alternative effects can be immediate, intermediate, and distant. Strictly speaking, the first alternative «effect» of an action does not succeed in time, but lies in the simultaneous elimination of all alternative actions, and only in a second step, the prevention of their consequences. For the slightly different original definition, see Hazlitt (1946) 2008, 5.

[5] This approach is in accordance with the scientific method in general (see Oppenheim and Putnam 1958, 17) and the tradition of the Vienna School in particular,

When Bastiat was writing his last work *That Which is Seen, and That Which is Not Seen*, he was suffering from a terminal illness closing in on him. We can only speculate what form it might have taken and how much more he could have achieved, had he been granted more time. But what is obvious in the work he did is the importance of Crusoe scenarios and of that which remains unseen. The thought experiments presented in what follows merely combine these two ideas. Thus, this essay is deeply inspired by Bastiat's way of thinking, and hopes to do honor to his inspiration.

II
WHAT IS THE BROKEN WINDOW FALLACY?

Throwing a brick into a baker's window brings, in some sense, economic net benefit to society. To most people–and to all bad economists–this becomes obvious after a moment's thought. The reasoning goes as follows: "Heartless as it may seem to tell this to the baker, the broken window could do some economic good. Now, all of a sudden, we need a new one. The destruction isn't big compared with the whole economy, but rebuilding will generate at least some increase in business spending. To be sure, the baker bears the loss of the broken window, but the glazier will have an additional income. He will spend it, say, on a new pair of shoes, and the shoemaker in turn will share these earnings on other merchants' goods or services, and so on. Therefore, the broken window stimulates the economy in ever-widening circles."[6] This conclusion constitutes the broken window fallacy.

The first evidence that this argument is fallacious is that it can easily be reduced to absurdity. If it was sound, why not break all the windows in town? Even better, why not just burn everything

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which rightly understood is nothing more than the special form the scientific method takes in application to economic phenomena. In its founding document, Carl Menger's *Principles of Economics*, «beginning with the simplest phenomena and gradually passing on to the more complex phenomena» is declared one of the «methods followed generally in this work» ([1871] 2007, 194).

[6] The first three sentences of this fictitious, but typical argument emulate Paul Krugman's (2001) comment on the Islamic terror attacks of September 9, 2001.

down? Following the logic that a little act of destruction brings economic «stimulus», should not utter destruction bring ultimate productivity and wealth? The «test of progression, which is the touchstone of principles» (Bastiat [1850] 2011a, 7), suggests that there is a catch in destroying and burning one's way to prosperity. Something must be wrong or missing in the course of reasoning.

In fact, the broken window fallacy is a mere special form of the *fallacy of incomplete evidence*: the premises fail to contain all evidence relevant for the conclusion.[7] To see why, we first have to take a closer look at the conclusion. The statement «Breaking a window stimulates economic activity» implies a descriptive-causal and a normative-comparative assertion. The unstated implication is that without the act of destruction, ceteris paribus, no equally or more desirable course of interaction, and corresponding states of affairs would follow. The premises however do not contain, either explicitly or implicitly[8], any evidence about alternative courses of interaction. This is equivalent to the inference that talking to plants stimulates their growth because we see them grow after talking to them. Obviously, neither causation, nor even correlation can be established this way. Thus, crucial evidence is omitted, and the violation of total evidence is particularly severe.

While the idea should strike most people that a plant might grow regardless of any talking to it, it requires more of an intellectual effort to imagine an alternative course of human interaction. There are innumerable possible and various plausible alternative scenarios without the destructive act. To comply with the principle of total evidence, all relevant possibilities must be accounted for.

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[7] See Salmon (1963) 1984, 97.

[8] The principle of charitable interpretation and interpolation obliges us to add unstated premises to an argument if they are necessary to give it its fullest force, and if it is clear that they would be accepted by the arguer, see Nolt, Rohatyn, and Varzi 1998, 12-13.

III
BASTIAT'S LESSON

Now, Bastiat himself does not in fact do this. Instead, he points out a single neglected alternative scenario:

> It is not seen that as our shopkeeper has spent six francs upon one thing, he cannot spend them upon another. It is not seen that if he had not had a window to replace, he would, perhaps, have replaced his old shoes, or added another book to his library. In short, he would have employed his six francs in some way which this accident has prevented. Let us take a view of industry in general, as affected by this circumstance. The window being broken, the glazier's trade is encouraged to the amount of six francs: this is that which is seen. If the window had not been broken, the shoemaker's trade (or some other) would have been encouraged to the amount of six francs: this is that which is not seen. (Bastiat [1850] 2011a, 3)

There are other plausible alternative scenarios, but to point out just one is sufficient to demonstrate a violation of the requirement of total evidence.

Neglecting that which is not seen is seductive because «the human understanding is most excited by that which strikes and enters the mind at once and suddenly, and by which the imagination is immediately filled and inflated» (Bacon [1620] 1902, 24). We find in the broken window scenario three levels of subtlety and analytical depth, as Murray N. Rothbard ([1995] 2006, 445) points out. That which strikes and enters the mind first is the visible damage of the broken window. This is the very first and quite obvious analytical step. The «second-level, sophisticated analyst or what we might call a proto-Keynesian» (ibid.) considers that which strikes and enters the mind next: the benefits to the glazier and those from whom he buys in return. However, stopping at this point is the mark of the «pseudo-sophisticate» (ibid.). While he provides additional evidence, the pseudo-sophisticate still misses the crucial piece of evidence. His mind is too excited by the immediate and easily imaginable «blessings of destruction» (Hazlitt [1946] 2008, chap. 3) to take into account the lost opportunities and the unseen

blessings they would have brought. Yet only here does the sophisticated third-level analysis begin.

The challenge is to overcome our fatal propensity to ignore the unseen. Despite natural variety of intelligence among humans, we are all exemplars of the fifth ape, not equipped by nature with an intuition for the physics of space travel or the economics of a great modern society. Bastiat's parable teaches us this humility, and therein may lie its greatest merit.

