

The Science of Economics

By Fred E. Foldvary

1. Inequality

All large economies have unequal distributions of income. We first examine how to measure inequality, and then inquire as to why it is ubiquitous, existing in all cultures and economic systems, and the morality of equality. A simplistic way to measure inequality is to count the percentage of the people with the top or bottom x% of income, such as saying that the top 10% own 50%. But to really measure the extent of inequality, we need to take account of the entire distribution, not just one part of it.

One widely-known way to depict inequality is the "**Lorenz curve**." This is a square with a diagonal drawn from the bottom left to the top right. The horizontal axis measures the cumulative percentage of population, with zero at the left and 100% at the right corners of the square, from the poorest (on the left) to the richest. For example, the point 3/4 of the way from the left indicates the lowest 75% of the population. The vertical axis plots the phenomenon being measured, such as income or wealth, with zero at the bottom and 100% at the top. If the distribution has complete equality, the Lorenz curve coincides with the diagonal line. The more unequal the distribution, the closer the curve to the bottom and right sides of the square. A totally unequal distribution would have one person owning everything and the rest nothing, which would be a curve along the bottom and right sides of the square.

The Lorenz curve can be used to generate a number that measures inequality, called the "**Gini coefficient**". This is calculated by measuring the area between the diagonal line and the Lorenz curve, and dividing it by the area of the triangle formed by the diagonal and the sides of the square. The greater the ratio, the greater the inequality. The Gini coefficient (G) can also be measured directly from the distribution. Let n be the number of persons or units in the distribution, y be the average income or wealth of the distribution, and y_1 be the highest income (or wealth), y_2 the second highest, etc., then $G = 1 + 1/n - (2/(n^2 * y)) * (y_1 + 2y_2 + \dots + ny_n)$.

An easier way to calculate inequality is the "**inequality index**" developed by the author. First we measure the concentration of the distribution. Suppose the distribution is (50, 30, 20) for three persons. The Herfindahl concentration index is calculated by first computing the fraction of the total held by each person. This would be: (5/10, 3/10, 2/10). Then square each fraction: (25/100, 9/100, 4/100). Finally, add up the squares: the total in this case is (25+9+4)/100 = 38/100, or .38. This is the concentration index C. To get the inequality index I, simply multiply C by N: $.38 * 3 = 1.14$. Perfect equality has an index of 1, so the greater the inequality, the greater the index. For example, for three persons, if one had all and the other two had nothing, the index I equals 3.

To understand why inequalities exist, we can divide incomes by the returns to factors, as wages, rent, and capital yields (along with interest income, which originates in any of the three factors). Obviously, if the ownership of land and capital goods is unequal, then this

explains a major source of income inequality. But then we can go deeper and inquire as to why assets are unequally owned.

- Property is obtained by two methods: voluntarily and by force.
 - Some wealth and a great amount of land has been obtained through conquest, which accounts for many great fortunes, and thus much inequality in places such as Latin America, where estates date back to the Spanish conquest. In some cases, monopoly power has been a source of income which is inherently unequal, and government-provided privileges and subsidies have been a key source of unequal income.
 - But a great deal of wealth has also been accumulated through voluntary means, by entrepreneurs and their lucky heirs. The profits of entrepreneurs are a return to their labor.
- Wages are unequal due to differing abilities, education, goals, effort, and just plain luck.
 - Discrimination is also a cause of inequality, although in a prosperous market, it is a minor cause, since there are ample opportunities, including self employment, and the market penalizes discrimination with higher costs and lower profits. Normally, effort plus talent are get their just rewards in a pure market economy. But when interventions create unemployment, employers can be more choosy, and are then able to discriminate against those they dislike.

Some social scientists have argued against income inequality, saying that a poor person values an extra dollar more than a rich person. But this is not universally so, and such subjective values cannot be measured or compared. Even if this is true for most people, it does not morally justify stealing wealth from the rich, and taxing the rich to benefit the poor would also create disincentives to create wealth, leading to less production and employment.

