

ON SOME IMPORTANT FALLACIES IN ECONOMIC THEORY WHICH AFFECT PUBLIC POLICY

UTSA PATNAIK

CENTRE FOR ECONOMIC STUDIES AND PLANNING

JAWAHARLAL NEHRU UNIVERSITY

Introduction

Students of economics are not as a rule required to study logic, hence they are not required to study the question of how to set up an argument in a manner such that inferences from stated premises can be validly derived. True, a great deal of emphasis is laid on the student acquiring proficiency in the formal logical and mathematical tools which are useful for economists. As part of this, set theory, linear algebra, symbolic logic which includes the logic of relations, are fields with which the graduate student of economics in a good university will become familiar. But such knowledge of logic as she is required to acquire, will relate entirely to the sphere of formal logic. There is very little concern with imparting the even the rudiments of applied logic and most students of economics (and here by the term 'student' we include teachers of economics as well) are usually quite innocent of any knowledge of applied logic.

This lack of knowledge of applied logic is unfortunate. My contention is that there are major fallacies in some commonly and widely accepted arguments in economic theory. These fallacies render incorrect these theories which are widely accepted and are not to this day recognized as fallacious by the profession. These incorrect theories therefore continue to be

taught uncritically and the incorrect public policies based on these fallacious theories are also accepted uncritically. The fallacies which render these theories and arguments incorrect, arise mainly in the sphere of applied logic.

What is the difference between formal logic and applied logic? And what is a fallacy? Formal logic deals with the purely skeletal and abstract structure of arguments, as if were, and there is no empirical reference involved in the terms of the argument. The material world and considerations based on empirical facts, or considerations of verbal exactitude in expressing and using concepts relating to the material world, are not the relevant subject matter of formal logic. When a statement of the following type is made. "No P is Q; some O are Q; therefore some O are not P" – then the symbols are abstractions without any particular material content and are not empirically referential. The proposition is at a high level of generality and in the sphere of formal logic (the above mentioned proposition is a syllogism and clearly is not a deductively valid inference form). On the other hand both taking cognizance of material facts, and verbal precision in argument, are relevant in applied logic. Of course, the division between formal and applied logic can sometimes get blurred because there can be formal aspects to applied logic as well.

Economics as a discipline is not purely formal in nature (as is mathematics) but is concerned with real developments in the material world which are grasped through concepts, and these concepts are then used to develop certain arguments and theses. Therefore the question of stating material facts correctly and using language or terms correctly, are important knowledge of the rules of applied logic becomes as important as that of formal logic for the student of economics. Such knowledge is equally important, of course for all the humanities and sciences; since we are here focusing on fallacies in economics, the reference is arguments accepted by economists.

An argument, in logic is a discourse which presents evidence in favour of a particular thesis or conclusion. It contains two parts, the conclusion argued for, and certain premise or premises which are the consideration adduced on behalf of the conclusion. An argument starts from the premise or premises and through a process of inference reaches the conclusion. An argument is said to be deductively valid if the premise or premises, provide conclusive evidence for the stated conclusion, namely the conclusion must be true whenever the premises are true. A fallacy can arise in the argument from any one or more of three distinct sources: first, from an incorrect statement of facts (material fallacy); second, from an incorrect

use of terms (verbal fallacy); and third, from an incorrect process of inference (formal fallacy). A fallacy in an argument renders it an invalid argument.

The detailed classification of fallacies in Aristotelian logic, has remained the basis for modern discussion of fallacies. Any good elementary book on logic will give the following general classification:

Types of Fallacies:

Formal

Incorrect process
of Inference

Logical Fallacies

Both formal and verbal fallacies are termed logical fallacies, because they arise in logas, in discourse, and are distinguished from fallacies in matter, or material fallacies. Verbal and material fallacies in turn are distinguished as being informal fallacies, from the formal fallacies. It is thought by many, that only formal fallacies are logical fallacies, but this is not correct; the verbal fallacies, while not formal, are logical fallacies as well. This is easy to remember if we consider that all fallacies in discourse, in logas are logical fallacies. In fact, the formal fallacies (arising from an incorrect process of inference) are usually quite easy to spot in economics. It is the informal fallacies (material and verbal) which cause the maximum problems. Incorrect statement of facts, and incorrect use of terms are extremely common in arguments in economics.

Many outstanding thinkers who are rigorous in terms of formal logic, are prone to commit very simple mistakes in applied logic. Such thinkers include both classical economists like David Ricardo and well known contemporary economists as well. It is important to understand the nature of these fallacies because they have not

Informal

Verbal:
Incorrect use
of Terms

remained solely in the sphere of theory. These incorrect theories, when applied for policy purposes, have led to extremely adverse outcomes of reducing human welfare.

Here we will not deal with formal fallacies, but concentrate on verbal and material fallacies. A selected number of examples of widely accepted arguments, which are fallacious and hence incorrect, are considered. First, the fallacious idea, that government expenditure as well as the budget deficit to GDP ratio should be lowered regardless of whether there is unemployment of resources and labour. Second, the fallacy in Ricardo's theory of Comparative Advantage which is used to argue that mutual benefit results from specialization and exchange in international trade. Third, the fallacy in official poverty estimates in India and the resulting untrue claims of poverty reduction.

1. The Argument of Reducing Government Expenditure and cutting Budget Deficits even when there is Unemployment:

A case of a Material fallacy, namely the Converse Fallacy of Accident under the general type "A

Material:

Incorrect
statement of Facts

Material Fallacies

dicto simpliciter ad dictum secundum quid"

Specific Assumption is made:

Full employment of Resources including of labour

General Inference is Improperly Derived

Public expenditure should not be raised to reduce existing unemployment because it will 'crowd out' private Investment; budget deficit should be cut.

