Five Lectures on Money

Mark Lindley

Is getting more money your top desire in life ?

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Why else could you possibly want to study economics ?

Inter-University Lecture Series
Inter University Centre for Alternative Economics (IUCAE)
University of Kerala,
Thiruvananthapuram, 2019

Lecture Series

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PREFACE

The significance of money flows from its being an important link between the present and the future for individuals, corporations and governments. There is no such thing as a society in which everyone has equal amounts of money. However, the levels of monetary inequality have soared in the last seventy years and the levels nowadays between countries and within quite a few countries are so high as to endanger social stability. Governments therefore need to develop and implement radically alternative fiscal policies and monetary regulations, and national populations need to develop new cultural norms to support this fiscal policies.

The Inter University Centre for Alternative Economics (IUCAE) organized recently a set of five lectures by Dr. Lindley about money. The lectures were insightful, innovative and remarkably well designed to incorporate a single logical chain of argument through the entire set. They were so well received by the faculty and students that IUCAE felt they ought to be published as a book even though they don't include the complement of source references which an academic book would normally include. (A famous analogous case is that of Lionel Robbins' rather free-wheeling set of lectures, at the London School of Economics in 1979-81, on the history of economic thought.) We believe that this set of lectures by Dr. Lindley could give to students at various universities and research centres a better understanding of money as a theoretical notion and 21st-century phenomenon.

Prof. Abdul Salim A
Honorary Director, IUCAE

1. Money in Relation to Production and Consumption

This is the first in a series of five lectures with the following titles:

1. Money in Relation to Production and Consumption
2. Money and the Future and Crowd Psychology
3. Money and Recent-Style Inequality
4. Money and Governments
5. Money and Work in an Alternative Perspective

This lecture is for beginners and will describe some ideas about money in "classical" and "neo-classical" economic theory. Historically speaking, "classical" started in the 1770s with Adam Smith and extended down through John Stuart Mill and Karl Marx nearly a hundred years later. The classical theory goes back to Smith's *The Wealth of Nations* (1776). Marx coined the term "classical" (in regard to economic theory) and applied it in 1867, in *Das Kapital*, to the theories of Smith's sharpest early-19th-century successor, David Ricardo. Yet Marx too is now regarded as classical. Everyone calls W.S. Jevons's *General Mathematical Theory of Political Economy* (1862) "neoclassical" (because of his mathematical approach and because of a new idea in his book which I won't discuss here in detail because it's not about money: the idea was that the "utility" of something to a consumer at a given moment is always the utility of the next little bit of it; if you're very thirsty, a glass of water is worth a lot to you, but then the 2nd, 3rd, 4th… glasses are each of less "marginal utility"). After about 1870, there were "neoclassical" theorists but no longer "classical" ones.

> **FOOTNOTE**: W.S. Jevons's son, H.S. Jevons, was Professor of Economics at the University of Allahabad and co-founded the *Indian Journal of Economics*.

By studying the following explanation of the difference between the economist's and the physicist's concepts of **work**, you can understand the concepts better than some economists and most politicians do: If you work for a while at trying to *move a physical object* but don't manage to budge it (because it's too heavy for you or maybe there's some other impediment to moving it), you have achieved no work at all as far as the physicist is concerned. And, my intellectual and physical work in writing these lectures has involved less work in the physicist's sense than playing a game of football. The economist's concept of work is like the common-sense idea that it's any kind of activity which we do in order to try to get things done – i.e. deliberate effort by humans (and thus not, however, by beavers building dams, ants making anthills, birds making nests and catching and transporting worms, squirrels squirreling nuts, etc., nor oxen pulling our ox-carts, etc.).

"**Labour**" is the economist's term for what is conventionally represented in theoretical equations by the capital letter "*L*". It refers to human work (physical, intellectual and/or emotional) that is paid for with money. All labour is work (in the economist's sense), but not all work is labour. Some examples of work that was not or is not labour are: *(1)* Work done by slaves. They are capital, like robots. They're not paid, so their work isn't reckoned as labour in the economist's equations. *(2)* My mother taking care of

me. That too wasn't paid for. *(3)* Sharing thoughts with my friends, and the favours we do for each other. *(4)* Everything Gandhi did on the Salt March and Mao on the Long March (even though that work had notable historical impact). *(5)* The work which folks in certain communities in rural Pennsylvania do when they build a house for a newly married couple in their community to live in. They do it routinely, i.e. whenever there is a marriage within their community, and they do it without being paid.

I have mentioned this example of houses to impress you. But let's take a balanced view of the matter. A house *can* be built nowadays without labour. (I know two men who did it quite well on their own – one in Iowa City (U.S.) and one in Berlin.) And, in 1903 the Wright brothers built with their own hands the first airplane. And, a lot of people in California smoke home-made "joints" from marijuana grown in their own gardens – not to mention that during my childhood and youth, I ate hundreds of kilograms of food cultivated by my mother in our garden. And, *some* people make their own clothing…. But: a high-rise building, an airliner, a smart-phone, or an antibiotic pill effective against superbacteria? Don't kid me!

THREE TERMINOLOGICAL FOOTNOTES: *(1)* In medical terminology, the word "labour" refers to the work (in the physical sense) a mother does to deliver her baby. But most of that physical work doesn't even qualify as "work" for the economist (let alone as "labour"), because she *doesn't decide as an agent* to do it, since the onset of the labour in the medical sense of the word is automatic. (Its timing, for instance, is not a matter of decision.)

(2) Marx and Engels said, in one of the last sentences of the *Manifesto of the Communist Party* (1848), that Communists "work finally everywhere" ("arbeiten endlich überall") for connection and communication between democratic parties of all lands ("Die Kommunisten arbeiten endlich überall an der Verbindung und Verständigung der demokratischen Parteien aller Länder"). This did *not* mean that that work done by the Communist Party was paid for, i.e. was labour. (They went on to say that the ruling classes might shiver at the prospect of a Communist Revolution but that the proletariat had nothing other than its chains to lose from it and had "a world to win" ("Mögen die herrschenden Klassen vor einer kommunistischen Revolution zittern. Die Proletarier haben nichts in ihr zu verlieren als ihre Ketten. Sie haben eine Welt zu gewinnen"), and so the proletariat of all the countries should unite themselves: "Proletarier aller Länder, vereinigt euch!". Part of what Marx and Engels meant was that the wage-labourers would – let me use now a later Communist term for it – "liquidate" the capitalists violently. In such politics, a problem with regard to human welfare is that when violence is used deliberately and successfully to bring about big institutional changes, the result is always a situation in which there are new and maybe worse ways for the strong to oppress the weak.)

(3) In everyday British talk, the word "Labour" refers to a political party and this fact makes it virtually impossible to give any other meaning to that word.

There is an analogous kind of difference with regard to the goods and services which are the *products of work*. If they are marketed – i.e. put up for sale – or if they are prepared in order to be offered for barter, then they are "**commodities**"; otherwise they're not commodities, no matter how useful they may be. A mother's milk is not a commodity for her own child, but the various kinds of food that you pay for, are; and likewise for clothing, education, music, sex, and all the other goods and services produced by humans. When paid for, they are commodities.

As you might suppose from my having mentioned sex as a commodity when it's paid for, the psychology of producing and consuming commodities is different from that of producing and consuming goods and services that are not commodities.

LITERARY FOOTNOTE: A crusty 20th-century American poet, Robert Frost, took a dim view of the Gandhian concept of village *swadeshi*. He wrote:

> Mrs. Someone's been to Asia.
> What she brought back would amaze ye:
> Arguments too stale to mention
> 'Gainst American invention –
> Most of all the mass production
> Destined to prove our destruction.
> What are telephones, skyscrapers,
> Safety razors, Sunday papers
> But the silliest evasion
> Of the truths we owe an Asian? [1]

The importance of commodities in your life is an indication of the importance of money to you as a consumer. If they are the *only* important thing to you, then you may agree 100% with the sharp American economist Robert Solow that "everyday life is about prices, not values".[2] I agree 50%. Very few people whom I know could, I think, make do without spending money or else without someone else spending it on goods and/or services for them. But also I think that everyday life is about values as well as about prices. (Did you kiss a frog today? Either way, a value judgement was involved.) Solow's exaggerated view reflects an occupational disease of market economists. It's second nature to them to focus always and maybe only on monetary prices.

A hint as to how monstrous this kind of economic thinking can become is to be found in the following secret (at the time) proposal to the staff of the World Bank made in 1991 by its chief economist, Lawrence Summers: "Just between you and me, shouldn't the World Bank be encouraging MORE migration of the dirty industries to the LDCs [i.e. to the Less Developed Countries]? ... The [monetary] measurement of the costs [in each nation] of health-impairing pollution depends on the foregone earnings from increased morbidity [i.e., increase in the rate of sicknesses in that country] and mortality [i.e., increase in the national rate of people dying from sicknesses due to pollution of the air, water etc.]. From this point of view, a given amount of health-impairing pollution should be done in the country with the lowest cost, which will be the country with the lowest wages. I think the economic logic behind dumping a load of toxic waste in the lowest-wage country is impeccable and we should face up to that."

"**Inflation**" is the term for a situation in which the total amount of money is increasing at a faster rate ("inflating") than the total amount of commodities, and so there is a decline – a "depreciation" – of the value of any given amount of money for buying commodities: to buy a given amount of commodities, you now need more money

1 Telephones, skyscrapers, safety razors and newspapers are commodities.

2 *New York Review of Books*, 16 November 2006.

than before. The amount of money is inflated; the value of a dollar (or of a rupee or whatever) has depreciated. A "**galloping inflation**" is a condition in which people's money is becoming practically worthless because the amount of commodities which a given amount of money can buy is constantly shrinking *a lot* in a matter of days or maybe even hours. A slow rate of inflation may sometimes be an acceptable or even a good thing (for instance: good for people who have big debts), at least for a while; but galloping inflation is bound to be socially disastrous. It happened in Germany after World War I, and has happened recently in Venezuela.

Marx said that people make a "fetish" of money. What he was getting at was based in part on his constant awareness of the distinction between "**use value**" and "**exchange value**", but also on his acceptance of the classical "labour theory of value", which I'll describe later. In anthropology, however, "fetish" is a term for inanimate objects which savages mistakenly believe to have magical powers, whereas the social power of money in modern societies is real. I'll say a lot about that in the lecture about money and inequality.

As for the distinction between use value and exchange value: If you feel that something is a "bargain" for you to buy, it means that you think its use value to you is greater than its exchange value in that transaction, i.e. its price (even if the only use you have in mind is to sell it to someone else at a higher price). And indeed, if the price is just routinely OK (or fair enough) and not at "bargain" level – even in that case you may well feel that the use value is greater than the exchange value. If on the other hand you hesitate to buy it at that price, this may be because you are in doubt as to whether the use value to you is as great as the exchange value which you would have to pay. (This line of thinking was devised by Alfred Marshall, the top British economist in the late 19th and early 20th century.)

> **FOOTNOTE**: The following classic joke about the difference between exchange value and use value was told to me fifty years ago in New York: Two businessmen, A and B, meet. A offers B ten thousand tins of tuna fish for a penny per tin. (The cost in a grocery shop would be a dollar per tin.) B takes the offer and sells them to C for two pennies per tin. This kind of profit-making goes on until P sells then to Q – who loves to eat tuna fish – for 75 cents per tin. Q joyfully goes to the warehouse, opens one of the tins, and finds that the fish is rotten, and likewise with ten more tins. He complains to P, who passes the complaint back to O, etc. etc. until it gets back to A, who explains, "*That fish isn't for eating, it's for buying and selling*." Lots of mortgages in the USA in the first decade of this century were like those fish.

Wages and salaries are money paid for labour. A characteristic difference between them is that a wage is most likely to be paid *per hour* of labour, whereas a salary is normally paid per month or per year, without any exact reckoning of the hours spent labouring. The amount of money paid to a wage earner at the end of day or week is supposed to be equal to the hourly rate multiplied by the number of hours worked, whereas a person getting a salary is not paid a smaller amount for working fewer hours, nor paid more for working "overtime", i.e. for more than an agreed-upon normal set of hours in the day or week. However, economists often use the word "wages" as a general term for wages and salaries together.

Classical economic theorists would often posit labour and "**capital**" as the two and only two kinds of "factors of production", with the usefulness of each of them being

measurable in terms of monetary prices. Capital would include land and all the other blessings of the Earth (i.e. "natural capital"), plus buildings, tools, etc. – all with their estimated monetary values. However, such things can, just by themselves, produce nothing for human consumption. (Even if you get your food by gathering it from the wild, to gather it is to work.) And so, people who want to produce and sell commodities must, unless they do *all* the work themselves, pay money for labour.

From this kind of thinking – whereby capital is regarded as depending on labour for big-time production – came the classical "**labour theory of value**", according to which the value of a commodity depends on how much labour has gone into producing it. But in fact (and Jevons saw this very clearly), the market value of a product is measured correctly by a monetary fact observed *in the present or proximate future* – i.e. how much money the consumers are willing to pay for it – regardless of how much was paid in the past for the labour of producing it. (The word "proximate" here means "closely related". A guess as to how much money people in a *remote* future might or might not be willing to pay for some present commodity is a wishy-washy guide to the commodity's value.) So, the "labour theory of value" was incorrect in market economics.

I should mention here, though it's not directly about money, Solow's insight (1957) that the productivity of a given amount of labour can be increased by using some better kind of *technology* (for instance: bringing a load of agricultural produce to the market in a vehicle with wheels rather than somehow without wheels) for making *more efficient use* of labour (or indeed of capital). Solow used monetary statistics to argue, convincingly, that the great increases from 1909 to 1949 in the rate of U.S. production of commodities could not have been due just to the increases in capital investment and in amounts of labour. The total increase was far too big to be explained merely in that way.

(The basic point that technology is very important in the material aspects of human life was anticipated – without statistics – by Marx's friend Friedrich Engels in his "Outline for a Critique of Economics" (*Umrisse zu einer Kritik der Nationalökonomie,* 1844). (And notice, by the way, that the German term for "economics" is "***National****ökonomie*". This fits in well with the fact that the title of Adam Smith's book was "The Wealth *of* ***Nations***".) Engels said that "The increase in yield due to increase in labour does not always rise in proportion to the labour; there still remains a third element [besides capital and labour] ... science.... What progress does the agriculture of this century owe to chemistry alone – indeed, just to two men, Sir Humphry Davy ... and Justus Liebig!" Liebig was a chemist whose work in the 1840s was closely related to the development of artificial fertilizer.)

One reason for my having included this account of Engels's and Solow's insight is that the economic importance of science and technology is, I believe, going to be even greater in the 21st century than it was in the 19th and 20th centuries. Robots will do *far more work* than ever before. I agree, for instance, with the prediction made in 2016 by Prof. Richard Freeman (of Harvard University and London School of Economics) that "Advances in artificial intelligence and robotics will produce machines that are better substitutes for humans.... The cost of robot machine substitutions for humans will

decrease…. Income will [thus] *increasingly* [my italics] come from ownership of robots or other forms of capital and the stream of income they produce, rather than from human labor."

When an initial sum of money ($\$^1$) which has been somehow accumulated is invested by a capitalist in the production (by labour and now by robots as well) and sale of a batch of commodities (C^1), his intended result is more money in his pocket ($\$^2$, where $\$^2 > \$^1$; the difference between them is called "**profit**"), which he can then invest in the production and sale of a more valuable batch, market-wise, of commodities, C^2, and so on – *forever*, according to neoclassical theory: $\$^1 \rightarrow C^1 \rightarrow \$^2 \rightarrow C^2 \rightarrow \$^3 \rightarrow C^3 \rightarrow \$^4 \rightarrow C^4$ .... This theory of commodities *increasing forever* is incorrect (as will be discussed in the next lecture). (I have here used "*$*" to stand for monetary capital. But dollars are, of course, only U.S. money, not all money; the lecture on money and governments will say more about this. In equations in economics textbooks, "*K*" stands for capital. I am using "*$*" instead of "*K*" to bring out the fact that the capitalist *as such* doesn't care if his or her enterprise causes "natural capital" to be destroyed, but only cares about his or her private monetary profit.)

Marx was more alert to this theoretical aspect of capitalism than Adam Smith had been. Smith had written *The Wealth of Nations* back in the 1770s, which was when James Watt was developing his coal-powered steam engine, but was before that kind of big technological innovation enabled the Industrial Revolution to begin to happen. According to Smith, "The sole use of money is to circulate consumable goods. By means of it, provisions, materials and finished work are bought and sold, and distributed to their proper consumers." (There is nothing in those remarks of his about profit causing capital to grow.)

FOOTNOTE: However, Smith was alert to a certain kind of technological improvement in manufacture which, together with the massive use of fossil fuels later on, proved to be basic to the Industrial Revolution – namely, "**division of labour**". Here are some excerpts from his famous account of how pins were made: "A workman not educated to this business (which the division of labour has rendered a distinct trade) [e.g. not the same as the tailor's trade or the nail-maker's trade], nor acquainted with the use of the machinery employed in it … could scarce … make one pin in a day, and certainly could not make twenty. [But what is actually done is that] one man draws out the wire; another straights it; a third cuts it; a fourth points it; a fifth grinds it at the top for receiving the head; to make the head requires two or three distinct operations; to put it on is a peculiar business; to whiten the pins is another: … and the important business of making a pin is, in this manner, divided into about eighteen distinct operations…. I have seen a small manufactory of this kind, where ten men only were employed, and where some of them consequently performed two or three distinct operations…. They could, when they exerted themselves, make … about twelve pounds of pins in a day. There are in a pound upwards of four thousand pins of a middling size. Those ten persons, therefore, could make among them upwards of forty-eight thousand pins in a day…."

THREE POINTS IN CONTINUATION OF THE FOOTNOTE:

(1) Once a productive operation has been reduced by division of labour to an extreme, quasi-robotic level, then the logical next technological improvement is to get a robot to do it.

(2) Smith knew that "The man whose whole life is spent in performing a few simple operations, of which the effects are perhaps always the same, or very nearly the same, has no occasion to exert his understanding or to exercise his invention in finding out expedients for removing difficulties which never occur in that work. He naturally loses, therefore, the habit of such exertion, and generally becomes as stupid and ignorant as it is possible for a human creature to become." (And, Smith's writings show that he didn't want that to happen; he wanted humans to be humans, not robots.)

(3) Smith speculated as to the likely dire condition of labourers in "a country fully peopled in proportion to what either its territory could maintain or its stock [of resources could] employ". His profundity as an economic theorist is shown by his capacity to imagine "a country which had acquired that full complement of riches which the nature of its soil and climate, and its situation with respect to other countries, allowed it to acquire".

Karl Kautsky, the most eminent Marxist a hundred years ago, agreed with the neoclassical theorists of his day that for "any kind of society with a widely ramified division of labour", an indispensable social function of money is to facilitate the exchange and circulation of commodities. But in 1919, Otto Neurath, a Marxist philosopher and economist who had helped manage the economy of the Austro-Hungarian Empire under conditions of galloping inflation during World War I, argued that a modern economic system could be *planned* entirely in terms of quantities of specified natural resources and of goods and services, and hence with no need at all for money. An aristocrat who bitterly hated Communism, Ludwig von Mises, replied in 1920 that not even in a socialist state could such "***in natura***" **calculations** (purely material, non-monetary calculations) successfully replace monetary calculations. And, von Mises's top disciple, Friedrich von Hayek, later won the Bank of Sweden's "Prize in Economic Sciences in Honour of Alfred Nobel" for saying (in 1945) that the market-price system is the *only* feasible way of coördinating the economic information that is dispersed among the various different agents in a modern society. (The little word "von" in their German names means that they were aristocrats. They were from Austria, a German-speaking country where a Communist government had abolished all the previous legal privileges of the aristocrats.)

FOOTNOTE: Historians of economic theory call this "the Socialist Calculation Debate". Neither von Mises nor von Hayek cited data. They believed that economic theory must not depend on data at all, but *only* on intuition. It is, IMHO, a crazy belief, but the fact that they had a crazy disdain for data doesn't prove that their purely intuitive conclusion was wrong. Maybe it *is* impossible to plan an economy – or even to plan successfully any aspect whatever of an economy¸ or else maybe there *is* such a thing as feasible economic planning. The debate is not over.

Some other kinds of monetary income besides wages and salaries and profits are *(a)* **interest** on money that you have lent (for instance by putting it in a savings account in a bank: in that case you are lending it to the bank) you might get interest on money lent to a person, and you can get interest from a corporation or a government by spending money for a while to purchase a **bond**, which is a way for the corporation or government to borrow that money from you; it has to be paid back, at a specified date, with interest at a promised rate per year; *(b)* money that you borrow (it is income to you when you borrow it, even though you are supposed to pay it back later); *(c)* gifts;

(d) money that you have somehow managed to steal; *(e)* rent on property that you may be lucky enough to own; and *(f)* pensions.

FOOTNOTE: Is it shocking to include stolen money in this list? A lovable American professor of neoclassical economics, H.J. Davenport, became famous in the 1920s for pointing out that according to neoclassical theory, "All labour ... that commands a price, though it be the poisoning of a neighbor's cow or the shooting of an upright judge, all [commodified] durable goods commanding a rent or affording a valuable [commodified] service – lands, machines, burglars' jimmies, houses, pianos, freight cars, passenger cars, pleasure boats – all patents, privileges, claims, franchises, monopolies, tax-farming contracts, that bring an income, all advertising, lying, earning, finding, begging, picking, or stealing that achieve a reward in price or a return that is worth a price – are productive by the supreme and ultimate test of private gain." One reason why I call Prof. Davenport lovable is that in 1928 he gave the top academic grade, A+, to a student from India whose arguments in class *against* this precept (the young Indian said that "Man is not merely a wealth-producing agent but essentially a member of society with political, social, moral, and spiritual responsibilities") had made Davenport red in the face with frustration. The young man returned to India a year later, and in 1934 co-founded with Mahatma Gandhi the All-India Village Industries Association.

If you are going to read about economic theory, you had better know that economists use the word "**rent**" to refer to *any* money paid to someone who isn't w*orking to produce something* in return for that payment.

FOOTNOTE: This includes, for example, pensions. Now if a nation were a business firm, then to spend some of its money on pensions would tend to reduce its capacity to spend money on the production of commodities, and would thus ultimately reduce the firm's "bottom line" of profits. A nation is, however, *not* a business firm. And, here is an important fact to be considered: Maybe old people who are getting pensions can perform, better than *destitute* old people can, a heap of unpaid work of social value to the nation: for instance by showering love and care on children.

According to some neoclassical economists, if a labourer who happens to be a member of a trade union would be willing to do the same work for a lower wage than (s)he is actually – thanks to the trade union – being paid, then the difference between that theoretical lower wage and the actual wage is rent. This particular notion of rent harks back to the so-called "Iron Law of Wages" which a mid-19th-century German revolutionary, Ferdinand Lassalle, formulated by declaring that wages were, in capitalist economies, "limited by an iron law to the necessary means of subsistence, to the minimum of food, etc." The smartest classical theorists would always qualify the precept of the so-called "iron law of wages". Adam Smith had said that "A man must always live by his work, and his wages must at least be sufficient to maintain him. They must even upon most occasions be somewhat more; otherwise it would be impossible for him to bring up a family, and the race of such workmen could not last beyond the first generation."

Ricardo (1817) distinguished between what he called the "natural price" of labour (his term for what Lassalle would later mean by the kind of wage a labourer gets under the so-called Iron Law) and its actual market price, which he said would depend on various more-or-less temporary circumstances. He said: "When the market price of labour exceeds its natural price,... the condition of the labourer is flourishing ... [and]

he has it in his power to … rear a healthy and numerous family. When, however, by the encouragement which high wages give to the increase of population [everyone knows of course that those low-class labourers, if they don't have to work their butts off all day in order to survive, will indulge more in sex than we elite Brits do], the number of labourers is increased, [and therefore] wages again fall…. When the market price of labour is below its natural price, the condition of the labourers is most wretched: then poverty deprives them of those comforts which custom renders absolute necessaries. It is only after their privations have reduced their number, or [else after] the demand for labour has increased, that the market price of labour will rise to its natural price, and that the labourer will have the moderate comforts which the natural rate of wages will afford."

FOOTNOTE: There is plenty of evidence that (*a*) capitalism increased vastly the 19th- and 20th-century totals of incomes and commodities, and (*b*) Ricardo was brilliant; but, when he describes as "moderate comforts" the commodified goods and services which labourers could get with a mere subsistence wage, it becomes clear – and there is other evidence to confirm it – that he didn't give a hoot about wage earners as people. (Adam Smith was quite different: *he* wrote a great book on moral sentiments.)

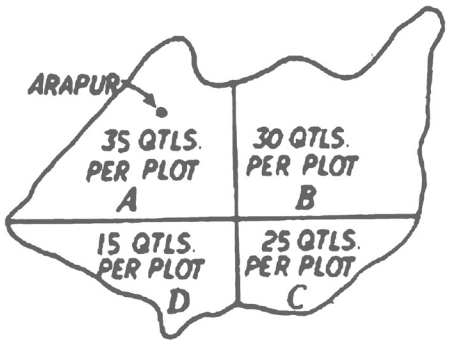
According to a neoclassical theory of "efficiency wages", firms may wisely pay some higher-than-"market-clearing" wages in order to incentivize their employees and reduce the loss of superior workers (who might otherwise drift away to other firms which their expertise would help to compete against the firm they are now working for). You can readily imagine why it might be "efficient" for the firm to pay such an employee a higher-than-market-clearing wage – i.e. higher than the wage for which the firm could hire a replacement. How about the extra diligence of an employee who feels *loyal* to the employer?

But to come back to Ricardo: he also said that a rise of wages usually has "a great effect in lowering profits". In that light it is notable that in 1954, Arthur Lewis – whose famous "two-sector" theory of "developing" economies (i.e. with small capitalist sectors and large "traditional" sectors) won him many honours – said that "the level of wages in the capitalist sector depends on the earnings in the subsistence sector" (i.e. the part of the economy – without capitalist enterprise – where people are getting just enough goods to stay alive [N.B.: some of those "subsistence earnings" may consist of wages while others may consist of, say, veggies in a family garden], and therefore "the capitalists have a direct interest in holding down the productivity of the subsistence workers" (so that the wages in the "capitalist sector" will be lower). (This helps to explain why the BJP has weakened the MGNGREA.)

Another seminal idea of Ricardo's was his premise that as an economy develops, the portion of its money that is spent on rent for the use of land will tend to increase. It is possible to explain this concept of land-rent in a way that doesn't even require that money be mentioned. Here is how a recently posted Indian Website does it:

Let us suppose ourselves to be the settlers on a hitherto unknown island. As we study its natural resources, we find the land to be of four grades. For convenience, we call them '*A*', '*B*', '*C*' and '*D*' in the order of their fertility. We decide to put our village, "Arapur", in the 'A' part which has the most fertile land and thus gives us the largest produce per acre. Enough land of this quality is available to satisfy all our agricultural

needs for now; each family establishes a claim of ownership over an adequate share of '*A*'-quality land. But then, as time passes, the mouths to be fed (and bodies to be clothed) increase in number. (This may be due to more immigrants, who have heard of our good luck, or to an increase in our native population.) A time comes when all land of the best quality has been taken up, but some demand still remains unsatisfied; so, some of us have to resort to '*B*'-quality land, which yields only 30 quintals of wheat per plot as compared with 35 quintals from '*A*'-quality land with the same expenditure of labour and capital.



Plots in '*A*' now acquire a greater value than in '*B*'. A farmer may now *either* use '*B*'-quality land free-of-charge *or else* pay as much as the difference between 30 and 35 quintals of wheat, i.e. 5 quintals, in order to get a plot in the '*A*' zone. This difference, paid to the land owner if the farmer is a mere tenant (i.e. not an owner) of '*A*'-quality land, is rent. Economic theorists would say that if an owner of '*A*'-quality land farms it himself, it's just *as if* he is as a farmer paying himself as land-owner rent for using the more fertile land instead of farming on free-of-charge '*B*'-quality land and charging someone else rent to farm on the more fertile, '*A*'-quality land that he owns.

I should mention also that if most of now-larger number of consumers (needing food) on the island still live in Arapur, then the rent will amount to more than the price of just 5 quintals, because '*B*' land is farther away from Arapur than '*A*' land is, and so more work is needed to bring agricultural produce to Arapur from '*B*' land than from '*A*' land. (In reality, far more of the money which most of us spend for food pays for its transportation than for the farmers' work of growing it.) And then later again, as more and more demands are made on the land which the island – or the planet – has to offer, the levels of rent on account of differences in land fertility will increase from an equivalent of *ca*.5 quintals (i.e. the difference between 35 and 30) to an equivalent of *ca*.20 quintals (i.e. the difference between 35 and 15) – if, as Ricardo took for granted, the best agricultural land is still just as fertile as it had been before it was ever farmed (an assumption which all scientists know is contrary to basic realities of agriculture, but then neoclassical economics is full of unrealistic assumptions).

