

1.1 Preface

Moral: To understand economics you need to know not only fundamentals but also its nuances. Darwin is in the nuances. When someone preaches “Economics in one lesson,” I advise: Go back for the second lesson.

Paul Samuelson “An Enjoyable Life Puzzling Over Modern Finance Theory”, *Annu. Rev. Financ. Econ.* 2009. 1:19–35

As the name implies, this book is, or at least began as, a response to Henry Hazlitt’s *Economics in One Lesson*, a defense of free-market economics first published in 1946. But why respond to a 70-year old book when new books on economics are published every day? Why two lessons instead of one? And where does opportunity cost fit into all this?

The first question was one that naturally occurred to me when Seth Ditchik, my publisher at Princeton University Press suggested this project. It turns out that *Economics in One Lesson* has been in print continuously since its first publication and has now sold more than a million copies. As with many other bestsellers with similarly appealing titles, readers have embraced the message that all problems have a simple answer, and one that matches their own preconceptions.

Hazlitt, as he makes clear, was simply reworking the classic defense of free markets by the French writer Frédéric Bastiat, whose 1850 pamphlets ‘The Law’ and ‘What is Seen and What is Unseen’ form the basis of much of *Economics in One Lesson*. However, Hazlitt extends Bastiat by including a critique of the Keynesian economic model developed in response to the Great Depression of the 1930s.

Both where he was right, and where he was wrong, Hazlitt’s arguments remain relevant today, and have not been substantially improved on by today’s advocates of the free market. Indeed, precisely because he was writing at a time when support for free markets was at a particularly low ebb, Hazlitt gave a simpler and sharper presentation of the case than many of his successors.

Hazlitt presented the core of the free-market case in simple terms that have not been improved upon by any subsequent writer. And despite impressive advances in mathematical sophistication and the advent of powerful computer models, the basic questions in economics have not changed much since Hazlitt wrote, nor have the key debates been resolved. So, he may be read just if he were writing today.

The simplicity of Hazlitt's argument is his great strength. By tying many complex issues to a single principle, Hazlitt is able to ignore secondary details and go straight to the heart of the free market case against government action. His answer in every case flows from his 'One Lesson'.

Hazlitt's claim to teach *Economics in One Lesson* is similar in its appeal to other bestsellers like *The Secret* and *The Rules*, in providing a simple answer to problems that have puzzled humanity since the dawn of civilization. As with these other bestsellers, Hazlitt is offering a delusion of certainty. His One Lesson contains important truths about the power of markets, but he ignores equally important truths about the limitations of the market. So, we need *Economics in Two Lessons*.

Two lessons are harder than one. And thinking in terms of two lessons comes at a cost: we can sustain neither the dogmatic certainty of Hazlitt's free-market policies nor the reflexive assumption that any economic problem can be solved by government action. In many cases, the right answer will remain elusive, involving a complex mixture of market forces and government policy.

Some of the key questions of economics are:

- * Will Keynesian fiscal policies secure full employment?
- * Should the government invest more in infrastructure ?
- * Do minimum wages benefit workers?
- * Can price controls stop inflation ?

Hazlitt answers 'No' to all these questions. His *One Lesson* is:

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.

As Hazlitt develops the argument, his meaning becomes clear. The direct benefits of more jobs and public works, higher wages and lower prices are obvious. But these benefits do not come without costs, often borne by groups far removed from the beneficiaries. The true measure of cost is not a money value, but the alternative use to which resources could have been put. In Hazlitt's words:

Everything ... is produced at the expense of foregoing something else.

Economists call this foregone value 'opportunity cost'. The centerpiece of this way of thinking is the concept of opportunity cost. This key idea comes up in the first few weeks of any Economics 101 course, and the definition is easy enough to memorize and restate. Learning to think in terms of opportunity cost takes a lot longer, and many students (including some who go on to become professional economists) never do so. But how does Hazlitt get from the idea of opportunity cost, accepted by nearly all economists, to the conclusion that government intervention in the economy is hardly ever justified? And

Hazlitt assumes that the opportunity cost of any good or service is its market price. So, he infers, any government interference with markets, such as the provision of 'free' services, must involve hidden costs that outweigh the immediate benefits.

So we can restate Hazlitt's Lesson as:

Assuming that market prices are equal to opportunity costs, government interventions that change the market allocation must have opportunity costs that exceed their benefits.