IV
CRUSOE'S BROKEN WINDOW

When we take a closer look at Bastiat's argument, various questions come to mind. What if the baker does not spend the six francs on a new pair of shoes, but «hoards»[9] them? What if he loses the six francs on his way to the shoemaker, never to be found again? Is it premature to conclude that breaking windows is *always* a bad idea? Not least, by what standards do we come to such judgment? To answer these questions, we need to consider carefully what exactly remains unseen —the third-level analysis has only just begun. As mentioned above, the most fertile way of analyzing an economic phenomenon is to construct the simplest version in which its essential features can be grasped most clearly, and then to extend the analysis step by step.

The simplest case is, of course, a broken window in a one-man economy. Suppose that Robinson Crusoe inhabits, all alone at this point, a desert island in the sea, where he has built a hut. His window is simply an opening in the wall with a wooden shutter. Now a heavy storm comes in at night and breaks the shutter. In this situation, Crusoe's most important and urgent want is protection from wind and weather, so he spends the next day repairing his window.

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[9] As Ludwig von Mises ([1949] 1998, 378n21) notes, «hoarding is nothing but cash holding that exceeds the customary amount». Moreover, as Rothbard ([1962] 2009, 776) states, «the very word "hoarding" is a most inappropriate one to use in economics, since it is laden with connotations of vicious antisocial action».

Intuitively, hardly anyone would doubt that the storm has made Crusoe, this society of one, worse off. However, one might argue in the following way: Crusoe would have spent the next day lying in his hammock, but because of the storm, he got up and worked, and in the end owns a brand-new shutter. Therefore, the storm has «stimulated economic activity» on the island, and thus has perhaps brought some net benefit to Crusoe. This argument rests, of course, on the flawed premise that the production of material things is an end in itself, and not just a means to the satisfaction of wants. Certainly, had a new and better window provided greater satisfaction to Crusoe than a day of rest and leisure, he could have thrown away the old shutter and built a new one without the help of the storm.

Satisfaction of want is, of course, a less visible phenomenon than the production of something material, and what is harder to imagine is all the more easily overlooked. Therefore, all objectivist misconceptions of value are close and natural allies of the broken window fallacy. How much confusion they can cause when mutually supporting each other is illustrated by Keynes' praise of wartime production in the quotation at the head of this article.[10] It is no coincidence that both the concept of subjective value and of opportunity cost have been most clearly exposed and are most consistently applied by one and the same tradition of economic thought, namely the Vienna School.[11]

Whether the replacement of the broken window costs Crusoe a day of leisure, or some alternative construction, say a fishing net, what is crystal clear in this first scenario is that he first loses the utility, or value, of his window, and when he sets out to replace it, the value of the next best alternative end he could have attained with the same time, effort and materials. The loss of the window as a means to an end is an absolute cost. With the reparation, this absolute and visible cost turns into an invisible opportunity cost.

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[10] See also Menger ([1871] 2007, 119-120): «The objectification of the value of goods, which is entirely *subjective* in nature, has... contributed very greatly to confusion about the basic principles of our science».

[11] Ultimately, this is due to Menger's strict adherence to the causal-reductionist worldview that he professes in his *Principles* ([1871] 2007, 46-47; 51-52).

This transformation of the nature of the damage must be kept in mind. Figuratively, we can imagine Crusoe's shadow developing a life of its own, and, while Crusoe is constructing a new shutter, his shadow is building a new fishing net. Then, when the window is repaired, the shadow returns to Crusoe and the fishing net fades away. The fishing net —more precisely, the psychic benefits it would ultimately have yielded— could more appropriately be called the *opportunity damage* of the storm. While Crusoe is free to build the fishing net and to neglect his window, the storm has destroyed his option to do so and have an unbroken window at the same time.

V
PARADISE LOST, WINDOW BROKEN

Bastiat ([1850] 2011b, 498) claims that «Political Economy will have attained its design and fulfilled its mission when it shall have conclusively demonstrated this—that what is true of an individual man is true of society at large». This is a daring and inspiring claim, and the phenomenon of the broken window seems to be a case in point. No matter how large the society under consideration, when a window is broken, what is lost on net is first the utility of the window, and then, ultimately, not an alternative circulation of money, but whatever value could be created with all the resources now invested in reconstruction. The challenge is to keep track of this simple insight through the confusing complexity arising from multiple interactions, and in particular, from indirect exchange. For, as Bastiat (ibid.) warns, «*exchange* produces . . . an illusion capable of beguiling even the best minds». The way to escape from this maze is the above mentioned step by step analysis. Thus, the next step is an economy of two castaways, Adam and Eve.

First, they share everything, «guided by concrete, commonly perceived aims, and by a similar perception of the dangers and opportunities —chiefly sources of food and shelter— of their environment» (Hayek 1991, 11-12), as is natural for small bands of humans. In this case, Adam's hut is Eve's hut, his window is hers, and whatever fails to be produced by either of them is an opportunity

cost that falls on both. In this case, no noteworthy difference to the one-man scenario exists. The two-person society loses as a result of the storm in exactly the same way as the one-man economy.

Now let us suppose that after a controversy about who is to blame for their expulsion from the Garden of Eden, they become alienated and keep their distance from each other. Adam builds a hut of his own, and instead of the rules of joint property, they apply the rules of private property and freedom of contract. We are thus considering a miniature version of what Hayek calls the «extended order» (Hayek 1991, 6). While they do not share the fruits of their labor as joint owners any more, they nevertheless negotiate and trade fish for coconuts. After a while, the steady result is that Adam catches three fish a day, and Eve gathers three coconuts. At the end of the day, they exchange two fish for two coconuts. Thus, Adam has one fish and two coconuts for dinner, and Eve two fish and one coconut. Production and allocation before and after the exchange are depicted in figure 1-a, where Adam is represented by the white king on the left side of each panel, and Eve by the black queen on the right.