Ricardo's seminal idea about rent was along those lines. Neoclassical theorists have elaborated upon Ricardo's ideas in regard to rent, and there is now a widely accepted theory that as an economy develops, the portion of the money that is spent on *rents of all kinds* (i.e. not just rent for the use of land) tend to increase.

A brilliant American economist, Joseph Stiglitz, recently (2017) made clever use of this broad concept of rent. Stiglitz said: "The national income pie, by definition, can be thought of as being divided into labor-income, the return to capital, and rents. A stark aspect of [currently] growing inequality is the diminution in labor's share [of incomes], especially if we exclude [in our reckoning] the [wage] income[s] of the … CEOs and bankers…. [There has been also a] diminution of the share of [returns to productive uses of] capital…. If the share of labor-income and the share of capital income have both gone down, it implies that the share of rents must have gone up…. We have become a rent-seeking society, dominated by market power of large corporations [getting monopolistic rents]." In my lecture on money and governments I will suggest that it would be socially beneficial for governments to redistribute some of the rents to the destitute.

However: Since we tend automatically to think of "rent" as *money that is actually paid* for the use of something, confusion could avoided by using the more modern term "**opportunity cost**" for some of the things that economists tag as "rent" in an abstruse sense of that term. ("Abstruse" here means "far-fetched".) If you apply the term "rent" willy-nilly to opportunity costs where money is not *actually* involved, you strengthen, however inadvertently, Solow's doctrine that "everyday life is about prices, not values", i.e. that every aspect of life – or at least every material aspect – is to be evaluated solely in monetary terms.

> **FOOTNOTE**: "Opportunity cost" is a flexible concept. Here is an example: I am a monogamist and I married a woman with (naturally) red hair; it cost me the opportunity (as long as she was my wife) to marry a woman with naturally black hair. Opportunity cost can be non-monetary! Extinction of humankind (due to, say, pollution) within a small number of centuries from now would be a non-monetary opportunity cost. By examining each particular kind of prospective opportunity cost, you can sort out to what extent money and/or maybe values are in fact involved. But if you call it "rent", you have already committed yourself to the notion that the cost *must* be monetary. So it seems to me that abstruse uses of the concept of "rent", even though they seem to be analytically sophisticated, are less conducive to clear thinking than is the simple concept of opportunity cost.
>
> **SUBTLE FOOTNOTE**: Let me tell you now about another important neoclassical term, by going back for a moment to the imaginary-island example of land rents and opportunity costs. Once the demand for agricultural products has become so great that, say, '*B*' land *and* rent-free '*C*' land (as well as '*A*' land) has to be farmed, we could, as economists, tag '*B*' as being more "**scarce**" than '*C*' but less "**scarce**" than '*A*'. This scarcity-oriented way of thinking about the material aspects of life underlies a famous neoclassical definition (1932) of economics as the aspects of human behavior that are "guided by objectives" (and are thus purposeful efforts, i.e. work) and that "deal with scarce means which have alternative [possible] uses".

In this lecture on money in relation to production and consumption, I have mentioned:

(a) the capitalists' money (which I represented symbolically by a dollar-sign, "*$*"; but of course not all money is dollars; I'll discuss that fact in the lecture on money and governments);

(b) profits (successive increases in the capitalists' money);

(c) commodities (which I represented symbolically with "*C*"),

(d) labour (i.e. human work that is productive of commodities and is paid for with money; economists often use "*L*" to represent that);

(e) wages and salaries (i.e. money paid for labour; we could, if we like, symbolize them together with "*W*");

(f) improved technologies for more efficient production (we could use "*T*" for that); and

(g) rent (e.g., money paid voluntarily to people who are *not* doing or organizing productive labour in return for it; we could symbolize such money with "*R*").

Symbols like these could be used to put a lot of theories into compact form by writing a bunch of lines, analogous to $\$^1 \rightarrow C^1 \rightarrow \$^2 \rightarrow C^2 \rightarrow \$^3 \rightarrow C^3 \rightarrow \$^4 \rightarrow C^4$, but with parts of them reading like this: $\rightarrow L^2 \rightarrow C^2 \rightarrow L^3 \rightarrow C^3$..., or $\rightarrow T^2 \rightarrow C^2 \rightarrow T^3 \rightarrow C^3$..., and so on with various other symbols, and whenever a symbol representing money (such as *$* or *W*) is involved, its significance in relation to "*C*" for commodities would depend on the ongoing effects of inflation, which are – as we all know from experience – just as important to *(a)* consumers of commodities (unless they are rich) as it is to *(b)* people in their various productive roles. The effects of inflation are important in various different ways to people with wages, people (or institutions) with debts, people (or institutions) with monetary capital, etc. For wage earners, a lot depends on whether wages keep pace with inflation. For people with debts, a lot depends on the relation between the interest-rate on their debts and the inflation-rate.... And so, money is important not just directly for production and consumption, but also – in modern societies – for families planning for the future (as I will discuss in the next lecture) and for giving some people a lot more power than other people (as I'll discuss in the lecture on money and inequalities).

Here in the main part of this introductory lecture I would like to describe one additional basic idea – that of a general "**market equilibrium**":

It could be said that every time you buy or sell something, you and the other person involved in the deal establish, together, a particular momentary equilibrium about the price of that thing. In an old-fashioned market-place, the two of you might have talked with one another for a while – bargaining – to arrive at a price which you then evidently both felt was fair, as evidenced by the fact that the deal was done: One of you wanted to sell and was willing to sell at that price; the other one wanted to buy and was willing to buy at that price. Both content! Well then, a general equilibrium would be a theoretical momentary situation wherein *everyone* is thus evidently content with all the deals that are currently operative, and so a theorist could imagine that as long as the underlying conditions don't change, the prices of everything later on would be the same as now. And, since the price of labour would be the same as now (when everyone is content with the situation), it would seem that when there is equilibrium, everyone wishing to perform labour can find a job at a satisfactory wage. This was a standard doctrine of neoclassical theory until John Maynard Keynes proved in 1936 that a gen-

eral equilibrium in regard to prices can co-exist theoretically with massive unemployment – something so bad that "depression" is clearly a more pertinent term for it than "equilibrium".

A nasty economic depression was taking place in the West in the 1930s. Keynes's proposed remedy for it was to disturb the routine procedures of the market by having the government *give away* money to people who really need things. Those people would use the money to increase demand in the market; the resulting *dis*equilibrium – i.e. with the demand for commodities now greater than the supply – would stimulate capitalists to ramp up production and therefore (Keynes supposed) to hire more labour; and this would get the economy moving in a better direction: better in the sense of (*a*) reducing unemployment and (*b*) producing more.

> **FOOTNOTE**: The concept of a general market equilibrium had, when Léon Walras first devised (in the 1870s) a mathematical theory of it, a common-sense appeal because one could readily imagine that since buying and selling at the stock market was not happening during the night, the prices at the moment when the market closed at the end of the day represented an overnight equilibrium. But nowadays the bidding never ceases globally, and so it is more apparent that equilibrium never actually happens but is just a mythical theoretical ideal. Nothing in reality corresponds to it. It is not like "marriage", "governments" or "water" (all of which are real); it is, like "paradise" and "eternity", unreal.

In my next lecture – the one about money, the future and psychology – the starting point will be that every application of the idea of "smart behavior" is linked – implicitly even if not explicitly – to a supposed future; and, *really* smart behavior is designed with a view to both shorter- and longer-term results. Then in the lecture on money and inequality I will argue that *(a)* there is no such thing as a society in which everyone is equal economically; *(b)* the real issue is therefore not *whether* there will be economic inequality, but *how much*; and *(c)* the levels of economic inequality have increased drastically in the last seventy years, and the inequality is now too great. In the lecture on money and governments, my starting point will be Max Weber's famous statement that the government of a society has a monopoly on the legitimate public use of force in that society. (I say "public" to allow for parents privately spanking their children.) I will say that some examples of government power in relation to money are *(a)* to give buyers the right to pay with "legal tender" (i.e. with money issued officially by the government), *(b)* to make people pay taxes, and *(c)* to allow people to default on their debts by declaring (government-certified) bankruptcy.

Appendix: Milton Friedman (1912-2006) was a very smart American economist whose monetary ideology became so influential (in 1976 he won the Swedish Royal Bank's Prize in Economic Sciences in Honour of Alfred Nobel) that you ought to know something about it even though it will hardly be mentioned in my other lectures in this series. He was a renowned proponent of **monetarism**: the idea, popular already in the 19th century, that the rate of inflation (or of its opposite, "deflation"), which all economists acknowledge to be *an* important aspect of all modern economies, depends *entirely* – for all practical purposes – on how much monetary currency is in supply. (Solow quipped, in 1987: "Everything reminds Milton Friedman of the money

supply.... Everything reminds me of sex, but I try to keep it out of my papers.") Given, as a theoretical premise, the equation $qP = Mv$ (where q stands for the overall rate of production of commodities for the domestic market, P stands for the overall level of prices in the national economy, M for the total supply of money in it, and v ("velocity") for the rate at which the monetary unit passes from one holder to the next), Friedman argued that v is (or ought to be?) basically steady and therefore the government can best keep P reasonably steady – i.e. avoid a long-term drift to inflation – by controlling the independent variable M to march basically in step with q. So, he considered it best for central national banks (the ones that issue the national currencies) to expand money supply at some fixed rate like 4% or 5% per year which would match, he believed, the "natural growth rate" (in terms of producing commodities) of modern economies and would thus maintain long-term price stability.

In contrast, the Keynesian says that v (i.e. how fast money gets spent, overall, in a given society) is variable and can be significantly influenced by government taxing and spending. According to the Keynesian, a palpable increase in, say, GST and/or in the rate at which government is effectively collecting income tax from its citizens will cause them to be more cautious about spending their money on commodities, and on the other hand, if the government suddenly gives away a lot of money to a lot of poor citizens, or pays them to build roads or schools or whatever, those folks will spend money faster than they would have done if the government hadn't managed to put money into their pockets. But how should the government *get* the money which it would thus be putting into the pockets of needy citizens in order to cause a surge of demand for commodities? For each answer that someone might offer to that question, Friedman had a loud and clear argument as to why this would be, in his opinion, a bad thing for the government to do. However, he meanwhile advocated rather quietly (so as not to offend wealthy opponents of the idea) a systematic – i.e. steady, not causing a change in v – "negative income tax" whereby the government would steadily (though of course periodically, i.e. not every day but maybe, say, every month) give away money to people labouring for extremely low wages (and this would lower nicely the pressure on their employers to pay a "living wage" for labour).

(In the lecture on governments and money I will describe an even simpler idea which is somewhat akin to that of a negative income tax: a "universal basic income", to be paid by the government to *all* the citizens – or perhaps to all the citizens who *(a)* have not emigrated and *(b)* are not infants – this latter restriction being included so as not to incentivize poor people to have more babies than they would otherwise wish to have.)

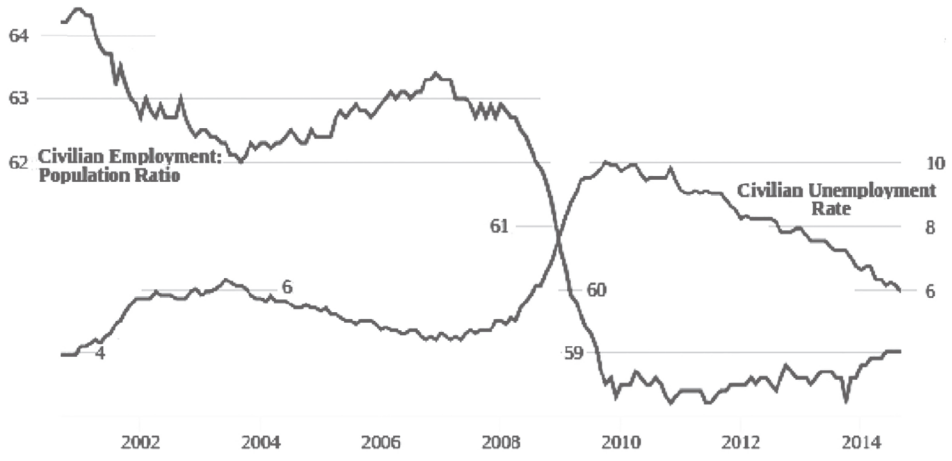
The Keynesians generally suppose that people's current *flows of income* determine how much money they currently spend. But Friedman cleverly found (in 1957), by empirical research, that in the U.S., how much *stock of wealth* one has is correlated better (than is one's current flow of income) with how much one currently consumes. (This fact would presumably be due to the psychological and social impact of one's relative level of wealth, regardless of one's current income.)

As for his monetarist precept of good governance, however, Friedman himself admitted, in 2003, that in the U.S., "The use of quantity of money as a target [in central-bank policy] had not been a success", and in that same year an eminent neo-Keynesian,

Paul Samuelson (the author of the best-selling textbook on economics) declared: "The Keynesianism, which worked so well in Camelot [i.e. during the presidency of John Kennedy, 1961-63] and brought forth a long epoch of price-level stability with good *q* growth and nearly full employment, gave way to a new and quite different macro view after 1966. A new paradigm, monistic monetarism, so the tale narrates, gave a better fit.... [But let us] contemplate the true facts. Examine ten prominent best forecasting models 1950 to 1980: Wharton, Townsend-Greenspan, Michigan Model, St Louis Reserve Bank, Citibank Economic Department ... etc.... *M* did matter for almost everyone. But never did *M* alone matter systemically, as post-1950 Friedman monetarism professed."

In 1958, a Keynesian at the London School of Economics, William Phillips, showed, on the basis of an analysis of British data (using a hydraulic analogue computer which he had designed and built), that in years when unemployment was high, wages tended to be stable or maybe to fall (people would be willing to work for lower wages), whereas wages would *rise* when nearly everyone who wanted to labour could find a job (and of course the rise of wages would tend to cause inflation). Samuelson and Solow soon applied this idea of "the Phillips curve" to data from the USA. But, Friedman predicted in 1967 that the correlation between high inflation and low unemployment couldn't be sustained for long: **stagflation** (a "stagnant" i.e. not-growing economy *together with* inflation) would be bound to occur after *sustained* palpable inflation. ("Palpable" means that you can feel it.) And in fact, stagflation did characterize the U.S. economy in the 1970s – especially after the "oil crisis" of 1973.

In 1995, a disciple of Friedman's, Robert Lucas, won the Bank of Sweden's "Prize in Economic Sciences in Honour of Alfred Nobel" for arguing that in a society where stagflation has once occurred, no correlation between inflation and a lowering of unemployment can ever occur thereafter, not even in the short run. Lucas then declared, in 2003, that "the problem of depression-prevention has been solved, for all practical purposes". The apparent validity of that prediction of his lasted for five years. In the following graph (based on U.S. government data), the short numbers are percentages:



A take-away point of this graph is that the Prize Committee has, in some years, made stupid choices as to who should get the annual prize. This fact is an indication that so-called "economic science" is less scientific than some of your teachers would like you to believe.

So, think for yourself while satisfying your teachers who have a certain amount of power over you. But, don't become so cocky that you forget the following precept stated by Bertrand Russell: If two of us disagree about some factual matter, we cannot both be right but we *can* both be wrong. (Simple case in point: I say "2+2=3" and you say "2+2=5".) And, strive to overcome distractingly excessive emotions – buzzes in the brain which can interfere with sorting out feasible solutions to tough problems.

2. Money and the Future and Crowd Psychology

Unless there is a lot of inflation, money normally retains for years into the future its basic value: its social power to purchase commodities and/or labour and/or ownership of *(a)* tools for production and/or *(b)* parts of the Earth's natural endowment that are available for use by Humankind. So, having a fair amount of money, or an unfairly big amount, tends to make us feel more secure and optimistic about the future; and, people in modern societies who feel that they have too little money may well feel insecure and pessimistic about the future, unless they have a generally optimistic outlook on life anyway (as some children do; it is a lovable feature).

This lecture will focus on how having or lacking money may affect people's futures or their feelings about their futures *(a)* as consumers of commodities and as the guardians of other people (e.g. children) whom they care about, and/or *(b)* as capitalists – including financial investors as well as substantially creative entrepreneurs (e.g. inventors who make money from their productive inventions).

Let me start with some remarks about consumers of commodities (i.e. of goods and services acquired with money):

I mentioned in Lecture 1 the great virtue of money (in a society with division of labour) when it comes to distributing commodities to consumers. Barter without money could hardly do it as well.

Many consumers in modern societies feel that they more or less urgently need more money. (Maybe you had noticed this?) But sometimes the reality is more psychological than material – due for instance to advertising and to trying to "keep up with" your neighbours.

Here is, by the way, some food for thought: "Pecuniary pressure" (i.e. money-pressure) to perform wage-labour – under conditions which may be oppressive – should be distinguished from "non-pecuniary pressure" (such as in slavery) to work for someone else. If we call wage labour "slave labour", we may lose sight of some important differences between them. The devil is in the details.

A renowned mid-19th-century German philosopher, Arthur Schopenhauer, said that "Meals are good only for the hungry, wine for the healthy, medicine for the sick, a

fur coat for the winter, loose women [**Weiber**] for the young, etc. [He was a somewhat weird person.] Thus, they are all ... only *relatively* good [he meant good ***in relation to*** *some particular kind of need*]. Money alone is the absolute good, for it meets not just *one* concrete need, but Need *itself*, in the abstract."

In 1997, James Buchan, who had been for many years a correspondent for *The Financial Times*, revived this argument. He said that before the historical development of money, people would tend to regard their material needs as specific and finite, but that because money can buy so many different things, modern affluent people tend to feel that their needs are abstract and limitless. This point fits in with the findings of "Happiness Economics" (google it!) and puts into an historical and potentially macroeconomic context Schopenhauer's microeconomic point about money potentially meeting *any* kind of need – even a need to get things which you had never before bothered to want.

> **FOOTNOTE**: In Lecture 3 – the one on money and modern-style inequality – I will include some documentation of this last, "sometimes-the-more-you-have-the-more-you-want" point: evidence that people who have only modest amounts of money tend, in general, to have modest notions as to what more they would need in order become "completely happy" and live the "good life", whereas people who have lots of money tend to have lavish notions as to what more *they* would need in order to become "completely happy" and live the "good life".

Buchan, in effect, sees monetarisation of the economy as an underlying cause of ***(1)*** a phenomenon described as follows by W.S. Jevons *ca*.150 years ago: "There is hardly a limit to the desire for articles of aesthetic taste, science or curiosity, when once excited" – and hence ***(2)*** Lionel Robbins's famous definition (1932) of economics as the aspects of human behaviour that are "guided by objectives" and "deal with *scarce means* [my italics] which have alternative [possible] uses". Robbins never referred to any present or potential environmental scarcities; his concept of "scarcity" was entirely abstract: If there is no limit to human desires for more commodities, then *all* commodities are potentially "scarce".

There is a word in English, "miser", for a person whose excessive love of money is regarded as a spiritual sickness. Keynes was IMHO correct that "The love of money as a possession – as distinguished from the love of money as a means to the enjoyments and realities of life – is a somewhat disgusting morbidity, one of those semi-criminal, semi-pathological propensities which one hands over with a shudder to the specialists in mental disease." Yet Keynes also pointed out that "The importance of money [for *normal* people] essentially flows from its being a link between the present and the future."

I am tempted to mention here, for instance, the charming first sentence of Jane Austen's witty novel, *Pride and Prejudice* a novel which is to a large extent about proper manners among the well-off in the early 19th-century English countryside: "It is a truth universally acknowledged that a single man in possession of a good fortune must be in want of a wife."

However, we adults each have our future-oriented hopes and worries, not in isolation from other people but in more or less constant communication with each other. The

resulting optimism or pessimism is an aspect not just of individual psychology but also of "crowd psychology" or even, alas, "mob psychology".

In 1895 a French medical doctor and anthropologist, Gustave Le Bon, pointed out, in a book, *Psychologie des Foules* ("*des foules*" means "of crowds") which soon became famous, that some characteristic psychological features of crowds are "impulsiveness, ... incapacity to reason, the absence of judgement of the critical spirit [and] the exaggeration of sentiments." He said that "An individual immersed for some length of time in a crowd soon finds himself ... in a special state which much resembles the state of fascination in which the hypnotized individual finds himself in the hands of the hypnotizer." Le Bon was concerned more with political and religious than with economic behaviour; and, while a lot of leading politicians and sociologists and political scientists paid attention to his work, most 20th-century economists ignored it (as they did *every* branch of scientific psychology and anthropology). However: The next part of this lecture will describe a spectrum of ways in which long-term economic damage can be due to crowd-psychological "impulsiveness, ... absence of judgement of the critical spirit ... [and/or] exaggeration of sentiments".

I will describe, in particular, three patches on the spectrum: **(1)** So-called "Ponzi schemes". These are illegal in many countries. (I will explain about them on a moment.) **(2)** Legally permitted financial speculation which either fails to increase production (and is thus, when profitable, a kind of rent-taking) or else, on the other hand, ramps up the production of goods and/or services for which there is then a salient *lack* of market demand – thus prompting the businesses to dismiss labour (or shut down altogether) and hence, if there is too much of this syndrome, cause an economic "recession" or "depression" with far more people wanting to do wage labour than are able to find jobs (i.e. mass unemployment). I will share with you some excerpts from a brilliant account of how it happened in the USA in the late 1920s (causing the Great Depression in the '30s). And **(3)** monetary investments causing production that entails excessive environmental degradation. The details of the damage depend on which type(s) of environmental degradation are caused in excess. I will append a brief list of ten general types. (Here again, the devil is in the details.) The reason why I regard these three as "patches on a spectrum" is that there is, IMHO, a range of phenomena intermediate between **(1)** and **(2)** on the spectrum, and in some ways again between **(2)** and **(3)**. An umbrella-term covering everything in the whole spectrum is "pyramid scheme". (It is meant to evoke an image, not of a stable structure like an ancient Egyptian pyramid, but of an upside-down pyramid which, if it grows too much, will tip over and crash. A related term is "tipping point".)

> **PERSONAL FOOTNOTE**: Whereas quite a few eminent 21st-centrury economists have acknowledged in one way or another that the 20th-century economists' psychological doctrine of the individual "Economic Man" is an inadequate basis for genuinely scientific economic theory, I will, in this lecture, go further by suggesting that a radical 21st-century improvement of crowd psychology is needed to complement the focus in economic theory on individual psychology.

(1): Ponzi schemes are illegal investment frauds of a certain kind. They win their dupes (i.e. victims) by promising above-average monetary returns, and they make good on the promises to a few initial investors by paying returns to them from the new takers'

capital investments. No productive activities are involved; the owners of the scheme take some of the money for themselves and use all the rest to get more dupes to pay in. The scam falls apart when not enough new gullible people can be recruited to finance payment of current returns due to the previous batch. This is likely to happen within a decade or so after the launching of the scheme.

Ponzi schemes are named after Charles Ponzi, a colourful Italian who had an illegal career in the USA in the first quarter of the 20th century. He went to prison for a few years in the USA, and then the Fascist government of Italy gave him a business-management job in Brazil.

A vast Ponzi scheme in the USA was perpetrated by a highly respected financier, Bernie Madoff, in the late 20th and early 21st centuries. Nearly 5000 clients invested nearly $65 billion, and when some of them tried, during the 2008 financial crisis, to withdraw $7 billion of their investments, he couldn't meet that demand from his personal wealth of $300 million. The court sentenced him to 150 years in jail, and sentenced one of his sons to ten years, but permitted his wife to keep $2½ million. (His other son committed suicide.)

In 2014-15, a million investors lost a total amount of money equivalent to $7½ billion in a Ponzi scheme operating in China and promising 15% annual returns. This kind of thing is going on all the time nowadays in China. You can understand the basic reason why this kind of thing happens by reading the excerpts which I will offer to you in a few moments from William Shirer's autobiography, describing the great bubble of excessive financial investment in the USA in the late 1920s. The crowd-psychological thrill of achieving affluence in China nowadays is about like what it was in the USA in the "roaring '20s".

> **Footnote**: I have used two different terms, "pyramid scheme" and "bubble", to refer to the same kind of thing. The word "bubble" implies that there will inevitably come an instant when the bubble suddenly bursts. The term "pyramid scheme" is neutral as to whether the (inverted) pyramid will collapse *(a)* suddenly or *(b)* somehow in a more gradual way.

Bitcoin is a pyramid scheme. (I will say more about it in a moment.) And so also are, in a different way, the "**multi-level marketing**" (MLM) businesses. Even though distribution of commodified goods is part of an MLM business, it is like a Ponzi scheme if the participants have to recruit new participants in order to make money from it. The people who get in at the early stages of the scheme make money from the folks recruited at subsequent stages, but after a while, those who pay to join will never find enough new recruits to come out ahead. And yet, MLM businesses are, alas, legal in the USA. An example is "Amway", an ostensibly "patriotic" American firm marketing chemical products – shampoo etc. – for use in people's homes.

Top Swiss, German and Chinese banks are among the notorious 21st-century practitioners of "**spoofing**", a theoretically illegal method of generating pyramid-type enthusiasm for this or that "financial instrument" or commodity by publishing an ostensible agreement – with the intention *not* to honour it – to buy or sell the thing at a predetermined price at a specified time in the future. By creating thus an illusion of potential demand, spoofers generate crowd-psychology marketing-momentum for relatively worthless things.

In Holland in the 1630s there was a "tulip-mania" pyramid whereby single tulip bulbs were, in February of 1637, selling for something like ten times the annual income of a skilled craftsman. When asked in January of 2018 whether the Bitcoin mania was analogous to that tulip mania nearly 400 years earlier, Prof. Robert Shiller (a top expert on financial bubbles) gave a shrewdly cautious answer, saying that the analogy *is* valid, *but* "The [next] question is: Did that [earlier bubble really] collapse [*entirely*]? We still [do] pay [money] for tulips even now and sometimes they get expensive. Bitcoin might totally collapse and be forgotten, and I think that's a good likely outcome, but it could linger on for a good long time; it could [still] be here in 100 years." (One aspect of the analogy is that just as a tulip is only one kind of decorative flower, so also, Bitcoin is just one kind of use for "blockchains". (A blockchain is a kind of a public database securely recording financial, physical or electronic assets for sharing across on a network through transparent updates of information.) There will be better uses for blockchains, just as there are better flowers (than tulips) for expressing love.)

FOOTNOTE: In August 2018, *The New York Times* reported that "The value of all outstanding digital tokens has fallen by about $600 billion, or 75 percent, since the peak in January [2018], according to data from the website coinmarketcap.com". (See www.nytimes.com/2018/08/20/technology/cryptocurrency-investor-losses.html?.) The most notorious fact about Bitcoins and the like is that they are 100% merely *speculative* as a substitute kind of quasi-currency. No one anywhere in the world is *obligated* to accept them as payment for any commodity.

The losers in Ponzi schemes and the like are not people who have gotten into them after making judicious and well-informed analytical judgements about the matter. They are, instead, people who have been swayed by crowd-psychological enthusiasm. The idea has been talked up to them and they have been sold a bill of bads (the opposite of a bill of goods).

(2): I come now to legal financial speculation with real money causing an economic boom followed by a bust. The biggest example, so far, was in the USA in the 1920s, leading to the "Great Depression". On the next few pages are some excerpts from a description of it in the first volume of William Shirer's autobiography, *20th-Century Journey: A Memoir of a Life and the Times.*[3] To understand the first sentence in this set of excerpts, you have to know that the Wall-Street stock market – an indoor space on Wall Street in New York where shares of ownership of corporations are sold and bought – is called a "bull market" when purchasers are charging ahead like aggressive bulls and so the prices of most of the shares are rising. It is also helpful to know that during the (notably corrupt) presidency (1921-23) of Warren Harding, the "roaring '20s" of the affluent in the USA were kicked off by a "sugar high" of financial speculation in the form of tax cuts to the rich (e.g. lowering the top income-tax rate from 91% to 25%) and deregulation of banks and brokerage houses.

On September 3, 1929, the Great Bull Market had soared to new highs on the New York Stock Exchange. A fortnight later ... the market, after a slight setback,

3 That volume is entitled *The Start: 1904-1930.* The excerpts are from pp.473-482. Shirer was a journalist who wrote a good book about Gandhi and a classical historical account – more than 1000 pages long and selling millions of copies – of the short-lived German *Reich* (this German word, like the word "raj", means "empire") founded by Hitler.

had reached even higher levels. Then it had begun to slip again to what the brokers called "first-class bargain levels." U.S. Steel was down from 262 to 204. ... General Electric had fallen more than 50 points. "A good time to buy," said the pundits. But no one jumped in to buy, not even the wise-acres of Wall Street, and this was noticed in the press and picked up by the public. It was strange and depressing news. For nearly a decade the Great Bull Market had been going up and up, and by 1927 ... *there seemed to be no limits* [my italics].