Hazlitt never spells out the relationship between prices and opportunity costs. As a result, he implicitly assumes that there is a unique market allocation, in which prices equal opportunity costs, and that the two can only differ as a result of government interference. This assumption is not, in general, true.

Decades before Hazlitt, economists such as Alfred Marshall and AC Pigou had developed the concept of 'externalities' that is situations in which market prices don't fully reflect social opportunity costs. The classic example is that of air or water

pollution generated by a factory. In the absence of specific government policies, the costs of pollution aren't borne by the owner of the factory, or reflected in the prices of the goods the factory produces.

Externalities are just one example of a large class of problems referred to by economists as 'market failures'. In all these cases, prices differ from social opportunity costs. In some cases, but not all, the problems may be remedied by appropriately designed government policies. A typical intermediate course on micro-economic policy begins with a catalog of market failures (ref Bator), and goes on to examine arguments about the desirability or otherwise of possible policy responses.

When I began writing this book, I envisaged it as a non-technical guide to micro-economic policy, based on the concepts of opportunity costs and market failure.

As I worked on the book, though, I felt dissatisfied. Externalities and related market failures are a big issue; the problem of climate change has been aptly described as 'the biggest market failure in history'. But at a time of chronic economic recession or depression in much of the developed world, and of rapidly growing economic inequality, a book on market failure alone could scarcely justify the title *Economics in Two Lessons*.

I started to think more about the problem of unemployment and how it is treated in Hazlitt's work. Much of *Economics in One Lesson* can be read as an attack on the work of John Maynard Keynes the great English economist, whose *General Theory of Employment, Interest and Money* was published in 1936 and gave rise to the entire field of macroeconomics (the study of disturbances affecting aggregate levels of employment, interest rates and prices).

Experience shows that the economy frequently remains in a depression or recession state for years on end. Keynes was the first economist to present a convincing account of how a market economy could operate for long periods at high levels of unemployment. By contrast, despite the then-recent experience of the Great Depression, Hazlitt implicitly assumed that the economy is always at full employment, or would be if not for government and trade union interference.

As I worked on the problem, I reached the conclusion that the central problem could be stated in terms of opportunity cost. In a recession or depression, markets, and particularly labor markets, don't properly match supply and demand. This means that prices, and particularly wages, do not, in general, determine opportunity costs.

That insight doesn't tell us what, if anything, governments can do to restore and maintain full employment. But it does point up a crucial point, ignored not only by Hazlitt but by the majority of mainstream economists today.

It is normally assumed that, in the absence of obvious market failures in some particular part of the economy, Hazlitt's *One Lesson* is applicable. But a recession or depression affects the economy as a whole, and means that opportunity costs cannot be assumed to equal market prices in any sector of the economy.

The other crucial issue of the day is the distribution of income and wealth, which is becoming steadily more unequal. Although he does not say so explicitly, Hazlitt implies that the existing market distribution of income (or rather, the one that would emerge after the policies he dislikes are scrapped) is the only one that is consistent with his *One Lesson*.

The market outcome depends on the system of property rights from which it is derived. In fact (as we will see later) when markets work in the way Hazlitt assumes, any distribution of goods and resources where prices equal opportunity costs can be derived from some system of property rights. So Hazlitt's *Lesson* tells us nothing useful about the distribution of income or about government policies that may change that distribution.

While markets are exceptionally powerful social institutions, they cannot work unless governments establish the necessary framework in which they can operate. The core of the economic framework in a market economy, and a central role of government, is the allocation and legal enforcement of property rights.

The choices that determine property rights are subject to the logic of opportunity costs just as much the choices made within a market setting by firms and households.

Between them, microeconomics, macroeconomics and income distribution cover all the critical issues in economic policy. To master any one of these fields requires years of study. In microeconomics, for example, it is necessary to deal with the theory of supply and demand, first by manipulating the graphical representations given in a typical Economics 101 course, and then with more complex algebraic and numerical techniques.

But this level of analysis is required only for specialists who need, for example, to answer questions like “How much will a change in taxation of new automobiles affect employment in the steel industry?”. Most of the questions of principle involved in public policy can be illuminated by a careful application of the idea of opportunity cost, and its relationship to market prices. For this purpose, as I argued above, we need two lessons.