FIGURE 1-A

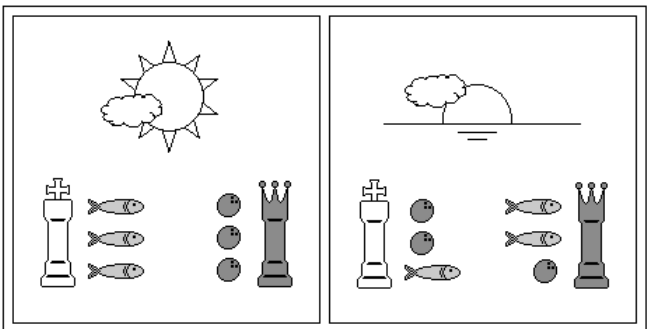
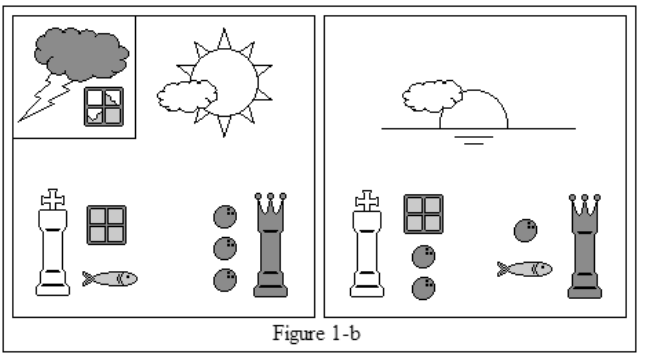


Figure 1-a

But one night, a storm breaks Adam's window. The next day, Adam repairs it. As a consequence, he is not able or not willing to catch three fish as usual, but catches only one fish–while Eve, as usual, gathers three coconuts. However, Eve ends up paying two coconuts for the only fish available, accepting a price that is twice

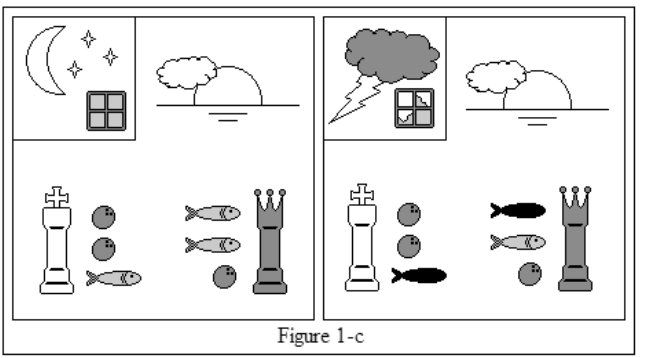
as high as usual. Production and allocation are depicted in figure 1-b.

FIGURE 1-B



The loss of the two fish as a result of the storm is thus distributed between the two: Each of them is missing one fish on their dinner-plate. Figure 1-c shows the alternative results without (left panel) and with the storm (right panel, where the two lost fish are blackened).

FIGURE 1-C



In this scenario, what holds true for one man holds true for the two-person society: It is safe to say that the destruction has made each of them, and thus «society as a whole», worse off. The only normative premise necessary to reach this conclusion is that our

scale of preference for social outcomes —our *social values*, for lack of a better term–is exclusively determined by the valuations of each of them.

A similar result is conceivable if Adam hires Eve to repair the window. He catches three fish, but it costs Eve two coconuts to repair the window. The one coconut she gathers and her repair service is bought by Adam at the price of two fish in total (figure 2-a).

FIGURE 2-A

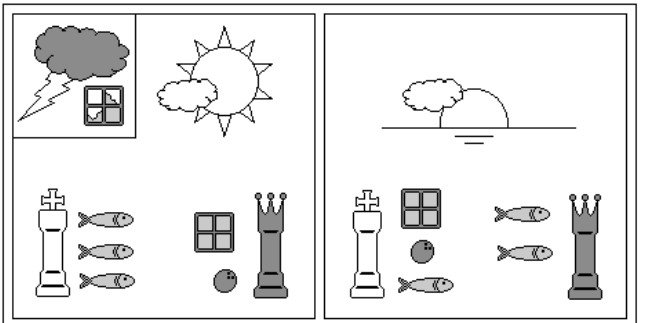


Figure 2-a

Figure 2-b shows the alternative results.:

FIGURE 2-B

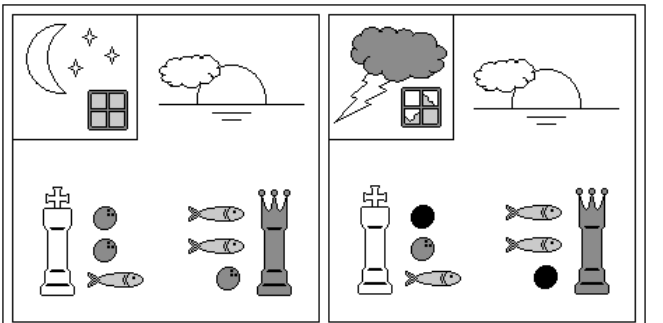
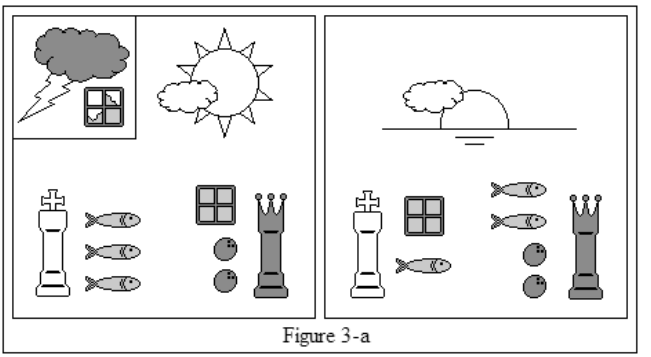


Figure 2-b

Although Eve has gained employment as a glazier, she has lost the more profitable employment as a coconut gatherer. Again, each of them is worse off.