That was the trouble. But very few realized it, and those who did were branded as positively unpatriotic if not downright un-American. "Be Bullish on America!" one brokerage firm exhorted in a newspaper advertisement, "Never Sell the United States Short!" exhorted another. The previous November (1928), Herbert Hoover ... had been elected President by a landslide [he was a benevolent man who had done important social work after World War I; the main other candidate in the election had been a Roman Catholic, and many people in the U.S. in those days were suspicious of people with that religious identity] and the news of his election had set off a spree of buying on the Stock Exchange that sent up prices to new levels. All through November new heights were registered and new records for [numbers of] shares changing hands....

This ... state of affairs among the grown-up citizens who handled most of the nation's money would continue for nearly a year.... Few noticed that as the volume of sales and the prices skyrocketed there was a tremendous increase of trading on margins and that they [the margins] were becoming thinner, as little as 10% on the purchase of a stock.

[Buying stocks and bonds "on margins" is somewhat like buying a house with a mortgage. The down-payment is called "the margin". If it is 10% of the purchase price, then the buyer still *owes* 90% to the broker, and if the buyer later falls behind in paying off that loan (and the interest on it), then the stock or bond is no longer his to sell, it *all* belongs now to the broker instead.]

"Buy now, pay later" was the slogan and it was ballyhooed not only for the purchase of stocks but [also] for buying durable goods on the instalment plan. Credit began to pile up astronomically. By summer 1929, brokers' loans to those who bought stocks on margin approached six billion dollars, twice the sum of 1927, and by October reached seven billions....

Everyone – from the President of the United States down to Cabinet members, business tycoons, big bankers and even professors – joined in the ballyhoo. When the somnolent Calvin Coolidge [the president before Hoover; people called him "Cool Cal"; he and Hoover were from the Republican Party] left the White House in March 1929, he was moved to observe that business was "absolutely sound" and that stocks were "cheap at current prices." The unsuspecting public did not know that he had been warned several times in his last two years in office by the Federal Reserve Board that speculation in Wall Street was getting out of hand.

Probably most people would not have paid attention if they had known [my italics]. The fever of speculation to get rich quick had spread over the whole land. It not only dominated people's minds and conversation and the news they read or heard, but the whole culture of the ... Republic. Whatever other values were deemed of worth

in our society, the one most deemed now in the closing frenzied years of the 1920's was making money – a lot of it, fast. This could only be done by "investing" in the stock market....

All the best minds in business and finance, even in academia, strongly recommended it. John J. Raskob, a director of General Motors, an associate of the DuPonts and Chairman of the Democratic National Committee, wrote a widely read piece in the *Ladies' Home Journal* entitled "Everybody Ought to be Rich." Who should know better than he, who had made himself rich and now wanted to share the secret. It was easy, he explained: save fifteen dollars a month, invest it in "good, solid common stocks," leave your dividends to accumulate [as additions to the capital investment], and lo! in twenty years you will have eighty thousand dollars [of capital] at a minimum and [hence] an income [in the form of at least 5% annual interest on that capital in your savings account in the bank] of at least four hundred dollars a month. "The way to wealth," he advised, "is to get into the profit end of wealth-production in this country."

Still, twenty years was a long time to wait. The more impatient ones, and they were legion, borrowed up to the hilt and bought on margin. Others, only slightly less patient, took advantage of a plan recommended by the inimitable Raskob and invested, say, a man's savings of one thousand dollars in market stocks but [also] purchased [stocks worth] another thousand dollars … on credit, all the stocks being posted as collateral [whereby you would, if you couldn't later pay the debt in cash, pay it by handing over the stocks to the lender]. As stocks soared, the modest man could sell his two thousand dollars in shares for, say, three thousand dollars and not only repay the debt but make a handsome profit. Then he could start all over again. It was taken for granted that stock prices would soar – forever.

Investment-trusts, like the market, boomed. Not only brokerage firms but the big banks leaped into this lucrative business. It seemed the perfect answer to the modest investors, men and women who had neither the time nor the facilities to "study the market." Instead of putting their money in specific stocks on the Exchange, they could do better, they were told, by placing it in the stock of an investment trust, whose managers, with a profound knowledge of the market and devoting their full time to it, would wisely invest it in various stocks on the board. For one thing, this meant that the small investor could spread his risk. But more important, his investment in stocks was being handled by experts. As the stocks on the market went up, so would the stocks of the investment companies. It was estimated that more than four million Americans channelled their investments through these companies. In 1928 there had been 186 investment trusts or companies. A year later there were 265. That year they sold three billions' worth of shares in themselves, or a third of all the capital issued that year. Just before the crash their total assets were in excess of eight billions. Most of this tidy sum would evaporate after the Wall Street debacle.

My brother, who was thinking of leaving his job as an economic statistician ... to go into teaching, was troubled by the complicity of so many university professors in the stock-market mania and subsequent crash. They had joined the bankers and brokers, he said, in the most idiotic forecasts of the golden future of those, of however modest means, who plunged into the market. They had outdone the slick financiers, he said,

in praising the wisdom, the downright genius, of the dubious money-handlers in Wall Street.

Many of the academicians had lent their names to mushrooming investment trusts as advisors or directors. Professor Edwin W. Kemmerer, the renowned monetary expert at Princeton, had become a director of American Founders Group, a conglomerate of investment companies, and Dr. Rufus Tucker, another academic wizard, had become its staff economist. But all their expertise had not prevented the Group's assets of a third of a billion dollars from evaporating after the crash, its [own] highly touted stock falling from seventy-five dollars a share in October 1929, to less than seventy-five cents....

Irving Fisher of Yale [University] ... was regarded as the most eminent economist of his time, the supreme American oracle, widely quoted in the press and on Wall Street on every occasion. Though my brother thought he was in other fields a brilliant economist, he also thought poor Fisher would be remembered most for his famous pronouncement just before the crash: "Stock prices," said the eminent man from Yale at that crucial moment, "have reached what looks like a permanently high plateau." The record of the Ivy League [the oldest and most eminent private universities, with ivy growing on the exterior walls of some of their buildings], in fact, my brother thought, was especially bad. Harvard even had its Harvard Economic Society which pontificated regularly on the state of the market and the economy. Even after the crash these Harvard economists were insisting that there would be no depression.

Two learned professors, my brother thought, had been particularly obnoxious. They had no patience with the grumblers who thought, as did the [the officials at the] Federal Reserve [Bank], that speculation was getting out of hand. Both published books forecasting the rosiest future for the market. Both books came out in 1929, the year the market was wiped out. My brother used to read to me a few choice quotes from their opuses. If the times had not been so sad I would have laughed.

There was, for instance, Joseph Stagg Lawrence of Princeton University, whose press published his book, *Wall Street and Washington*. Professor Lawrence couldn't forgive the Federal Reserve for trying to dampen speculation. He castigated the Fed's "bias, a bias founded upon a clash of interests and a moral and intellectual antipathy between the wealthy, cultured and conservative settlements on the seacoast and the poverty-stricken, illiterate and radical pioneer communities of the interior.... Blatant bigotry and turbulent provincialism had joined to condemn an innocent community." The professor's heart bled for "innocent" Wall Street. His mind boggled at the uncouth provincials from the "interior" who dared to question the genius of the money men. Wall Street, after all, he contended, was the focus "of the world's most intelligent and best-informed judgement of the values of the enterprises which serve men's needs." Up to the eve of the crash Professor Lawrence ... contended that "the consensus of judgement of the millions whose valuations function on that admirable market, the Stock Exchange, is that stocks are not at present over-valued.... Where is that group of men with the all-embracing wisdom which will entitle them to veto the judgement of this intelligent multitude?" [This argument of Prof. Lawrence's is like the one for which Hayek would be awarded in 1974 the "Prize in Economic Sciences in Honour of Alfred

Nobel". According to Hayek, the market-price system is the only feasible way of coördinating the economic information that is dispersed among the various agents in a modern society.] Where indeed? There were not many with even a little wisdom. One of the few, my brother told me, had been banker Paul M. Warburg, who that spring had called upon the Federal Reserve to restrict the lending of money to banks for speculation on the market. Unless the mania for speculation was halted, he warned, there would be a disastrous bust. It would not only ruin the market, he added, it "would bring about a general depression" [i.e. with a substantial decline of industrial production of commodities and hence with mass unemployment]. Warburg was derided by those who said they knew best. He was accused of "sandbagging American prosperity." So was Roger Babson, the eccentric statistician and forecaster, who once had been bullish about the market and the economy but who in the fall of 1929 was falling prey to doubts – and expressing them. On September 5 he had told the Annual National Business Conference that "sooner or later a crash is coming, and it may be terrific." He went even further, to the consternation of his listeners and those on Wall Street who read his doleful forecast the next day. He predicted something worse than a stock-market crash. "Factories will shut down," he warned. "Men will be thrown out of work ... and the result will be a serious business depression."

My brother thought that Babson's dire warning was taken more seriously in the country than was generally admitted. It made some stop and ponder. But Wall Street denounced him even more vehemently than it had Warburg.... [Crowd-psychology at work!] Wall Street preferred the honeyed words of the professors. Besides Lawrence of Princeton and Fisher of Yale there was Professor Charles Amos Dice of Ohio State University, who also published a book that last year of wonderland, *New Levels in the Stock Market*. Professor Dice thought they were just about right and would continue to rise. The ignorant forgot, he maintained, that there was taking place "a mighty revolution in industry [this thought was an anticipation of Solow's insight about technology], in trade and in finance" and that the stock market was but "registering the tremendous changes that were in progress." Professor Dice's prose, my brother said, could become awfully purple whenever the good man thought of the dazzling future in America. He was especially worshipful of the big plungers, men largely from the automobile industry, who in 1928 had thrown tens of millions [of dollars] on the market and shot up the prices of shares, Professor Dice was lyrical about their "vision for the future and boundless hope and optimism...."

The break on Wall Street, my brother told me in recounting what had happened, came on Thursday, October 24. The great crash followed on Tuesday, October 29 – "Black Tuesday," it was called, though a good many gave the Thursday the same coloration. It had been black enough.

The market had opened steadily [on Thursday the 24th] and then suddenly it had broken. Hundreds of thousands of shares of the best companies were dumped on the floor for sale. Prices fell off, and then plunged. By 11 o'clock there was a stampede to sell at any price.... No one knew at any moment what the prices were, and they feared the worst. Panic ensued. The traders ... threw hundreds of millions [of dollars' worth] in stocks on the market. Down and down went the prices: U.S. Steel from

205½ to 193½, General Electric from 315 to 283, ...and these were the blue chips [i.e. well-managed firms using modern technologies to produce high-quality commodities]. The life savings of many, the wealth of the few, were fast melting away.

Frightened by the debacle, New York's leading bankers met hastily at the offices of J.P. Morgan. Morgan himself was in Europe. Thomas W. Lamont, his senior partner, presided. They agreed to put up $40 million apiece for a pool of $240 million to, as they put it, "stabilize the market." Lamont explained the action to reporters.... "There has been a little distress selling on the Stock Exchange," he said, and explained that this was due to "a technical condition of the market" rather than to any fundamental cause. He thought the situation would improve. And indeed it did. Word that the country's leading bankers were supporting the market with their millions rallied the Exchange. Prices stopped tumbling. Some started to go up. America's great and wise bankers had saved the market and stopped the panic. Everyone was grateful and before the day was done the incurable optimism of the men of money began to surface again. Thirty-five brokers ... issued a joint statement that, despite all that had happened, "the market was fundamentally sound," in fact "technically in better condition than it has been for months." Bankers and business tycoons offered similar statements of assurance. Even President Hoover chimed in (by request of the bankers...) to assure the country that the "fundamental business of the country ... is on a sound and prosperous basis."

On the following Friday and Saturday, though trading was brisk, the market held firm. Everyone believed that the panic was over and that prices would resume their upward trend. The belief lasted only over the weekend.

Monday, October 28, turned out to be another disastrous day. General Electric fell 47½ points, Westinghouse 34½, A.T.T. [i.e. American Telephone & Telegraph] 34, U.S. Steel 17½. This was worse than Black Thursday. Again the bankers met at Morgan's. But this time they realized that not even their millions could stem the swirling downward tide. They were all over-committed themselves and would have to join in the selling. The blind forces of the market, of fear and panic in the country, were stronger than the resources of the big banks.

When it was learned that the bankers had thrown in the sponge, what followed the next day, Tuesday, October 29, was inevitable.... There was a wave of wild selling as soon as the Exchange opened. Huge blocks of stocks were ... [offered for sale] ... to fetch what[ever] they could.... One bright messenger boy ... bid one dollar for a stock that had been listed at 11 the day before, and got it. [N.B. Where the stock in such cases was of companies that had genuine value, this was the opposite of a galloping inflation.] The floor of the Exchange was in chaos. Members of its Governing Committee holding an emergency meeting in a room under the floor could hear, they said, the panic raging overhead. But there was nothing they could do.... Sixteen and a half million shares were traded....

...After a flurry [during the next two weeks] of brief rallies, the market hit rock bottom for the year on November 13.... The ... averages of fifty leading stocks, which had stood at 312 on September 2, closed at 164, down by almost half [in six weeks]. Averages of twenty-five leading industrials dropped by even more, from 469 to 221....

The ... bubble had burst. But how much else was realized by late autumn after the Wall Street crash? Not much else.... It would take a year or two before Americans comprehended fully that the dizzy post-war era [the so-called "Roaring 20's"], with all of its [economic and political] illusions and all its foolishness, had ended and that hard times lay ahead [for many would-be-labourers and their families]. So many had come to take prosperity for granted, *even though the vast majority of Americans had never shared in it* [my italics]. It had become a way of life for the lucky. When it suddenly ended they were bewildered and lost. Many were shattered.

"Prosperity [an historian would write later] ... is more than an economic condition; it is a state of mind. The Big Bull Market had been more than the climax of a business cycle; it had been the climax of a cycle in American mass thinking and mass emotion. There was hardly a man or woman in the country whose attitude toward life had not been affected by it in some degree.... Americans were soon to find themselves living in an altered world."

In the Depression that ensued they had time to reflect on why the bubble burst. The country had hastily erected a gigantic business and financial edifice on shifting sands. Credit had expanded recklessly, as had speculation *and production* [my italics]. More goods were now being produced than people had the money to buy. The combined purchasing power of the masses was not nearly enough to absorb them. Wages and salaries would have had to be raised and prices cut to achieve this, but they were not. Wages were kept low, and prices high. Even Hoover would later see this – when it was too late. Looking back he thought "the debacle was largely contributed by a failure of industry to pass its improvement (through labour-saving devices) on to the consumer."

New machinery and more skilled workers [Incidental query: Can education indeed be a major factor of production, along with capital, technology and amount of labour?] had increased the output of American labour by more than a third in the 1920's, and in such industries as automobiles by three times. But the manufacturers had kept the swollen profits, and after looking out for themselves with handsome salaries and bonuses, they had thrown much of the remainder into the feverish market. Between 1923 and 1928, for example, the index of speculative gains leaped from 100 to 410; that of wages rose only from 100 to 112. The chief problem of the American economy had become not production but consumption. Few Americans apparently realized this. Nor did most people, victims of the myths of "rugged individualism" and "competitive free enterprise" as they were, see that finance capitalism had largely replaced industrial capitalism in our country....

Prosperity to be real and lasting had to be shared. *But the mass of our people* [in the U.S.] *got only the crumbs* [my italics]. The fantastic rise of the stock market and its sudden crash in the fall of 1929 had not directly affected *them*. *They* [my italics] were too poor. They had no money to invest or gamble. I simply could not believe what my brother told me about poverty in America [in the 1920s]. I had not realized that most of our people had not benefitted from our renowned "Coolidge-Hoover Prosperity." The stark facts, which my brother proceeded to relate, and which I later checked when all the figures were in, were incredible. All through the giddy twenties we had had ... poverty in the midst of plenty....

In 1929, after a decade of the greatest prosperity the country had ever had, I now learned some somber facts. The most surprising one was that in that golden year, 60% of all American families lived below the poverty level. Their income, that is, was under $2000 a year, the level then generally held ... to be just enough to provide the basic necessities of life [i.e. equivalent to Ricardo's theoretical "natural wage"]. Only a little over 2% of American families had incomes of more than $10,000 a year and they accounted for two-thirds of the country's total savings [i.e. money in banks]. Next was a cluster of 8% who received more than $5000 a year....

So, the *immediate* losers from the panic when the bubble of financial enthusiasm was punctured were not poor people, but people who had had at least *some* money to play around with. When they lost out, they tightened their belts and consumed less; this reduced demand for commodities, and that in turn caused producers to reduce the number of labourers they were willing to hire; and so there was far too much unemployment – the Great Depression. It is beyond the scope of this lecture (which is about money and not about *every* aspect of modern economic, social and political history) to show how the economic bust led to the Second World War and thus to a lot of death and devastation and to the invention and use of atom bombs. Let us, instead, recall what I said in the previous lecture about Keynes's proposed "demand-side" method of stimulating a resurgence of production and hence of employment in the economy: namely, for the government to issue a sizable batch of fresh money and give it away to poor people – people who *really* don't have enough commodities – so that they will very soon spend it, not in a hope of "keeping up" with other people or of getting rich by investing, but just to meet their basic real needs.

> **FOOTNOTE**: Friedrich von Hayek said in 1931, in the question period after a lecture he gave at Cambridge University, that when consumers spend money to buy useful things, this causes ***un***employment! He was mistaken.

This theory of Keynes's was linked to his rejection of the accepted doctrine (in late 19th- and early 20th-century neoclassical theory) that productive investment depends only on low interest-rates for borrowing to finance the investment. Keynes said that such a doctrine is tantamount to believing that you can "push with a string". The effective "pull", he said, is the investors' entrepreneurial hopes and expectations of selling their products and thereby profiting. (I have used the word "entrepreneurial" to remind you implicitly that "animal spirits" are indispensable to investment. "*Entreprendre*" is the French word for "undertake".)

> **FOOTNOTE**: The U.S. government did not merely give money to poor people, but also *hired* millions of them (in the "New Deal" of Franklin D. Roosevelt, who in 1933 succeeded Herbert Hoover as president) to do *constructive work* providing communities throughout the nation with new parks, bridges, post-office and school buildings etc. When the biggest such programme, the "Works Progress Administration" (WPA) was started in 1935, the US government spent more than 6% of the nation's GDP on it. (Less than 1% of India's GDP is spent on MGNREGA projects.) The WPA was terminated in 1943 when there was an overall shortage of labour in the USA due to lots of military and civilian employment for the war effort.

Another footnote: In regard to money, the gist of "New-Deal" economic thinking had been set out in a speech which FDR gave in 1932. He said: "[O]ur basic trouble was not an insufficiency of capital. It was an insufficient distribution of buying power coupled with an over-sufficient speculation in production.... In the future we are going to think less about the producer and more about the consumer. Do what we may have to do to inject life into our … economic order, we cannot make it endure for long unless we can bring about a wiser, more equitable distribution of the national income.... The country needs and, unless I mistake its temper, the country demands bold, persistent experimentation." According to a savvy witness, this text (ghost-written for FDR by Ernest K. Lindley) became "a kind of watchword for the New Deal program" with its "emphasis on purchasing power for consumers rather than accumulation of capital for the producers".

A big question *today* is whether that economic lesson of the 1920s has been, in effect, forgotten by so many present-day investors that there is nowadays a risk of crowd-psychological excessive financial enthusiasm (and hence a risk of a crowd-psychological panic later on) like there was in the USA back then. I will offer some evidence that there *is* such a risk – and not least in the USA:

(Recent electronic techniques of professional financial dealing are conducive to weird financial jags. On one fine day in May of 2010, for instance, U.S. stock prices fell by an average of nearly 10% within half an hour, but then recovered rapidly.)

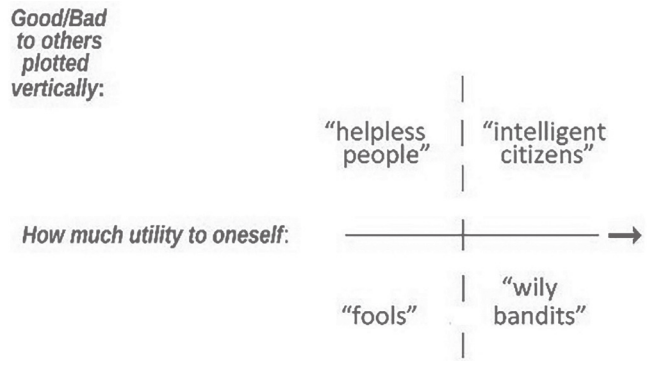
I should mention here that in reference to bonds, the term "yield curve" means a curve on a graph plotting duration-until-maturity (this is normally done on the horizonal axis of the graph) against interest-rate. You would routinely expect that if the duration until maturity is long, i.e. if the money is lent for a long time (say, for ten years), then the annual interest rate would be higher than if the duration/loan is for a short time (say, two years), because *(a)* the money is being of service to the borrower for a greater amount of time, *(b)* there is more exposure, time-wise, to risk that the borrower might default on paying back the main part of the loan, and *(c)* inflation of the currency could well be expected to cause the value of that original nominal sum to decline more over a long period than over a short period. If, however, there are a lot of potential lenders flush with vast heaps of cash and not knowing how to invest it profitably in some kind of productive economic activity (or in war profiteering), and hence very eager to lend it out for a long time, then by the Law of Supply and Demand (in this case, supply of and demand for monetary capital), those potential lenders may compete with each other by offering to loan at an even lower annual rate for ten years than for two (so that they don't have to scurry about, after just two years, in search of another way to earn profit without doing any work but merely by lending). The resulting "inverted yield curve" – showing that the annual rate of interest paid on long-term bonds is lower than on short-term ones – is considered, on the basis of 20th-century historical facts, to be a strong indication of a looming economic recession or depression. An inverted yield curve appears likely to occur soon in the U.S. financial markets. (I am writing this paragraph in January of 2019, i.e. hardly more than a decade after a big mortgages-bubble burst in the U.S.)

But of course the next crash is always most likely to be due to some particular systematic vulnerability which the "smart guys" have failed to notice or take account of.

Investment behaviour nowadays on Wall Street seems clearly to be based less and less on predictive assessments and more and more on emotional reactions to an encouraging or discouraging incident or remark.

Yale University professor Robert Shiller, who published in 2007 an article entitled "Bubble Trouble" about the housing market in the U.S., has ever since the 1980s been calling attention to irrational exuberance in stock-market dealings, as evidenced by *(a)* surveys (which he has conducted) of what investors and stock traders say about their motivations for making trades, and *(b)* their willingness to pay, sometimes, very high prices for stocks with remarkably low earnings.

Notice that the time span for a stock-market bubble to get puffed up and burst is likely to be a few decades, i.e. somewhat longer than it takes a Ponzi scheme to collapse. This time-span aspect of the matter is important. If the span is very short, then a rudimentary graph such as shown below may be a way to plot assessments of the "utility" of various individuals' behaviour. On the (horizontal) x-axis is plotted an overall quantitative assessment of how much utility the individual's behaviour is regarded as reaping somehow for himself or herself; the dashed vertical line in the middle represents a hypothetical border between *doing not enough* vs *doing enough* for oneself. On the (vertical) y-axis is plotted the assessment of the balance of good or bad which the individual's behaviour is causing to other people. "Intelligent citizens" are doing lots of good to themselves and good to others; "wily bandits" are ruthlessly helping themselves while hurting others: the "fools" are hurting others without even doing much good for themselves. The relatively "helpless people" are doing good to others but not enough for themselves.

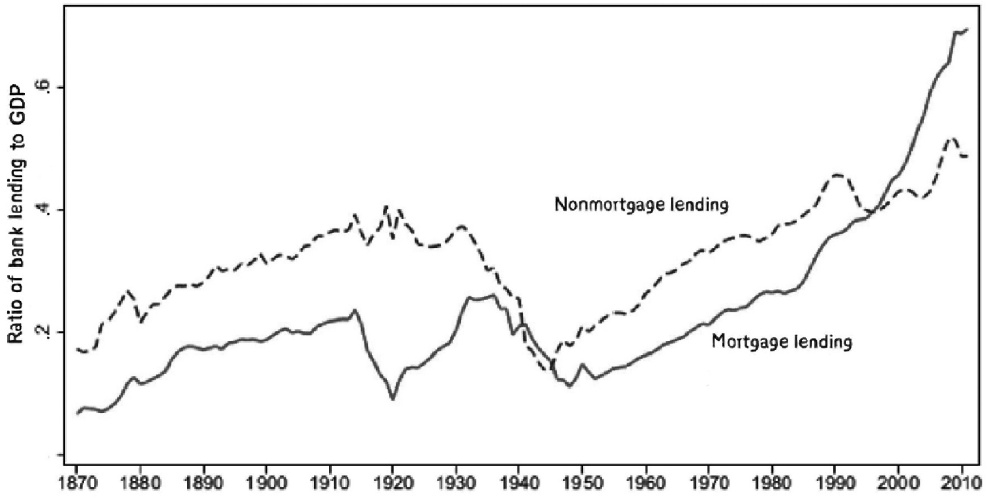


As the time span lengthens, some at least of the wily bandits may be seen in retrospect as having been foolish to carry on in the same way, as the harm is likely to boomerang back onto them or their children in one way or another. (Quite a few of them committed suicide in the USA in 1929.) And also, as the time span becomes longer, it may become likely that a modicum of the good which the "helpless people" carry on doing to others will boomerang back onto them (since humans like to reciprocate), thus shifting their position rightwards toward or even into the "intelligent citizens" quadrant of the graph.

Later in this lecture, I will focus on the fact that the worst effects of *long-term foolishness vis à vis the natural environment* are likely to be more acute for one's children and

grandchildren, and for their contemporaries, than for oneself. But let us first see some additional examples of evidence of 21st-century risk of excessive crowd-psychological financial enthusiasm leading to more so-called "Black Swan" (i.e. theoretically impossible) market crashes.

According to fairly recent studies (undertaken because of the financial crisis of 2008) by Alan Taylor of the University of California and Moritz Schularick of the West Berlin *Freie Universität*, a newly constructed historical data-set for several developed countries shows that today's advanced economies depend on private-sector credit more than ever before (excessive credit-growth is a powerful predictor of financial crises); and, leverage in the financial sector increased strongly in the second half of the 20th century: there has been a decoupling of money and credit aggregates [i.e. totals], and a decline in safe assets on banks' balance sheets. Here is a graphic summary of some of the data published by Taylor and Schularick:



Mortgage (residential and commercial) and non-mortgage lending to the business and household sectors. Average across 17 countries.

According to Steve Keen, the author of *Debunking Economics: The Naked Emperor of the Social Sciences* (2001), we live now in "a credit-money system which has had a relatively small and subservient fiat money system tacked onto it". (By "fiat money", he means that it isn't in the form of precious metals like gold and silver. Instead, governments print it or otherwise issue it, using their constitutional authority to declare that it's "legal tender", i.e. that people have to accept it for payments. We'll discuss this in the fourth lecture.)

Two of the top academic economists in the U.S. in the 1920s, Irving Fisher and Frank Knight (Milton Friedman's teacher), had pointed out, back then, that it is dangerous that banks can lend far more money than they have in deposits. This is called "fractional-reserve" banking. The danger which Fisher and Knight had in mind is the one which materializes if a lot of the depositors panic and want to withdraw their money immediately.

FOOTNOTE: Friedman agreed about this in 1960, but later ostensibly changed his mind as it became clear that the argument would remain distasteful to powerful people such as had funded his career in the 1940s. Upon studying his career in depth, you could find some other examples of intellectual dishonesty.

According to the most successful recent American financier, Warren Buffet, big short-term purely financial transactions frequently act as an "invisible foot" kicking the society in the shins. According to an experienced hedge-fund manager, Nicholas Taleb (2001), the modern stage of globalization has created an internationally interlocking kind of financial fragility while giving a deceptive appearance of stability, and thereby gives rise to economically devastating "Black Swans". According to John McMurtry, in *The Cancer Stage of Capitalism* (1999), a "pure" $\$^1 \rightarrow S^2 \rightarrow \$^3$... circuit (with no use-value production between transformations of money into more money) became in the 1990s the dominant form of capital investment. And, Robert Reich (a professor of economics in California who served in the 1990s as the U.S. federal government's Secretary of Labor) has correctly noted that buying and selling stocks and bonds merely in order to beat others who are buying stocks and bonds is – unlike investment in the production of commodities – bound to be a zero-sum game, wasting resources and subjecting financial markets to unnecessary risk. And yet the most powerful late-20th-century American economist, Alan Greenspan, said in 2000 that the new "financial products" which had been created in the last decade of the century – "derivatives" etc. – contributed "economic value" by reallocating risks "in a highly calibrated manner". The rising share of finance in the "business output" of the USA and elsewhere was, he said, a measure of the economic value added by the ability of those new instruments and techniques to "enhance the process of wealth creation".