A well-known type of material fallacy is the 'fallacy of accident' discussed by Aristotle, also known in brief as the fallacy of 'secundum quid' from the fuller expression, 'a dicto simpliciter ad dictum secundum quid' which can be translated as, 'from a statement taken in a general sense to a statement of things as they are'. In the fallacy of accident, a general assumption is made, and then it is improperly applied to a specific case where the general premise does not hold. An example of the fallacy of accident is an argument of the following type:

'All persons can see; Dhritarashtra is a person. Therefore

Dhritarashtra can see'. Here the general premise 'all persons can see' is being applied to a specific case where the 'accident' of Dhritarashtra being blind, makes it inapplicable and so the inference 'therefore Dhritarashtra can see' is not true. This is termed the fallacy of *secundum quid*, or the fallacy of 'accident'.

The 'converse fallacy of accident' on the other hand, starts from a specific premise and argues improperly from that specific premise, to a general conclusion. If the terms are reversed in the preceding example to say 'Dhritarashtra is blind. Dhritarashtra is a person. Therefore all persons are blind'. This is a converse fallacy of accident where from a specific, a typical premise general conclusion is improperly drawn. Another example of the converse fallacy of accident is an argument of the following type: 'Quinine is good for Hari who takes it every day. Hari is a person. Therefore quinine is good for all persons'. Here a specific premise, that a medicine is being taken by a person, Hari who clearly has malaria, is used to argue improperly to a general conclusion that everyone should take that medicine.

In economics, while the fallacy of accident seems to be rare, the converse fallacy of accident is quite common. A specific assumption is made and then an inference is derived from it which is improperly treated as being of general applicability, even when the conditions of the specific premise do not exist. These fallacies are known as 'fallacies of presumption' as well.

The inference that public expenditure should not be raised, can

be arrived at only in the specific consumption of full employment, but it is improperly treated as a general inference and is advocated even though there is actually excess capacity in industry and high unemployment of labour. Using this fallacious mode of reasoning, policy recommendations are made and implemented for reducing expenditure even when there is unemployment of labour and resources, thus worsening the situation. This has been a very important fallacy in economic theory, which has led to lowered welfare levels for millions of people.

The argument regarding lowering of public spending and cutting budget deficits is incorrect, because it assumes that the supply of savings in the economy is always fixed so that increasing public spending will necessarily reduce private investment. As Keynes's pupil Richard Kahn had pointed out in his classic paper in *Economic Journal* in 1931, however the supply of savings, depends among other things, on the level of income in the economy, and can be assumed to be fixed only if the level of income itself is correct. It is raised which will only be the case if there is directly full employment of productive resources and full employment of labour. In short the idea of a fixed savings pool such that raising public spending reduces private spending, necessarily assumes full employment of resources.

The assumption of full employment, is however a very special assumption. To argue that public spending should not be raised because it will 'crowd out' private investment, even though there is actual unemployment of resources

and labour, means that a general conclusion (Government spending should not be raised) is being drawn in improper manner from a specific assumption (full employment) which is not satisfied in reality. I would therefore categorize the IMF and World Bank dictum as an example of material fallacy of the type already discussed, the converse fallacy of accident.

This incorrect argument of the international financial institutions has already played havoc with the economies of dozens of developing countries which have been obliged to reduce development spending resulting in decline in investment and growth rates particularly in the primary sector, and rise in unemployment. It is perhaps the most important contemporary political economy issue. Joan Robinson referred to "the humbug of finance which Keynes first attacked" (Robinson 1962, 95). The humbug of finance has a way of reasserting itself however, whenever financial interests dominate policy, and we have seen in recent years this humbug reasserting itself in the face of all logic, all reason and indeed in subversion of the humanism which had informed the intellectual efforts of its critics seven decades ago. The theory of income determination based on the Keynes-Kahn multiplier has been in every economics textbook for half a century, yet today's neo-liberal deflationists try to pass off an old fallacious argument assuming a fixed savings pool, as newly minted wisdom. Using the power of their status as creditors, they enforce deflationary policies in the face of unemployed resources, and thereby condemn millions of people to declining income, asset loss, nutrition decline and even

starvation. By July 2002, in India for example, enormous food stocks in excess of 65 million tons coexisted with falling average nutrition and starvation deaths, but all suggestions for a massive food-for-work programme were dismissed by the deflationists, expressing the BWI view, on the same fallacious ground, that it would "increase the fiscal deficit and crowd out private investment". The neo-liberal deflationist dogma is leading to anti-humanist outcomes in India today but since it has been in operation from a decade earlier in Sub-Saharan Africa its adverse welfare outcome can be seen already in all its starkness there.

2. David Ricardo's Theory of Comparative Advantage- Another Case of Material fallacy of the type, the Converse Fallacy of Accident

Specific Assumption,

'Both countries produce both goods'

General:

Conclusion is improperly derived 'Mutual benefit for both countries from specialization and trade' even when both goods cannot ever be produced by one country.

Ricardo's theory of comparative advantage has been taught for nearly two centuries. However it is an incorrect theory which contains both a material fallacy and a verbal fallacy. The inference of mutual benefit from specialization and trade between two countries, is not a deductively valid general conclusion

from the premise that both countries produce both goods, because in a large number of cases this premise is not true and can never be true. We only have to think of a tropical country like India able to produce sugarcane or coffee, trading in these goods with a cold temperate country like Canada which can never produce them. The fallacy involved is once again, a material fallacy of the type 'converse fallacy of accident', in which a general conclusion (mutual benefit from trade) is being incorrectly drawn by using a specific assumption which may not actually hold (both countries produce both goods). The material fallacy is compounded by a verbal fallacy where Ricardo uses the imprecise and incorrect phrase 'growing wine'. My contention that Ricardo's theory is logically incorrect, is explained below by first explicating the essence of Ricardo's theory and then pointing out where the fallacy lies.