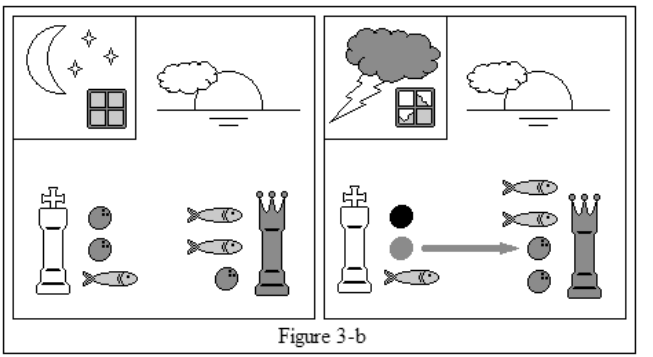
However, a more ambiguous outcome is conceivable in the two-person scenario. It may be that Adam's best option is not to repair the window himself, but to hire Eve. He catches three fish, and pays Eve two of them to repair the window. The reparation takes Eve no less time and effort than gathering a single coconut. Instead of gathering three, she gathers just two, and in the remaining time repairs the window. Thus, when the reconstruction is made, Adam has just one fish left for dinner, while Eve enjoys a good sized dinner of two fish and two coconuts (figure 3-a).

FIGURE 3-A



As a result of the destruction, Adam loses the two coconuts of his usual dinner, while Eve gains an additional one. The alternative results are depicted in figure 3-b.

FIGURE 3-B



In the right panel, the blackened coconut has not been produced in the first place. The gray coconut represents the coconut that Adam usually buys from Eve, but which she now keeps. This distributive effect of the destruction is indicated by the gray arrow. Thus, the destruction is an evil for Adam but a blessing for Eve; there is a winner and a loser. What can be said now about the wealth of this two-person society «as a whole»? The premise that our personal value scale for social outcomes is exclusively determined by the preferences of both Adam and Eve is not sufficient any more to reach an unambiguous normative conclusion. At this point, a closer look at the normative premises of our reasoning is in order.

VI
CRUSOE WELFARE ECONOMICS

On lonely Crusoe's island it was not problematic to determine the wealth of this one-man society by simply using the yardstick of Crusoe's own beliefs and desires. But if Adam loses and Eve gains, how can we weigh Eve's gain against Adam's loss and come to a conclusion about the aggregate wealth of their two-person society, about «society as a whole»? For the positivist economist, there seems to be an easy way to escape this question. We simply point out the gains and losses for everyone, according to their own preferences, and leave the evaluation of the outcome to moral philoso-

phy or gut feeling. John R. Hicks (1939, 696) describes the positivist premise thus: «Positive economics can be, and ought to be, the same for all men; one's welfare economics will inevitably be different according as one is a liberal or a socialist, a nationalist or an internationalist, a christian or a pagan».[12] Consequently, we could confine ourselves to the descriptive-causal part of the broken window fallacy: What would have happened without the act of destruction?, and simply ignore the normative-comparative one: Would society «as a whole» be better off with this alternative outcome?

However, the analysis of our last scenario suggests a method to answer even the second question. In advance, some reflections on welfare economics are in order.

In Ludwig von Mises' words, the positivist-subjectivist premise is the following:

> In making his choice man chooses not only between various material things and services. All human values are offered for option. All ends and all means, both material and ideal issues, the sublime and the base, the noble and the ignoble, are ranged in a single row and subjected to a decision which picks out one thing and sets aside another. Nothing that men aim at or want to avoid remains outside of this arrangement into a unique scale of gradation and preference. (Mises [1949] 1998, 3)

Thus, social values are preferences like any others. They do not exist outside any human being's mind[13], and it would be surprising if there was no variety at all between individual minds, in this regard as in others. Social values are social facts which «it is futile to approach... with the attitude of a censor who approves or disapproves from the point of view of quite arbitrary standards and subjective judgments of value» (ibid., 2). The only objective statement possible is whether a means is suitable to attain the end sought.

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[12] Of course, Hicks (ibid., 711) also claims that his compensation criterion can «put welfare economics on a secure basis, and to render it immune from positivist criticism».

[13] See Menger (1871) 2007, 121: «Value does not exist outside the consciousness of men».

What remains is the question of how people compare and evaluate actions, events and policies, provided they have a correct understanding of the relevant objective causes and effects, and subjective means and ends. However, this is not an economic question, but a psychological one. The term *welfare economics* is a misnomer: the study of how social values are formed would more appropriately be called *welfare psychology*, and classified as a branch of moral psychology. Nevertheless, for the psychologist who wants to examine such questions, economics becomes an indispensable auxiliary science and rich source of inspiration. Which leads to the method of evaluation promised above, and suggested by our last scenario.

VII
CREATIVE EFFICIENCY

We recall that Adam ends up with two coconuts less than usual, and Eve with one coconut more than usual (fig. 3-b). Now, what could explain our judgment that aggregate wealth has decreased as a result of the storm? The first step is to clarify the effects of the storm. The first effect is that Eve does not gather three coconuts, but only two; instead of the third coconut, she repairs the window. The second is that the three fish caught by Adam and the two coconuts gathered by Eve are allocated by exchange in a way more favorable to Eve: she keeps both the coconuts and gets two fish for her repair service, which leaves Adam with one fish only, and no coconuts at all. Based on this causal analysis, we can now in the second step classify the gains and losses. Eve's gain of one coconut can be called merely distributional, for it is caused by the same event that also causes Adam to lose a coconut. However, Adam loses a second coconut that does not causally imply any gain for Eve: this is the unseen coconut that Eve does not gather in the first place. This loss can be called absolute, productive, or, probably most appropriately, creative[14], in contrast to the merely distribu-

[14] Goods and services are *produced*, but values are *created*. Thus, the word *productive* has an objectivist ring to it, and the word *creative* might be preferable.

tional loss of the coconut that is produced, but ends up on Eve's instead of Adam's dinner plate.