A sounder argument against inequality is that the rich can give their children a better head start, with better education and other opportunities. In a pure market economy, however, all have an opportunity to obtain an education and employ their labor, even though the wealthy have better opportunities. But again, the universal ethic does not permit stealing out of envy, and economically, such theft would reduce opportunities by reducing enterprise.

Much of the inequality that exists in the world today is not due to better talent or luck, but from privileges and plunder gained through government coercion, especially the taking of land from previous inhabitants. Taxes on wages deepen this cause by reducing the ability of workers to save income and accumulate capital. As Henry George (1883, p. 9) stated, "**at the bottom of every social problem we will find a social wrong.**"

When the benefits of land and other natural resources are shared equally, a major cause of inequality is eliminated without resort to the forceful taking of legitimately earned wealth.

Taxes can be characterized by how they relate to inequality.

- A tax is called "progressive" if the tax rate is higher for higher amounts of the thing being taxed, whether income or property.

- A "regressive" tax has a higher rate for lower income or property.
- A flat or proportionate tax has the same rate for all levels of income or property. An income tax may appear to be progressive, with higher rates on higher incomes, but actually not be if high-income earners are able to avoid the tax with deductions and exemptions.

Also, a tax or fee may appear to be proportionate, but actually be progressive. For example, if an assessment is paid by land owners, equal to the amount of their land rent, then the tax rate is proportional, with the same rate for all sites, but if the ownership of land is concentrated among the wealthy, then in effect the assessment is progressive.

Taxes are often imposed not just to raise revenue, but to redistribute income to something allegedly more just. But as Henry George (1883, p. 83) noted, "**As to what is the just distribution of wealth there can be no dispute. It is that which gives wealth to him who makes it, and secures wealth to him who saves it.**" A just distribution is the outcome of a just process. And the universal ethic (described in Chapter 1) prescribes that the just process in the distribution of income is the full retention of wages and capital yields by those who produce wealth, and the sharing of the yield of land by members of a community. Whatever inequalities arise from this process stems ultimately from unequal talent, effort, and luck. Those inheriting past wealth, or talent, or finding luck, may not deserve them more than others, but justice is not about fairness in the fortunes of fate but the deeper equality of each person being able to freely pursue one's own life.

2. Poverty: the great enigma of economics

We began this book with the question of prosperity and social justice, and the realization that our ideals must be founded on sound principles. The first eight chapters have laid out the principles of micro-economics, the theoretical foundation of economics. We will now apply them to analyze the issues of poverty, economic inequality, unemployment, and other social problems.

The greatest problem in economics is the explanation for and solution of poverty. The French economists of the 1700s, whose school of thought is called "**Physiocracy**" (**the rule of natural law**), examined the poverty of French peasantry and proposed free trade and a tax only on "net product," which we now recognize as rent. Adam Smith also called for unrestricted, free exchange as the way to create the "wealth of nations."

David Ricardo analyzed free trade further and also noted the suitability of land as a source of revenue. Henry George, therefore, did not really break new ground in his policy that called for free trade and a tax only on land rent, but he was foremost in focusing on the problem of poverty in the midst of progress, on just why advancing wealth and technology did not eradicate poverty.

George starts his classic *Progress and Poverty* with a statement of the puzzle:

"At the beginning of this marvelous era it was natural to expect, and it was expected, that laborsaving inventions would lighten the toil and improve the condition of the laborer; that the

enormous increase in the power of producing wealth would make real poverty a thing of the past" (p. 3).

Not only could one expect material prosperity for all, but also, in lifting everyone from want and economic anxiety, the moral uplifting of social life:

"And out of these bounteous material conditions he would have seen arising, as necessary sequences, moral conditions realizing the golden age of which mankind have always dreamed. Youth no longer stunted and starved; age no longer harried by avarice ... discord turned into harmony!" (pp. 4-5).

This is not to say we would have utopia, but that the core of our economic problems would disappear, making other social problems, such as raising our children as sympathetic members of society, much easier to resolve.