Greenspan was from the main *non-academic* centre in the USA (i.e. the personal circle of his mentor, Ayn Rand) of ideological opposition to government trimming the sails of "free enterprise". The main *academic* centre has been the University of Chicago, which hosted Milton Friedman, Fredrich von Hayek and Robert Lucas; but now, Luigi Zingales, who is the University of Chicago's "Professor of Entrepreneurship and Finance" and who recently served a term as president of the American Finance Association, has posted a text entitled "Does Finance Benefit Society?", pointing out that contemporary academic economists' view of the benefits of finance "vastly exceeds societal perception" and saying that this dissonance "is at least partly explained by an under-appreciation by academia of how, without proper rules, finance can easily degenerate into a rent-seeking activity".

Given all this evidence (and a lot more could be cited) that there is substantial risk of a 21st-century "Great Depression" pretty soon, what would be a good way to curtail the risk?

Keynes had proposed in 1936 "the introduction of a substantial [U.S.] government transfer tax on all [Wall Street] transactions ... with a view to mitigating the predominance of speculation over enterprise in the United States", and a year later he extended the idea to a multinational and international context.

James Tobin proposed (in 1972, and then on several occasions thereafter) a small tax on all "spot conversions" of one currency into another, in order to "cushion" exchange-rate

fluctuations: "...let's say, 0.5% [i.e. half of one percent] of the volume of the transaction. This dissuades speculators as many investors invest their money in foreign exchange on a very short-term basis.... My tax would return some margin of maneuver to [currency-]issuing banks in small countries". Tobin saw that "National economies and national governments are not capable of adjusting to massive movements of funds across the foreign exchanges, without real hardship and without significant sacrifice of the objectives of national economic policy with respect to employment, output, and inflation." In 2009 Joseph Stiglitz said that modern technology could render the implementation of such a "Tobin tax" more feasible than in the previous century. In that same year Britain's top financial regulator (under a Labour Party prime minister who lost the next election) advocated the adoption of a comprehensive financial-transactions tax, and Paul Krugman in the U.S. said this "could be part of the process of shrinking our bloated financial sector". But the idea was scotched by influential friends of the bloated financial sector in the U.S.

During the Great Depression, New-Deal measures to prevent giant future financial bubbles had included the "Glass-Steagall" legislation (often mentioned in recent discussions of the matter). After World War II, the protections were gradually chipped away by loopholes and lenient regulatory interpretations in the executive branch of the U.S. government. In 1999 (during Bill Clinton's presidency) there was a further, legislative weakening of them. The financial disaster of 2007-08 led to a partial restoration of protective measures during Barack Obama's presidency, but now the trend under President Trump has been to remove American-government restrictions on reckless financial speculation.

(3): The third kind of dangerous pyramid in 21st-century economic life is one which never before existed on such a world-wide scale as it is now beginning to do. Not even the smartest of the "demand-side" economists (such as Keynes) imagined that anything like this third kind of pyramid could ever materialize. However brilliant the historical "demand-side" methods of relieving mass unemployment may have been, they do *not* address the insidious problem of this kind of pyramid. ("Insidious" means that it sneaks up on us.)

Back in the 1920s, a Nobel Prize laureate in chemistry, Frederick Soddy, saw a dangerous mismatch between ***(a)*** the potentially *infinite* amount of money being generated by fractional-reserve banking (banks lending far more than they have in deposits), and ***(b)*** the *finite* amount of Earthly natural resources which the money can be spent to pay for using up or destroying. He said: "Debts are subject to the laws of mathematics rather than [to the laws of] physics. Unlike [real material] wealth [i.e. the things we make out of the natural resources which are our heritage from the Earth], ...debts do not rot with old age and are not consumed in the process of living. On the contrary, they grow at so much percent per annum, by the well-known mathematical laws of simple and compound interest." As a savvy chemist, he knew that there are *limits to the amounts* of this and that economically useful chemical that the Earth can provide (if we know where to find it) for our use in our techniques of creating modern material wealth.

(Indeed, in some cases the limits are due to the fact that what the Earth provides is a nonrenewable "bucket" of this or that mineral. This is, in effect, true of fossil fuels,

as it takes the Earth hundreds of millions of years to produce them; and it is also true of various important mineral ores, such as the ores *(a)* for the copper used in electric wiring, *(b)* for the phosphate used in artificial fertiliser, etc., etc. The problem becomes serious when we begin to approach the bottom of the bucket. (For instance: as much as half of all the copper ore remaining on Earth as of 2015 will have been dug out by 2050 if all the windmills which the U.N. says we ought to install and link to the electricity grids by 2050 (for the sake of "green energy") are indeed installed and linked. The only alternatives to copper for use in the dynamos in the windmills and in the wires linking them to the grids would be silver and/or aluminium, neither of which is (for various reasons) feasible for such use on such a massive basis. All the money that all the governments may care to issue can't change this material fact.)

A conceptual pitfall lurks in the term "natural capital". Economists using the word "capital" will always think, implicitly even if not explicitly, in terms of $\$^1 \rightarrow \$^1 \rightarrow \$^2 \rightarrow \$^2 \rightarrow \$^3$..... with $C^n > C^{n-1}$, i.e. with clever uses of monetary capital leading to the creation of more and more additional monetary capital. But nothing like that is the case with nonrenewable so-called "natural capital" like copper ore etc. etc. It would be better to call those things "natural endowment". "provided the sinews of war for the most colossal and destructive conflict in history"

(When it comes to *renewable* kinds of natural endowment, there may be little danger as long as we use them up (or destroy them) slower than they're being renewed. In regard to many of them, however, the opposite is the case nowadays, and indeed globally as well as locally. But to go into all that here would take me too far away from the topic of money; so let me come back now to Soddy and his insight.)

Frederick Soddy said that a conceptual "confusion" between debt and material wealth was already, in the 1920s, making "a tragedy of the scientific era". He had heart as well as brains; he was dismayed that science had, he said, "provided the sinews of war for the most colossal and destructive conflict in history" (he meant World War I) but had "not yet abolished poverty and degrading conditions of living from our midst in the piping times of peace."

He was relentlessly nasty about professional economists. He would say things like: "Orthodox economics has never yet been anything but the class economics of the owners of debts. If its writers ever attempted any wider social applications, they made themselves simply ridiculous, as when one [of them] solemnly looked forward to the millennium arriving [i.e. paradise on Earth] through the accumulation of so much [monetary] capital that everyone would be well off and comfortable, presumably by living on the interest of their mutual indebtednesses." So they ignored him, even though his basic insight was correct.

According to the World Bank (in 1992), once the level of monetary incomes has become high, further growth of GDPs – i.e. further spending of money – leads to environmental improvement. This is an ideologically convenient but dangerous half-truth. The other part of the truth is that people who spend lots of money tend thereby to spend lots for using up natural resources.

(A recent example is that Japan, Germany, Britain, France and Italy each burned more coal in 2013 than in 2009. Their aggregate increase was 16%. Not to mention that

Chinese corporations are now (according to a report in *The New York Times*) building or planning to build, at home and abroad, more than seven hundred new coal-fueled plants for generating consumable energy.)

It is politically important to recognize that the two factors of *(a)* size of the population (now that it is so big) and *(b)* per-capita rate of damage to the capacity of the natural environment to support the population (now that this rate of damage is so high) are of *equal importance*, quantitatively, in determining the *total rate* of damage to that capacity. The rate of material throughput with its damaging effects on the capacity of the natural environment to provide humankind with vital services is equal simply to the product of the two factors. To suppose that one is more important than the other is mathematically idiotic. To head in the direction of a sustainable economy, humankind will (IMHO) have to have a substantial decline – preferably nonviolent – of population *and* a substantial decline in the rate of per-capita damage to the capacity of the environment to support the population.

I come now to the issue of time span with regard to this 3rd type of pyramid. I have said that Ponzi schemes tend to crash within a matter of years, and that macro-economic financial "bubbles" (this is the other metaphor for such long-term-unsustainable economic trends driven by crowd psychology) tend to burst within a few decades. When it comes to this 3rd kind of pyramid – the kind that Frederick Soddy worried about – the tipping-point is likely to occur, not just a few decades after the time when the construction of the upside-down pyramid had begun, but after, say, a few half-centuries or something like that.

In the earlier stages of building up the great modern pyramid of this kind – during the first half-dozen or so "days" of what Gandhi said in 1909 would be the "nine days' wonder" of modern Western civilization – no danger of an eventual tipping-point was seen. The hidden danger was insidious.

> **FOOTNOTE**: Jared Diamond's brilliant book *Collapse*: *How Societies Choose to Fail or Succeed* (2005; if you google it you can find talks about it and some ways to download it) describes how various earlier civilizations collapsed because of environmental degradation. But their economies were nowhere near as thoroughly monetarized as ours, so their stories belong in a lecture on the history of bygone civilizations, rather than in a lecture on money.

In this our ongoing history of modern monetarized civilization, when a danger of ecological collapse first began to become widely sensed, and concerns about global environmental degradation therefore began to be expressed more often than back in Frederick Soddy's day, doctrinaire market economists – professors whose training had not been in sciences like chemistry, geology, mineralogy, meteorology, epidemiology etc., but only in the market-economic science of how "Money makes the mare go, and the mare goes!" – began to make statements in the following vein:

"It is vain to [try to] provide [anything] for the needs of [future] ages the technical abilities of which we cannot even dream." (Prof. Ludwig von Mises, 1949)

"The conservationist who urges us 'to make greater provision for the future' is [always] in fact urging a lesser provision for posterity." (Prof. Friedrich von Hayek, 1960)

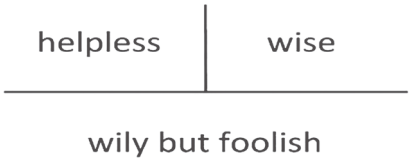
"Advances in fundamental science have made it possible to take advantage of the uniformity of matter/energy – a uniformity that makes it feasible, without pre-

assignable limit, to escape the quantitative constraints of the Earth's crust." (Profs. Harold J. Barnett and Chandler Morse, 1963)

"The world has been exhausting its exhaustible resources since the first cave-man chipped a flint, and I imagine the process will go on for a long, long time." (Prof. Robert Solow, 1974)

They were whistling in the dark!

However, there is a psychological difference between a fear about something very bad possibly happening *(a)* one or two years or even decades from now and *(b)* a half-century or century from now. In the latter case you're mainly afraid of something possibly happening, not to you yourself, but only to your great-grandchildren … or grandchildren … or children (and other people's). A fear about dangers to children as yet unborn is likely to be less impressive than a fear about dangers to children whom we can see and hug. Do we really care about where an imaginary future visitor from another part of the Universe (or the God to whom we pray) might locate 21st-century Humankind as a whole on a chart such as the following? –



Can money be used to curtail the growth of this 3rd kind of pyramid so that it doesn't reach a "tipping point" and collapse? I will discuss that issue mainly in the lecture on money and governments, after first considering (in the lecture right after this one) money and inequality.

A take-away point from this lecture should be a modified version of an insight of the leading British economist a hundred years ago, Alfred Marshall: that "Every change in social conditions is likely to require a new development of economic doctrines." The modified version is: "**Every big change in social *and/or* material conditions may call for innovations in economic theory**." I add the word "material" to allow for what was, rightly, worrying Frederick Soddy: the diminishing ratio between *(a)* how much indispensable "natural capital" the Earth provides and *(b)* how much money can be spent, by and by (and with no limit), on destorying that natural material heritage.

Maybe your neoclassical teachers have never mentioned to you Frederick Soddy's insight. And yet **Humankind will need to develop, gradually but unmistakably in this century, a new kind of crowd psychology** – grossly neglected in neoclassical theory until quite recently – based on regional, national *and* international willingness to coöperate in the face of environmental dangers faced by everyone together. Big-time coöperation can, however, be very fulfilling. It's part of human nature to coöperate. Ask your teachers to study modern psychology and teach you about that.

Appendix 1: Here is a rough list of ten ways that Humankind is nowadays causing a precipitously destructive degradation of its natural environment:

(1) Climate changes that are beginning to play havoc with agriculture (for instance in India) and to bring us more and more destructive storms. This will get worse. How much worse will depend on what is done *soon* to mitigate the amounts of "greenhouse gasses" in the air. Climate change is now beginning to cause fiscal problems for governments of cities and states vulnerable to extreme weather events and to natural disasters made worse by global warming. The costs of local *relief measures* after such disasters – in, *for instance*, Miami, New Orleans, New York…, Kochi, Mangalore, Mumbai, Kolkata etc. devastated by floods (not to mention any villages) – may well overwhelm government budgets before you reach my age. (I have referred merely to relief measures. Rehabilitation, if feasible, would cost far more than mere relief.)

The U.S. government's National Oceanic and Atmospheric Administration has estimated the monetary cost of weather disasters (hurricanes, tornadoes, hail, flooding, wildfires, drought) in the USA in 2017 at $306 billion – an amount which is, roughly speaking, about half of the USA's current rate of military expenditures per year. The previous highest such figure had been $215 billion for 2005. An ounce of prevention is worth a pound of cure.

> ***Scientific interlude*** (see https://www.hindustantimes.com/science/nasa-s-new-tool-predicts-which-city-will-flood-first-from-global-warming/story-mLiq4IBqZgIC3tCZ65vBhL.html**:** Almost 75% of the world's freshwater is stored in glaciers and ice sheets. So, their melting, due to global warming, is a major contributor to rising seas, which erode coasts and can fuel storm surges and flooding. Under the high-emissions scenario for greenhouse gases, sea level will rise by 0.5 - 1.3m by 2100…. If 1.0m, then the Indian subcontinent is likely to lose *14,000 square km* of land**.** Some 40 million people in India will meanwhile be at risk from sea-level rise by 2050, with people in Kochi, Mumbai and Kolkata, for instance, at high risk. (Vulnerability is calculated not just by sea-level rise but also by the lives and property at risk, which puts densely populated cities at a higher risk-estimation than smaller coastal towns.) The other major cause of sea-level rise is the thermal expansion of ocean waters. Water expands on heating, and there has been a marked rise in average global temperatures of oceans since pre-industrial times.

(2) Rashly executed landform modifications rendering terrain densely inhabited by humans dangerously vulnerable to destructive flash-flooding. (And I should mention here the "urban heat-island effect" whereby warmth emanating upwards from big cities into the local atmosphere causes a buildup of local rain clouds and, meanwhile, concentrated urban air pollution allows raindrops to coalesce around dust and oil particles, causing those local clouds to dump rain on the cities below them.)

(3) Depleting the stock of ores, and thus dispersing the Earth's economically valuable mineral resources (other than the fossil fuels) at such a rate that the cost, in terms of consumable energy, of re-concentrating (from landfills etc.) re-purifying the mineral substances for repeated industrial use may become prohibitive in a matter of decades.

(4) Depleting Earth's "nonrenewable" (in effect) stock of fossil fuels – the main sources of our consumable energy – at a rate bound to cause them all to be completely exhausted in a matter of decades from now.

(5) Using up the *renewable* natural resources faster than Earth renews them. Some examples are the wood and greenery in forests, the biotic micro-nutrient components of agricultural soils, rivers no longer flowing as far as the sea, and water-tables sinking deeper and deeper underground. (According to the BBC, Cape Town may soon "become famous

for being the first major city in the world to run out of [fresh] water". How about Bangalore and Hyderabad?)

(6) Environmentally damaging *displacements*, not only of H_2O from glaciers to the ocean (I have mentioned this above under the heading of global warming: Good-bye, Bangladesh!), but also of SiO_2 (i.e. sand) from *(a)* beneath the topsoil in river valleys to *(b)* our pavements, walls, etc.

(7) Polluting our soil, water and air: stocking them with excessive amounts of chemicals that are poisonous to eat, drink or breathe. Very many kinds of pollution are happening nowadays. Newfangled kinds of poisoning will stalk the land if insidious and deadly combinations of this and that kind of pollution are not curtailed.

(8) Causing extinctions of biological species at a rate which could risk the survival of our own species (*Homo sapiens*) within a century or two. According to the Living Planet Index, global populations of fish, birds, mammals, amphibians and reptiles declined by 58% between 1970 and 2012. (That's not extinctions but it is nonetheless an astonishing and important statistic.) According to a qualified ecologist, Peter Sale (in a book published in 2011), by the end of this century, "Most larger species (coyote size and up), other than those directly cultivated by humans, are likely to be extinct or to exist only as threatened populations.... Environmental goods and services [to humankind] will be much reduced simply because of the loss of diversity of organisms. With the increased homogeneity, there will be a much greater risk of pandemics that severely impact particular species and create massive change in ecosystem composition as a result. The risk of a species-extinction that has major ramifications through the ecosystem will become ever greater as diversity falls, and our own population [i.e. the humans] will be precariously dependent on just a few species to sustain its vast size." (For a more recent (2017) summary by the most eminent intellectual today, see 6:45-11:30 in www.youtube.com/watch?v=mrE5EZr5ZVY.)

(9) Yet also the creation, by careless medical activities, of super-bacteria and increasingly virulent viruses. (It's great for them, but bad for us.) With poor luck we could be facing soon the end of the wonderful age (initiated 150 years ago by Louis Pasteur and Robert Koch) of effective anti-bacterial medicines.

(10) And, geologists tell us that some of the recent earthquakes have been due to human agency. (Nothing like this has ever happened before.)

Everyone, including the rich, will suffer in various ways from various **combinations of and interactions among** these different kinds of environmental catastrophe. However, the middle-class and poor folks will suffer far more than the very rich will. The very rich will have far more access than the rest of you (if I were your age I would say "the rest of *us*") to relatively safe places of refuge, to good nutrition, to high-tech anti-pollution devices, to the best possible health care, etc. – and to the use of weapons and walls....

Appendix 2: A leading ecological economist of the second half of the 20th century, Kenneth Boulding, described in 1981 an underlying reason why every big change in social and/or material conditions calls for innovations in economic theory, and so the would-be-scientific "laws" of neoclassical economic theory have much less reliable predictive validity than the precepts of Newtonian physics have for "celestial mechanics" (i.e. for the orbiting of the planets around the sun). Kenneth Boulding said: "Prediction of the future is possible only in systems that have stable parameters like celestial

mechanics. The only reason why prediction is so successful in celestial mechanics is that the evolution of the solar system has ground to a halt in what is essentially a dynamic equilibrium with stable parameters. Evolutionary systems, however, by their very nature have unstable parameters. They are disequilibrium systems, and in such systems our power of prediction, though not zero, is very limited because of the unpredictability of the parameters themselves.

"If, of course, it were possible to predict the change in the parameters, then [this would mean that] there would be other [deeper] parameters which were unchanged; but the search for ultimately stable parameters in evolutionary systems is futile [i.e. hopeless], for they probably do not exist."

3. Money and Recent-Style Inequality

(**Introductory Note**: Of the five lectures in the present series, this one will be the least up-to-date data-wise, because ***(a)*** to make such estimates of monetary inequality is easier than to make analogous estimates of, say, health or well-being (and so, more and more data re: monetary distribution are always being published), and ***(b)*** monetary inequality has in the last few years continued to become more extreme at such a rate that to update a lecture for this month seems hardly worth the effort; the information would be out of date already a month later. A statistic published by Oxfam in January 2019 was that the 26 richest people owned as much wealth money-wise as the poorest half the world's population.)

In 1887, a British historian, John Acton, wrote a famously insightful (and often slightly misquoted) sentence in regard to political and other social power. He undoubtedly had in mind not only the old-fashioned power under feudalism (which William Pitt had meant when he had said, in 1770 in a speech in the House of Lords, that "Unlimited power is apt to corrupt the minds of those who possess it"), but also modern economic power due to the rise of industrial capitalism (based materially on burning fossil fuels); Acton wrote: "Power tends to corrupt, and absolute power corrupts absolutely." This is clearly true of monetarily-based power nowadays.

John Ruskin pointed out in 1860 that the social power of the money in a rich person's pocket depends on its lack in his neighbour's. (Ruskin's book on economics, *Unto this Last*, had a profound effect on Gandhi in 1904, and also in 1906 on the founders, in the British House of Commons, of the Labour Party.)

(**Footnote**: In thinking about money and inequalities, do remember to distinguish between *(a)* the labourer's "pecuniary pressure" to earn enough money and *(b)* "non-pecuniary" pressure such as in slavery and serfdom. Slavery and serfdom are now outmoded among much of Humankind, whereas pecuniary pressure seems to be inescapable. In the last lecture in this series, I will mention Jean Drèze's interest – he is the best economist now working in India – in "the possibility of doing things ... differently – based on principles of freedom, coöperation and enthusiasm rather than the drudgery of employer-employee relationships". And I will cite him as saying that "The wage labour system strikes me as a little archaic – better than slavery, but still based on control and subordination. The profit motive, too, is quite crude

[as a theoretical concept], and its alleged [social] virtues [in the economy] are much exaggerated in mainstream economics [theory]. It will take time to get rid of these [somewhat archaic] norms, but some sections of the economy and society (including academia) have already moved away from them in substantial measure, and hopefully their domain will shrink further over time.")

Recall here my having mentioned, in the first lecture this series, that Arthur Lewis, a brilliant dark-skinned economist from the West Indies whose "two-sector" theory of "developing" countries' economies – i.e. with large "traditional sectors" and small modern "capitalist sectors" – won him many honours, said in 1954 that "the level of wages in the capitalist sector depends on the earnings in the [traditional] subsistence sector", and so "the capitalists have a direct interest in holding down the productivity of the subsistence workers".

(**Historical reminder**: History has bequeathed to us, in both sectors but more stubbornly in the traditional one, various non-monetary causes of excessive social inequality, such as racism, casteism, gender status and religious scorn. This lecture is, however, only about monetary inequalities.)

Not having enough money is experienced vividly by many people, but for those of us who are not destitute, the underlying reality can often be less material than psychological – due for instance to advertising and to "keeping up with the Joneses" (i.e. with someone else you know about).

Let us recall that according to W.S. Jevons (whom I described in the introductory lecture as the first "neoclassical" economist): "There is hardly a limit to the desire for articles of aesthetic taste, science or curiosity, when once excited." This is relevant since money can purchase a lot of such articles and they readily become hallmarks of "keeping up".

At the 2015 conference of the Association of Indian Economic and Financial Studies, Sugata Marjit (VC of the University of Calcutta and RBI Chair Professor at the Centre for Studies in Social Sciences in Calcutta) outlined a valid theory along the following lines:

• In modern societies, monetary inequality "hurts" by damaging nearly *everyone*'s status, as his or her attention is constantly drawn to someone else getting more (maybe without really deserving it).

• The inequality thus increases "the marginal utility of the '***status good*** '", i.e. the (psychological) value of feeling (or at least hoping) that you're "catching up" with those who have higher monetary status than you do.

• Thus, quite a lot of us "try harder" but remain dissatisfied, as many of the others are trying to mend the hurt to *them* and so most of us are *not* "catching up" after all, *even if our material circumstances are improving*.

(I would add that if the cumulative effect of all this striving is to cause galloping environmental degradation, then many people's material circumstances may actually be deteriorating in important though non-monetary ways.)

And meanwhile certain status symbols, such as a *lake-front* villa or cottage, as distinct from a rural cottage or villa that's not actually on the shore of a lake, can be possessed

by only a few of us. Fred Hirsch in the 1970s wrote insightfully, in his famous book, *The Social Limits to Growth*, about this aspect of social reality. To eliminate *all* inequality of status would be an unrealistic goal. A sensible goal would be to prevent it from soaring to indecent levels.

Simon Kuznets found in 1955 that as the development of a market economy proceeds from a traditional low level to a "modern" (as of the 1950s) high level, income inequality at first increases for a while and then decreases. But, the most eminent 21st-century French economist, Thomas Piketty, found in 2014 that even though the middle class in some affluent countries raised its share of wealth and incomes (*vis à vis* the share of the rich) during the three decades between 1914 and 1945, increases in the degree of monetary *in*equality have been a characteristic *overall* historical feature of capitalism. He pointed out that the historical data show that the *rate of return on capital*, ***r***, tends to be higher than the overall *rate of economic growth*, ***g*** (including growth of payments for labour.) Thus ***r*** > ***g***. Here is a graph summarising some of the data.

(This slide shows estimates of what percent of the total amount of incomes was going to the ten percent of the households that were getting the most in the U.S. during a recent period of 60 years.)

See www.youtube.com/watch?v=QzQYA9Qjsi0 for an expert discussion (with the best American TV-journalist interviewing a first-rate American economist) of the social and political significance of the book's findings. A big point is that most of the richest and therefore most powerful individuals will soon be those who *merely inherited* their wealth.

Piketty and Lucas Chancel, in a study entitled "Indian Income Inequality, 1922-2014: From British Raj to Billionaire Raj?", reckoned, on the basis of household-survey data, tax returns and other specialized surveys, the income-shares of the poorest half of India's population, of the middle 40% (income-wise) and of the top 10%, 1% and 0.1%. They said that the share of national income going to the top 1% income-wise of the people was, in 2014, at its highest level since the enactment in 1922 of income tax

in India, and that during the 35 years from 1980 to 2014, the top 0.1% (money-wise) in India got a bigger share of total growth than did the entire bottom 50%.

Footnote: While the historical data (assembled by Piketty and his collaborators) on which these conclusions are based are impressive, that kind of conclusion is not novel. In late-17th-century Japan, for instance, Ihara Saikaku, who was the son of a wealthy merchant in Osaka and who observed brilliantly the financial and amorous affairs of the merchant class, found that "In these times it is not so much intelligence and ready wit that bring a man profit, but simply the fact of already possessing capital."

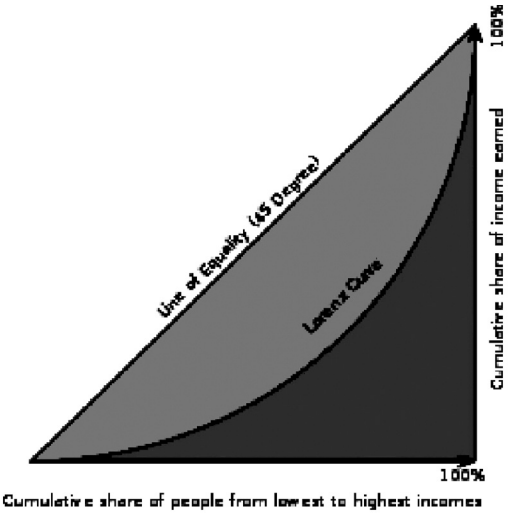
Another Footnote: Piketty has focused on income trends without trying to take into account, in regard to the USA, the effect of government efforts to compensate for income inequalities by certain taxation policies and/or subsidies. Prof. Richard Burkhauser of Cornell University, by taking into ample account those latter effects as well, has estimated that *in effect*, the income share of the richest 1% of Americans rose, between 1989 and 2013, from 13% to 16½%, whereas the Piketty team estimates that between 1962 and 2014 (a period more than twice as long) it rose from 12½% to 20%. (See apropos www.aei.org/publication/piketty-and-saez-vs-burkhauser-and-cornell-whos-right-on-income-inequality-and-stagnation/ – and don't neglect the sharp comments.)

Branko Milanovic, a top researcher at the World Bank on economic inequality worldwide, has made good use of national household surveys (on-the-ground examinations and questionnaires) in his analytical publications.

Unbridled greed is not the only cause of dangerously excessive modern levels of unfair monetary inequality. Another kind of cause is technologically due to modern media: the scope of profits from intellectual property (patent and copyright) and from mere celebrity. Since the causes are so complicated, the remedies will have to be, IMHO, institutional (a shorter duration of patents, for instance). A "moral awakening" – such as Bill Gates and some other rich people have experienced – is not enough by itself.

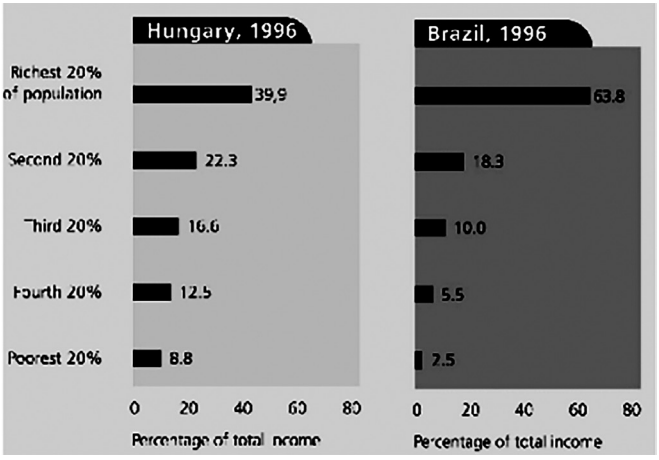
Here are two basic ways in which inequalities of wealth or income are often estimated by economists: ***(1)*** graphing it by a "**Lorenz Curve**", and reducing the result to a "**Gini Coefficient**". This is normally done for people within the same country (and hence people mostly using the same currency) and ***(2)*** reckoning "**Purchasing Power Parity**", for comparisons between different countries.