The distinction between distributional and creative gains and losses might play a role in how at least some people, maybe most of us, evaluate social outcomes. We might be indifferent to distributional gains and losses, but prefer to avoid creative losses–and to produce creative gains. In our scenario, there is the distributional gain of one coconut for Eve and the distributional loss of one coconut for Adam. We do not ask how distributional gains and losses could be weighed against each other, but simply assume they cancel out.[15] However, we also find the creative loss of one coconut for Adam: the opportunity damage of the storm. Thus, we judge the effects of the storm as worse for society as a whole. Due to the decisive role of creative results (gains and losses), the concept of wealth thus defined could be called creative efficiency

This method of evaluation does not merely compare two states, as compensation criteria do, but takes into account their causes, and all their alternative and distant effects. Thus, the complete analysis of all costs and benefits, seen and unseen, immediate and distant, becomes a requirement of total evidence in the evaluation of social wealth. This explains and supports Hazlitt's claim that «the whole of economics can be reduced to a single lesson, and that lesson can be reduced to a single sentence. *The art of economics consists in looking not merely at the immediate but at the longer effects of any act or policy; it consists in tracing the consequences of that policy not merely for one group but for all groups*» ([1946] 2008, xii).

Moreover, this method seems to answer the call for a standard of dynamic efficiency (Huerta de Soto 2009), as it does not assume a given production possibility frontier, but depends «on the capacity of the system to continually "shift" the production possibilities curve to the right» (ibid., 8). If there is, for example, a policy on the island has the effect to stifle the development of more stable windows, and to secure Eve's higher income from her repair services,

[15] In a simple barter transaction, there are only distributional gains and losses. Nevertheless, these gains and losses are comparable, since the voluntary exchange demonstrates reverse valuation, so that each party is better off, at least ex ante.

the productive losses render this policy inefficient, by both the standard of creative and dynamic efficiency.[16]

Last but not least, the distinction between creative and distributive gains and losses matches perfectly Bastiat's distinction between the «only two ways by which the means essential to the preservation, the adornment and the perfection of life may be obtained —production and spoliation» ([1850] 2011b, 307). Production aims at profit by producing creative gains, while spoliation, most unfortunately termed «rent-seeking», aims at distributional gains by means which imply not only distributional, but also productive losses. Thus, «spoliation not only displaces wealth, but always destroys a portion» (ibid, 309).

With the standard of creative efficiency, we arrive at the conclusion that destruction makes our two-person society as a whole worse off, even if one benefits, at least in the short run. Destruction can confer distributional gains on one at the expense of distributional losses for the other. But it inevitably causes creative losses. Metaphorically, it shrinks the cake of total wealth. If one's relative share grows so much that it becomes absolutely larger, than the other must loose even more in absolute terms, as what is left to him or her is a smaller relative share of an absolutely smaller cake.[17] Our next step is to see if we can keep track of this insight in some three-person scenarios.

VIII
ROBINSON CRUSOE MEETS ADAM AND EVE

Let us add to Adam and Eve another castaway, Crusoe. Suppose that Adam catches three fish, Eve gathers three coconuts, and Crusoe three bananas. They barter with each other directly only, with the steady result that each of them ends up with a fish, a coconut and a banana for dinner (figure 4-a, where Crusoe is represented by the white rook).

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[16] Even the effects on population figures in succeeding generations have to be taken into account, see Huerta de Soto 2009, 23; Hayek 1991, chap. 8.

[17] Thus, where applicable, compensation criteria may converge with the criterion of creative efficiency.

FIGURE 4-A

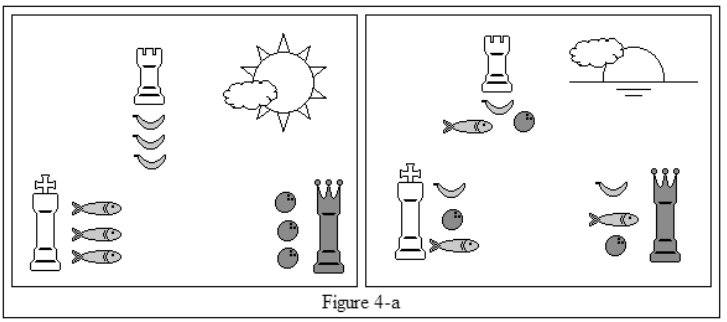


Figure 4-a

If Adam's window is broken and he repairs it himself, he loses two fish and is unwilling to sell his remaining one. Thus, Adam and Eve cannot buy their daily fish, and Crusoe foregoes his daily coconut and banana (figure 4-b).

FIGURE 4-B

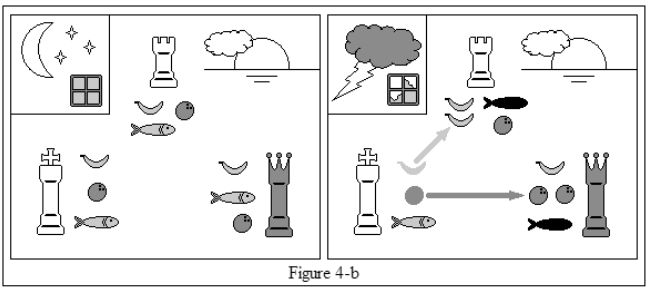
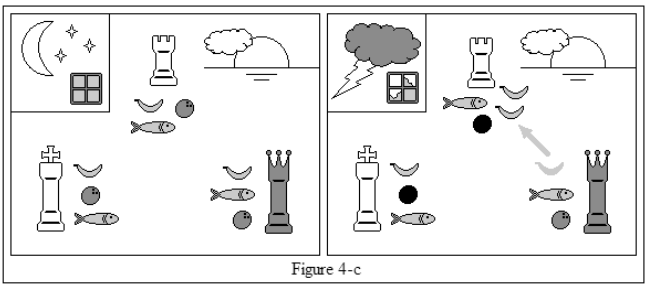


Figure 4-b

The productive loss of the two fish is borne by each of the three as depicted in the right panel of figure 4-b. Eve and Crusoe lose their gains from trade with Adam, but at least save paying the price. Adam loses the two fish first and foremost as means to buy a banana and a coconut, but also as potential consumption goods for himself. He not only loses his usual gains from trade, but does not even save the costs.