Such were the hopes of enlightened people at the dawn of the industrial age. George wrote 100 years after the beginning of the industrial revolution, and it is now another 100 years later. The idea of progress has remained popular, but, as George wrote,

"Now, however, we are coming into collision with facts which there can be no mistaking. From all parts of the civilized world come complaints of industrial depression; of labor condemned to involuntary idleness; of capital massed and wasting; of pecuniary distress among businessmen; of want and suffering and anxiety among the working classes" (pp. 5-6).

That these words apply today just as much as they did 100 years ago is a sad testimony to the failure of our institutions to have implemented the remedies for these problems. This in part is due to the economic ignorance of the public, which is exploited by authorities. Armed with economic knowledge, the public will demand that the remedies be applied immediately and no longer be fooled by fallacies and economic quackery.

For George then points out that the existence of similar problems throughout the world cannot come from local and unique causes. These problems occur under many cultures, historical settings, and types of government. "Evidently," he wrote, "beneath all such things as these, we must infer a common cause" (p. 6). Moreover, a study of new territories versus old ones and the history of economic development demonstrate that while people may start out in equality, as an economy develops, as wealth grows, so too does poverty. Social difficulties are "engendered by progress itself ... The promised land flies before us like the mirage" (p. 8).

George, of course, does not deny that on an absolute scale, the condition of many workers has improved with technical progress. But the lowest classes still lie in the muck of poverty - witness the homeless in the U.S.A. today, and the slums of the inner cities. "Those who are above the point of separation are elevated, but those who are below are crushed down" (p. 9). So, George poses the problem:

"This association of poverty with progress is the great enigma of our times. It is the central fact from which spring industrial, social, and political difficulties that perplex the world, and with

which statesmanship and philanthropy and education grapple in vain. From it come the clouds that overhang the future of the most progressive and self-reliant nations. It is the riddle which the Sphinx of Fate puts to our civilization and which not to answer is to be destroyed. So long as all the increased wealth which modern progress brings goes but to build up great fortunes, to increase luxury and make sharper the contrast between the House of Have and the House of Want, progress is not real and cannot be permanent" (p. 10).

As George (1883, p. 81) stated, "For every social wrong there must be a remedy. But the remedy must be nothing less than the abolition of the social wrong."

But instead of eliminating the cause, many political interests have come forth with superficial treatments of the effects. Quack economic medicine can be recognized by noting that it only treats effects, ignoring the causes. Even eminent economists such as J. M. Keynes have misdiagnosed the cause as inherent instability in markets, requiring government intervention, when in fact it is interference in the natural economy that has caused the turbulence in the first place.

Quack remedies include the ideas that "labor and capital" are in fundamental conflict, that automation and technical progress is responsible for unemployment, that profits or interest are evils, that more and more money can solve a "lack of demand," and that the government has to pump up investment and demand.

Such ideas, recognized George, bring the masses under the power of "charlatans and demagogues" (p. 11).

But economics can tell us the answer, by examining the causes and their consequences. This we have done. We have the philosophical foundation in Chapter 1 and the three resources or factors of production in Chapters 2 through 4. There we saw that the margin of production determines the wage level, and that the wealth produced after the payment of wages and the return to capital constitutes rent. We saw how as the margin extends to poorer lands, wages decrease while rent increases, and how rent also vastly increases as communities and commerce arises. We saw how land speculation accelerates these trends by using up land faster than warranted by current use, decreasing wages by moving the margin of production to less productive land. We saw how the use of more capital goods increases wages, but increases rent also, and how wages declined back again if the capital goods extend the margin once again to less productive lands. Competition can lead to efficient production, but cannot by itself raise wages which have been driven down to an unproductive margin.

We have seen also how the taxation of wages makes workers poorer and reduces employment, while the taxation of production, trade, and enterprise reduces the amount of production from what would otherwise take place, reducing employment and wealth. Workers at the bottom, or those without work, and thus squeezed in the double pincers of costs imposed by government and, over the long run, ever-increasing rent. The diversion of the rent to the holders of land title is not a part of a pure market, since much intervention consists of taxing labor to provide public works that benefit especially the owners of land, thus transferring income from workers to landowners.