The first lesson, implicit in Hazlitt’s is:

Lesson 1: Market prices reflect and determine opportunity costs faced by consumers and producers.

The second lesson is the product of more than two centuries of study of the way markets work, and the reasons that they often fail to work as they should:

Lesson 2: Market prices don’t reflect all the opportunity costs we face as a society.

The problem of how markets work and why they fail is at the core of most of the economic policy issues that drive political and social debate. I hope this book, and the two lessons it contains will help to clarify these issues.

1.2 *Outline of the book*

The book is in four parts:

Part I is a discussion of Lesson 1, showing how a market economy functions under conditions that ensure prices are equal to the opportunity costs faced by producers and consumers.

Part II is a series of applications of Lesson 1. First, we will see how the price mechanism works, using the example of the market for oil. Next we will consider how policies based on the concepts of prices and opportunity costs can be used to achieve the goals of public policy.

Part III presents Lesson 2, showing that market prices do not reflect the opportunity costs faced by society as a whole. In fact, any market equilibrium is the product of social choices about the allocation of property rights. Market prices tell us nothing about the opportunity costs associated with those choices.

Equally importantly, not all opportunity costs associated with consumer and producer choices are reflected in the opportunity costs they face. There are many different ways in which market prices can fail to reflect opportunity costs. These 'market failure' problems include unemployment, monopoly, environmental pollution and inadequate provision of public goods. Lesson 2 will help to show how these disparate problems can all be understood in terms of opportunity costs.

Part IV contains applications of Lesson 2 to a wide range of policy problems.

First, we will consider the problem of income distribution. We will show that, more often than not, the best way to help poor people, at home and abroad, is to give them money to spend as they see fit, rather than tying assistance to particular goods and services. That is, it is better to fix the inequitable allocation of property rights in the first place than to fix the resulting market outcome.

Next we will consider how macroeconomic problems, the most important of which is mass unemployment, may be addressed using fiscal and monetary policy.

Finally, we will examine a range of public policies more conventionally associated with the idea of market failure.

1.1 *Lesson 1:Market prices and opportunity costs*

An outline of this part of the book

1.2 What is opportunity cost?

Remember that Time is Money. He that can earn Ten Shillings a Day by his Labour, and goes abroad, or sits idle one half of that Day, tho' he spends but Sixpence during his Diversion or Idleness, ought not to reckon That the only Expence; he has really spent or rather thrown away Five Shillings besides.

Benjamin Franklin, From his *Advice to a Young Tradesman from an Old One*" (1746)

Two roads diverged in a wood, and I—

I took the one less traveled by,

And that has made all the difference.

Robert Frost, *The Road Not Taken*, 1921

Economists are famous for disagreeing among themselves. Keynesians argue with monetarists about fiscal policy. Members of the Chicago School, including a string of Nobel Memorial Prizewinners, advocates unfettered free markets, while the case for government intervention in the economy is championed by economists such as Paul Krugman, Amartya Sen and Joseph Stiglitz, all of whom have also been awarded the Prize. As George Bernard Shaw is supposed to have observed, 'If all the economists in the world were laid end to end, they still wouldn't reach a conclusion.'

And yet, there is an economic way of thinking that separates any serious economist, regardless of their views on policy, from just about anyone who has not studied economics. The centrepiece of this way of thinking is the concept of opportunity cost. This key idea comes up in the first few weeks of any Economics 101 course, and the definition is easy enough to memorise and restate. Learning to think in terms of opportunity cost takes a lot longer, and many students (including some who go on to become professional economists) never do so.

On the other hand, some people, such as Benjamin Franklin get the idea without any formal training. Franklin's observation, cited above, that 'time is money' has become such a truism that it is often taken to be a traditional proverb rather than the acute observation it was when he made it. Franklin's explanation points to a far broader point, which forms the basis of the central idea in economics: opportunity cost.

The idea of opportunity cost is inseparably bound up with choice. When we make a choice between alternatives choosing one implies forgoing the other. To paraphrase Robert Frost, the opportunity cost of walking down one road is whatever would have been found on the road not taken. It is this road not travelled, and not any monetary measure, that is most properly regarded as the cost of our choice.

To sum up:

The opportunity cost of anything of value is what you must give up to get it.

This is an idea that seems simple enough when it is first presented, but turns out to be unexpectedly subtle. The lesson of opportunity cost is easy to state, but hard to learn. A large part of any good course in introductory economics consists of attempts to lead students to an understanding of the idea.