Ricardo's two-country, two-commodity model assumes that both goods can be produced in both countries. It is then shown that even if until production cost is lower for both goods in one country compared to the other, provided the relative cost of production differs it would be if mutual benefit for each country to specialize in the good in which it has lower relative cost and exchange with each other. The benefit arises from an actual physical increase in total output owing to specialization, such that for each country there is improvement in the consumption of the two goods through exchange, that is a higher level of one for at least the same level of the other, in

the post-trade situation compared to the pre-trade one.

For example, taking the two goods as woolen cloth and wine following Ricardo's own famous example, let us assume that country B has higher unit cost than country A in both goods, for it requires 4 and 2.5 labour days respectively to produce a unit of cloth and a unit of wine, while Country A requires only 2 and 1 labour days respectively to produce a unit of cloth and a unit of wine. Ricardo assumes full employment: the total available daily labour days in A, say 200 can produce daily either a total of 100 units of cloth or a total of 200 units of wine, which defines the linear transformation frontier of cloth for wine, and every combination of these two goods on that frontier can be actually produced. Similarly B, with say 400 total labour days available, can produce daily either a total of 100 units of cloth or a total of 160 units of wine, with every combination on the frontier so defined also being producible. (B is assumed to have 400 labour days to A's 200 so that the total output size in the two countries is roughly similar).

In the initial pre-trade situation, if A produces, say, a combination of 50 units of cloth and 100 units of wine, and B produces a combination of 50 units of cloth and 80 units of wine, then the total output taking both countries together is 100 units of cloth and 180 units of wine. (These particular numbers embodying the assumption that each country devotes half its resources to each good, have no significance and any other feasible combination would do equally well). Relative disadvantage is clearly less for B in

producing cloth where it incurs double A's unit cost, while for wine it incurs more than double A's unit cost. In B, reducing wine output by one unit and redirecting the 2.5 labour days released to cloth gives 0.625 units of cloth whereas in A reducing wine output by one unit and devoting the 4 labour days released to cloth gives less 0.5 units of cloth. A's relative advantage is clearly greater in producing wine.

Recardo's cleverness lay in arguing that if B specialized completely in cloth in which its relative disadvantage was less, and A specialized in wine in which its relative advantage was more, total output taking both countries would increase, and this increased output could be shared through exchange making both countries better off. Thus after specialization, B would produce 100 units of cloth alone and A would produce 200 units of wine alone, and

total output of wine would be therefore higher by 20 units compared to 180 in the pre-trade situation, with total output of cloth unchanged. The extra 20 units of wine could be shared say with A retaining 110 units of wine and exchanging 90 units with B for 50 units of cloth. Thus each country after trade would have a higher level of consumption of wine, by 10 units for the same level of consumption of cloth, 50 units compared to the pre-specialization and trade situation (Table 1).

Table 2: A Numerical Example Illustrating:

- A) "Comparative Advantage" when Ricardo's assumption is satisfied.
 B) The non-definability of comparative advantage when Ricardo's Assumption is not satisfied.
 A): Ricardo's assumption is satisfied and both Countries A and B can produce good x (cloth) as well as good y (wine). A is assumed to have higher productivity in both goods than B, and total person days available is assumed to be 200 in A and 400 in B.

Good	Labour Days per Unit Output		Pre-Trade Output/Consumption			
	A	B	A		B	A + B
One unit Cloth (x)	2	4	50		100	
One unit Wine (y)	1	2.5	100		80	180

	After Specialization Output in Units per Day			Post Trade Consumption		
	A	B	A + B	A	B	A + B
Cloth (x)	0	100	100	50	50	100
Wine (y)	200	0	200	110	90	200

Result: Both countries are vector-wise better off in post-trade situation.

B) Ricardo's assumption is not satisfied. Country B cannot produce good y, only good x, while Country A can produce both goods x and y

Good	Labour days per Unit Output		Pre-trade Output/Consumption			
	A	B	A		B	A + B
One unit cloth (x)	2	4	50		100	150
One unit wine (y)	1	...	100		0	100

	Output After Specialization by A			Post- Trade Consumption		
	A	B	A + B	A	B	A + B
Cloth (x)	0	100	100	50	50	100
Wine (y)	200	0	200	100	100	200

Result: Total output of the two commodities does not and cannot, increase vector-wise unlike in the previous case. Country B's assumption is diversified but the availability of commodities there does not, and cannot, increase vector-wise unlike in the previous case. Country A is not necessarily better off vector-wise after specialization and trade (as the example-shows), though it could be. (However if land constraint prevails, in A, it would a) either prevent A from increasing sufficiently the output of y such that A would necessarily experience unemployment created by displacing trade; or b) if output of y is increased, given land constraint that of non-traded crops like food would fall. As regards B, if Ricardo's assumption of initial full employment is not fulfilled, then in the post-trade situation, the production and export of cloth by B in addition to its domestic consumption would increase employment there. B is such a case would have both diversified its consumption and increased its employment. All these symmetric effects however are a far cry from the Ricardian picture of necessary mutual benefit from trade.

The exact ratio in which the sharing will take place has been the subject of much discussion, but need not detain us here. All we have to note is that mutual benefit from sharing higher output is put forward as both the reason that specialization and exchange is undertaken and as the actual outcome of specialization and exchange. Ricardo put this forward as a perfectly general argument for explaining all trade, and mentioned no exceptions whatsoever. It is as a general theory of trade that Ricardo's theory is taught to this day.

Extremely clever though it is, the argument is based on a both a material and a verbal fallacy. Ricardo's fallacy arises because his assumption or premise (both countries produce both goods) is not true. Trade between temperate advanced countries and tropical developing countries always involved goods which cannot ever be produced at all in temperate regions. If a good cannot be produced at all, where does the question arise of any definable cost of production, leave alone relative cost?