A **Lorenz Curve** in regard to, say, the incomes in a given national population will show, for each part of the population (a batch of the poor or of the rich or somewhere in between), how much of the total of all the incomes in the nation it is getting. The percentage of people is plotted on the horizontal x-axis (starting with the poorest 1% on the left and going to the richest 1% on the right), while the percentage of total national income is plotted on the vertical y-axis:

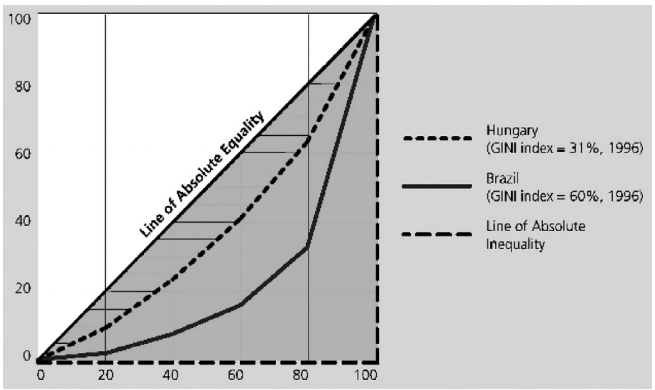


Each point on the curve represents a statement like "The poorest 20% of the people got 15% of the total income." (The reckoning may be done for households rather than for individuals, i.e. with all the individuals in any one household reckoned as having equal incomes.) The Gini Coefficient (or Gini Index) tells what percent of the triangle lies between the Lorenz Curve and the diagonal "Line of Equality", which is what the "curve" would look like if all incomes were equal. The smaller the inequality of incomes in a given population (annual incomes might be estimated from tax returns in those countries where nearly everyone pays income tax), the closer the Lorenz Curve would be to that Line of Equality. If the Gini Coefficient were nearly zero, then the poorest 1% of the people would be getting *almost* 1% of the national income while the richest 1% of the people would be getting hardly more than 1% of it. The bigger the Gini Coefficient, the greater the monetary inequality. Here are some estimated Gini Coefficients for incomes in various nations: 23 for Sweden in 2011; 70 for Namibia in 2011; 40 for the USA in 1967; and 47 for the USA in 2011.

The shape of the Lorenz Curve doesn't have to be symmetrical (as it was in my abstract illustration). For instance: From rough data about each 20% of the populations in 1996 in Hungary and in Brazil, a less asymmetrical Lorenz Curve for Brazil than for Hungary can be derived:

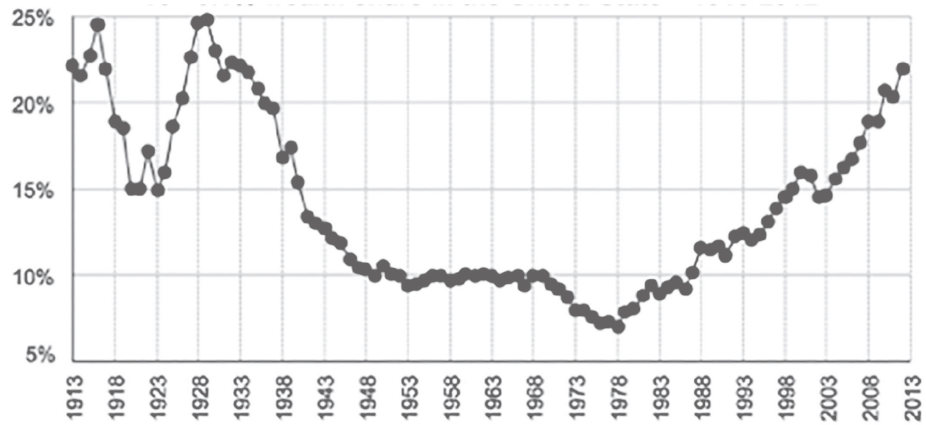


← This remarkably long black bar corresponds to the remarkable steepness of the top part of the line referring to Brazil in the following graph:



The USA has recently been experiencing a great increase of such "asymmetrical-Lorenz-Curve" inequality at the top (see for instance the following graph and James K. Galbraith's *Inequality and Instability*, Oxford Univ. Press, 2012; this J.K. Galbraith is the son of the famous John Kenneth Galbraith (1908-2006) of Harvard University, who served in the 1960s as the USA's ambassador to India, and who said: "Under capitalism, man exploits man. Under communism, it's just the opposite."):

How much of the total monetary wealth in the USA has been owned, historically between 1913 and 2012, by the richest 1/10th of one percent of the households



PEDAGOGICALLY IMPORTANT FOOTNOTE: Perhaps you may have noticed that this last graph was about percentages of monetary wealth, whereas I had, in my explanation of Lorenz Curves and Gini Coefficients, spoken in terms of incomes. What is the difference between monetary wealth and income? Monetary wealth is a (momentary) *stock* of money, whereas income is a *flow* of money *per unit of time*: for example "so much per week" or "so much annually". If you ever, in your economic reckonings, confuse numbers representing *stocks* of some kind of thing with numbers representing *flows* of that kind of thing, you will be unable to make your numbers make good sense. So watch out! This kind of confusion bedevils professional economists now and then. For instance, Hayek in his treatise (1941) entitled *The Pure Theory of Capital* got tangled up in such a confusion (without ever noticing it; the tangle was identified later by Joan Robinson and some other sharp economists at Cambridge University). Hayek in his preface said, candidly: "[T]he reader will find the actual shortcomings of this book not so much in its limitation to the more abstract problems but rather in the fact that even within these limits it leaves some problems of real importance unsolved.... I can only plead that I have grappled honestly and patiently with what even now appears to me by far the most difficult part of economic theory, and that the present book with all its shortcomings is the outcome of work over a period so prolonged that I doubt whether further effort on my part would be repaid by the results."

According to the 2017 edition of the annual *Global Wealth Report* released by Credit Suisse, the world's richest 1% had at that time 50% of the world's monetary wealth. In India it is now even more than that (the figure for India had been 37% back in 2000 – the same as nowadays in the USA); the richest 5% in India have more than 2/3rds of

the monetarily estimated wealth; and the top 10% have more than 3/4ths, while the poorer 50% of the people in India have only 4%. And thus the 40% of the people who are in the lower part of the upper half wealth-wise – the "Great Indian Middle Class" – have about 1/5th of the nation's money. These are the folks who, if they were to buy cars, air-conditioners, refrigerators and other glitzy products, could render big-time "Make in India" enterprise successful. But a lot of them may instead – now that GST and the rising price of fuel (a hefty part of the cost of mass production) will render such items more expensive – spend their available money on coping with the food-price inflation which is going to continue relentlessly during the next half-century as India's population increases by another 1/3rd while the amount of arable land and its soil-quality continue to decrease and the monsoons continue to become more fickle (not to mention that people in cities will feel the impact of weather conditions fluctuating more severely than ever before).

The informative value of Lorenz-Curve data is limited in certain ways. On the one hand, the monetary conditions of the very rich and the very poor are more difficult to ascertain than those of the folks in the middle. (Surely your teachers have taught you about "black money" and "the gray economy"?) On the other hand, monetary inequality is only one aspect of economic inequality. If two households have equal monetary resources, the one in the less polluted and otherwise less dangerous local environment is materially better off. If two countries have the same Gini Coefficient, their levels of economic inequality may still differ a great deal if much better public services are provided in one of them than in the other.

Yet another factor affecting the levels of economic inequality (and yet not measured directly in the Lorenz-Curve data) is differences in "social mobility". Think of social barriers on account of race, gender or caste.

Now I come to "**Purchasing Power Parity**" (PPP): It is mainly a way of trying to compare quantitatively the average economic conditions in two different countries. It is reckoned by dividing *(a)* the ratio between *estimated levels of average monetary income* in the two countries by *(b)* the ratio between *estimated average monetary costs of living* in them. From figures published by the World Bank, it has been reckoned, for instance, that in 2004, between the U.S. and China the approximate ratio of per-capita annual income was 32:1, and in terms of PPP 7:1; between the U.S. and India, 67:1 and 12½:1; between the U.S. and Mauritania, 98½:1 and 19½:1. Since the PPP ratios are less drastic than those based simply on comparisons of estimated average income, let us note that PPP-based comparisons worldwide are of limited validity as they depend on estimates of "cost of living" in many different countries, i.e. costs for different ways of living at very different average levels of material consumption (in some of the comparisons).

The cost-of-living concept was originally, in the 1930s, developed to compare costs in successive years (or even months) in the same country, not costs in different countries at the same time. Such an index reflects changes in the price of a fixed "basket" of commodities deemed to be characteristically needed. But the basket is different for folks in different countries. Does an entire American nuclear family – father, mother and one or two children – ever ride on a single motorcycle? (No.) How often do you eat a beef hamburger?

Do remember, however, that average differences between one country and another are not the only kind of extreme difference in wealth and incomes. There are often extreme differences *within* a country. To cite just one example: While quite a few Brazilians are destitute, and while more than half of them are poorer than virtually anyone in France is, a few Brazilians are *extremely* rich by worldwide standards (does this sound familiar to you?); and, 10% are more affluent than half of the French are.

Reckoning global economic inequality is an even more intricate challenge than these remarks about PPP may suggest. It is impossible, for instance, to know how much money the very rich have, because their power is such they can conceal the financial facts if they like. A deeper problem is that economic inequalities – inequalities in people's material well-being – have to do with far more than *(a)* how much money they have and *(b)* regional differences in cost of living. Indeed, some of the inequalities that are now beginning to become more and more significant have to do with different degrees of ecological/environmental vulnerability, and involve risks so difficult to quantify that insurance companies don't even try to assess them. Here are some data, however: According to the University of California's *Atlas of Global Inequality*, global income inequality was, as of 2017, probably greater than ever before in history; the ratio between the average income of the top 5% in the world to that of the poorest 5% had increased from 78:1 in 1988 to 114:1 in 1993; the 1% with the highest incomes were now getting a lot more than the bottom half; and, even when the statistics would be adjusted for the estimated different monetary costs of living in different countries, the best-off 1/4 of the world's population were shown to have 3/4 of the local purchasing power (thus leaving only 1/4 of it for all of the remaining 3/4 of the people). Nearly 18 thousand million people were said to be living on no more than $1 a day or the equivalent in another currency (e.g. *ca*.70 rupees).

Back in the 1770s, it had appeared to Adam Smith that "The rich ... consume little more than the poor.... They are led by an invisible hand to make nearly the same distribution of the necessaries of life, which would have been made, had the earth been divided into equal portions among all its inhabitants...."[4] He would no longer be of that opinion if he could see what it's like now. You should consider the kind of relevant data that I have cited, but also by the complementary evidence cited, on the next nine slides, from a book which Richard Easterlin, the founder of "happiness economics", published in 2004:[5]

[M]aterial aspirations – how we feel we *ought* to live – depend on a society's state of affluence.... A point-of-time comparison of aspirations in rich and poor countries comes from a very comprehensive survey done by sociologist Hadley Cantril several decades ago. Cantril's interviewers asked people an open-ended question on what they would need to be "perfectly happy." Here are some answers from respondents in India (Cantril **1965**, 205-6):

A 35-year old agricultural worker says: *"I want a son and a piece of land.... I would like to construct a house of my own and have a cow for milk and ghee. I would also*

4 Smith, *Theory of Moral Sentiments*, Part IV, Chapter 1, 10th paragraph.

5 Easterlin, *The Reluctant Economist: Perspectives on Economics, Economic History, and Demography* (Cambridge Univ. Press), pp.48-50.

like to buy some better clothing for my wife. If I could do this, then I would be perfectly happy."

A 30-year old sweeper says: *"I wish for an increase in my wages because with my meager salary*

I cannot afford to buy decent food for my family. If the food and clothing problems were solved, then I would feel at home and be satisfied. Also if my wife were able to work the two of us could then feed the family and I am sure we would have a happy life and our worries would be over."

...Finally, here is the response of a 40-year-old skilled worker: *"I hope in the future I will not get any disease. Now I am coughing. I also hope I can purchase a bicycle. I hope my children will study well and that I can provide them with an education. I also would sometime like to own a fan and maybe a radio."*

Now compare what Americans at that time said *they* would need to be perfectly happy (Cantril 1965, 222):

Here is a 27-year-old skilled worker: *"If I could earn more money I would then be able to buy our own house and have more luxury around us, like better furniture, a new car, and more vacations."*

A laboratory technician, 34-years-old, says: *"I would like to have a reasonable enough income to maintain a house, have a new car, have a boat, and send my four children to private schools."*

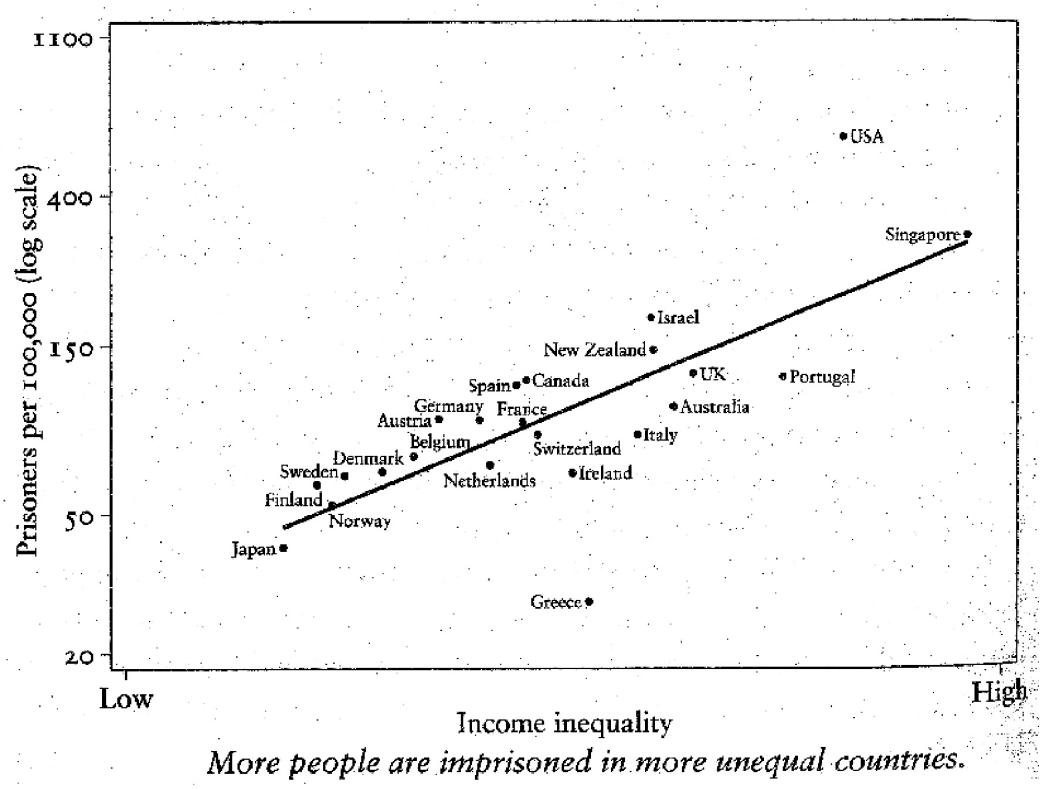
Here is a 24-year-old bus driver: *"I would like a new car. I wish all my bills were paid and I had more money for myself. I would like to play more golf and to hunt more than I do. I would like to have more time to do the things I want to and to entertain my friends."*

And, finally, a 28-year-old lawyer: *"Materially speaking, I would like to provide my family with an income to allow them to live well – to have the proper recreation, to go camp-ing, to have music and dancing lessons for the children, and to have family trips. I wish we could belong to a country club and do more entertaining. We just bought a new home and expect to be perfectly satisfied with it for a number of years."*

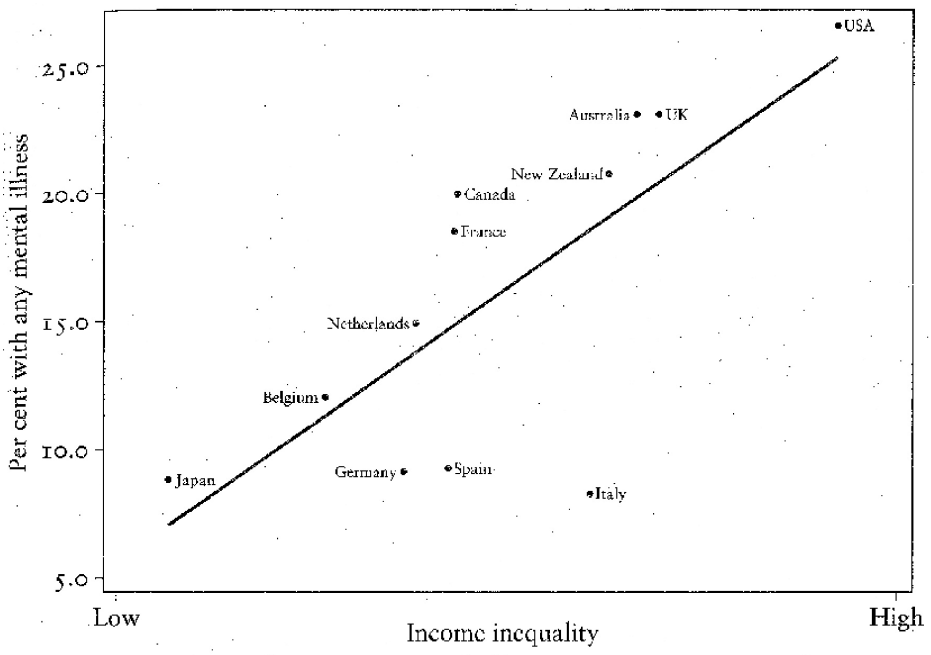
...Next, let me indicate how aspirations change over time within the same country. Since 1975, Americans have been asked the following question: "We often hear people talk about what they want out of life.... When you think of the good life – the life you'd like to have – which of the things on the [following] list [of 224 items], if any, are part of that good life as far as you personally are concerned?" (Roper Starch Organization, 1979, 1995.) Ten of the listed "good life" items relate specifically to "big ticket" consumer goods: "a home you own," "a car," "a color TV," and so forth. For consumer goods to which a high pro-portion of the population aspired at the start of the period, such as "a home you own," the increase is necessarily modest. But for items that were initially low on the "good life" list, the increase is sizable. In 1975, the proportion of Americans saying "a vacation home" was part of the good life was 19 percent; two decades later it was 44 percent. In 1975, the proportion identifying a swimming pool as part of the good life was 14 percent; in 1994, 37 percent.

It is my opinion, however, that to advocate monetary *equality* for everyone would be silly, since elaborate social structures can hardly be maintained without *some* organizational hierarchy, and since money is important in such structures. A big issue today is that the *degrees of monetary inequality* which we now have are toxic. The degrees of inequality differ in different countries, so we can get some relevant evidence by plotting those differences against some indications of social malaise or well-being. This has been done, in a book entitled *The Spirit Level* (2009), for some countries in regard to which detailed indices of this kind have been compiled. Let me show you five of the graphs, with regard to:

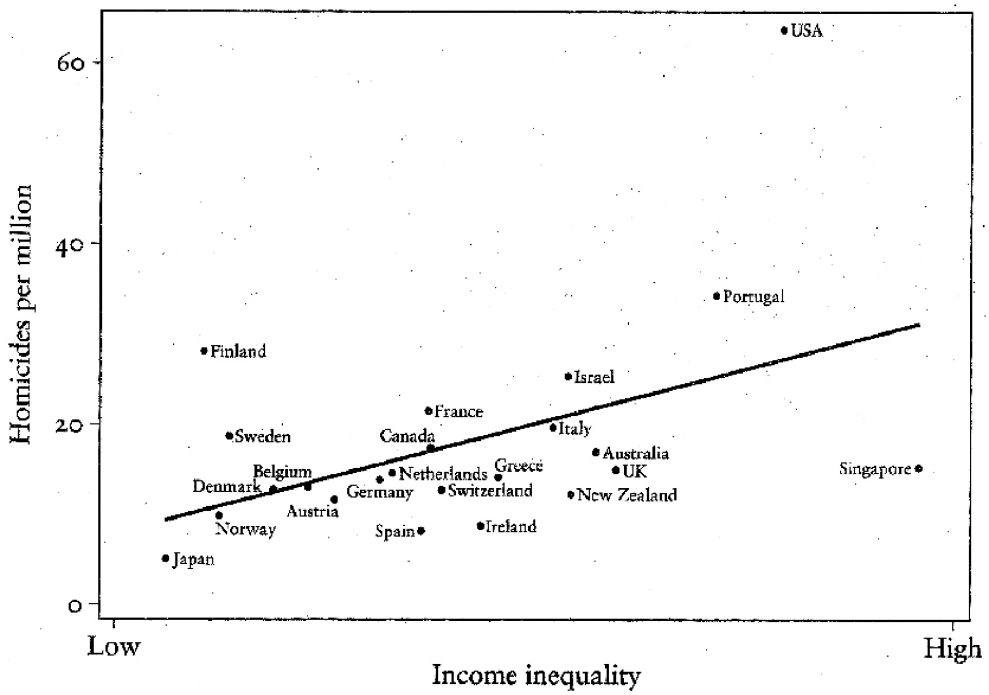
- Prisoners per 100,000 of the national population.
- Homicides per year per million of the population.
- Percent of the population with mental illness.
- Percent of adults who are obese.
- Ratings vis à vis the UNICEF index of child well-being.



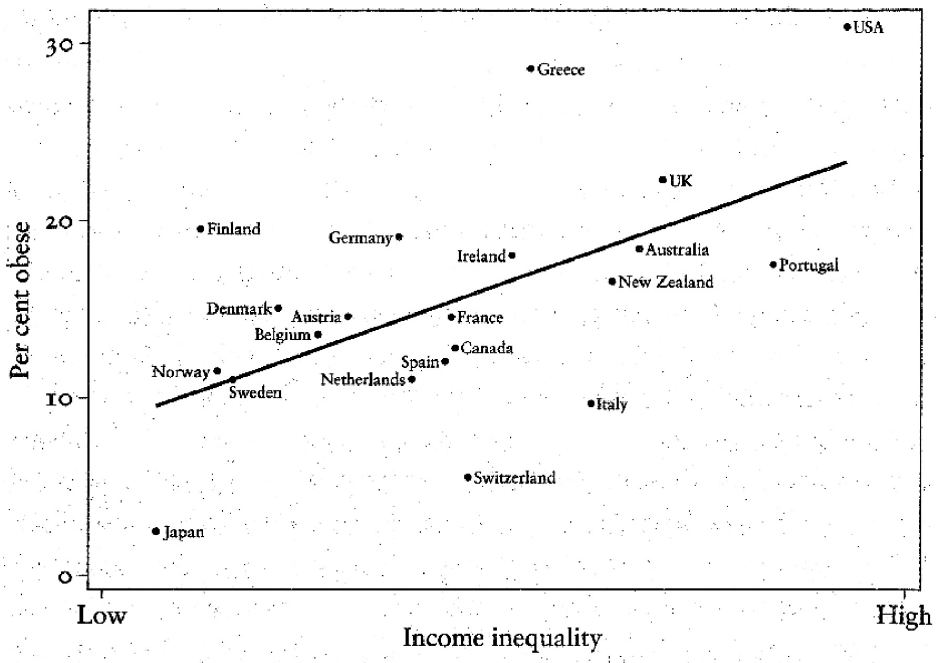
More people are imprisoned in more unequal countries.



More people suffer from mental illnesses in more unequal countries.

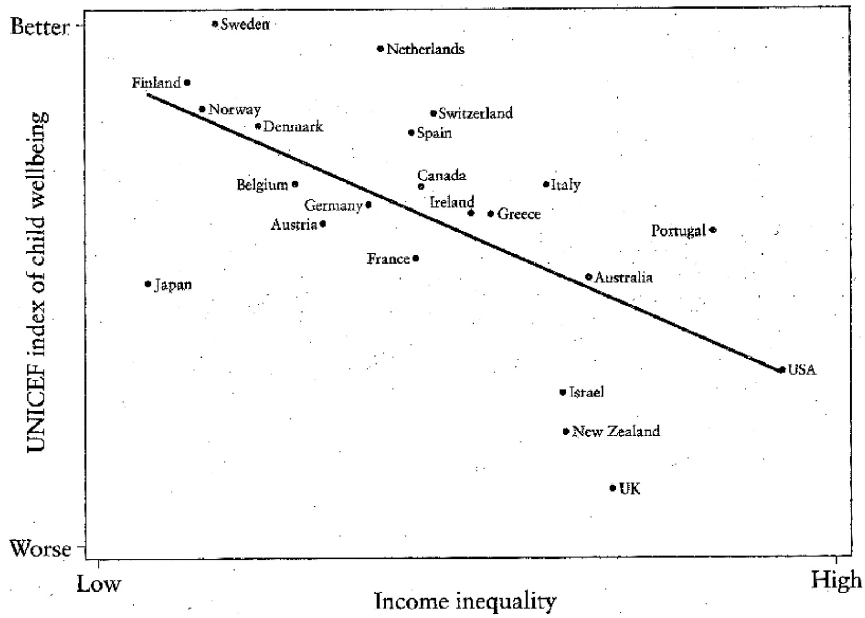


Homicides are more common in more unequal countries.



More adults are obese in more unequal countries.

And, kids fare better in countries with less inequality:



(Did you notice that the countries with less inequality and better social conditions are *not* suffering from worse aggregate economic conditions than are the countries with more inequality and worse social conditions?)

It seems to me, on the one hand, that healthy social conditions are always a good thing, and it is *shameful* not to seek them – and that on the other hand, there is a danger of more and more social turmoil as ***(a)*** deadly modern weapons become more and more readily accessible, and as ***(b)*** the modern electronic media worldwide make the shame of excessive inequality evident to more and more poor people *and to rich people who identify with this or that group of the poor* and may therefore wish to take revenge, in their behalf, against the unfair affluence of some quasi-tribal antagonists.

The cause-and-effect linkage between excessive monetary inequality and the resulting violent reactions is, however, so complicated that reducing extreme inequality is, IMHO, only a *necessary* step, not a *sufficient* remedy to the problem of global violence. The step needs to be taken, but will not be enough by itself to eliminate the looming danger of rampant violence in various modern and modernizing societies. The great political scientist Alexis de Tocqueville remarked (in the 1850s, in his analytical account of the French Revolution of the 1780s and '90s): "Experience has shown that the most dangerous moment for a bad government is usually that when it enters upon the work of reform. Nothing short of great political genius can save a sovereign [i.e. a top ruler] who undertakes to relieve his subjects after a long period of oppresssion. The evils that are endured with patience as long as they are inevitable seem intolerable as soon as a hope can be entertained of escaping from them. The abuses which are removed seem to lay bare those which remain, and to render the sense of them more acute; the evil has decreased, it is true, but the perception of the evil is more keen."

And indeed it seems to me that a lot of modern inclinations to violence are due to resentment by people whose material conditions have *improved* in certain basic ways but whose desire for commodified goods the status value of which depends on *comparatively* how much they have vis à vis other people has been frustrated.

Those are some of my worries about what I consider (and I am not alone in this) to be the excessive 21st-century monetary inequalities. You may wish to think about how *you* would answer questions like these:

- To what extent can people nowadays who have lots of money and who are clever at shopping, buy happiness with their money, *regardless of* how much material inequality there is in the society?
- To what extent can they spend their lives in havens safe from violent social upheaval?

If these worries are realistic, then we have the likelihood of a third kind of **Big Looming Problem** in our money economy, in addition to the two other kinds – financial bubbles and galloping environmental degradation – that have been described in the previous lecture. Please remember this phrase, "Big Looming Problem". I'll use it again, in the lecture on money and governments.

In preparation for that lecture, let me say that inequality in "holding" other people's money is just as important nowadays as inequalities of wealth and income. Bankers as well as government officials hold other people's money, and are thus like trustees. Some trustees, however, are not trustworthy.

The money held by the government belongs to all the citizens and not to the government officials as such, but since the amount held in a big modern country is very big,

there are opportunities for gross mismanagement by people in government, due not only to innocent mistakes but also to corruption. The corruption is an application, in governance, of the Economic-Man precept of neoclassical economic doctrine which has been taught to the many officials who have had the benefit of higher education. The consequences of big-time corruption include aggravating the excessive inequalities of personal wealth.

As for the bankers, if the government follows a *laissez faire* policy in regard to them, then they (the bankers) can gamble recklessly – for their own personal profit – with their depositors' money. And, if big banks are treated by governments as "too big to fail", then the managers of those banks, no matter how irresponsibly they may behave, never themselves pay the costs of reckless gambling with their depositors' money. Instead, the taxpayers pay when the banks are bailed out. As far as the bankers are concerned, the gambling is on a "Heads I win, tails you lose" basis.