Let's consider some examples, starting with some simple (in fact, simplistic) textbook cases. For people who are largely self-sufficient producers, or who trade mainly through barter, opportunity cost can be described in simple terms. This is why introductory economics courses spend so much time worrying about Robinson Crusoe, alone on his island, or engaged in barter transactions with Friday.

If Crusoe spends a day fishing, when the best alternative was to pick coconuts, the opportunity cost of the fish he eats for dinner is the coconut he might have enjoyed if he had spent the day foraging on land instead.

Alternatively, perhaps, Crusoe might have traded his fish to Friday in return for, say, some roast goat. If the trade goes ahead, then Crusoe's opportunity

cost for his goat dinner is the fish he traded. For Friday, the reverse is true. He gets fish for dinner, and the opportunity cost is the goat.

The benefit of the trade to Crusoe is the opportunity cost of obtaining the goat some other way. If this cost is greater than the opportunity cost of fishing, then the trade is a good one from Crusoe's viewpoint. The same is true for Friday and the fish.

Of course, these examples are oversimplified, and conceal a range of complexities. A couple are worth mentioning straight away. First, Crusoe can't know for sure what will happen if he goes foraging for coconuts instead of fishing. The problem of uncertainty is inescapable and, often, intractable. Second, in discussing barter, we haven't said how Crusoe comes to have the fish, and Friday the goat. We'll look at both of these issues, and the complexities they raise, later on.

Introducing money complicates the problem even more, and provides plenty of opportunities for fallacious reasoning. The lesson of opportunity cost is that, contrary to the popular view, economics is not 'all about money'. In fact, the lesson of opportunity cost is harder to learn, the more accustomed you are to thinking about costs and benefits in monetary terms. The principle of opportunity cost is relevant to decisions of all kinds, whether or not there is any monetary cost associated with those decisions.

Sometimes, as we will see, the money price of a good or service is a good measure of its opportunity cost. But very often, as Franklin points out, it is not. The sixpence spent on idle diversion is only part of the opportunity cost of a day off. And even adding the foregone earnings of five shillings may not capture the entire cost. Perhaps the hard working tradesman might have built up goodwill, leading to future demand for his services; this is also part of the opportunity cost.

Opportunity cost is equally relevant to public policy. This is obvious in relation to decisions to provide some particular good or service to the public. In

making such a decision, governments forgo opportunities, including alternative expenditure items, cuts in taxation or reductions in public debt (allowing for higher spending in the future). The opportunity cost of a particular item of public expenditure is the value of the best available alternative.

Sometimes, the way in which choices are presented makes it appear that an attractive good can be obtained at no cost. However, a careful consideration of the alternatives usually shows that there is an opportunity cost involved. As we go on, we will see numerous examples of this.

¹ The Economics Prize is not one of the original Nobel Prizes, and its full name is The Bank of Sweden Prize in Economic Sciences in Memory of Alfred **Nobel**. Philip Mirowski has some interesting remarks on how the prize came into existence <http://ineteconomics.org/video/30-ways-be-economist/philip-mirowski-why-there-nobel-memorial-prize-economics>

1.3 Production cost and opportunity cost

How does opportunity cost relate to ideas about costs with which we are more familiar, such as the cost of production? And how does this relate to prices?

The cost of production for a firm is the value, at market prices, of the resources they use in producing a good or service, including raw materials, the labour of employees, the capital employed in production, and the time and effort of managers.

To see this, think about a small business, such as a garment maker, specialising, say, in making jackets. For any particular jacket, some of the costs (materials, cutting, sewing and so on) are specific to that item, while others are 'overhead' or fixed costs, needed to keep the business running however many jackets are produced.

The prices paid for these inputs reflect the opportunity costs faced by their owners when they supply them. For the landlord, this is the rent they could get from another tenant. For the suppliers it is the price they could get from another buyer. For workers and the owner-manager it is their best alternative, whether this is another paid job, work at home or leisure.

It's easy enough to see that, for purchased inputs like cloth and other materials, this opportunity cost is just the market price. The price of cloth charged by a textile manufacturer will be the same for any buyer of medium-sized quantities, whether it is used for jackets, skirts, drapery or sold in a retail haberdashery store. So, this price is the amount the manufacturer forgoes by selling to one buyer rather than another.