Figure 4-c depicts the alternative results if Adam hires Eve to repair the window at an opportunity cost of two coconuts, but pays her one fish only.

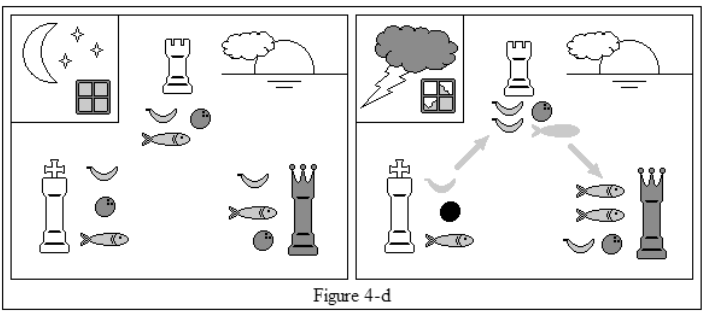
FIGURE 4-C



Again, the productive losses are borne by each of them.

However, Eve may profit by paying an opportunity cost of only one coconut for the reconstruction, but receiving two fish in return for her repair service. She then uses one of her two coconuts to buy a banana from Crusoe, but Adam does not use his last fish to buy a banana from Crusoe anymore (figure 4-d).

FIGURE 4-D



Again, Eve's gains here are merely distributive, while the three-person society suffers the productive loss of one coconut, borne by both Adam and Crusoe.[18] In a society of direct barter only, Eve does not, by definition, use her additional fish as a means of exchange. She will just consume both fish she has been paid for repairing the window.

IX
INDIRECT EXCHANGE

If we admit indirect exchange in the scenario shown in the right panel of figure 4-d, then Eve may accept the second fish from Adam foremost or exclusively to acquire a second banana from Crusoe. Crusoe would then enjoy the same goods, and Eve would profit at Adam's expense alone (figure 4-e).

FIGURE 4-E

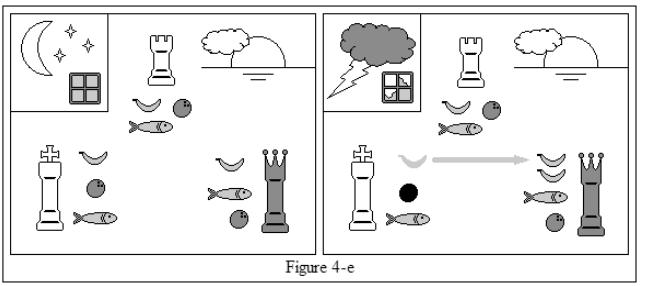


Figure 4-e

Eve gains the banana that Adam loses, but he loses a coconut in addition that is not produced in the first place. There are only distributional gains, offset by distributional losses, and an uncompensated productive loss, which makes society as a whole worse off. When the storm breaks Adam's window, what is seen is that he spends two fish for the reconstruction, one of which Eve spends in

[18] If Adam uses his last fish to buy one of Crusoe's bananas, Crusoe is no worse off and Eve has profited at Adam's expense alone.

return for a second banana from Crusoe. What remains unseen is that Adam himself would have spent one fish for that same banana, and the other for a coconut that Eve could have produced had she not repaired the window.

In all three-person scenarios, the broken window brings a productive loss, and the exchanges caused by the destruction distribute the remaining goods and thereby the losses. In the first two cases, the productive losses are born by everyone, in the third case, by Adam and Crusoe, and in the last case, by Adam alone. Whatever one may gain comes at the expense of the others who in addition bear the opportunity damage of the destruction. The thought experiments with three people illustrate that destruction inevitably decreases overall wealth, whether in an economy of one, two or three, and that indirect barter cannot change, but only obscure this result.

X
THE MIRAGE OF PRODUCTIVE SPENDING

This crucial insight is further obscured by what could be called the mirage of productive spending. The following thought experiment exposes this illusion.

In the regular course of events, Adam catches one fish, Eve gathers one coconut, and then they exchange these two goods (figure 5-a).

FIGURE 5-A

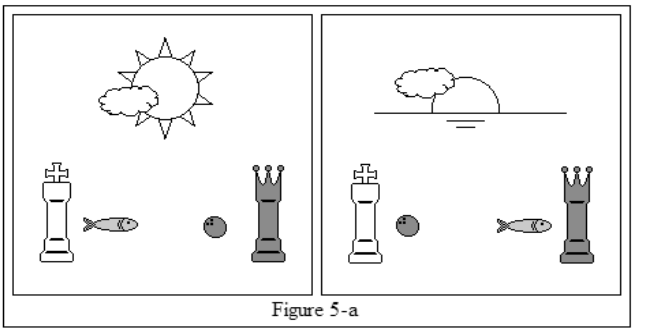


Figure 5-a

But then, Adam starts a radical diet, and stops catching fish and buying Eve's coconut. Instead, he goes surfing, his favorite leisure activity. Eve has thus lost her trading partner and has to confine herself to the single coconut she gathers per day (figure 5-b).