So, I think laws should be enacted (and enforced) making it a serious crime for a bank to gamble speculatively with its depositors' money. I think each bank should prosper instead by lending at feasible interest rates – to folks or corporations it is reasonably familiar with – money which it has borrowed at a lower rate of interest from its depositors or (if the nation ignores Frederick Soddy's warning by letting it lend more than its depositors have entrusted to it) from the central national bank, i.e. the one issuing the national currency.

In the next lecture I will mention that one way for government to mitigate extreme monetary inequality is "progressive taxation" – i.e. with percentage rates higher for high-income than for low-income people. A study based on the Gallup World Poll (with data from 54 countries) and published in 2012 in the journal *Psychological Science* found that progressive taxation was associated with increased levels of subjective well-being and that this association was "mediated by citizens' satisfaction with public goods, such as education and public transportation".

Some other ways to mitigate monetary inequalities or their bad social effects are:

- Job-guarantee programmes, providing to the *unemployed* poor a way to earn money.
- "Food Stamps", providing, to individuals who are certified as below a poverty line money-wise, a way to purchase a certain amount of nutritious food without spending money.
- "Guaranteed Basic Income". This will be described in the next lecture.

4. Money and Governments

In 1920 an eminent German sociologist, Max Weber, offered a definition, which has often been cited by Westerners ever since, of a political "state" (*Staat*), i.e. a government. He said that it is an organized social community (*eine Gemeinschaft*)

"which	*welche*
within a certain	*innerhalb eines bestimmten*
[geographical] area	*Gebietes*
claims for itself (with success)	
the monopoly of legitimate	*das Monopol legitimer*
use of physical compulsion".	physischer Gewaltsamkeit
	für sich (mit erfolg) in Anspruch nimmt.

Two ways in which national governments use this power are *(1)* to issue *legal tender* and (2) to make citizens pay taxes. A third way with regard to money is that a government can, under certain circumstances, force a citizen who is owed a certain debt to forgive it, at least in part. This involves the government certifying that the debtor is "bankrupt".

And a government can of course, like any person or institution that has some money, spend it.

This lecture will describe (*a*) taxes and some other ways for a government to get money; (*b*) some governmental uses of money; and (*c*) legal tender. The word "fiscal" is a technical term covering all of them together.

(All fiscal matters are financial, but of course not all finance is fiscal. When kids sell lemonade, there is no fiscal aspect, but there is a financial aspect – the payments – and also a productive aspect: making and serving up the lemonade in return for the payments. There are, on the other hand, *purely* financial transactions, i.e. whereby nothing is produced. Two examples of purely financial transactions are buying dollars with rupees (or *vice versa*) and robbing a bank.)

Before describing various kinds of taxes, let me mention that genuine patriotism entails a modicum of monetary commitment, by citizens who *have* money, for the common national good. Here are three examples of such patriotic duties: *(1)* The childless adults should pay taxes for schools so that *all* the children among the citizens are educated and can therefore, when they grow up, work (and vote) more intelligently than if they haven't been educated. *(2)* Citizens who live close to their work should pay taxes for roads and bridges so that, for instance, those who are obliged to live farther away from *their* places of work can get there and home again (while, most likely, paying travel costs). *(3)* Healthy citizens should share the costs of healing the unhealthy poor ones who are not their relatives. One reason for performing this latter duty is that it's difficult for healthy people to remain healthy amidst a web of sick people.

Note also that the government's money belongs to all the citizens and not just to the government officials. However, since big amounts are fiscally held and spent, there are big opportunities for mismanagement due to mistakes and/or corruption. The corruption is (as I mentioned already in the previous lecture) an on-the-ground

application, in governance, of the Economic Man Doctrine of neo-classical economic theory. The consequences of the corruption include rendering fiscal policies inefficient (even if they were well intended when legislated) as well as aggravating the excessive inequalities of personal wealth. I am, therefore, critical of the precept, taught by *some* teachers of neoclassical economic theory (I have personally heard this done at the Gokhale Institute), that corruption is good as it "greases the wheels" of the economy.

There have been various kinds of taxes. Here are six basic types:

(1) A poll tax: a tax to be paid by each person of a certain defined group (e.g. male adult citizen), just because he or she exists.

(2) Taxes on property. Periodically – say, once a year – you pay the government a certain percentage of the assessed value of what you own or of this or that part of it.

(3) Taxes on production. (These are called "excise taxes".)

(4) Taxes on transactions, e.g. income tax, inheritance tax, sales tax, GST, and import tax.

(5) Payments for licenses (e.g. to drive a car, or to own a gun).

(6) Fines for doing something that is regarded as socially or environmentally damaging to the nation.

(In Finland, 99% of the people more than 14 years old are literate; adults have to inform the government every year of their income; and if an individual has to pay a fine, the amount is scaled to his or her rate of income. The fine for committing a small misdemeanor (such as littering) is a certain fraction of a day's worth of income, whereas the fine specified by law as part of the punishment for a crime might be equal to, say, a month's worth of the offender's income. Every offender pays, however, the same portion of his or her rate of income. An advantage to the government is the avoidance, thereby, of net fiscal loss due to the relatively high administrative cost of collecting, for the sake of law and order, a relatively small unpaid fine from a poor person for whom a specified flat-rate amount would have been very difficult to manage.)

An interesting basic distinction is between "direct taxation", which makes people (or companies) less wealthy privately by taking money from them (income tax is the most prominent example) and "indirect taxation", which makes commodities cost more (GST is the most prominent example in India). Each kind of tax can be levied mainly for the sake of revenue, or mainly for the sake of nudging citizens away from doing something regarded as bad (even if not criminal), or for both reasons together.

If the main motivation is revenue, then what about fiscal efficiency? What is the ratio of the revenue to the cost of collecting the tax?

And, if it is a tax on corporations, is its existence merely causing them to shift their official legal locations abroad to "tax havens"?

Whatever the motivation for the tax, consideration should be given to how it affects the moral quality of the society. Do the citizens regard it as fair? Will a lot of them cheat? Would the widespread cheating have a generally weakening effect on government and self-government in the society?

Let me say more about some of the basic kinds of tax that I have distinguished:

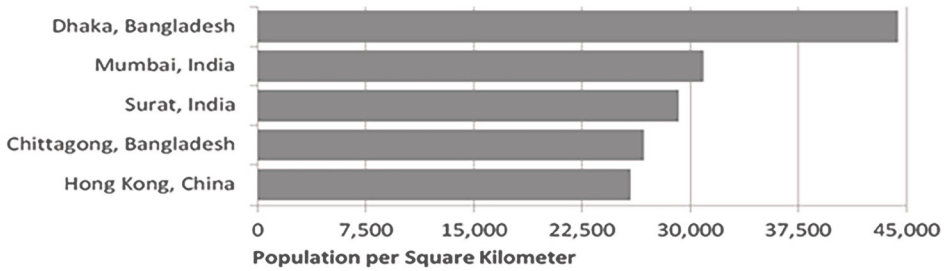
A **poll tax**, unless the amount is disgustingly steep, is likely to be fiscally inefficient, as many poor folks try to avoid paying it. Illiterate folks may not even know that it has been enacted. In that case, how can they distinguish between this kind of tax and an illegal shakedown?

> **HISTORICAL FOOTNOTE**: In 1964 (when Martin Luther King was an eminent social reformer in the USA), an amendment to the U.S. Constitution nullified any and all laws denying the right to vote (in federal elections) to citizens who hadn't paid a poll tax enacted by the state government. The amendment impacted certain states where there were *(a)* many poor Black citizens and *(b)* some rich White ones who wanted to prevent the poor ones from voting.

Property taxes can yield heaps of revenue. The poor don't mind at all if the relatively fewer rich are paying such taxes.

In the USA, most of the costs of the public schools (primary and secondary schools operated by the government and obligatory for all children unless they have private schooling) are paid from the revenues of locally enacted property taxes. So, the public schools in towns where a lot of rich people live are equipped better than the public schools elsewhere.

When I was teaching in Hong Kong (this was more than 25 years ago), they had a steep property-tax on cars. (They still have it.) Hong Kong is one of the most crowded very big cities (i.e. those with a population exceeding 2½ million as of 2012) in the world:



– and so it was felt that *(a)* lots of cars would be a curse and *(b)* there ought to be a good public-transport system. The cost of building a metro system was paid from a 100% annual property tax on cars. Every owner of a car had to pay to the municipal government, each year, a sum equal to the total value of the car, and the revenue from that tax was used to build and maintain the metro system.

If the revenues from a certain tax are earmarked to pay for this or that governmental service, it is called a "hypothecated tax". Another example besides the Hong Kong car tax is the "TV license" which people in various European countries have to pay for if they have a TV in their home. In the UK, for instance, the revenue from it finances the BBC.

The many different kinds of **transaction taxes** include income tax, inheritance tax, import tax, and GST and the like. (In the U.K., they have VAT – value-added tax; in many states of the U.S., a "sales tax".) Such taxes (and income taxes) are characteristically levied for the sake of revenue to a "consolidated fund", i.e. a fund from which the government budgets payments for various things it decides to do.

(At a dinner party during my time in Hong Kong I heard a young British bureaucrat explain how he had successfully proposed a way to address the problem of an overall revenue shortfall (due in part to the fact that the income-tax rates in Hong Kong are modest). He had data as to the rate at which passengers were using the airport, and he found, by simple reckoning, that a not very steep tax on each use of the airport (incurporated into the prices of the flight tickets) would suffice to solve the problem – taking into account of course an estimate of how much it would cost to administer the new tax.)

Taxes on imports – "customs duties" – are a kind of transaction cost. Often their main objective is to render the prices (in the domestic market) of the imports steeper than the prices of domestically made competing products, and thus "protect jobs" at home. Any country that exports a lot of products should be wary of charging substantial customs duties on products from countries that import (or may soon import) *its* products. If the two countries start jacking up customs duties against each other in mutual retaliation, this is called a "trade war". (However, the same term – "trade war" – can be used to mean a *violent* war between countries competing with each other for access to international markets or to "natural capital".)

In most countries, income tax is the steepest kind of transaction tax. (In the case of a personal income tax, the transaction is payment of his or her wage.) It is "progressive" if people with high incomes have to pay higher percentages of their incomes than do people with low incomes.

A sales tax is progressive if its percentage (of the sales price) is a lot higher on luxury goods and services (such as, say, jewelry or cigarettes or face-lifts) than on basic ones (such as bread or chappels or midwives' services); but a sales tax without strong nuances of that kind is "regressive" inasmuch as the poor have to pay a larger share of their incomes for it than the rich do.

However, a tax on the sale of cigarettes can serve *two* purposes: not only to provide revenue but also to nudge the citizens, especially if the country has government-subsidized health care, away from smoking, since lung cancer is gruesome and costs the government vast amounts of money to have treated.

This example brings us to…

Fines and the like. This includes payments which are not actually penalties or punishments for offenses, but are levied in order to nudge citizens away from causing "negative externalities".

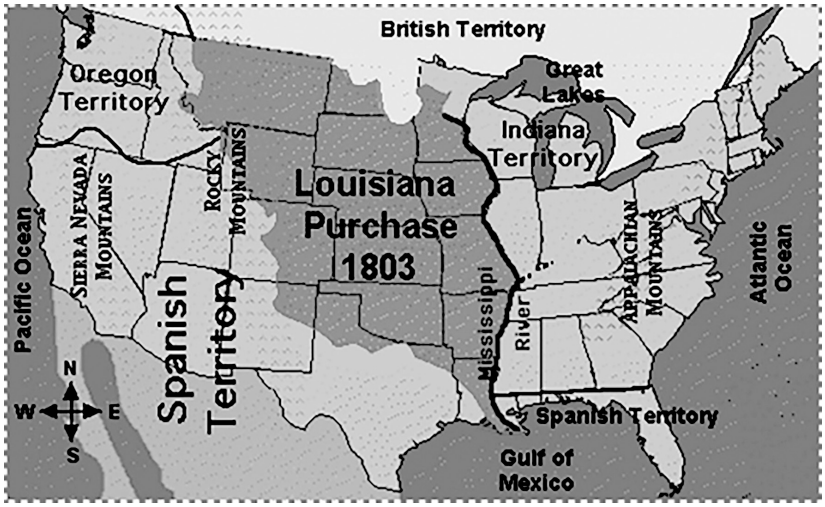
When an economic activity has a good or bad effect on one or more people who are not involved in it, that effect is called an "**externality**". It is "positive" if good (e.g. I pay you to sing a song for me, and someone else overhears and enjoys the song) or "negative" if bad (e.g. you sell me cigarettes and the smoke gives my daughter lung cancer).

The inventor of "welfare economics" theory, A.C. Pigou, suggested in his book *The Economics of Welfare* (1920) that governments should try to curb negative natural-environment externalities. He said: "Sometimes people use methods that, as against the future, cost much more than they themselves obtain. Fishing operations so conducted as to disregard breeding seasons, thus threatening certain species of fish

with extinction, and farming operations so conducted as to exhaust the fertility of the soil, are instances in point.... It is the clear duty of Government, which is the trustee for unborn generations as well for its present citizens, to watch over, and, if need be, by legislative enactment to defend the exhaustible natural resources of the country from rash and reckless spoilation." (So, a tax which nudges citizens away from reckless spoliation of natural resources is called a "**Pigouvian tax**".)

If we are thus aware of preserving the nation's material natural heritage as a duty of government in its role of "trustee for [the as yet] unborn generations" of citizens, we may note also that a government can, quite apart from getting money by taxation, reap one-off gobs of current income by "privatizing" natural heritage, i.e. renting it out or selling it off to private interests or to a foreign government, maybe in betrayal of the trusteeship. To sell outright the nation's non-monetary wealth of various kinds is likely to cause economic loss to the future citizens of the nation.

A nice historical example was when the government of France sold to the USA (for some money which was used to pay the costs of a big war which France under Napoleon was having with Britain) all the North American land south of Canada which France owned at that time. We Americans call it the "Louisiana Purchase". The USA was, before then, all east of the Mississippi River (and north of Florida):



It is doubly dangerous for the government of a nation to sell or to rent out the nation's "national capital": not only may some basic interests of the future citizens be disregarded, but also the opportunities for big-time corruption are very tempting in such deals. There is, for instance, a non-renewable stock of national material heritage in the ores etc. under the ground. Government officials may – and sometimes do (alas) – get vast bribes in return for selling or renting that heritage cheap to private or foreign interests.

(A current example of a nation selling its natural material heritage to corporations in another nation is that of India selling iron ore to Japanese corporations. The government-owned (i.e. owned in behalf of India's citizens) National Mineral Development

Corporation sends vast amounts of ground-up iron ore by ship to Japan. While the mines from which the ore is taken have been "developed" in India, the non-renewable ore in them is being depleted in order to maintain Japanese industrial development. The British clothing industry was, 100-150 years ago, likewise dependent on importing raw material – cotton – from India. *That* was worse, as the Raj was deliberately suppressing Indian industry, whereas the Japanese are not trying to prevent India from producing steel: an economically inhibiting factor in India is that since Indian coal doesn't burn hot enough to convert iron into steel, the Indian steel industry has to use imported coal.)

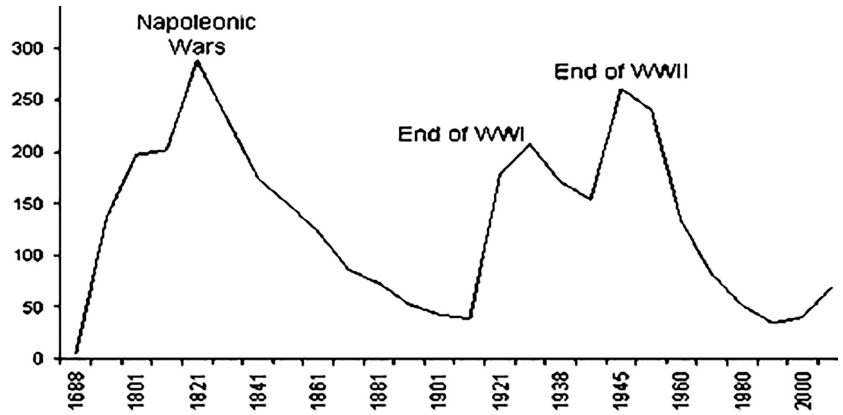
Another kind of natural national heritage is the nation's capacities for immediate private and public discourse across distances via telecommunication (i.e. "telecom": telegraph, radio, TV, the Web, mobile-phone networks…). National governments issue telecom licenses or franchises. You can be sure that if someone in a government gets a bribe for allotting such a license or franchise to a capitalist, there will be a very substantial cost to the nation's citizens.

It will be logical for us now consider some ways in which government can *spend* its money to benefit the nation. Let me first, however, describe **legal tender** (which only national governments have the prerogative of issuing).

I have mentioned, back in the first lecture, Marx's notion that capitalism engenders a "fetish" for money. This so-called fetish has to be widespread in order to be effective, i.e. for the money to have social power; the money has to have command over commodities. So, every modern nation has its legal tender – i.e. its government-stipulated monetary currency, declared to be valid for satisfying *any and all* financial obligations between citizens (except in cases where the individual citizens concerned have agreed to a contrary arrangement). In all reasonably stable countries, legal tender is regarded as a more reliable kind of money than are tokens not authorized by the national government. However, if the legal tender undergoes galloping inflation (rendering it in effect devoid of value), then other currencies – formal or informal – backed by some kind or other of economic value, will be used instead. (This was pointed out in 1840 by Adolphe Thiers, an historian and journalist who was to serve in the early 1870s as the president of France.)

Galloping inflation is so nasty an experience that any government which causes it (by issuing legal tender very profusely) will become despised by the citizens. National governments are, however, often tempted to stray *somewhat* in such a direction by a wish to pay for certain things to be done (for instance, to pay for the wartime services of the armed forces) without meanwhile collecting enough taxes or borrowing enough to cover the cost. (The debts of a national government are called "national debt". This term doesn't refer to the debts of the individuals and companies in a nation, but only the government's debts. The following graph shows an historical association between national debt and war – in this case with reference to the UK.)

Ratio, percentage-wise of Britain's national debt to its annual national income, *ca*.1690-*ca*.2010



A national government can readily borrow its own legal tender from its citizens or from companies. It does this by giving them IOU's, promising *(a)* to pay back the original amount after a certain amount of time (i.e. at the specified "maturity date") and meanwhile *(b)* to pay interest periodically at a certain rate specified for that IOU. Such a fiscal document is normally "tradable"; that is, the lender can sell it to someone else, and such a tradable IOU is called a "bond".

The original amount of the bond (i.e. of the loan) is called its "face value" or "par value", and the specified interest rate is based on that amount. But as soon as the bond starts getting passed around in the market to successive buyers of the promissory document, its *actual* market price begins to vary in such a way that the interest rate on that market price remains comparable to the interest rate on other possible investments (at any given moment) of similar quality in terms of risk of default by the institutional debtor, decline in the value of the national currency of the debt (or relative increase in the value of that currency vis à vis other national currencies), etc.

It is true that not just governments but also corporations can issue bonds. But – and it's a big "but" – there is a kind of trick which a national government can play with its bonds but a corporation cannot. A corporation can explicitly default on its debts by getting itself certified by the government as "bankrupt" (and then there will be negotiation as to what percent of each debt is to be paid from the money still belonging to the corporation). And, history has sometimes seen this or that sovereign national government declare default on some of *its* debts. There is also, however, a different kind of maneuver which a national government can resort to: It can issue so much legal tender, between the time when it has sold a heap of bonds and the time when it has to pay back the face-value amount of the original loans embodied in them, that *(a)* the rate of inflation has outstripped the rate of interest, and *(b)* the lump-sum face-value cash paid back on the maturity date has less purchasing power than the same amount of cash had had at the outset. The political results of this kind of "bait and switch" maneuver are not as dire as those of galloping inflation, but can be pretty bad all the same. (I'll describe an example in a moment.) In order to stave off the

temptation, some countries – including the USA and India – let a national bank make the decisions as to how much legal tender to issue, without following orders from politicians in the government. In the U.S. the national bank is called "the Fed" (i.e. the Federal Reserve Bank), in India "the RBI" (Reserve Bank of India), in China the "People's Bank of China" (中国人民银行). (According to the Deputy Governor of the RBI in 2018, "Governments that do not respect central-bank independence will sooner or later incur the wrath of financial markets, ignite economic fire, and come to rue the day they undermined an important regulatory institution.")

In the modern world, one result of governments coping with an unwieldy heap of national debt by resorting to salient inflation is that potential buyers of new bonds from the same government – bonds which it may want *urgently* to sell in order avoid the dire political consequences of defaulting on the previous round of debts – those greedy potential buyers will take advantage of the government's urgency by requiring higher interest rates on the new bonds, and the government is thereby trapped between the Devil and the Deep Blue Sea.

Here is an example: France in its 18th-century wars with Britain not only lost a lot of battles (such as at Plassey in 1757; the decisive last such battle was to be at Waterloo in 1815) but also sank into fiscal crisis. The government defaulted now and then on its debts, whereas post-1688 Britain never defaulted on the debts represented in the chart which I showed a moment ago (the one entitled "Britain's Debt/National Income Ratio, 1691-2009"). The French monarchy's heavy taxation of its subjects in order to pay down its debt in the 1770s helped provoke the French Revolution of 1789. Paul Krugman has commented: "Why was an absolute monarchy weaker, in practice, than quarrelsome republics? One reason was that the very absence of limits on the ruler undermined French credibility: Whatever the king might promise, he could always change his mind. Not incidentally, as a result, England was much more successful at wartime borrowing, *and paid much lower interest rates*." [my italics]

HISTORICAL FOOTNOTE: Have you noticed the element of historical continuity between *(a)* 18th-century French kings defaulting on debts incurred for the sake of *their* imperialistic ventures and *(b)* Napoleon selling the Louisiana territories to the USA in order to help finance his own such ventures? (He crowned himself Emperor in 1804.)

AMUSING FOOTNOTE: And yet here is a remark which one of the USA's founding fathers, Benjamin Franklin, made privately in 1779 about dollars and the then-ongoing war for independence from Britain: "This Currency, as we manage it, is a wonderful Machine. It performs its Office when we issue it; it pays and clothes Troops, and provides Victuals and Ammunition; and when we are obliged to issue a quantity excessive, it pays itself off by Depreciation."[6] (He was at that time in Paris as the American envoy to France, which was supporting the 13 North American colonies in their war for political independence from Britain. British General Cornwallis surrendered to George Washington in 1781 – and then in 1786 became Commander-in-Chief of British India and Governor of Bengal Presidency….)

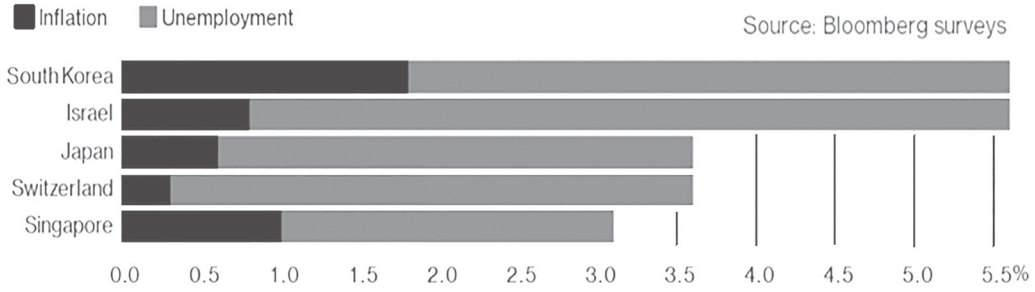
6 *The Writings of Benjamin Franklin: Collected and Edited with Life and Introduction by Albert H. Smyth.* (Macmillan, New York, 1905-07), vol.VII, pp.293-94

Here then is a list of various ways (apart from merely printing and issuing legal tender) in which a government fund itself:

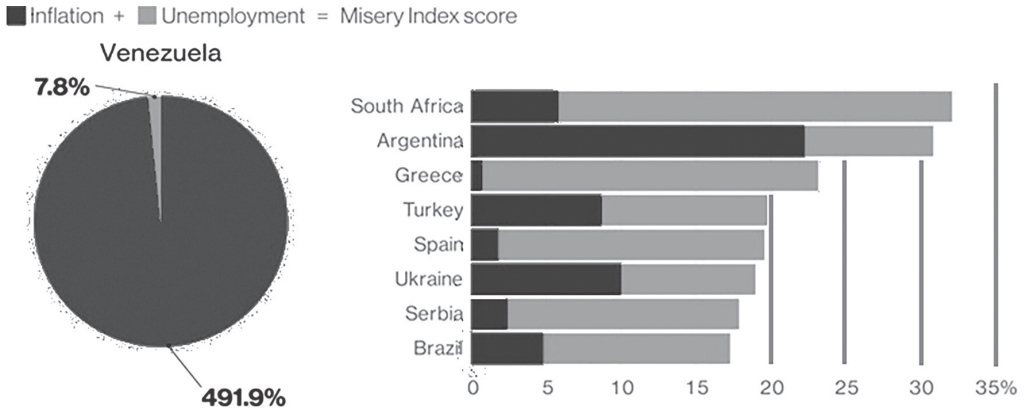
- By selling bonds.
- By taxation (direct and indirect as explained above).
- By making people pay fines for doing illegal things.
- By making them pay for licenses to do legal things.
- By issuing franchises for profitable private exploitation of the nation's non-monetary material wealth.
- By selling outright some of that material wealth of the nation.

Let me say more about inflation. The two kinds of inflation which I distinguished from one another a moment ago – (1) troublesomely excessive and (2) downright galloping – differ from the supposedly temporary Keynesian kind described in the first lecture. The Keynesian kind may be beneficial if there is in the market economy a stable equilibrium – an internally unshakable perfect match between prices asked and offered – and yet massive unemployment as well. In that situation, for the government to issue some additional legal tender and *give it* immediately to people who don't *have* money but do have urgent material needs for commodities, will induce them to spend immediately the new money and thus cause demand for commodities to exceed the current rate of supply, and hence in turn (according to the theory) cause businesses, wishing naturally to profit by meeting the increase in demand, to hire more labourers and thus reduce unemployment. The theory was devised in the 1930s. There were no 21st-century-type robots back then. Businesses couldn't increase production without hiring additional labour.

I could say more about the temptations and hazards of excessive inflation. But let it suffice to mention instead – now that we have been reminded that excessive *unemployment* can be a good reason for government to induce a certain amount of inflation under certain circumstances – a cleverly simple kind of "misery index" which an American economist, Arthur Okun, devised in the 1970s. Each entry in an Okun misery index is supposed to show *(a)* how much unemployment there is, via a reckoning of the number of involuntarily unemployed people as a percentage of the number labouring, and *(b)* how much inflation there has been in the last year, i.e. what percent more you have to pay now than a year ago for (a certain representative amount of) commodities (or, to put it another way, how much the cost of living has gone up). Just one or two percent for either of these items is not an indication of misery in the national economy. It's, say, more than five (for each of the two percentages) that is a red flag or at least yellow warning sign. As with "cost of living", so also with Okun's "misery index", comparisons between successive years in one and the same country are more reliable than comparisons between different countries in one and the same year (because the different countries' criteria for their statistical estimates of unemployment and cost of living may differ significantly). But even so, this index makes up in handiness for what it may lack in precision. The following two slides show some fairly recent such data for some places with *(a)* no economic "misery" (except in Israel with regard to unemployment) and *(b)* a lot of it.



Notice that the numbers along the bottom of the next set of bar graphs are ten times as big:



Throughout the second half of the 20th century, fear about too much inflation of the national currencies of various countries has been a basic reason why cosmopolitan people and institutions (companies etc.) in those countries, and also international institutions, often preferred to have U.S. dollars.

Three additional historical footnotes:

1. Before paper money came into use, a well-known precept about money was that "bad" coinage drives out "good" if they exchange equally: the "velocity of use" of *adulterated* gold or silver coins (chipped at the edges, for instance) would exceed that of the unadulterated ones. (Thomas Gresham said so in 1558, and it is often called "Gresham's Law"; but other, previous writers had also mentioned it.) Hence the proverb: "The bad penny always returns."

2. In 1696, the Warden of the English Royal Mint recalled all its coinage and had it melted down and remade with a design that was more difficult to counterfeit with coins made from cheaper metals. One feature of the new coins was that the edges were "milled" – i.e. grooved vertically – as a preventive measure against chipping. The British were very concerned, already back then, about the quality of their money. The Warden was Isaac Newton.