The same is true, in most cases, as regards rent on shop space. Provided the rent is paid, and the building maintained, the landlord does not care whether they rent to the garment maker or some another tenant, say, a shoe repair business. Similarly, the garment maker has a choice of locations, and will be unwilling to pay a premium price. So, the rent will reflect the opportunity cost of the space.

The logic of opportunity cost is clear enough for items such as materials and rent. However, because labour is the most important input to production in any economy, the cost of producing any good or service is determined, to a substantial extent, by the wage cost of the labour time required. Does the analysis of opportunity cost apply to work and wages?

At one level, the answer is “Yes”.

The workers who produce a given good or service could have spent their time on another job (assuming other jobs are available), or at home, working around the house or enjoying leisure. In the first case, the opportunity cost of labour time is the wage workers could have received if they took their ‘outside option’, that is, the best available alternative job. The ‘wage’ consists not merely of the hourly rate, but of employer-provided benefits and working conditions, including those that affect the enjoyability, safety and security of the job.

Under conditions of full employment, it is easy enough for workers with generic skills to move from one job to another. And, in competitive labour markets, wages and working conditions are typically much the same for jobs with similar requirements and responsibilities.

An employer who offers wages below the opportunity cost of workers’ time, will not lose all their workers immediately. But their most mobile workers (usually including the best ones) will start looking for new jobs, and will be hard to replace when they leave.

In the long run, therefore, an employer in a competitive labour market must pay the market wage. Under these circumstances, the market wage is, in general a good measure of the opportunity cost for buyers and sellers.

So, in a competitive labor market, where jobs are plentiful and workers can choose between employers, wages will tend to reflect the opportunity costs faced by workers.

To sum up

When markets are competitive, with many buyers and sellers, the cost of production reflects the opportunity cost of the inputs used, as perceived by input suppliers.

Labour markets raise more complex issues, which we will discuss when we come to Lesson 2. When unemployment is high, workers are not free to move from one job to another. Even in situations of full employment, workers with specialised skills may have only a limited choice of employers. And, with labour market institutions such as employer-funded health insurance, switching jobs may be costly.

Nevertheless, much of the time, the costs of production are determined, to a large extent, by the opportunity cost of the inputs used.

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1.4 Households, prices and opportunity costs

We've just seen how the logic of opportunity cost applies to producers. What about consumers? When we make our own daily decisions about what and how much to buy, market prices usually determine the opportunity costs we face.

Consider the age-old problem of balancing the family budget. Despite the good advice we receive, few of us do this in the systematic manner prescribed by manuals of home economics. Rather, most of us pay the bills that have to be paid, buy what we see as necessities and then see what is left over.

Sometimes, there's enough that we can pick and choose among optional expenditures. In this case, the logic of opportunity cost is clear enough. We can afford a nice new jacket, made by the garment shop in the previous section, or a pleasant restaurant meal but not both.

If we choose the jacket, its opportunity cost is the meal or meals we might have enjoyed with the same expenditure. The market price of the jacket tells us how much, in the way of eating out or other optional expenditures, we must give up in order to get it.

At other times, the choices may be more difficult. There may not be enough money to pay for the necessities, let alone the luxuries. In these circumstances, the choices are either to go without (effectively redefining 'necessities') or to go into debt, for example by running up the balance on the credit card.

If the decision is to go into debt, the opportunity cost of resolving the immediate problem of paying the bills is the increased difficulty of the choice that will have to be made in a month's time, when the credit card debt, plus interest, will be added to the regular bill. One way or another, the logic of opportunity cost is always relevant.

On the other side of the ledger, we must earn the money to pay our bills. For most households, this money comes primarily from wage employment. Depending on the nature of the job, we may be able to work more (or less) hours, gaining (or giving up) extra income from overtime. In the longer term, a couple household must choose whether both members will seek full-time work, or whether one will spend more time at home.

Time at home can be allocated to household work, childcare or leisure. The wage that could otherwise be earned in the market is the opportunity cost of this time.

So, these everyday choices illustrate Lesson 1

Market prices (including wages) tell us about the opportunity costs we face as consumers and workers

But market prices are only one side of the equation that determines our possible choices. On the other side of the equation is income: the more we have, the wider the range of choices open to us. Incomes in turn are determined by the allocation of property rights: including financial wealth, access to education, obligations to pay debts including taxation, and rights to receive income from others, or from government programs like Social Security.