But government restrictions and costs are imposed, in part to treat the effects of social problems, in part due to special interests that lobby and pressure for privileged benefits with the excuse of benefiting the public, and in part due to ignorance about the causes and effects. Social problems thus provide manure for ever more taxes and restrictions. Hence, the original and ultimate cause is as described by George (p. 282):

"The reason why, in spite of the increase of productive power, wages constantly tend to a minimum which will give but a bare living [for those at the lowest end of the wage scale], is that, with increase in productive power, rent tends to even greater increase, thus producing a constant tendency to the forcing down of wages."

"As land increases in value, poverty deepens and pauperism appears. In the new settlements, where land is cheap, you will find no beggars, and the inequalities in condition are very slight. In the great cities, where land is so valuable that it is measured by the foot, you will find the extremes of poverty and of luxury" (p. 288).

Suppose a great island arose in the ocean, on which people could cultivate plants that would give them twice the wage in the old country. What would happen to wages in the old country. As workers leave the old country, rent rapidly decreases as marginal land is abandoned for the new land, and thus wages rapidly rise. With good free land available, rents in the old country must fall and wages must rise.

Now imagine, as George did (p. 294) that a small village grows into a large city. Will wages be higher, will the return on capital be greater? No. What, then, will be higher? "Rent; the value of land. Go, get yourself a piece of ground, and hold possession." And when the city is built, we will find luxurious mansions armed with guards and alarms to protect themselves from the thieves and muggers that fester in the slums.

Though poverty in the midst of progress has puzzled even economists who should know better, "so simple and clear is this truth, that to see it fully once is always to recognize it" (p. 295). George describes those pictures made up of a labyrinth of lines, which you can keep staring at but can't make out - "until once the attention is called to the fact that these things make up a face or a figure." One follower of George looked at just such a picture, and then realized it showed a cat. Once he saw the cat, the figure was clear and obvious. Adherents of George's thought henceforth have said that when one grasps the central idea of the cause of poverty, you have "seen the cat!" The jumble of economic activity become clear, as springing from a central principle: "The great cause of inequality in the distribution of wealth is inequality in the ownership of land." Land has been the foundation of great fortunes, as said the Brahmins ages ago (George, p. 296):

"To whomsoever the soil at any time belongs, to him belong the fruits of it. White parasols and elephants mad with pride are the flowers of a grant of land."

Governments throughout the world react to poverty mostly by treating the symptoms rather than the underlying causes. Old-age insurance, medical aid, food coupons, government housing, and welfare payments may prevent the poor from suffering, but they do not cure the problem. They instead perpetuate poverty,

- first by funding these programs with taxes on production, reducing employment and wages, and
- secondly, by making it costly for the poor to escape poverty, since they both lose benefits and get taxed if they obtain employment.

Minimum wages compound the problem by preventing the least able from working legally. Laws prohibiting drugs create large profit opportunities to those in the slums but the resulting violence and crime makes it even less desirable for business to employ people there.

Only a policy that removes the cause of poverty will cure it permanently. The ultimate antipoverty program is the desire of each person to better his or her own condition. All that is really needed is to avoid putting barriers in the way of self-improvement. George (1883, p. 78) put the matter very succinctly:

"There is in nature no reason for poverty."

Remove the restrictions and tax barriers to employment and collect revenue from site rents instead. The elimination of taxation will raise the wage at the margin, and the collection of the land rent will, by eliminating the speculative and consumptive ownership of less productively used land, move the margin toward more productive land. With this remedy, the poverty problem will rapidly melt away as communities regenerate themselves spontaneously.

3. Unemployment

A person is "unemployed" if she or he is willing and able to work at the prevailing wage rate, but is unable to find employment. As George (1879, p. 5) put it, the unemployed are "condemned to involuntary idleness." Since an alternative to being employed by others is to become self-employed, the presence of unemployment implies also that it is difficult or infeasible to start one's own enterprise as well.

But why should this be? George (1879, p. 270) called it a "strange and unnatural spectacle" that willing workers "cannot find employment." In his book *Social Problems* (p. 8), George illustrates how odd this really is:

"Give us but a market," say manufacturers, "and we will supply goods without end." "Give us but work!" cry idle men.