3. In 1944 at the "Bretton Woods" Conference which chalked out post-war inter-governmental financial rules (e.g. for the International Monetary Fund, the IMF), Keynes worried that the reliability of the American dollar as *international* unit of measure would become threatened

if the USA were to evolve one day into a nation with big annual trade deficits (i.e. with imports costing far more than the income from exports). He suggested that all the big national economies, while keeping their own national currencies (and their central banks issuing those currencies), denominate international payments in a common, non-national accounting unit (he would call it "the bancor") and clear them through an "International Currency Union" with a certain set of shrewdly elaborate rules (he described them) to prevent excessive international imbalances. The head of the USA's delegation rejected the proposal – and after a few decades the USA become economically obese on trade deficits (i.e. with cost of imports outstripping income from exports). It terminated in 1971 the Bretton Woods system. The World Bank and the IMF then came up with a programme of massive, deregulated privatization of international finance whereby various "developing" countries were duped into incurring massive debts in dollars which then had to be paid off by imposing "austerity" on those of their citizens who had not been in a position to grab into their personal pockets the dollars lent by the Western banks. (The interest on the debts had to be paid by buying dollars with ever larger amounts of a national currency which was relatively more and more debased vis à vis the dollar.)

Let me describe now a certain basic and in one way or another persistent worry which people in national governments tend to have about international commerce, and then describe a connection between this kind of worry and excessive inflation.

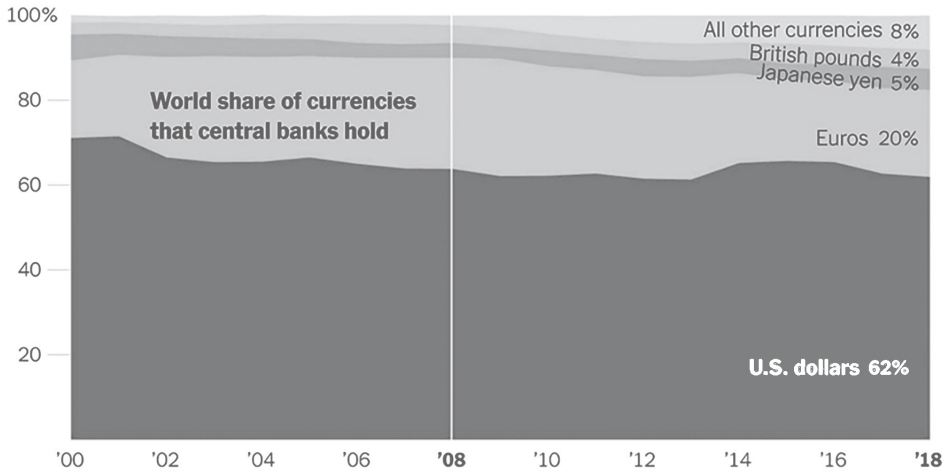
In France in the 1670s, Jean-Baptiste Colbert, the Prime Minister under King Louis XIV, said that a nation well-endowed with natural resources should import no kinds of goods that can be produced domestically (i.e. within the nation itself). A modern counterpart to that primitive "mercantilism" is the precept, preached by economists and politicians in each country, that the nation's exports should be worth more, money-wise, than its imports and that the greater this "positive balance of trade", the better. However, the worldwide totals of national positives and national negatives in this regard have to equal each other. The international sum has to be zero. There's no Sun- or Moon-nation to trade with and leave in the lurch with a negative balance. If your thoughts are running in this specific and limited groove only, then you can't imagine a "win-win" international outcome in this regard; it has to be "win-lose".

From the point of view of any one country, foreign currency paid to it by people in another country in order to acquire some of *its* currency represents theoretically a set of claims, held by people or institutions in that first country, on commodities from those other countries. For instance, if we Americans sell some of our commodities (or even some of our dollars) for Indian rupees, then we can later use those rupees to purchase some Indian commodities. And of course if we Americans invest our rupees in a profitable way (perhaps, if we are financially timid, by simply putting them in a bank account paying interest on them), the amount of our rupees will increase accordingly. But if the rate of inflation in India is meanwhile higher than the rate of increase in our rupee holdings, then the amount of Indian commodities that we can potentially purchase with our rupees will decrease.

If this little story prompts you to think of the "almighty dollar" as beautiful and desirable, then here is a corrective: The U.S., by importing more manufactured goods than it exports (and in fact the U.S. is currently running trade deficits with more than 100 countries), not only promotes gainful employment abroad but also conveys, to for-

eigners, dollars representing claims on American commodities. Since lots of billions of dollars are nowadays held by foreign interests, the U.S. has a patriotic interest in dollar-inflation so as to dilute those foreign claims on U.S. commodities; and, the Fed's willingness to do that – it's called "quantitative easing" – means that the people and institutions in those other nations holding dollars have a latent interest in spending that U.S. legal tender soon on whatever real estate and other increasingly scarce sources of natural capital (outside their own borders) can be bought with it.

Peter Bernholz, an economics professor in Switzerland, said in 2003 that a continuous flow of new money into a national economy leads to inflation only after a more or less extended time *if* the same national currency is meanwhile also used abundantly abroad. This latter condition has remained characteristic to date for the US dollar (as the following graph indicates with regard to government-issued bonds held by the central banks of the various different nations):



Source: IMF

Why haven't the euro and the Chinese renminbi or yuan (these two words refer to the same thing, somewhat as "dollar" and "buck" do in the USA; the sign for it is ¥) made more headway against the dollar as reserve holdings in other countries' central banks? I think it's due partly to the strength of familiar 20th-century traditions and partly to political fear that, on the one hand, the Chinese government might behave autocratically *vis* à *vis* foreigners (as it sometimes does *vis* à *vis* its own citizens), whereas on the other hand the central EU executive and legislative branches of government are too weak to restrain fiscally dangerous behavior by certain national governments of EU countries. (Yet even so, you can find in international high finance nowadays a budding tension between the tendencies to cherish and to shed dollars.)

Whereas the USA's GNP was, in the 1960s, 40% of the total of all the GNPs, an analogous figure nowadays in purchasing-power-parity terms would be (according to Kishore Mahbubani) 15%. The analogy between the two figures is inexact. (Each GNP is reckoned in a national currency, and then comparisons are made in terms of currency-exchange rates rather than in terms of PPP comparisons; please recall my remarks, in the

3rd lecture, about the difference between the two kinds of comparison.) But there is nevertheless a significant underlying point: the dollar is less "almighty" now than 50 years ago, because the share of the world's current commodities that it can buy is less.

This trend will continue as the recently developed cargo-train service – initiated in 2009 – linking the Chinese city of Yiwu (250 km south of Shanghai and hosting more than 70,000 wholesale suppliers and manufacturers) with Western Europe continues to expand. Those freight trains, running westward through Kazakhstan, Russia, Belarus and Poland to Germany, Belgium, France and Spain, can carry their cargoes 10,000 km in 17 days, cutting in half the cost of shipping by sea (which takes twice as long) and cutting by 90% the cost of air-freight. It is expected that more than 7½ million containers per year will soon be transported via that railway service. The trains go back and forth (of course) and can thus be expected, as the president of France has remarked, to carry cargoes from Europe to China.

(Since I have mentioned the Fed's "quantitative easing" and China's growing economic throughput, let me mention also that the Chinese counterpart to the Fed (the People's Bank of China, the "PBF") makes high-risk, low-interest loans directly to entrepreneurs in sectors of the economy – infrastructure and agriculture, for instance – that the government wishes to stimulate. If, with bad luck, the loans are then not repaid, the PBF can readily make up for those particular monetary losses to it, by issuing more currency. A prominent American economist has dubbed this Chinese practice "qualitative easing".)

Let us, however, go on now to the last main part of this lecture, the part about governments *spending* money (not the same as issuing legal tender, and the exact opposite of acquiring money by levying taxes and selling bonds or whatever else the government may choose to sell).

(And by the way, there are several things, besides bonds and material natural heritage, that a national government can sell – for instance: military services; and/or, a railway company or airline belonging to it; and/or banking services at the national bank, with a guarantee that that bank could never possibly become bankrupt since it could always, if need be, issue another batch of legal tender.)

A government must of course spend money to pay its employees (legislators, bureaucrats, judges, police, teachers, firemen, armed forces, etc.) and to pay the contractors providing equipment and services which it needs in order to function (or is regarded as needing) but which are not provided by its own employees.

Some services which modern governments try to provide to their citizens are:

• A modicum of law and order. (Anarchy is incompatible with capitalism – or, for that matter, with socialism.)

• National defense (since humans do, alas, engage in warfare) and international diplomacy (a better alternative to warfare).

• Infrastructure for transportation. This has been, for many centuries now, essential for delivering food from the farming and fishing villages to the places – the towns and cities – with population density so high that to produce *locally* an adequate supply of

food would be impossible. (Far more of the monetary cost of food in cities is for the transport than for the farming.) Modern infrastructure for transportation and travel includes not only roads, railways and ports but also airports and air-traffic control schemes.

• Infrastructure for indirect (i.e. not physically face-to-face) communicating (telecommunication).

• Infrastructure for automatic supply of electric current (the grid) and, in some countries, for supplying non-solid fossil fuel.

• Public hygiene (including urban sewage disposal and provision of potable water) and health care.

• Formal schooling of the children. Government in India neglected this for several decades. (It seems to me that Ambedkar's and Nehru's biggest mistake in the Constituent Assembly was not to fight for putting compulsory primary and secondary schooling in the Fundamental Rights part of the Constitution rather than in the Directive Principles part.)

> **FOOTNOTE**: Earlier in this lecture I mentioned the distinction between "direct" and "indirect" taxation. In regard to fiscal expenditures, a basic distinction is between spending for development and maintenance of infrastructure and spending for development and maintenance of "human capital". Milton Friedman wisely warned the government of India in the 1950s not to maintain its "policies that increase physical investment at the expense of investment in human capital". In Jean Drèze's brilliant book *Sense and Solidarity* (2017) this fact is recalled in a chapter entitled "Nehruvian Budget in the Corporate Age".

• Some other ways – "welfare state" ways – of mitigating the effects of monetary inequality among the citizens.

• Safeguarding trees. (This can be traced back, in the West, to Colbert's *Grande Ordonnance*, issued in 1669 in behalf of King Louis XIV, for a *réformation des forêts*, to ensure adequate supply of wood for making ships.)

And, incipiently in the 21st century:

• Helping to coördinate, internationally as well as nationally, a peaceful response to the galloping rate – caused by capitalism – of decline in the quality and per-capita quantity of the material services offered to humankind by the natural environment.

The USA government played the main role in the late-20th-century creation of the Internet. But in the 21st century the challenges of maintaining "cybersecurity" in military operations, in electronically reckoned parliamentary elections, in journalists' reports and other civil-society communications, etc. may well exceed the capacities of national governments. To meet the challenges is becoming pivotally dependent on giant corporations such as Microsoft (which is, as we all know, always revising accordingly its Internet-connection software), Google (which has recently announced a plan to prevent online meddling with the next set of European-Parliament elections) and Facebook and Twitter (which are testing new technologies for detecting and removing fake news and misinformation from their platforms).

The more efficiently the government gets these things done with its money – i.e. the less money it has to spend to get them done adequately – the less money it has to raise from levying taxes, etc.

An important and often-discussed kind of government spending in India is for subsidies, subventions etc. intended to mitigate some of the bad effects of two of the three "big looming problems" described in my previous lectures:

• Degradation of the capacities of the natural environment to supply vital material services. (Some examples would be subsidies for planting trees or for reshaping local watersheds.)

• Excessive monetary inequality.

(Let me mention here, for comparison, that the Chinese government undertook in 2013 a "war against pollution" within the nation. New coal plants have been barred from opening; existing ones have been ordered to cut emissions; big cities are limiting the number of cars allowed on the roads; coal-fueled water boilers have been removed from residences in Beijing and many other densely populated cities have also recorded major declines in air pollution; and, the powers of the Ministry of Environmental Protection (founded in 2008) have been broadened to cover fresh-water management, agricultural pollution, factory emissions and other aspects of environmental degradation within China which had previously been the concern of various other ministries.)

Two approaches to mitigating excessive monetary inequality are (1) to reduce the relative amounts of the very rich and (2) to increase the capacity of the destitute to get the commodities they need in order to have healthy and reasonably happy lives. If it were materially feasible for economic throughput to keep on growing without any limit for all eternity (as neoclassical theory has posited), then it would be feasible to suppose that the needs of the destitute could be met while the rich consume ever more and more. But such is not the case, and therefore the destitute in modern societies will be unable get the commodities they need in order to have healthy and reasonably happy lives, unless the affluent reduce their rates of per-capita "keeping-up-with-the-Joneses" consumption. I think that (a) civil society and (b) governments should figure out how to promote that kind of social development.

Surgyan Didel has argued (persuasively to me) in his Ph.D. thesis, "Burden of Sectorial Subsidies in India" (University of Rajasthan, 2016), that an elaborate set of subsidies to the poor is a rather *inefficient* way for government to achieve the objective of giving a helping hand to them. There are big administrative costs for sorting out who is entitled to this and that. Bribery and skimming (on the receiving end) are often involved in making the payments.

Subsidies the value of which (in terms of preventing destitution) have faded under new economic conditions are nonetheless difficult to wind down; the recipients of subsidies become politically powerful vested interests. *And*, people who can buy stuff at unnaturally cheap rates of payment are likely to use it more wastefully than if they have to pay a price based on the real costs of producing and delivering it (or even on those real costs plus a Pigouvian tax). Here are some insightful remarks apropos from the best current college textbook on ecological economics: "Should we tax energy

and raise its price for the sake of inducing more efficient use, or should we subsidize energy and lower its price to help the poor? One instrument (price of energy) cannot serve two independent goals (increase efficiency, reduce poverty). We need a second instrument, say an income policy. Then we can tax energy for the sake of *efficiency* [my italics] and distribute income (perhaps from the tax proceeds) to the poor for the sake of alleviating poverty."

Let me describe now an idea which has been derived from this kind of insight and from pondering a fact of modern economic life which is becoming more and more evident as the 21st century progresses into the Age of Robots: the fact that certain modern techniques (dependent of course on "consumable energy") of producing commodities multiply the productive effect of labour so much that an adequate amount of material production for all the citizens of the nation can be achieved by just a few of them doing labour. By "adequate amount of production" I mean enough to provide enough material stuff of the right kinds – food, clothing etc. – to enable them all to feel that they are living decently, provided they don't mind having less money and/or commodities than someone else whom they know or know about.

Beyond such an adequate amount, there is always demand for additional marketed goods and services from people suffering unhappiness as they feel inferior to someone else they know who has more money and commodities than they do. Such unhappiness among the affluent cannot be reduced by arranging for most of them to get always yet more commodities, as happened in the USA during most of the second half of the 20th century. And now, in the 21st century, the condition of jealousy among the affluent is causing all three of the "big looming problems" that I have focused on: *(a)* the excessive level of monetary inequality, *(b)* the danger of more financial crashes due to unbridled financial speculation, and *(c)* the historically unprecedented problem of galloping decline worldwide in the quality and/or per-capita quantity of vital services offered to humankind by its natural environment. If rational worry about all three of those looming problems could prompt the affluent to seek their happiness more in warm personal relationships than in the rat-race aspects of their relationship to money and commodities, they might see wisdom in trimming their rat-race sails and in allowing their government to ensure that none of their fellow citizens suffer destitution.

It could well be that the simplest and most efficient possible way for a government to this would be by implementing a somewhat substantial negative poll tax – getting the amount right would be important – paid periodically: a guaranteed "Universal Basic Income". (I will use the abbreviation "UBI" for this. The main thing about it is that the national government would *guarantee* it and therefore each adult citizen could depend on it and it could thus eliminate *(a)* destitution and *(b)* worry about the prospect of destitution.) The government might pay it unconditionally to *every* citizen (or else to each one who is more than a certain childish age), by putting it automatically in a bank account established for him or her. The only qualifications for getting it would be existence (i.e. the relevant government official must believe that it is not just an imaginary person) and citizenship and presence in the country (and maybe a certain minimum age). Rich and poor alike would get it.

Since the very poor have no reserves of money saved up in bank accounts, UBI would have to be paid in weekly or fortnightly doses, not in big annual doses.

Friedrich von Hayek advocated, in 1949, that "all governmental services be clearly done outside the market, including the provision of a minimum floor for people who cannot make an adequate income in the market ... just providing outside the market a flat minimum for everybody. This, of course, means in effect eliminating completely the social justice aspect of it, that it, the deliberate redistribution beyond securing a constant minimum for everybody who cannot earn more than that minimum in the market."

There are arguments against UBI as well as for it. One problem is that the government would have to spend *lots* of money on it. Two responsible ways in which government could be enabled to do this would be to (*1*) collect more tax revenues (than now) and (*2*) eliminate some other fiscal expenditures, including those for various subventions intended to help destitute people get by. (Given an adequate UBI, they would no longer be destitute but only poor in a way which Gandhi would praise.)

Is it a wild idea, not yet ready for serious consideration? Here are some excerpts from the introduction to Chapter 9 of the *Economic Survey 2016-17* which the executive branch of the Government of India tabled in Parliament in January 2017: "A number of implementation challenges lie ahead, especially the risk that UBI would become an add-on to, rather than a replacement of, current anti-poverty and social programs, which would make it fiscally unaffordable. But given their multiplicity, costs, and questionable effectiveness, and the real opportunities afforded by the rapidly improving 'JAM' infrastructure, UBI holds the prospect of improving upon the status quo.... [It is] an idea whose time has come perhaps not for immediate implementation but at least for serious public deliberation."

One possible advantage of UBI which I have not seen discussed is that it might perhaps lead to fewer poor couples having big families (and disparaging the girls) *mainly* in the hope that perhaps one of the sons might eventually achieve affluence and support the parents in their old age. It seems to me that a better reason for a couple to create a child in this century is because they look forward with pleasure to raising it; and, I think it could be informative for parents to be asked, in a survey, how many children they feel would be an ideal number for them to have *(a)* under current economic conditions and *(b)* under conditions similar except that government would have guaranteed that they – the parents – are to be given unconditionally an income adequate to ensure that they need never suffer destitution.

An eminent Gandhian friend of mine has reacted negatively at the idea of UBI since it seems flagrantly contrary to the "*obligatory* bread labour" precept which Gandhi developed from the example of Tolstoy's personal voluntary performance of daily physical work *which he was never obliged to do*. (Tolstoy owned a lot of land and had hundreds of peasant serfs cultivating it for him. In his old age he would often join them in the agricultural work.) My friend has declined to examine the data – from experimental try-outs of UBI – as to whether people to whom it is paid do or do not

become slackers. I detect here a sharing of Hayek's and von Mises's precept that theory mustn't be based on data, but only on intuition.

Jean Drèze, the best economist now working in India, regards UBI as "an idea whose time will come", but says that the time "is still quite distant as far as India is concerned"; he has recently told me, "I like the idea [of UBI] as far as Europe is concerned, but in India today it strikes me as a bull in the china shop." He suspects that if the idea makes further headway soon in India as a theoretical proposal, it is likely, in political practice, to "be used mainly to dismantle whatever is already there by way of social security programmes". Prof. Madhura Swaminathan of the Indian Statistical Institute is equally suspicious of the proposal as set out in the *Economic Survey 2016-17.*

Luke Martinelli, a researcher at the University of Bath's Institute for Policy Research, is of the opinion that no UBI scheme could be beneficial to the poor, not even in Western Europe. He says that "an affordable UBI is [bound to be] inadequate, and an adequate UBI is unaffordable".

According to an article posted on 28th December 2017 in the American leftist Web-magazine *Jacobin*, "UBI isn't an alternative to neoliberalism, but an ideological capitulation to it" and should be scorned because a Socialist "Utopia is not beyond our reach – it's closer than we think". (I disbelieve in Utopias.)

Substantial accounts, including accounts of the results of experimental try-outs of the idea in India and elsewhere, are readily available at https://en.wikipedia.org/wiki/Basic_income and http://basicincome.org/ and https://en.wikipedia.org/wiki/Basic_income_in_India.

5. Money and Work in an Alternative Perspective

Here is a quick review: The first lecture mentioned the differences ***(a)*** between paid and unpaid work (I said that vast amounts of both kinds of work are done) and ***(b)*** between monetary and non-monetary opportunity-costs. The second lecture pointed out the psychologically important likelihood that a non-monetary cost of 21st-century growth of GNPs would be a drastic decline of the capacity of Planet Earth to provide humankind with economically vital natural material goods and services at an adequate per-capita rate – indeed so drastic a decline as to cause human catastrophes worse than ever before in the history of the species. In the third lecture I argued that to advocate monetary equality for everyone would be silly, but that in many countries there is nowadays a toxically excessive degree of monetary inequality. In the fourth lecture I suggested that the most efficient, most humane, and environment-wise most beneficial way to reduce the levels of monetary inequality would be for governments to fund, from stiff Pigouvian taxation (that is, from levies on activities notably destructive of the natural environment), a periodic negative poll-tax (Universal Basic Income; UBI) substantial enough to shield the poorest citizens from destitution.

I believe that in this century there will always be – because of ever more effective techniques of leavening the productive power of labour – a persistent shortage of opportunities for earning a living by wage labour, and so a lot of people will, if they don't get UBI payments or the like, suffer from *(a)* fear of slipping into destitution and therefore *(b)* destructive hatred toward a lot of other people.

On the next few pages is a more comprehensive recap of salient points from the previous four lectures:

(1) In the first one I said that economists define "labour" as human work (i.e. deliberate effort) done *for pay*, and "commodities" as goods and services prepared and offered *for sale* or for barter.

I rejected Marx's view of money as a mere fetish (since the social power of money is real, not imaginary), but called Solow's precept that "everyday life is about prices, not values" an exaggeration reflecting a tendency of market economists to focus only on monetary wins and losses. I approved of the distinction between exchange value and use value, and said that a lot of work which is not labour (e.g. work done by parents and grandparents for their offspring) is of great social value.

I said that "wages" (including salaries) are defined as money paid for labour, and "rent" as money paid to someone who isn't working to produce something in return for that money; and I said that abstruse extensions of the concept of rent tend to obscure the fact that opportunity costs can be non-monetary. An example of a non-monetary cost would be the cost, sometime in the next century or so, of the last opportunity for Humankind to survive for a lot more centuries, notwithstanding the many environmental catastrophes which will meanwhile occur.

After explaining the logic of the classical "labour theory of [market] value", I praised Engels's and Solow's insight as to the importance of technological improvements in the productive efficiency of labour, and said that Marx had seen, more clearly than Adam Smith, the $\$^1 \rightarrow C^1 \rightarrow \$^2 \rightarrow C^2 \rightarrow \$^3 \rightarrow C^3 \rightarrow \$^4$... pattern of capitalism (where $\$$ means the capitalist's or capitalists' money, and C means the amount of commodities, and they grow in tandem). And, I mentioned Robbins's important definition of economics as the aspects of human behavior which are guided by objectives and deal with scarce means that have alternative possible uses.

(2) In the lecture on money, the future and crowd psychology, I said that the idea of *smart* behavior is always linked psychologically to an imagined future, that wisdom lies in according due importance to shorter- *and* longer-term (within reason) time spans – and that crowd psychology often interferes with such wisdom. I described three resulting kinds of "bubbles" or collapsing inverted "pyramids": *(a)* Ponzi schemes, *(b)* stock-market crashes (likely after a couple of decades of "bull markets" and of debt levels building up), and *(c)* catastrophically galloping degradation of the capacity of the Earth to provide us with invaluable natural resources.

I said that to sink into a seriously unfortunate condition of the quality and per-capita quantity of the services provided to humankind by its natural environment can take more than just a few decades of reckless exploitation of natural heritage, but is beginning to emerge now and will, alas, get worse throughout your lifetimes. In large

nations, local and regional policies cannot suffice to prevent massive amounts of fatal damage to people due to this long-term insidious environmental devastation. Such policies will have to be integrated with national and with internationally agreed policies.

(**FOOTNOTE**: It is a little different in small nations. After a hurricane devastated much of northern Cuba in 2017, the national government adopted in 2018 a plan which, according to *Science* magazine, "bans construction of new homes in threatened coastal areas, mandates relocating people from communities doomed by rising sea levels, calls for an overhaul of the country's agricultural system to shift crop production away from saltwater-contaminated areas, and spells out the need to shore up coastal defences…. Rising sea levels pose the most daunting challenge for Cuba. Over the past half-century, CITMA [the Cuban science ministry] says, average sea levels have risen some 7 centimeters, wiping out low-lying beaches and threatening marsh vegetation, especially along Cuba's southern midsection. … Storms drive the rising seas farther inland, contaminating coastal aquifers and croplands. Still worse is in store, even in conservative scenarios of sea-level rise, which forecast an 85-centimeter increase by 2100.")

In the lecture I linked *(a)* Buchan's thesis that before the historical development of money, people would tend to regard their material needs as specific and finite, but that because money can buy so many different things, modern affluent people tend to feel that their needs are abstract and limitless with *(b)* Schopenhauer's microeconomic precept of money potentially meeting all kinds of needs and *(c)* Jevons's postulate that "there is hardly a limit to the desire for articles of aesthetic taste, science or curiosity, when once excited".

And, I praised Frederick Soddy's insight that fractional-reserve banking harbours an imbalance between *(a)* limitless expansion of funding for enterprise destructive of the planet's natural resources and *(b)* the limited amounts of those resources.

In that lecture I innovated radically by ignoring the 20th-century economists' narrowly doctrinaire "Economic-Man" psychology and focusing instead on the sociologists' more insightful concept of "crowd psychology", in order to place on a single spectrum of time spans (and of depths of potential social damage) the resulting kinds of insidiously dangerous "pyramids".

(3) My starting point in the lecture on money and inequality was Ruskin's remark that the social power of the money in a rich person's pocket depends on its lack in his neighbor's. I recalled ***(a)*** Arthur Lewis's observation that in a national economy with a large "subsistence" sector and a small sector of capitalist enterprise, the capitalists have a direct interest in holding down the productivity of the subsistence workers so as to bolster the social power of their own monetary wealth, and yet also ***(b)*** the fact that apart from the nasty aspects of capitalism, there are, in any complex modern society, various kinds of aggravated social inequality (due to historical heritage): casteism, gender status, religious scorn etc. I distinguished between *(a)* the labourer's "pecuniary pressure" to earn enough money and *(b)* "non-pecuniary" pressure such as in slavery and serfdom. *Some* Marxists have suggested that the pecuniary pressure (under capitalism) to labour is just as oppressive as the brutal non-pecuniary pressure on slaves (under feudalism) to work for other people. But even if those Marxists are mistaken, even if capitalism is far less oppressive than feudalism, still this need not mean that it has to be impossible to develop a better kind of socio-economic system (better than capitalism)

whereby work, even when physically tiring, would be less oppressive than labour is if you dislike your job. Let us recall here the fact, mentioned previously in a footnote, that the best economist now working in India, Jean Drèze, believes in "*the possibility* [my italics] of doing things ... differently – based on principles of freedom, coöperation and enthusiasm rather than the drudgery of employer-employee relationships". I am hopeful that a truly adequate Guaranteed Basic Income might help enable that possibility to be realized, *if* a lot of people worldwide share with each other during the transition-phase a healthy determination to rescue the human species from some of the ravages of 21st-century "angry Mother Nature". **My hope is that love *and* healthy fear together may prompt the survivors to coöperate**.

Jean Drèze says: "The wage labour system strikes me as a little archaic – better than slavery, but still based on control and subordination. The profit motive, too, is quite crude [as a theoretical concept], and its alleged [social] virtues [in the economy] are much exaggerated in mainstream economics [theory]. It will take time to get rid of these [somewhat archaic] norms, but some sections of the economy and society (including academia) have already moved away from them in substantial measure, and hopefully their domain will shrink further over time."

All drudgery *is* drudgery, no matter what the socio-economic system. Under a system of universal capitalism and wage labour, boredom can permeate a lot of people's lives in the following two ways:

Jean Drèze's hint that *some* of academia has begun to abandon certain archaic aspects of the economic theories that are still being taught routinely in business schools and universities is an implicit reference to (among other things) the fact that in the 21st century, the Bank of Sweden's committee choosing winners of its annual "Nobel Memorial Prize in Economic Sciences" has felt obliged to award a prize, every three or four years, to an economist (Daniel Kahneman in 2002, Robert Aumann in 2005, Elinor Ostrom in 2009, Robert Shiller in 2013 and Richard Thaler in 2017) who has effectively discredited one or more of those archaic aspects of the routinely taught theories. In the lecture on money and inequality, I harped on ***(a)*** the unhappiness caused to modern affluent people by striving to "keep up with the Joneses" commodity-wise while the Joneses are keeping up with someone a bit more affluent than *they* are, and ***(b)*** the fact that a result of this jacking up of macroeconomic material throughput and waste is to cause humankind's living conditions to deteriorate (later on) in material but non-monetary ways (due for instance to various kinds of pollution). Historically, this latter syndrome emerged in the USA *during its mid-20th-century decades of*

mitigated monetary inequality. The Great American Middle Class innocently created the environmentally disastrous "throw-away" culture! I will say more about this in the first appendix to this lecture.