Hazlitt, like other advocates of the free market, assumes the allocation of private property rights to be preordained and natural, while treating government programs as an arbitrary intervention. In fact, all property rights are constructions of government and law.

In some cases these constructions are obvious and immediately visible: in others they are decades or centuries old. Either way, the set of property rights is logically prior to the determination of property rights.

A huge amount of intellectual effort has gone into determining the prices that will emerge from a given set of property rights, production technologies and

consumer preferences. In the next section, we will examine the outcomes of this effort in the light of Lesson 1.

1.5 *Gains from exchange*

Understanding opportunity costs leads us to a central idea of economics. This is the idea of gains from exchange, or, more precisely, the idea that a voluntary exchange of goods and services can, and ordinarily will, leave both parties better off.

At first sight, this idea seems paradoxical, and throughout history, many people have seen any kind of trade as a zero-sum game. That is, whatever one party gains must be at the expense of the other.

The reasoning underlying this apparently plausible view is simple, particularly where goods are traded for money. An item has a 'true value' or 'just price'. If the item is sold for more than its true value, the seller gains at the expense of the buyer, and vice versa.

Opportunity cost reasoning shows why this plausible idea does not hold water. Suppose that Hayek offers a copy of his classic free-market polemic *The Road to Serfdom* to Keynes, in return for a copy of Keynes' *The General Theory of Employment, Interest and Money*. The opportunity cost to Hayek of the copy of Keynes' book is a copy of his own book and vice versa.

Since each of these famous authors has presumably read their own book, and has more copies on hand, the opportunity cost associated with giving up one copy of their own book is small. It might, perhaps be the opportunity of giving the book as a present to a family member.

On the other hand, since it is important to understand one's intellectual adversaries, both Keynes and Hayek would naturally want to read what the other had written. So, the value of the book received in exchange would be greater than the opportunity cost of the book given away, even though both authors would presumably regard their own arguments as more convincing.

Of course, it might be that one or both of the authors doesn't value the opportunity to read the others' work as highly as the opportunity cost of giving up a copy of their own. In this case, trade would indeed be harmful to at least

one party. Under these circumstances, however, the trade won't take place. So, the fact that trade takes place is sufficient to conclude that both parties are better off, relative to the alternative of not trading.

The argument doesn't change at all if, instead of bartering goods, the transaction involves money. For the buyer, the opportunity cost of the purchase price of an item is the goods or services the money could have been used for otherwise, and the purchase will go ahead only if the value of the item exceeds this opportunity cost. For the seller, the value of the sale is the value of the goods that can be bought with the proceeds, while the opportunity cost is the item (or, taking the analysis a step further) the resources (labour, capital and so on) used to produce it.

Once again, trade will take place only if the value gained for both parties exceeds the opportunity cost, so that both parties are better off than without the trade. In fact, trade using money allows us to put things more simply. A sale will take place only if the price is less than the value of the item to the buyer and more than the value of the item to the seller.

1.6 TISATAAFL

The acronymic adage TANSTAAFL (There Ain't No Such Thing As A Free Lunch) was popularised, particularly in libertarian circles, by Milton Friedman's book of that name and, a little earlier by Robert Heinlein's science fiction classic, *The Moon is A Harsh Mistress*. [As with many such phrases, its origin is lost too time. Wikipedia traces the phrase back to a 1938 article in the *El Paso Herald-Post* where it is the punchline of a joke. This implies that readers already understood the point of the adage, which had presumably circulated in oral form for some time https://en.wikipedia.org/wiki/There_ain%27t_no_such_thing_as_a_free_lunch]

The acronym is derived from a marketing ploy used by 19th century saloons, which offered a 'free' lunch to customers, on the assumption that they would wash it down with beer or other drinks. Naturally, the cost of the lunch was incorporated in the price of the drinks. And presumably, as with the peanuts and pretzels offered in bars today, the meals had plenty of salt, to encourage drinking.

The key idea may therefore be restated in terms of the broader point that it is opportunity cost, rather than just monetary cost, that matters when making economic decisions. Although there is no explicit charge for the lunch, patrons can only consume it at the opportunity cost of forgoing cheaper beer.