What is the cost of production in Britain of natural rubber and sugarcane? How can the transformation frontier between machinery and coffee be defined for Germany, or that between cloth and raw cotton be defined for Britain? None of the tropical and sub-tropical goods can be produced under field conditions in cold temperate countries, hence neither costs nor transformation frontiers can be defined. Indeed the specific example Ricardo himself gave involving cloth and wine production in England and Portugal, itself violates his own assumption. Warm temperate Portugal could produce not only wool for cloth, but large supplies of grapes for making wine on a commercial basis, while cold temperate England could produce wool for cloth but not grapes (*vitis vinifera*) under field conditions. This was particularly true during the 14th to 18th centuries when mean summer temperatures in Britain were lower than they are today, and genetic modification of plants was unknown. The northern limit of grape growing is defined by a mean July isotherm of 19 degrees Celsius or 66 degrees Fahrenheit. As Adam Smith had remarked, grapes could only be grown against artificially heated walls in Britain, and wine made from them, at a preposterously higher unit cost compared to foreign imported wines (Smith 1776, 1:423-24). Grapes were not grown in Britain on a commercial basis for wine production – although sometimes individual landed aristocrats showed off their great wealth by maintaining hot houses at enormous expense to supply their own tables with the fruit as contemporary novels indicate (Austen, 1994).

Ricardo fudges his argument in his chapter on Trade by failing to distinguish between production of the agricultural raw material, and processing of the raw material. It is not possible that he did not know the distinction between the two. He says the following:

"Now suppose that England were to discover a process for making wine, so that it should become her interest to grow it rather than import it, she would naturally divert a portion of her capital from the foreign trade to the home trade; she would cease to manufacture cloth for exportation and would grow wine for herself." (Ricardo 1986; 137, *Emphasis added*).

Ricardo goes on to say:

"If the improvement in making wine were of a very important description, it might become profitable for the two countries to exchange employments, for England to make all the wine and Portugal all the cloth consumed by them." (Ricardo, 1986: 138, *Emphasis added*).

The repeated use of the strange term 'grow wine' by Ricardo is highly significant. By using this phrase, the activity of growing grapes and the altogether different activity of processing grapes into wine, are telescoped together into a single activity by Ricardo, and thereby the crucial distinction between these two activities is conceptually obliterated. Growing a crop is contingent on climate, whereas processing it is not. Indeed the very first sentence quoted above suggests that, for Ricardo's 'process for making wine' is the same as to 'grow wine'. Ricardo gets hopelessly enmeshed here in untenable concepts. An argument based on ambiguity of language is a verbal fallacy. The material fallacy (both countries produce both goods) is here supported and compounded by a verbal fallacy. The premise is stated by Ricardo in a verbally ambiguous form which gives the misleading impression that it is a general premise – that 'growing wine' whatever that may mean, by England is as possible as 'growing wine' by Portugal. In fact a country can no more 'grow wine' than it can 'grow cloth' or 'grow shoes'. It has to produce the raw material – grapes in the first case, wool in the second and leather in the third – before it can process the raw material into wine, cloth and shoes respectively. While Portugal could both produce wool and produce grapes and therefore could make both cloth and wine. England could produce wool but not grapes, and therefore could make cloth but not grape-wine. The transformation frontier of cloth to wine could be defined for Portugal but not for England.

Since the untenability of the Ricardian assumption, is true even for a warm temperate primary good like grapes, its untenability is true a fortiori for the purely tropical traded primary goods such as come sugar, coffee, tea, cocoa, jute, indigo, opium, rubber, tropical hardwoods like teak, mahogany and rosewood, cereals like rice, tropical fruits and vegetables, palm oil and the many other goods, which could never be produced under field conditions in cold temperate Europe or North America.

The Dogma of Free Trade

Joan Robinson was entirely correct in saying that Ricardo's model ruled out "the whole of what Adam Smith regarded as the main sphere of trade – exchanges between town and country, that is, between manufactures and primary products: (Robinson, 1975; 130) but he was surely not as correct when, pointing out that Ricardo's objective was to make a case against protection, she went on to say that "Modern exponents of free-trade theory do not hesitate to apply its dogmas to producers of primary products, but in fact it has nothing to do with their problems." (Robinson, 1975; 130 emphasis added). On the contrary, it has everything to do with their problems, we know that the case against protection was actuated by Britain's imperative need to import freely precisely those vital primary products, serving as wage-goods or as raw materials, which it could not produce enough of (corn, hemp) or could not produce at all (tobacco, sugar, raw cotton, hardwoods, dyestuffs, etc.) it is no use trying to absolve Ricardo's theory of its link with trade based on extra-economic compulsion; the Free Trade agitation he championed was not other countries freedom to export their manufactures (Ricardo is not on record as opposing existing high English tariffs on Asian textiles), but only Britain's freedom to import food and raw materials unhindered by local landlord interests or any other monopoly interests like the old chartered trading companies.

The 'free trade dogma' applied to dependent or colonized primary producers is not a modern invention as Joan Robinson seems to suggest; it was Ricardo's theory which initiated the dogma via his process of reasoning to a general conclusion using a specific premise, without a word of qualification regarding that premise. The fallacious but convenient conclusion of necessary mutual benefit from free trade, represented he interests of his country, the dominant trading and

colonizing country of the time. We can visualize Ricardo, like any other civilized gentleman in England at that time, drinking a cup of Caribbean slave-labour produced coffee sweetened with cone sugar while smoking tobacco, with a cerafe of grape wine of the side – none of these four goods being producible in Britain – and wearing a shirt made from cotton – a raw material not producible in his country – while engaged in writing at a polished mahogany table – a wood not producible in Britain – in order to formulate his allegedly 'general model of trade which consumed that "both goods are produced in both countries." We may well ask why he did not say a word of qualification regarding the limited domain of relevance of the assumption, which surely could hardly have escaped his notice.