> **INCIDENTAL CULTURAL FOOTNOTE**: You can see something of what the innocence was like by watching on the Internet one or two episodes of the very popular (in the '50s and '60s) weekly American television programme, "What's My Line?" – a scintillatingly urbane celebration of division of labour. A panel of four charming and quite wealthy New Yorkers (who had very apparently never exploited anyone unfairly) would try to figure out, by asking a "mystery guest" various yes-or-no questions, what kind of labour he or she did for a living. Adam Smith would have been amazed at the variety of jobs. The programme was full of wit and laughter exuding cordiality and innocent delight.

In the lecture I cited Piketty's finding that *increases of monetary inequality* have prevailed, historically, in capitalist economies, and I explained how economists track those inequalities within each nation by means of Lorenz Curves (and Gini Coefficients) and how such findings are complemented with estimates of "Purchasing Power Parity" (it should be called "purchasing power disparities") between people in different nations. I cited a few samples of graphic data showing correlation, in affluent countries, between higher degrees *(a)* of monetary inequality and *(b)* of social malaise (e.g. higher percentages of the population obese, mentally ill, in prison, and suicidal, as well as lower degrees of well-being among children). I said that merely to eliminate extreme monetary inequality cannot solve our looming problems of potential violence (e.g. due to high tides of immigration); I cited Alexis de Tocqueville to the effect that great political shrewdness is needed to mitigate such social problems. And I mentioned a kind of extreme monetary inequality due to corrupt trustees: people selfishly and recklessly mismanaging *other people*'s money that has been entrusted to them, for instance in big banks and in governments.

(4) The lecture on money and governments began with Max Weber's definition of the state as a kind of social organization which has established, within certain borders, a monopoly on legitimate use of (public) physical compulsion. (He overlooked that private physical compulsion may sometimes be legitimate in child-rearing, e.g. to prevent a small child from touching a hot stove.) I described the government's powers to issue legal tender, to tax, and to declare certain debtors insolvent and therefore no longer obliged to pay.

I outlined some basic kinds of taxation and some other ways a government can acquire money, for instance by borrowing it – and then maybe by diluting the value commodity-wise of the debt by issuing vast additional amounts of legal tender: an inadvisable policy since steep inflation not only deprives wages and savings of value, but also prompts potential buyers of the next round of bonds from the same government (now urgently in need of funding) to make it pay exorbitant interest rates on them.

I described briefly *(a)* the "Philipps Curve" and *(b)* a rough but handy kind of national "economic-misery index" based on data for unemployment and inflation.

Without going into detail as to the services offered by modern national governments to their citizens, I said that the services are likely to include "law and order", national defense, infrastructure for transportation, communication and supply of electricity, pub-

lic health care and hygiene, schooling of children, other welfare-state-type mitigations of monetary inequity, safeguarding trees, and (in your century) coördinating regional responses to galloping environmental degradation. I called attention to the distinction between spending ***(a)*** for development and maintenance of infrastructure and ***(b)*** for development and maintenance of "human capital", and I ventured in the direction of the following argument:

If you believe (as I do) that UBI could be the most efficient and spiritually least demeaning way, in the Age of Robots, for governments to protect their citizens from destitution, then you can see that a "demand-side" solution to the problem of shortage of jobs (i.e. with lavishly fresh demands for commodities coming from poor people to whom government has given away a surge of freshly created money) is unsuitable today. The combined problems of ***(a)*** widespread and constant fear of slipping into destitution (due to the effects of robotization) and ***(b)*** decline in the actual capacity of the Earth to supply material natural goods and services to humankind at an adequate per-capita rate – that novel combination of problems calls for a different kind of solution, drawing upon the distinction between labour and unpaid work, and distinguishing further between socially constructive and socially useless or downright destructive unpaid work. The latter includes, in the opinion of Westerners like me: begging, robbing (notwithstanding that Robin Hood is regarded as a legendary hero), murders that are not paid for (if they *are* paid for, then they're due to labour and so the market-economist tallies the wages as part of the GNP), and raping (which certainly requires physical work, but is regarded as being socially more destructive than creative).

(I myself would also categorize the following as socially destructive unpaid work: (*a*) hateful religious activism masquerading as promotion of values, and (*b*) financial scamming masquerading as economic activity.)

I think that a widespread need for two particular kinds of socially *constructive* work has increased in modern times (and the need will increase far more in this century, but most people won't be able to pay someone else to do those two kinds of work, and indeed the first kind might be done better by unpaid than by paid workers):

• caring personally for senile and/or very sick people (as medical uses of chemistry and surgery continue to become more effective and so there will be relatively larger numbers of senile people and of people being treated successfully for serious illnesses)

and

• pre-sorting waste in order to mitigate the rates of deadly pollution of the natural environment. History shows that once all kinds of waste are mixed together into one batch, the monetary cost of treating suitably the various different kinds of stuff in it becomes so high that the work is never done.

So, a social and cultural need of the hour is to develop a much higher degree of effective appreciation for socially constructive unpaid work.

The rest of the lecture will be concerned in one way and another with this need.

* * *

In 1887 Ferdinand Tönnies, a German academic who was to become the founding president of the German Sociological Society, published a seminal treatise entitled *Gemeinschaft und Gesellschaft* ("Community and Society"). To explain (at the outset of the treatise) his main theme, he said that "human wills stand in diverse connections to one another" which can be either antagonistic or else "positive"; in the latter case there is a social "bond"; and

"The relationship itself,	*Das Verhältnis selber,*
and therefore	*und also*
the [resulting] bond, is	*die Verbindung, wird*
conceived of	*entweder als*
either as	*realisches und organische Leben*
[a] real and organic [form of] life	*begriffen*
[and] this [conception] is	*– dies ist*
the essence of **Community**,	*das Wesen der Gemeinschaft,*
or else as	*oder als*
[a] mental and mechanical	*ideelle und mechanische*
construction, [and] this is	*Bildung – dies ist*
the concept of **Society**."	*der Begriff der Gesellschaft.*

From this distinction Tönnies derived a lot of interesting statements about these two contrary or complementary ways of how we may tend automatically to think of and feel about our social bonds. He said that "Community" is not only more intimate than "Society", but also more old-fashioned. Religion is more important in Community than in Society; Society has written laws, which Community doesn't need because it has, instead, strong fellow-feeling and traditions; in a community, you don't have to make a conscious decision to coöperate, it's *automatically* what you do; and so on.

Theorising along such lines was developed further by other late-19th- and early-20th-century founders of Western sociology, most notably Max Weber in Germany and Émile Durkheim in France. Traces of it can readily be found in the writings of Gandhi and of two economists, Friedrich Hayek and Douglass North, whose *anti-community ideas* won for each of them the Bank of Sweden's "Nobel Prize" in economic sciences.

In the U.S., a sociology professor named Edward Ross had observed, in the concluding chapter of his 475-page book, *Social Control* (1901), that in a [genuine] community, "the secret of order is not so much *control* as *concord*…. The lively sense of a common life enables mates, kinsfolk, neighbours, and comrades to love and understand one another, to yield to one another, and to observe those forbearances and good offices that make associate life a success", but that in modern societies, "Frequent change of domicile hinders the growth of strong local feelings. The householder has become a tenant, the working-man a bird of passage. Loose touch-and-go acquaintanceships take the place of those close and lasting attachments which form between neighbors that have long loved, laboured and pleasured together."

According to Ross, money had caused this change. He said: "The power of money rends the community into classes incapable of feeling keenly with one another. Everywhere

we see the local group – the parish, commune, neighborhood, or village – decaying, or else developing beyond the point of real community."

Is it an exaggeration to suggest that members of monetarily determined classes are incapable of feeling keenly about humankind as a whole? And would it be an exaggeration with regard to members of (non-monetarily-determined) castes? However that may be, it seems clear to me that ***(1)*** money is here to stay for quite a while (no matter what Otto Neurath may have hoped), and ***(2)*** it can have powerful corrupting effects, but even so, ***(3)*** galloping inflation has to be avoided.

> **INCIDENTAL CULTURAL FOOTNOTE**: The second of these three points is made in a cleverly sharp way in a famous 20th-century Swiss play. Switzerland is (as you may know) a small, land-locked country where most of the citizens are hill people – peasants living in village communities – and yet the nation became, by going in for international banking (in a city next to a lake) with secret accounts, very affluent in the second half of the 20th century: the Swiss know a thing or two about money. The most famous work of modern Swiss literature is a play (1956; by Friedrich Dürrenmatt) in which an urban lady (let us think of her as a lady from Society) is depicted as returning, in her old age, to her native mountain-village community where she had, as a youth, been jilted by her boyfriend who had got her pregnant. Having fled from the village in desperation, she has managed, with resilience as a prostitute in the urban world down in the valley, to accumulate a fortune; and now she offers to give a vast sum of money to the village and to the villagers, provided they murder the cad. They gradually persuade each other that it's the right thing to do. The point of the play is rather narrow. It doesn't show how getting paid for wreaking the lady's vengeance will affect those imaginary people's lives. The title of the play is *Der Besuch der alten Dame*, meaning literally "The Visit of the Old Lady". The English translation is entitled "The Visit".

Now that the use of money has, under the pseudo-scientific guidance of 20th-century "positive" economics (i.e. economics with no moral concerns) weakened our traditional moral secular values, can we, or our children, forge effective new moral values adequate to the emerging material problems of the 21st century? Can the study of economics become, in the 21st century as it was in the 18th century and most of the 19th, a science infused, like medical science, with explicitly acknowledged moral concerns?

Some top Indian economists seeking to develop an economic science with explicit moral values have been Amartya Sen, Jean Drèze, Kaushik Basu (see for instance his *Prelude to Political Economy: A Study of the Social and Political Foundations of Economics*) and Partha Dasgupta.

In the first of these five lectures I mentioned that. H.S. Jevons, had co-founded the *Indian Journal of Economics.* He and Mahatma Gandhi disagreed (in a friendly) way as to whether such a thing as an economic science without moral values can exist. An effort of mine to contribute to this debate is an article entitled "The 'Economic Man' Premise" in the centennial issue (April 2016) of the *Indian Journal of Economics*. On a T-shirt worn recently by a student at an Indian school of economics is the message:

People who think
money can't buy happiness
don't know how to shop

(Will Humankind learn how to shop better?) The young lady wearing the shirt was of the opinion that people who have vast amounts of money in the modern world, *and* who are clever at shopping, can buy happiness in the 21st century, regardless of how much bitterness about material inequality there is in the society and how much catastrophic damage might have occurred due to wars, epidemics, bad weather, various kinds of pollution, the increasing frequency of earthquakes, etc. etc. I agree 25%. How about you?

My previous lectures described some kinds of mishap which can (I said) result from the combined effects of

• national economies based so thoroughly on labour (i.e. on *paid* work) and so little on unpaid work that the modern market economist's exclusive focus on prices and neglect of other values is not only very influential but also quite realistic,

and

• crowd psychology outweighing intelligent judgement in regard to how to use money.

I described four kinds of mishap:

(1) Ponzi schemes. I think these will always happen. Governments can discourage them by sending perpetrators to prison and this is indeed sometimes done. It seems to me that the danger of heaps of illegal Ponzi schemes is unlikely to be a very dire social issue in the foreseeable future. In macroeconomics they are about as bad as the common cold is in public health.

(2) Financial crashes causing massive unemployment (loss of opportunities for paid work). I think that the danger of such crashes in the foreseeable future is real, but smart managers of national banks (and other relevant government officials) *could* prevent them if there is a modicum of honesty in government.

(3) Violent social strife due to excessive monetary inquality.

(4) Fractional-reserve banking causing natural resources to be used up carelessly….

Let me now offer to you, for your consideration, a slightly revised version (adapted by me for this use) of a sales pitch posted in 2010 by Harvard University Press for a new book (a book which I admire a lot, although I am still wondering about some of the points in it) by the best Harvard University professor of economics, Stephen Marglin. The book is entitled *The Dismal Science: How Thinking like an Economist Undermines Community*:

"Economists celebrate the market as a device for regulating human interaction, without acknowledging that their enthusiasm depends on a set of *half-truths* [my italics]: that individuals are autonomous, self-interested, and rational calculators with unlimited wants, and that the only community that matters is the nation-state.

"But in our everyday lives, market relationships often erode community. In the past, for example, when a farm family experienced a setback say the barn burned down neighbors pitched in. Now a farmer whose barn burns down turns, not to his neighbors, but to his insurance company. Insurance may be a more efficient way to organize resources than a community barn-raising, but the deep social and human

ties that are constitutive of community are weakened by the shift from reciprocity to market relations.

"Marglin dissects the ways in which the *foundational assumptions* [my italics] of market economics justify a world in which individuals are isolated from one another and social connections are impoverished as people define themselves in terms of how much commodities they can afford to consume. Over the last four centuries, this economic ideology has gradually become the dominant ideology in much of the world. Marglin presents an account of how this happened and an argument for righting the imbalance in our lives that this ideology has fostered."

In regard to "communities" *vs* mere "associations," Marglin says (in the book) that

"The distinction is fundamentally one of commitment and identity. Associations, even while they provide their own form of social glue, make little claim on our loyalties and at best make minor contributions to our identities. ... We are not determined once and for all by, nor chained to, our communities, but neither can we [very readily] resign [from a community] as we can from [for instance] a bowling league."

He further distinguishes between communities "of necessity" and "of affinity":

"Precapitalist economic, social, and political arrangements offer abundant examples of communities of necessity.... The problem with communities of necessity is that, absent legal compulsion, they are vulnerable to prosperity or, rather, the prospect of prosperity.... Communities have always had to cope with the lure of 'out there' for the young, especially for young men who reach the age of emancipation from parental control but have not entered into the responsibilities of house-holding.... [On the other hand,] religious communities are a prime contemporary [i.e. 21st-century] example of communities of affinity, but this is not to say that communities of affinity must be based in religion. Intentional communities – a particular sort of community of affinity in which there are a variety of kinds and degrees of sharing of goods even if not total communal ownership – have waxed and waned. ...If communities of necessity are put at risk by the temptations of prosperity, communities of affinity run an inherent risk of dissolving into [mere] associations."

He acknowledges, however, that "Association and community are best thought of as ideal types. ...Real groups of real people lie somewhere on a spectrum in terms of commitment and identity, and the spectrum itself shifts over time."

I have mentioned that an enemy in common can stir up patriotism – a communal feeling – among people in the "imaginary community" (imaginary inasmuch as its members mostly *don't know one another personally*) of a nation-state. What then of humankind as a larger imaginary community facing the threat, potentially deadly to the entire species, of an "angry Mother Nature" in the form of environmental pollution: the overloading of ecological sinks (including the watery and atmospheric sinks for heat), causing more and more catastrophes in your century? Will humankind pull together in the face of this unprecedented worldwide bundle of threats?

Well-informed activism is beginning to weave a network of quasi-communal international sentiment for addressing coöperatively the macro-ecological problems of pollution and depletion.

In regard to various aspects of our material *and* psychological needs, it is nowadays becoming more and more useful to develop simultaneous access to very local, somewhat local, somewhat less local, and sometimes downright global means of meeting those needs. A household could, for instance, get some of its consumable energy from, say, a solar panel that is not connected to any grid, and also some from a such a device that is connected back and forth to the national grid, and also some from such a device connected to a separate, local grid (with perhaps a village windmill or catchment-dam) shielded from national-grid collapse. Some analogous possibilities in regard to health care are obvious. *Even friendships as well as associations are nowadays embracing a great variety of distances.*

Marglin cites a remark made in 1911 by Joseph Schumpeter to the effect that just as a series of stagecoaches strung together (each with its own horsepower) would differ from a railway train, so also a web of associations differs from a community. But there we are: As communities become less important (on the whole), 21st-century technology is abetting new associative webs. They are popping up all over. They are undoubtedly less compelling than established communities, but *they are what we will have* (we members of humankind) to press ourselves and our governments into addressing adequately the problems due to degradation of the capacity of our natural environment to supply us with vital material resources.

A half-dozen years ago when I first came up with this hopeful, "they-are-what-we-will-have" notion of the potential political and cultural strength of coöperative associations based on new techniques of communication, Marglin wrote to me, "Perhaps you are right that our best hope for the 21st century is a dense enough web of associations, and that such a web might give us some of what community did in the past. I guess I'm not as optimistic as you about the possibilities for substituting a web of associations for community, but time will tell."

We humans do have – no question about it – strong instinctive tendencies to compete and to indulge in tribal warfare, as well as strong tendencies to coöperate. And we have some unknown degree of psychological and cultural flexibility……

It does seem to me more likely, alas, that vast troubles are in store – partly because of excessive levels of monetary inequality – than that the problems *vis à vis* "angry Mother Nature" will be solved in the next few decades. And, I think that coöperative activism would be a necessary *but insufficient* (by itself) *means* of addressing 21st-century problems due to ecological degradation and the many kinds of resulting environmental catastrophes.

In order to coöperate effectively on big problems, we need a flow of constantly updated truthful information, widely shared and appreciated. This is hard to achieve, because quasi-tribal powers (national governments, certain religious institutions and racist organizations and, in India, caste-based organizations) load the media with false information antagonistic to this or that nation, religious group, race or caste that is regarded as competing for money, political power or material natural heritage. To arrange for humankind's interests in common to be rated as more important than quasi-tribal interests is, IMHO, a daunting challenge.

I think also that effective coöperation for humankind's interests in common would have to entail various kinds of institutional reforms. A mere wave of moral awakening would be like writing on sand. Just look as how this happened in the Republic of India, where the levels of corruption were low in the late 1940s because of Gandhi's charisma, but have risen since then as his charisma has faded.

Given India's remarkably high population-density, a gleam of hope may be derived, however, from Jean-Gustave Courcelle-Seneuil's opinion (he was the top-notch French classical economist of the second half of the 19th-century) to the effect that "It is easier for a dense than for a sparse population [not only] to have good roads, good streets, beautiful avenues, large theatres and good actors, a water service, cheap lighting, and ... literary and scientific libraries [and] thorough and general education", but also "a public opinion which restrains by the general sentiment of social interest the excesses of individual interest". There will have to be, as well, a host of technological fixes. Adequate wilderness is gone forever; humankind has to develop an improved garden…… (I am referring implicitly here to the last sentence of Voltaire's famous novel, *Candide*: "Il faut cultiver notre jardin" – "It is necessary to cultivate our garden.")

You have surely heard a lot of talk about "sustainable development". In reality, however, that slogan has been mainly an oxymoron, because businessmen, politicians and most economists have meant, by "development", more sales and thus a bigger GNP entailing more "throughput" and environmental devastation. A correct term would be "sustainable economy".

The mantra "sustainable development" was introduced in 1980 and soon became linked to a lavishly funded reactionary political movement *against* the trend to take seriously the meteorological and geological prospects.

(Two 20th-century book-length studies documenting the lavish funding of the reactionary movement were Andrew Rowell´s *Green Backlash: Global Subversion of the Environmental Movement* (1996) and Sharon Beder's, *Global Spin: The Corporate Assault on Environmentalism* (USA, 1997; UK, 1998).) Among intellectuals, the reactionary movement had got a "scientific" boost from Robert Solow when he had declared, in a famous article published in 1974, that "The [human] world has been exhausting its exhaustible resources since the first caveman chipped a flint, and I imagine the process will go on for a long, long time" – a tragically glib argument for such a brilliant and influential man to have made in the 1970s. Then came a giant boost in 1980-81 when Ronald Reagan, as candidate for the US presidency and then as President, declared that trees cause more pollution than automobiles do, and that "Eighty percent of air pollution comes not from chimneys and auto exhaust pipes, but from plants and trees." This weird and tragic story is continuing big-time today, but since the amount of time I have to lecture to you is quite limited, let me jump ahead to the main point which Albert Einstein put neatly by observing that "**We cannot solve our problems with the same thinking we used when we created them**."

(The main reason why *politicians* want a bigger GNP is that it enables government to collect more revenues without raising the rate of taxation. However, intelligent politicians wishing for their constituents to be well provided with commodities would

want to promote, not the G**N**P rate (the total annual monetary value of the commodities sold by enterprises operated throughout the world by citizens of the nation), but the G**D**P rate (the total annual monetary value of the commodities produced and sold within the country) ***per capita*** – i.e. how well-off commodity-wise the people in the nation are.)

To cope adequately with the more-or-less gradually emerging problems of catastrophic environmental degradation, humankind would have to ***develop a sustainable way of living***. Many of the features of such a way of living in the 21st century are unpredictable, but they must (IMHO) include *(a)* not depending on exhaustion of nonrenewable natural resources, *(b)* using the renewable ones slower than they are renewed, and *(c)* replacing the "Economic Man" ideology and all strong kinds of tribalism with a modicum of worldwide coöperation.

> **FOOTNOTE**: When I refer to the "Economic Man" *ideology*, I mean an outlook in which more weight is given to that "Economic Man" idea than it really merits under our given circumstances. To give to a key idea a realistically valid amount of weight is not "ideological" but merely realistic.

So-called "postmodern" skepticism about science has been due, not to any failures of Newtonian physics, but mainly (I think) to the salient record of unreliability in the alleged science of market economics (as well as to some defects of medical science). Some of the economists' postulates were ideological fictions; others have been true to a limited extent only (you should assess accordingly everything that your teachers say is "scientifically true economics"), and there are now some new economic truths.

An academic take-away point should therefore be (as mentioned in a previous lecture) a modified version of Alfred Marshall's precept that "Every change in social conditions is likely to require a new development of economic doctrines." (Marshall was the leading late 19th- and early 20th-century British economist.) The modified version is: "In the wake of current changes *in our material conditions on Earth*, we need innovations in economic theory."

Given Marglin's doubt that a web of associations can compensate adequately for the modern weakening of communities, I would acknowledge that even though various kinds of association via the internet and mobile-phone technology are flourishing nowadays, most of those associations are likely to be rather fleeting if they aren't complemented with local meet-ups of people who care about the same things and who get to like each other personally on the basis of that shared concern and physical presence.

As an ecological economist I would like to see built up a "think globally, act locally" mentality of caring for the environment, by developing, on the one hand, local clubs or club-chapters – within which some personal friendships may flourish and strengthen the "social glue", and yet also, on the other hand, with internet communications etc. among those small clubs and club-chapters.

I would therefore suggest, in conclusion, that you find and join a voluntary local association of people who are grappling in a personally friendly and gratifying way with these issues – partly by doing useful unpaid informal and formally organized physical

work on environmental problems – and that your local group develop internet contacts with other such groups elsewhere.

If this seems to you a feeble conclusion to reach at the end of five lectures, please consider that (*a*) I am not a magician and (*b*) the dream of magic is illusory. Anyone who claims to know how to solve all the big environmental problems is bluffing.

Appendix 1: In 1932, a real-estate dealer in the USA named Bernard London proposed, as a method of promoting demand for commodities and hence for commercial production in the national economy, an elaborate government-managed system for saturating the American way of life with products designed deliberately to become useless sooner than products designed to last would do.[7] A classical description of the general principle as a strategy of industrial production is in an article by Paul Gregory published in 1947 and entitled "A Theory of Purposeful Obsolescence". What Gregory called "purposeful obsolescence" was advocated, in 1948, as "dynamic obsolescence," by the CEO of a leading corporation in the USA, General Motors (in those days the world's biggest automobile-manufacturing company). The usual term today is "planned obsolescence." Here are some excerpts from Gregory's article:

"Purposeful obsolescence exists *(a)* whenever manufacturers produce goods with a shorter physical life than the industry is capable of producing under existing technological and cost conditions; or *(b)* whenever manufacturers or sellers induce the public to replace goods which still retain substantial physical usefulness. In the second case, businessmen deliberately reduce the psychological utility of goods in the hands of consumers.

"The producers of flashlight bulbs have reduced the durability of their product, in their own words [spoken in hearings of a U.S. Senate Committee on patents], 'from lamps [made] to outlast three batteries, to lamps of two battery-lives instead of three.'

"The classic example of purposeful obsolescence is in women's clothing. For instance, the annual sale of women's shoes is mostly to replace shoes that are not worn out; sales volume does not depend on converting barbarians to the wearing of shoes.

"Many industries eventually go through three stages. First there is the 'expansive' stage. From its birth to about 1910 the auto industry produced a novelty product and engaged in technical pioneering. From about 1910 to about 1930 a nationwide market [in the USA] was built by passing on the fruits of technical progress in the form of better cars and lower prices. Advertising was largely informational. Annual sales to new buyers exceeded the number of worn-out cars.

"In the second or 'retentive' stage – after about 1930 for the auto industry – the market is almost saturated. Price-reductions would increase total demand, but not to the same extent as in earlier years. Industries producing durable consumer goods and style goods rely in this stage on purposeful obsolescence.

7 See www.murks-nein-danke.de/blog/download/London-(1932)-Ending-the-depression-through-planned-obsolescence.pdf

"In the third or 'contractive' stage, not yet reached by the auto industry, we find a moribund [i.e. dying] industry whose product – buggy whips, carpet sweepers, lace curtains, etc. – is being replaced by a better or cheaper substitute or is declining by virtue of a shift in public taste or habit. Annual sales are less than the number of worn-out units. If the producer of the old product also controls the new one, he may try to suppress it in order to maintain the sale of the former.

"In short, when the market approaches saturation, skilled designers and lyrical [advertising] copywriters are engaged to force obsolescence. He who can make the product wear out fast, or make it lose its appeal through style changes, is praised, while the technician who aims at durability is scorned.

"A slow change in styles represents a true human want, for people weary of sameness. But style and 'fashion' are not synonymous. A style reflects the people's way of life; fashion is a chameleon, never in vogue long enough to reflect basic tastes and habits. Fashion is a monopoly element, closely related to buyer ignorance, and fostered by the lure of promised satisfactions more spurious than real. The producers use artificial stimulation [of consumption and waste]. Among consumers, inequality of purchasing power leads each class to imitate the foibles of the classes above it. To cater to the rich, high fashions are created; to sell to the poor, low-quality imitations are made.

"As long as the basic and objectively measurable needs of large groups of people are not met, it is an economic perversion to create obsolescence."

Appendix 2: Supplementary to this set of lectures is my article, "The 'Economic Man' Premise", in the centennial issue (2016) of the *Indian Journal of Economics* (but the volume-number is 96; the issue-number is 283). (The article was written shortly before Richard Thaler, who is cited briefly in it, won the "Prize in Economic Sciences in Memory of Alfred Nobel". Had he already won it, I would have cited him more amply in the part of the article about the current tide of acknowledgments, among professional market-economists, that the "Economic Man" Premise is incorrect.) In the article I cite some representative brief formulations of the "Economic Man" premise (EMP), show that scientific psychologists have convinced the top mainstream economists that it is invalid, and suggest why the psychologists hadn't focused earlier on this issue. I argue that to teach the EMP has become, in one way and another in recent decades, conducive to environmental and social trouble. I offer some thoughts on how it might be improved upon, and describe some likely academic implications of such a change. Toward the end of that last part of the article, there is a delightfully candid and thoughtful 395-word citation from Robert Solow (whom I have had occasion to criticize several times in this set of lectures).

Dr. Mark Lindley, born in Washington DC in 1937, became in the 1970s and '80s an internationally noted musicologist, and since then has become an internationally noted Gandhi scholar and, in the course of the last decade, teacher of ecological economics. He has taught at Columbia University, City University of New York, Washington University, University of London, Oxford University, University of Regensburg, Chinese University of Hong Kong, Istanbul Technical University, Boğaziçi University, University of Kerala, Central University of Gujarat and Central University of Hyderabad (where he served in 2015 as the University Chair Professor in the School of Economics). He has also lectured on economics at the Gokhale Institute of Politics and Economics, and was a visiting professor in 2016 at the University of Zaragoza. His publications on economics have included *J.C. Kumarappa: Mahatma Gandhi's Economist* (Popular Prakashan, 2007) and articles in *EPW* ("J.C. Kumarappa: Giant or Midget?"); *Artha Vijnana* ("Modern Economics as a Would-Be Science"); *Indian Journal of Economics* ("The 'Economic-Man' Premise"), *Monthly Review Online* ("Looking Back for Insights into a New Paradigm"); and *Journal of Social and Political Studies* ("A Method for Assessing Thermodynamically the Depletion of Non-renewables" & "The Strange Case of Dr Hayek and Mr Hayek").

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Set up in 2015 by Professor Abdul Salim.A of the Department of Economics, University of Kerala, the Inter University Centre for Alternative Economics (IUCAE) promotes research and studies in alternative economics which would address the problems of the economy and society beyond the neo-classical mainstream ideas. The centre is attached to the department of Economics, University of Kerala in Karyavattom campus, within 15 Kilometers from the city of Thiruvananthapuram.

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- Globalisation and Islamic finance
- Islamic economics vs. neo classical economics
- Gandhian vs mainstream economics
- Gandhian path and sustainable development
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