Libertarians commonly use the TANSTAAFL adage to point out that services provided 'free' by governments will, in general, have an opportunity cost. 'Free' provision of some service must be funded either by higher taxes or by reductions in other areas of public expenditure. The more general point, that it's necessary to look at the full opportunity cost of any good or service, and not just the immediate price, is yet another version of Lesson 1.

But there is a contradiction here. Most economists think that improved economic policy could yield better outcomes for everyone, even though they

may disagree about which policies would yield this result. Libertarians, who extol the benefits that might be realised by rolling back the state and giving markets free rein, are no exception to this rule.

A free lunch is 'something for nothing', that is a benefit obtained with no opportunity cost. Conversely, TANSTAAFL holds if and only if there are no free lunches left on the table, which in turn will only happen if the economic system is functioning perfectly. So, if economic outcomes can be improved for everyone, the correct statement is TISATAAFL

The TANSTAAFL adage embodies an important truth applicable to many apparent 'free lunches', in which the true opportunity cost is carefully hidden. If TANSTAAFL were literally true, however, humanity could never have risen above subsistence.

The more important truth, central to economics ever since Adam Smith wrote *The Wealth of Nations*, in the 18th century, is that There Is Such A Thing As A Free Lunch (TISATAAFL). Even the poorest person in a modern developed economy enjoys a range of goods and services that were unavailable to our ancestors, with less effort and toil. The improvements in living standards generated by a modern economy are, for us, a free lunch. In fact, economics tells us about two kinds of free lunch, technological innovations and improved allocation of resources.

Technological innovations are the most obvious kind of free lunch. Technological innovations that allow us to produce a given output with less of every kind of input, including labour, provide us with the classic example of free lunch. Adopting the new technology allows us to increase output without using any additional resources. So, the opportunity cost of the additional output is zero. To put this point the other way around, additional production entails opportunity costs only if it is technically efficient.

The second kind of free lunch, the core concern of economics, arises from improved allocation of resources. Lesson 1 leads us to think about

improvements that can be generated by allowing markets to work. Lesson 2 shows how public policy can yield improved resource allocation when markets fail to match prices and social opportunity costs.

In this section we will look at Lesson 1, and the gains from exchange discussed earlier. Exchange through trade and markets can generate benefits for everyone, compared to a situation where everyone relies on themselves. When Crusoe trades fish for Friday's goat, each obtains a meal that would have had a higher opportunity cost in the absence of trade. The improvement is a (partly) free lunch, or maybe free dinner.

By contrast, the saloon story underlying TANSTAAFL, in which an apparent bargain turns out to be nothing of the kind, stands in stark opposition to the economic idea of exchange as a bargain in which both parties benefit. It is line with the pre-modern view of trade as a zero-sum game, in which any gain to one part is a loss for the other.

With a correct economic analysis, the saloon story illustrates TISATAAFL. Suppose that the customer would be willing to pay the saloon's price for the beer alone. Then, compared to the situation in the absence of exchange, the lunch really is free.

The hen the price must less than the opportunity cost of obtaining the beer some other way, for example, through home brewing. On the other hand, assuming the saloon is not operating at a loss, its price must cover the saloon's opportunity cost of providing both the beer and the lunch.

Alternatively, the saloon could provide the beer alone, and cut the price by an amount equal to the cost of providing the lunch. Suppose that the customer could by the same lunch for less at a nearby sandwich shop. Then, once again, he is getting the beer and the lunch at the same price, or less, than he would be willing to pay for the beer alone. Once again, TISATAAFL.

Under ideal conditions, the market outcome will ensure that there are no free lunches left on the table. These are the conditions of perfect competitive equilibrium, the subject of our next section.

1.7 *Competitive equilibrium*

Let's restate Lesson 1:

Market prices reflect and determine the opportunity costs faced by consumers and producers.

We've seen how market prices determine the opportunity costs we face in making economic decisions as consumers, workers and producers of goods and services. We can't as individuals, change the market prices we face for goods and services in general, so we must take them as given in looking at the opportunity cost of different choices.

But Lesson 1 says something more, namely that market prices also *reflect* opportunity costs. That is, just as the opportunity costs of our choices are determined by market prices, those market prices are determined by our choices. Under ideal conditions, those choices, aggregated over all the members of a society, will reflect the opportunity costs for that society as a whole.

There is a large branch of economic theory devoted to proving results of this kind using formal mathematics. But the core of the idea may be approached using the idea of 'no free lunches' or, more precisely, 'no benefits without *equal* opportunity costs', discussed in the previous section.