Sometimes people try to defend Ricardo's theory by saying, "Ricardo's theory is valid when his assumption is satisfied". But this is a tautology. One cannot make any arbitrary, non-realistic assumption and then say 'if the assumption is satisfied the conclusion holds'.

A) Ricardo's assumption is satisfied and both countries A and B an produce good x (cloth) as well as good y (wine). A is assumed to have higher productivity in both goods than B, and total person days available is assumed to be 200 in A and 400 in B.

Wherever the Ricardian assumption does not hold, the Ricardian conclusion about mutual benefit from trade, does not hold either. Where country B cannot domestically produce the good y if wishes to consume, then its exporting a part of the only good x, that it can produce, to country A which can produce both goods x and y but is made to specialize in y, does not raise total output, does not raise consumption vector-wise in both countries, and mutual benefit does not follow.

Continuing with the example in Table 1, suppose that country B (Britain) cannot produce grape wine, hence in the pre-trade situation, if produces only cloth to the extent of 100 units by devoting of all its available labour to it. Country A (Portugal) however produces 50 units of cloth and 100 units of wine as before. Relative costs and hence relative advantage cannot be defined, for we have three cost terms but not the fourth. In the pre-trade situation, taking both countries the total output of cloth is 150 units and the total output of wine is 100 units. Suppose by some extra-economic means (for there is no a priori economic reason for Portugal to specialize). Britain

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 B) The undefinability of comparative advantage when Ricardo's Assumption is not satisfied.

Good	Person Days per Unit Output		Pre-Trade Output/Consumption			
	A	B	A	B	A + B	
One unit Cloth (x)	2	4	50	50	100	
One unit Wine (y)	1	2.5	100	80	180	
<i>Post Trade Consumption</i>						
<i>After Specialization Output in Units per Day</i>						
	A	B	A + B	A	B	A + B
Cloth (x)	0	100	100	50	50	100
Wine (y)	200	0	200	110	90	200

Result: Both countries are vector-wise better off in post-trade situation.

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Good	Person days per Unit Output		Pre-trade Output/Consumption			
	A	B	A	B	A + B	
One unit cloth (x)	2	4	50	100	150	
One unit wine (y)	1	...	100	0	100	
<i>Post-Trade Consumption</i>						
<i>Output After Specialization by A</i>						
	A	B	A + B	A	B	A + B
Cloth (x)	0	100	100	50	50	100
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Result: Total output of the two commodities does not, and cannot, increase vector wise unlike in the previous case. Country B's consumption is diversified but the availability of commodities there does not, and cannot, increase vector-wise unlike in the previous case. Country A is not necessarily better off vector-wise after specialization and trade (as the example shows), though it could be. (However if land constraint prevails, in A, it would a) either prevent A from increasing sufficiently the output of y, such that A would necessarily experience unemployment created by x-displacing trade; or b) if output of y is increased, given land constraint that of non-traded crops like food would fall. As regards B, if Ricardo's assumption of initial full employment is not fulfilled, then in the post-trade situation, the production and export of cloth by B in addition to its domestic consumption would increase employment there. B in such a case would have both diversified its consumption and increased its employment. All these asymmetric effects however are a far cry from the Ricardian picture of necessary mutual benefit from trade).

induces Portugal to stop producing 50 units of cloth and specialize entirely in producing 200 units of wine. Britain then trades 50 units of its own cloth output, for, say 100 units of wine from Portugal. In the post-specialization trade situation, taking both countries, total output of cloth has gone down by 50 units while total output of wine has gone up by 100 units, hence there is not vector wise increase in total output – this is the crucial difference from the first case and it rules out mutual benefit.

Portugal is not necessarily better off: it may continue to consume 50 units of cloth and 100 units of wine, the same as its pre-trade combination, as shown in the example. Britain has diversified its consumption basket from one to two goods, while maintaining total cloth output of the pre-trade level. But Britain too is not better off and cannot be better off as regards consumption in the Ricardian vector. Wise sense, *more of one good for no less of the other) for it does have to give up consuming 50 of its 100 units of cloth, in exchange for 100 units of wine, as long the consumption of full employment is retained.

Suppose however we drop the assumption of full employment; in the pre-trade situation Britain devotes only half its available daily labour days to produce 50 units of cloth because it can consume no more than 50 units, and the remaining 200 labour days remain unemployed. Then if it induces Portugal to specialize in wine production, it can expand its own cloth output to 100 units and trade 50 units of these for 100 units of wine. This would mean a vector-wise improvement in output and consumption for Britain. If we postulate a land-constraint in Portugal, then total wine/grape output may not increase to the required extent and de-industrialization necessarily involves unemployment of cloth workers not fully absorbed into wine production; or, if wine output hence grape output does increase to absorb all labour displaced from cloth production, then there is both de-industrialization and given the land constraint, there might be decline in the output of non-traded crops like food grains.

Exchange of English woollen cloth for Portuguese wine had been actually taking place for over a century before Ricardo wrote, but the reason did not lie in “comparative advantage”, which could not even be defined. In reality a supply of Portuguese wine in partial exchange for English cloth was procured through Britain’s successful mercantilist policies of attaining naval dominance, sealed by the 1703 Melhuen Treaty which demanded non-agricultural market access, as it would be called nowadays. The Treaty established English traders in Lisbon and Oporto with commercial privileges and opened up “the spectacular increase in the importation of English cloth and other exports into Portugal, whence the bulk of them were re-exported to Brazil, and of Portuguese wines into Great Britain....” (Boxer 1973: 170). There was a growing trade surplus for Britain vis a vis Portugal, settled by inflow of Luso Brazilian gold, which glandered mercantilist hearts. In the post specialization-and-trade situation Portugal was de-industrialized owing to its mandatory cloth imports from Britain, while Britons diversified their consumption basket by accessing wine they could not themselves produce and at the same time, increased their manufacturing output, to the extent of exports, beyond domestic absorption.