FIGURE 5-B

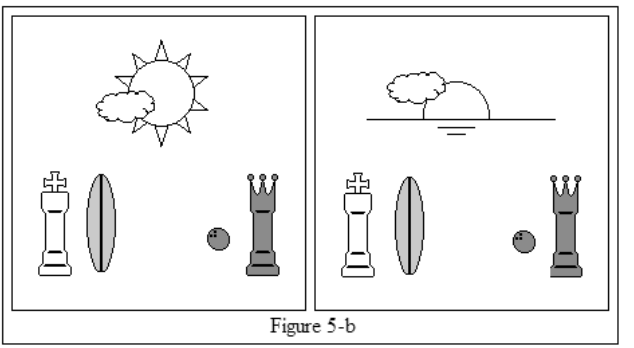


Figure 5-b

This is a great loss to her, as she much prefers fish, but cannot catch one herself. Watching Adam surfing, she prays that a storm will break his window, so that he has to catch a fish and exchange it for her repair service. Her prayers are heard, and she enjoys the much desired seafood dinner (figure 5-c).

FIGURA 5-C

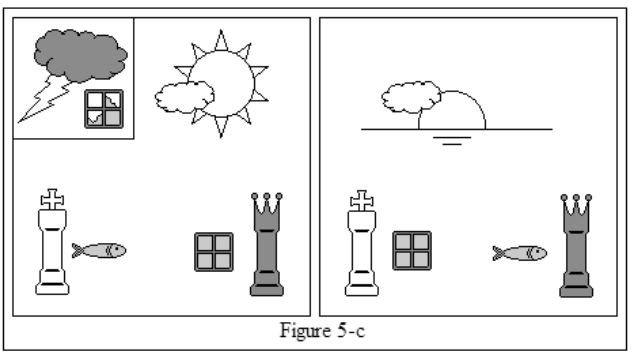


Figure 5-c

The alternative results are shown in figure 5-d, where the star in which the fish appears indicates that this good is not existent in the scenario without the storm.

FIGURE 5-D

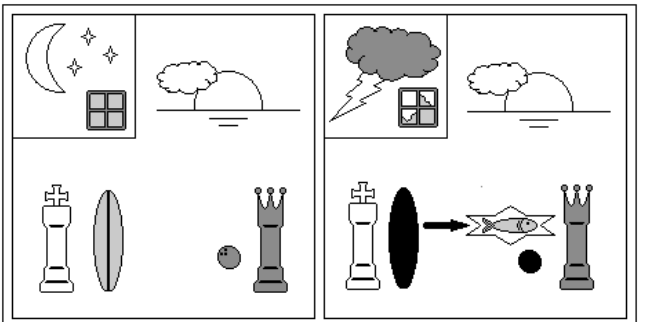


Figure 5-d

Only the need to have his window repaired has driven Adam to resume his fishing activity. Without the destruction, Eve's seafood dinner would not have come into existence. In this sense, we could say that the destruction has had a creative effect. However, the fish gained by Eve comes at a twofold expense. First, the coconut she would have gathered had she not repaired Adam's window. Second, the surfing session Adam would have enjoyed had he not been forced to catch a fish to pay Eve's repair service. Adam exchanges the surfing session intrapersonally for a fish,[19] and the fish interpersonally for Eve's repair service. In this sense, Eve gains the fish at the expense of Adam's leisure, which, to be sure, he appreciates less than the repair service, but which he would not have to forego had the window not been broken. Therefore, Eve's gain is merely distributional, while the loss of the coconut is absolute. By the standard of creative efficiency, the storm has made the two-person society of Adam and Eve worse off, despite the product it has called into existence.

In this scenario, the creative effect of destruction has been immediate. What has been *spent* to pay for the reconstruction —the

[19] See Mises (1949) 1998, 195.

fish— has been *produced* directly for this purpose. Thus, it is clear that the production and exchange of this good can lead only to a distributional gain, while the reconstruction inevitably brings a productive loss. This is even harder to see, but still holds true, when indirect barter breaks up *that which is spent* for reconstruction and *that which is produced* as a result of the recipient spending it in return with other producers. To illustrate this most powerful illusion of productive spending is the purpose of the next thought experiment.

XI
MIRAGE À TROIS

In this scenario, Adam catches two fish, Eve gathers two coconuts, and Crusoe gathers two bananas. However, Adam and Crusoe do not trade; although Crusoe would love to have some seafood for dinner, his bananas do not fit Adam's low-carbs diet. Instead, Adam and Crusoe each buy a coconut from Eve. After trading their goods and before dinner, Crusoe enjoys a surfing session. Thus, Adam ends up with one fish and one coconut, Crusoe with one coconut, one banana and a surfing session, and Eve with the fish she bought from Adam and the banana she bought from Crusoe. Production and allocation are depicted in figure 6-a.

FIGURE 6-A

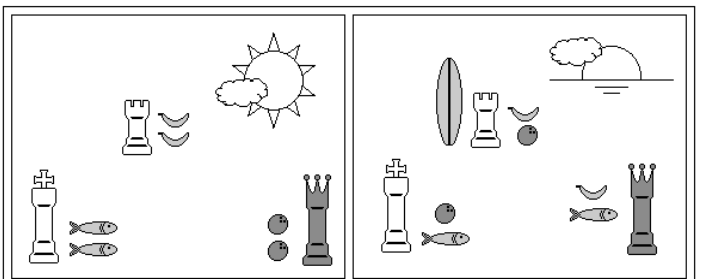


Figure 6-a

Again, a storm breaks Adam's window and he hires Eve for two fish, while she pays an opportunity cost of one coconut only. She buys one of Crusoe's bananas with the one coconut she has gathered, and asks him for another banana in exchange for the additional fish she has earned for her repair service. Crusoe blesses the storm, skips the surfing session and picks another banana. Finally, he gets to have some fish for dinner. The alternative results without and with the storm are depicted in figure 6-b.