As we saw then, this condition requires that all production be technologically efficient. If not, there is always a free lunch to be had by making production more efficient, producing more with the same inputs.

The second, 'no free lunch', requirement is that there should be no gains from mutually beneficial exchange remaining to be realised. It's easy to see that this requirement is closely related to market prices.

Example 1: let's suppose that you own a new jacket that you would be willing to trade for tickets to tonight's baseball game, while I have tickets and would be willing to trade them for your jacket.

Now let's look at market prices. If the market price of the jacket is greater than the price of the tickets, there is no need for you to trade with me. You can sell the jacket at the market price, use the proceeds to buy the tickets and have money left over. Since you make the best possible choices that's what you will do. If I want to complete the trade, by selling my tickets and buying the jacket, I will have to make up the price difference.

On the other hand, if the market price of the jacket is less than that of the tickets, the fact that this price prevails indicates that there must be someone else willing to sell jackets, and buy tickets at those prices. So, I can sell my tickets and use the proceeds to buy a jacket, making an exchange that benefits both me and the other parties involved. You, on the other hand, are out of luck. At the prevailing prices, no one is willing to trade tickets for a jacket, and there are no remaining exchanges to be made.

This simple examples give a flavor of the argument that leads to Lesson 1. Intuitively, it suggests the conclusion that trade at market prices will capture all the potential gains from mutually beneficial exchanges, so that no free lunches will be left on the table. In other words, in market equilibrium, TANSTAAFL holds.

This is where casual presentations of Lesson 1 commonly stop. But the simple story above embodies a lot of assumptions about the way markets work:

The most important are:

(A) Everyone faces the same market-determined prices for all goods and services, including labor of any given quality, and everyone can buy or sell as much as they want to at the prevailing prices

(B) Everyone is fully aware of the prices they face for all goods and services, including how uncertain events might affect those prices

(C) No one can influence the prices they face

(D) Everyone makes the best possible choices given their preferences and the technology available to them

(E) Sellers bear the full opportunity cost of producing the good, and buyers receive the full benefit of consuming it, no more and no less. That is, no one can shift costs associated with production or consumption to anyone else without compensation (for example, by dumping waste products into the environment) and no one else receives benefits for which they do not pay.

We can go back to the example to see where each of these conditions fits in.

If the market price of the jacket is greater than the price of the tickets, there is no need for you to trade with me. You can (assumption A) sell the jacket at the market price (which is unaffected by assumption C), use the proceeds to buy the tickets and have money left over. Since you make the best possible choices (assumption D) that's what you will do. If I want to complete the trade, by selling my tickets and buying the jacket, I will have to make up the price difference. By assumption (E), no one else is affected.

This more complicated version of the story can be formulated in mathematical terms to show that, under the stated conditions (and some additional technical requirements), a competitive equilibrium will arise in which there are no free lunches; that is, any potential benefit entails an opportunity cost that is at least as great.

In this 'perfectly competitive equilibrium, the price of any particular good is equal, for everyone who consumes that good, to the opportunity cost of a change in consumption, expressed in terms of the alternative possible expenditures. Similarly, firms can maximize profits only if the prices of the goods they produce are equal to the opportunity cost of the resources that could be saved by producing less of those goods.

This point is the core of Lesson 1. In a perfect competitive equilibrium prices exactly match opportunity cost. There are no 'free lunches' left. More precisely, any additional benefit that can be generated for anyone in the economy must be matched by an equal or greater opportunity cost, where opportunity cost is measured by the goods and services foregone, valued at

the equilibrium prices. This opportunity cost may be borne by those who benefit from the change or by others.

Hazlitt, and many subsequent writers, implicitly assume something much stronger: that if prices reflect opportunity costs, there is no room for improvement in public policy. In particular, he assumes that any policy that benefits one group at the expense of others is undesirable. To put it more strongly, the distribution of income associated with the competitive market equilibrium we might observe if all government intervention were removed is assumed to be optimal.

This idea is false: as we will see there are a vast number (in the usual mathematical formulation, infinitely many) possible outcomes in which there are no free lunches, each corresponding to a different allocation of rights and a different market equilibrium.

We will discuss the issue of income distribution when we come to Lesson 2. Before doing this, we will consider a variety of examples to illustrate Lesson 1.