Improvement did not and could not take place for both countries, only for the one that was militarily and politically the more powerful. In fact an actual welfare worsening is very much on the cards for the country that is obliged, owing to extra economic pressures, to specialize as a primary goods exporter. To the extent that it faces a land constraint, increasing the output of primary traded crops very commonly has an adverse impact on availability of non-traded crops like domestically consumed food grains and undermines nutrition levels of its population, as we have demonstrated elsewhere (Patnaik, 2003). Food grains output did decline in Portugal as grape area expanded fast. As a colonizing power itself, however, it could pass on most of the adverse effects of de-industrialization to Brazil, by re-exporting English cloth.

Samuelson on Ricardo

Rather than confronting the fallacy in Ricardo’s argument arising from its untenable assumption that both goods are produced in both countries, modern mainstream theory too has tried to hide it by simply changing Ricardo’s example. Paul Samuelson in his paper titled “Market mechanisms and Maximization” (Samuelson 1970) discusses Ricardo’s model of

comparative cost in linear programming terms. Samuelson continues to treat it as a general theory and simply alters Ricardo’s example. Without discussing his reason for doing so. Samuelson substitutes “food” for the “wine” of Ricardo’s example in both the diagram and the text, while retaining unchanged the other good, cloth. Since “food” can be produced in both England and Portugal, the immediate glaring problem is overcome, that Ricardo’s own example contradicted his own assumption. Modern textbooks, following Samuelson, give food and cloth along the two axes when discussing the theory of comparative advantage.

However the specific example Ricardo gave to illustrate his argument, is a secondary matter and altering the example does not do away with the logical problem with Ricardo’s model. The fallacy continues though the example is connected. Samuelson’s silent fudging does not do away with the material reality, that a very large segment of would trade, simply does not fit into the assumption ‘both countries produce both goods’. Having altered Ricardo’s own example, and thereby shown that he understood the problem, Samuelson should have mentioned why the comparative cost theory with its ‘mutual benefit’ conclusion, could not be applied to trade between countries which have qualitatively different output vectors-in particular, to trade between advanced countries and developing tropical countries. But such a conclusion would go against the entire thrust of modern normative trade theory, whose proposition on “free trade” being necessarily beneficial for all parties, is such a useful rationalization for continuing to pursue trade policies which are in reality welfare-enhancing for advanced countries at the expense of welfare reduction for developing countries.

3. Official Poverty Estimates in India: A case of the Fallacy of Equivocation

Assumption:

‘Poverty line’ defined Using nutrition norm

Actual Estimation Practice:

‘Poverty line’ defined differently after Initial year estimate

Incorrect Inference:

‘Poverty has declined’

The 'fallacy of equivocation' is a logical fallacy, arising from a specific type of verbal fallacy, in which the same term is improperly used with two different meanings in the course of the argument to draw the inference, which therefore is not true. As common as the material fallacies discussed earlier, verbal fallacies in economics have been quite as destructive in leading to wrong policy measures lowering human welfare. Textbooks of logic give the students examples of the fallacy of equivocation which are quite transparent, in that it is obvious from the context of the word or phrase used, where the fallacy lies. Such an example of the fallacy of equivocation is the following sentence:

"The Professor has been delivering her address for one hour to the gathering of students. Therefore every student knows exactly where she lives. "It is clear that the term "address" is being used in two quite different senses. 'address' in the sense of speech, and 'address' in the sense of place of habitation. There is equivocal use of the term, so the inference 'every student knows exactly where she lives' is not true.

Fallacies of equivocation in economics are more difficult to spot than in the above example since they are less transparent. Intelligent people who are not specialists, do not scrutinize arguments by economists carefully (and nor do fellow economists not directly working in that particular area) because they trust the specialists at the intellectual level and so tend to take it for granted that terms which express concepts, must be correctly used by these trained professional scholars. This is a reasonable expectation but unfortunately it is by no means always satisfied. Fallacies of equivocation leading to wrong inferences are routinely committed by dozens of economists without anyone criticizing them. These economists themselves are misled by their own often unconsciously equivocal use of terms, so that they put forward fallacious arguments without even realizing it.

An excellent example of the fallacy of equivocation, is the definition of the term 'poverty line' in official poverty measurement. The 'poverty line' is the crucial element in the measurement of poverty for it is applied to the ogive, or cumulative frequency distribution of persons by spending classes, to determine what proportion of persons fall below this 'poverty line' thus constituting 'the poor'.

The issue turns on declaring a particular definition of the term 'poverty line' using a nutrition norm and

applying it in a particular year, but then using a completely different definition of 'poverty line' and improperly drawing the inference that the 'poverty percentage' has declined. The fallacy has been committed by the Planning Commission in India and also by a number of individual economists following the same procedure. The fallacy of equivocation arises here because the term 'poverty line' is used in two different senses in the course of the same argument so the inference about a particular direction of change is not true.

The problem has arisen because the original definition of poverty line which was clear and unambiguous, based on a nutrition norm, was applied in one year only. 1973-4 and later quietly given up. The original poverty line was that particular observed monthly per capita expenditure on both food and non-food items (observed from the NSS data on spending and nutrition) whose food spending part allowed the consumer to obtain the nutrition norm in terms of calories per day. For rural India in 1973-74 it was Rs. 49 and for urban India Rs. 56 (in per day terms Rs. 1.6 and Rs. 1.9 respectively) In the words of the 1993 Expert Committee.