Is it possible that the number of jobs might be limited? But people can create their own jobs, so this must imply that all desires have been filled. But the 10th foundational proposition of

economics, as stated in Chapter 1, states that human desires tend to be unlimited. There cannot be too much production in general, especially so when "people suffer for the lack of things that labor produces" (George, 1879, p. 270). Hence, there is always a demand for labor to fulfill these desires. The other original factor of production being land, labor can always be applied to land, unless something is blocking it - "somewhere there is an obstacle which prevents labor from producing the things that laborers want" (p. 271).

One possible block is a shortage of land, of natural resources. If the economy of an area of the earth, such as a desert, is mainly geared to using the scanty vegetation, such as for grazing, then too many users will lead to poverty, but not necessarily to unemployment, unless the land is closed off to additional users. Here, then, is the key to unemployment.

The problem is not an overall lack of natural resources. If that were so, the prices of basic commodities such as metals and grains would be going up as they became scarcer. But this has not happened. Even with today's massive population, the earth has plenty of resources available. We are not running out of oil, metals, agricultural land, or living space.

Some unemployment is **short term** and an unavoidable part of a dynamic economy in which enterprises change and workers search for better opportunities. This "**frictional**" unemployment consists of the time needed for job search, such as getting information and interviewing. This "natural unemployment" is not part of the jobless problem.

Another type of unemployment is called "**structural**." As some industries shrink or move to better locations, workers are left stranded. To be employed at their accustomed wages, they need to move or to become retrained. Again, this is natural in a dynamic economy, and in a free market, the prospering industries can absorb this structural unemployment, which again is temporary. "Full employment" is thus defined not as 100% employment, which is not even desirable, but as the situation in which the only unemployment is short-term frictional or structural.

"**Cyclical**" unemployment occurs during the depression phase of a business cycle, when many workers are laid off and can't easily find work because the entire economy is depressed. The remedy is to eliminate such cycles, as is discussed in the chapter on business cycles.

The unemployment problem as such is not the frictional, structural, or even cyclical types (which is primarily a cycle problem), but the chronic joblessness in which workers cannot find jobs even during more prosperous times, and often remain unemployed for years. Why would labor be continuously unemployed?

If the problem is not a lack of land, or natural resources, it must be that some barriers have been erected between land and labor. Something is blocking the ability of labor to freely access natural resources to produce wealth. Who has done this? The only institution with the power to prevent labor from mixing with land is government.

The barriers erected by government include the prohibitions, restrictions, and taxes imposed on labor and enterprise, as well as barriers indirectly caused by government policy. As discussed in

Chapter 2 on labor, high taxes create a wedge between the cost of labor to an employer (including the self-employed) and the net earnings of an employee. By making labor more expensive, this tax wedge reduces employment. Taxes on enterprise reduce profits and sales, and therefore reduce employment. Policy which induces land speculation (such as public works that increase land rent while not collecting that rent to finance the works) can raise the price of land above that warranted by present uses, thus reducing current enterprise and employment.

The situation becomes even worse when restrictions are imposed, such as minimum wage laws. Labor that would have been employed at the below-minimum rate now is unemployable. Unemployment insurance and welfare enable the unemployed to eat, but make it even more difficult to find employment, since switching from welfare to employment typically brings little extra reward for the lowest-paid workers.

Other restrictions, preventing people from working in certain occupations, days and hours, and other costs, such as the costs of filling out forms and making it difficult to fire workers, result in even less demand for labor and the attempt to substitute machinery for workers.

Employment is like a race around a track. If we put up high hurdles that the runners must leap over, the most able and determined can jump them, but the others cannot. The least able and motivated become unemployed. But if we remove all the hurdles, then all runners can go through, even the weak ones.

Let the walls come tumbling down - eliminate the barriers of taxes and restrictions, and all willing and able to work shall be employed.

Unemployment is not only a personal and social tragedy, but wasteful of labor. As George (1883, p. 76) put it, "this enormous waste of productive power is due, not to defects in the laws of nature, but to social maladjustments which deny to labor access to the natural opportunities of labor and rob the laborer of his just reward."