FIGURE 6-B

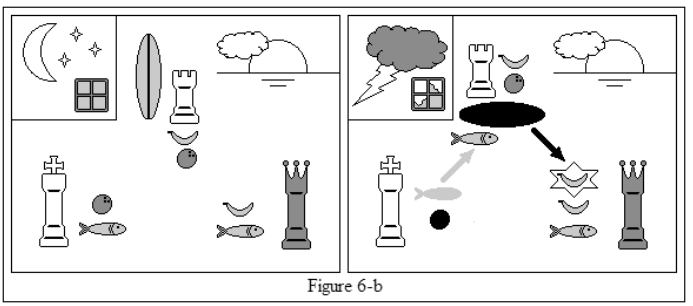


Figure 6-b

The third banana (indicated by the star in the right panel) would not have been produced by Crusoe had it not been for the fish that was offered as payment. It thus seems to be a productive effect of the destruction and the spending it causes. A careful causal analysis however shows that the gains from this production are merely distributional ones. The additional banana Eve enjoys was produced out of Crusoe's time and effort, and the sacrifice of his surfing session, presented by the blackened surfboard. Her means to overcompensate him is the fish that Adam has spent; this latter one is just redistributed from Adam to Crusoe. What remains uncompensated is the productive loss in the form of one unpicked coconut, that Adam could have bought with the fish he has lost to Crusoe. Thus, if all effects are taken into account, the increased spending leads to merely distributional gains, but the destruction brings uncompensated productive losses. Again, by the standard of creative efficiency, society as a whole is worse off.

In this last scenario, the productive effect of destruction—the banana —has been brought about by indirect exchange. What has been *spent* for reconstruction—the two fish— has not been *produced* for this purpose, but nonetheless has effected a change in production beyond the reconstruction itself. If the effect of a destructive event on production is mediated by indirect exchange, the broken window fallacy is most powerful. It is indirect exchange as a link, an intermediate step between the destruction as a cause and its effect on production that seems to obscure the distributional and productive losses most deeply, thus producing the «illusion capable of beguiling even the best minds» (Bastiat [1850] 2011b, 498).

XII
THE MONEY ILLUSION

There is no fundamental difference if the medium of indirect exchange is money. True enough, if money is spent for reconstruction, we see not only additional income for workers in reconstruction, but their additional demand may well change what is produced. But not only is the purchasing power they gain obtained only at the expense of those who pay them, but the total purchasing power decreases as a result of the opportunity damage of destruction, and someone inevitably has to bear this loss, in addition to the distributive losses.

Bastiat's original scenario can be slightly modified to illustrate this point. Let us assume that the glazier spends his additional six francs on a new pair of shoes, and that this is exactly what the baker would have done had he not had to pay the glazier. Whether the pair is on the shelves already or produced on order, it is clear that the shoemaker could not care less about whether he makes a sale to the baker or the glazier, while the glazier's visible gain is merely the baker's unseen loss. However, the opportunity damage of the broken window, the goods and services that could have been produced by the glazier with the same time, effort and materials, remain uncompensated This production might not have earned him, at least in the short run, as much as his work in reconstruction. But

the total purchasing power is inevitably diminished, and some individuals will bear this productive loss in terms of real goods and services.

If in an alternative scenario, the baker would just have lost the money on his way to the shoemaker, the loss he suffers himself and those who would have gained from his purchases are merely distributive, but society has not suffered the opportunity damage of a broken window.

If the baker does not lose the money, but saves it and spends it only later, the gains of those who would have benefited from earlier spending by the glazier are also merely distributive, and in addition to the distributive losses, society suffers the opportunity damage of destruction, and bears the opportunity costs of reconstruction.

Monetary transactions merely determine the chain of exchanges that distributes these opportunity damages and costs.

XIII
BACK TO THE FUTURE

To make that which is not seen more visible, we have imagined a regular alternative scenario in absence of the storm and the broken window. In all thought experiments conducted, the destruction was an exceptional event, so that the opportunity damage consisted in well-known and easily imaginable goods and services. We can, of course, imagine a reverse relationship between the alternative scenarios, where reconstruction is daily routine, and the opportunity costs are not only unseen, but much harder to imagine. Instead of a storm, the event in consideration would then be, say, the discovery of unbreakable windows, and we would deal with the «breakable window fallacy». In the next step, we deal not with the daily routine of reconstruction, but of expensive production, and the fallacy that bringing down the costs of window production threatens «economic activity» —what could be called the «expensive window fallacy». But to prevent or restrict the production of future goods has the same effect as destroying goods already produced, once the past's tomorrow has become today's present. It

is preemptive destruction[20], and a comparison between the results of restricted and unrestricted production leads to the same conclusion: Productive losses for everyone, which might for some be offset by distributional gains at the expense of even greater absolute losses for others. The fear that technological progress, free trade or civilized immigration impoverish society, it is to hope, will appear to a more enlightened future as absurd as to our time appears the fear and persecution of witches.

XIV
CONCLUSIONS

The thought experiments conducted have shed some light on the anatomy of the broken window fallacy. Once the more simple versions are identified, we can more quickly and clearly recognize more subtle ones. Our Robinsonades serve as a form of intellectual vaccination against the most dangerous germs of economic delusion. In this metaphor, our immune system is our ability to think in alternatives which are not seen, but have to be imagined.

Another weakness we need to address is our creationist instinct which misleads us to belief that there cannot be order without a designer, and to miserably underestimate the complexity of both existing and possible spontaneous orders. The spontaneous orders emerging from human action and interaction are most difficult to imagine to our human minds. Thus, it is probable that the most valuable alternatives that remain unseen are the ones most easily ignored. As economists, we are driven by our curiosity to fight this ignorance. But the preservation and progress of human civilization is no less at stake.

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[20] See Bastiat (1850) 2011a, 4: «It is not less absurd to see a profit in a restriction, which is, after all, nothing else than a partial destruction.»

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