'The official estimates are based on a calorie norm of 2400 calories per capita per day for rural areas and 2100 calories per capita per day for urban areas. The poverty line for the base year 1973-74 has been taken as the per capita expenditure level at which these calorie norms have been met, on an average for the country as a whole, as per the NSS household consumption expenditure survey for the corresponding year'.

Inverse linear interpolation method was applied to the data on average per capita monthly expenditure and the associated calorie content of food items in the class separately for rural and urban areas. Based on the observed consumer behavior in 1973-74 was estimated that, on an average, consumer expenditure of Rs.49.49 per capita per month was associated with a calorie intake of 2400 per capita per day in rural areas and Rs.56.64 pr capita per month with a calorie intake of 2100 per day in urban areas. Thus, the concept of poverty line used here was partly normative and partly behavioral

This way of deriving the poverty line, while being anchored in a 'norm' of calorie requirement, does not seek to measure the nutritional status, and more specifically the incidence of malnourishment or under-nourishment in the population. It focuses rather on

the purchasing power needed to meet the specific calorie intake standard with some margin for non-food consumption needs. (Emphasis added).

The calorie intake standard is not being met however by the official poverty line after 1973-74, the shortfall being 600 calories per day at the rural All-India level by 2004-05 while in some states the shortfall of calorie intake is nearly 1000 calories per day. Similarly the urban All-India shortfall of energy intake from RDA at the official poverty line is 265 calories by 2004-05 but for these states the shortfall is over 600 calories. These official poverty lines do not measure poverty any longer but they do measure destitution. This is because a completely different definition of poverty line no longer anchored to nutrition, has been used for all subsequent years after 1973-74. The correct nutrition based poverty line for 1973-74 has been brought forward to successive current years using a consumer price index, without any regard to whether at the resulting poverty lines, the nutrition norm was being violated or to what degree it was being violated. This procedure took the consumption basket to be fixed at the base year level and assumed that only changing prices need to be adjusted for to obtain the changing cost of this fixed basket. Altering thus the definition of poverty line from one functionally dependent on a nutrition norm being satisfied, to another definition namely price-index adjustment to the base year line, involves the 'fallacy of equivocation' namely using the same term 'poverty line' in two completely different senses giving quite different results.

A. Definition 1 $OPLY_n = f\{NU*CAL, g(MPCE)_n\}$,

Where $NU*CAL = g(MPCE)$ and $NU*CAL = 2400$ Rural, 2100 Urban

B. Definition 2 $OPLY_n = OPLY_o \cdot p_{yn}/p_{yo}$

In the first definition the observed functional relation g of daily per capita nutritional intake in calories NU_{cal} to the monthly per capita expenditure $MPCE$ in any year Y_n , is used to obtain the expenditure level $OPLY_n$ corresponding to the particular calorie norms $NU*CAL$ for rural and urban India and for the states. So the poverty line for that year depends directly on the relation g of calorie intake by $MPCE$ levels of the year, and on the specific nutrition norm. The $MPCE$ corresponding to the specific nutrition norm is obtained from the graphical depiction of this relation. This is the 'inverse linear

interpolation' that was referred to by the 1993 Expert Committee. It is then applied to the ogive obtain the percentage at persons falling below it.

In the second definition both the relation g between nutritional levels and expenditure, as well as the nutrition norm $NU*$ drop out of the picture completely. The poverty line obtained by applying the nutrition norm in the original year Y_o is treated as the base-year line $OPLY_o$, thus keeping the consumption basket fixed. The base-year poverty line is simply brought forward to a current year Y_n by applying the price index multiplier p_{yn}/p_{yo} to give the official poverty line $OPLY_n$. Since the Consumer Price index for Agricultural Laborers has risen just over 7-fold between 1973-74 and 2004 and 2004-05, the official rural poverty line in 2004-05 works out to just over 7 times the Rs.49 level of 1973-74 and is Rs.356 per month (just under Rs.12 per day). Thus in definition 2 the information on nutrition is ignored entirely. The poverty line of Rs. 356 so obtained is applied to the ogive (the cumulative distribution of persons by spending levels) to obtain the poverty percentage. No information is officially provided regarding the calorie intake actually accessible at this official poverty line, which by 2004-05 was only 1820 calories per day, far below the nutrition norm.

Since every five years there is a large-scale sample survey on consumer expenditure by the NSS, the poverty line could have been easily obtained afresh every time by looking of the current actual expenditure level of which the energy intake norm is accessible, thus preserving the same definition of poverty line over time. As Table 1 shows the 50th Round, 1993-94 AND 61st round, 2004-05 gave rural poverty line of Rs. 325 and Rs.800 per capital per month as the monthly spending levels on all goods and services, whose food component allowed the nutrition norm of 2400 calories to be accessed. Similarly the spending required to access any nutrition level can be ascertained. The official poverty lines however are quite different, much lower than these because the nutrition norm has been abandoned in the second definition.

To sum up, its own definition of poverty line set out in definition. 1 was applied correctly by the Planning Commission only for 1973-74, using the National Sample Survey (NSS) 28th Round data. The observed rural expenditure per capita per month (an all goods and

services) whose food expenditure part allowed a rural consumer to obtain 2400 calories per day, was found to be Rs.49.1 which was thus the 'poverty line'. The percentage of rural persons spending less and unable to reach the required energy norm, was 56.4 percent. Similarly the urban poverty line, namely that per capita monthly expenditure whose food expenditure part allowed the consumer to get 2100 calories per day, was Rs. 56.6 and the 49 percent of urban population fell below this.

After 1973-74 all Planning Commission poverty estimates are wrong and not comparable with the 1973-74 estimate because, the definition of poverty anchoring it to a specific nutrition norm, was given up, as though giving it did not matter, and further, the public was not informed that a different definition was being adapted. There have been six large sample surveys since then – in 1978, 1983, 1987-88, 1993-94, 1999-2000 and 2004-05, and not an iota of the data on the actual current calorie

intake levels associated with varying consumption expenditure, available in these surveys, has been consulted by the Planning Commission or by individual academics when making their estimates.

This procedure of price adjustment to a base-year-basket, means that the list of items and the quantities of these items people consume is taken as being the same today as in the base year – which by now is almost forty years in the past. The price adjusted poverty line is seen to be lower and lower over time, compared to the correct poverty line abstained by looking at the actual expenditure required for a person to access minimum nutrition. For 1993 the correct poverty line is Rs.325, nearly three-fifths higher than the official poverty line Rs.205. The correct poverty line is Rs.800 per month for 2004-05, over double the official Rs.356. The difference is thus widening over time because the official procedure is cumulatively underestimating the poverty line.

Table 3:
The Rural Poor as Percent of Rural Population in India

	1973-74 %	1993-94 %	2004-05 %	MPCE in Rupees.		
				1973-74	1993-94	2004-05
1. Poverty percentage Applying Official Definition 1 (those below MPCE giving 2400 calories)	56.4	74.5	86.7	49	325	800
2. Official Poverty percentages Definition 2	56.4	37.3	28.4	49	206	356
Corresponding Caloric level	2400	1970	1820			

Source: Calculated from NSS Reports on Consumer Expenditure. MPCE is Monthly Per Capita Expenditure. Note that base year 1973-74 is the only year the official definition was correctly applied. The same exercise has been carried out for urban India.

Owing to this cumulative under estimation of the official poverty line, the official poverty percentage declines from 56.4 to 28.4 percent comparing the base year and 2004-05. But using the correct nutrition-invariant poverty lines, the poverty percentage rises from 56.4 percent in the base year to 86.7 percent by 2004-05. The reasons for this rise in poverty lie mainly in expenditure – deflating public policies and have been discussed in more detail in Patnaik 2007 and Patnaik 2010.

The official poverty lines correspond to progressively over energy intake levels and thereby the very meaning

of the term 'poverty line' is altered. This necessary implication of the official procedure, that the nutrition intake associated with the official poverty lines are getting lower and lower over time, is never conveyed either to the general public or to other academics, by the Planning Commission or by the individuals following the same procedure even though they are well aware that this is happening. Since equivocation is not expected of prestigious bodies and of scholars, the public and other academics naturally take for granted that comparability conditions are being satisfied by keeping the original nutrition intake norm unchanged. But this is not the case.

The recent Tendulkar Committee Report does not mark any departure from the logically incorrect methodology of applying definition 2. All it has done is to say arbitrarily, without any good reason that it takes the basket of goods and services observed to be consumed at the 2004-05 urban poverty line of Rs. 18 per day. And then values this at rural prices to arrive at a new 'rural poverty line' which is put of Rs.414 per month (Rs.13.8 per day compared to the earlier Rs.12 per day). The energy intake accessible at the new line is still well below the original nutrition norm.

The logically correct method of estimating the poverty line, is to keep the nutrition norm constant over time and only if this is done, can we validly compare and talk of the direction and extent of change over time. A school cannot claim improving academic performance because the percentage of failures is reducing over time, when this reduction is the result of lowering the pass mark over time. It is obvious that the pass mark has to be kept constant for valid comparison. The official as well as individual estimates of poverty after the base years are incorrect, and the claim of poverty decline is also incorrect, because the nutrition standard against which the poor are being counted is being lowered over time. Additionally, even at any given single point of time the comparison of poverty across different states is not valid because the definition of poverty line is different across states, corresponding to widely different calorie intake levels corresponding to these poverty lines.

CONCLUDING REMARKS

Three examples of fallacious reasoning in economics which impact public policy, have been discussed in this lecture. Two of these fallacies fall under the category of material fallacy of a particular type, the converse fallacy of accident, while the third example is a verbal fallacy, the fallacy of equivocation. In each case the fallacy in question gives rise to inappropriate policy measures. First there is public expenditure deflation in a situation of unemployment which only worsens the employment situation further. Second, the economy being opened to 'free trade' leads to diversion of land away from food grains to export and tends to reduce domestic availability. Third, incorrect estimation of trends in poverty and the unfounded belief that poverty is declining, leads to a continuation of both the first two sets of policies and worsens the poverty situation.

We can never overestimate the importance of examining critically the assumptions underlying theories or consciously looking for logical flaws in theoretical arguments, because all policy measures ultimately depend on theoretical positions, whether these positions are explicitly articulated or are only implicitly held. Incorrect theories give rise to misguided policies which have the potential to lower welfare substantially, and we can see such on unfortunate development in a number of cases. Conversely an understanding of why certain theories are misconceived can help materially in correcting adverse policy measures and putting them on a logically sound footing.

Pt. Nehru on Socialism: Quite early, during the years of the struggle for national liberation Nehru repeatedly stressed the need for radical socio-economic reforms. With increasing clarity he visualised socialism as the ideal social structure. In 1936 in his speech at a session of the Indian National Congress, in Lucknow, Nehru stated: "I am convinced that the only key to the solution of the world's problems and of India's problems lies in Socialism, and when I use this word I do so not in a vague humanitarian way but in the scientific, economic sense.... I see no way of ending the poverty, the vast unemployment, the degradation, and the subjection of the Indian people except through Socialism. That involves vast and revolutionary changes in our political and social structure, the ending of vested interests in land and industry.... That means the ending of private property, except in a restricted sense, and the replacement of the present profit system by a higher ideal of co-operative service.... In short it means a new civilisation, radically different from the present capitalist order". (The Discovery of India, P.14, Asian Dilemma, 1973, P.241)