A Critique of the Patnaiks' 'Theory of Imperialism'

Their claims about oil

The Patnaiks' argument is centred around an alleged vertical supply curve for tropical products, both tropical crops and more controversially oil. It is plausible the oil faces, and will increasingly face rising marginal costs. But is it the case that oil is a tropical product?
 Is it the case, as they claim[1], that less than ⅛ of the remaining oil and gas are in developed countries. Well, it depends on how you count reserves, which are widely disputed. In terms of actual production, the Patnaiks are seriously wrong.

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Source: U.S. Energy Information Administration		
Natural Gas	Quad Btu	developed country share
Eurasia(Former USSR)	29.16	
Europe	9.05	
North America	34.84	
World	130.95	55.78%
Petroleum and Other Liquids		
Eurasia(Former USSR)	29.97	
Europe	7.22	
North America	37.43	
World	188.45	39.59%

Their criticism of Ricardo's trade theory

On the comments on Ricardo. The first point to note is that Ricardo deliberately takes a hard case - one where Portugal is more labour efficient in producing both wine and cloth and shows that under these conditions Portugal can obtain cloth by less effort if it exports wine to England in exchange for cloth.

> England may be so circumstanced, that to produce the cloth may require the labour of 100 men for one year; and if she attempted to make the wine, it might require the labour of 120 men for the same time. England would, therefore, find it her interest to import wine, and to purchase it by the exportation of cloth.

[1] Patnaiks, A Theory of Imperialism,

> To produce the wine in Portugal, might require only the labour of 80 men for one year, and to produce the cloth in the same country, might require the labour of 90 men for the same time. It would, therefore, be advantageous for her to export wine in exchange for cloth(Ricardo, Principles, Chapter 7)

So applying Ricardo's theory that commodities on a home market, in the absence of foreign trade, exchange in proportion to the labour expended, we have the following exchange ratios

Portugal I unit wine exchanges of 8/9th of a unit of cloth

England I unit of wine exchanges for 1.2 units of cloth

So a merchant in Portugal exporting I unit of wine and importing 1.2 units of cloth, could make a clear profit. Suppose I unit of wine was 80 escudos and 1 unit of cloth 90 escudos on the Portuguese market. By spending 80 escudos he has obtained by trade 1.2 units of cloth worth 108 escudos, a profit of 28 escudos out of which to pay shipping costs.

The Patnaiks object that this is an artificial example since wine cannot be grown in England. The reality of international trade they say is the import of agricultural products from hot countries to cold countries where it is impossible to grow them.

The objection that wine cannot be grown in England is false, at present on average 1.3 million tonnes of wine are grown in England each year[2], whilst this is tiny compared to the almost 5 billion tonnes of wine grown in France, it is not zero, and its growth was known in England at the time of Ricardo[3]. But there is no doubt that its growth in England has been economically marginal and uncompetitive with continental production - which was exactly what Ricardo was claiming.

But let us move North and assume that Ricardo had taken as his example Iceland and Portugal, and that both nations could produce fish, but only Portugal could produce wine. This is what the Patnaiks have in mind in their argument against Ricardo. Again let us assume that 1 shipment of wine requires 80 person-years and that one shipment of fish 90 person-years in Portugal. Suppose that in the stormy waters off Iceland it took 100 person-years to produce a shipment of fish. A Portuguese merchant shipping wine to Iceland could easily sell that for more than 1.2 shiploads of fish. In the original example of Ricardo, there was at least an upper limit to the exchange ratio of cloth to wine in England set by the domestic producers. On the Icelandic market where there is no domestic wine producer, the Portuguese wine exporter could sell the wine at a much higher price, he might obtain a whole shipload of fish for half a shipload of wine. He would thus obtain 118 escudos for the sale of his shipload of fish in Lisbon, for an initial outlay now of only 40 escudos, a much higher profit than would be obtained by the exporter to England.

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[2] House of Commons Library, DEBATE PACK Number CDP 2016/0208, 11 November 2016 The English Wine Industry

[3] Miller, Philip, ed. *The Gardeners Dictionary: Containing the Methods of Cultivating and Improving All Sorts of Trees, Plants, and Flowers, for the Kitchen, Fruit, and Pleasure Gardens; as Also Those which are Used in Medicine. With Directions for the Culture of Vineyards, and Making of Wine in England. In which Likewise are Included the Practical Parts of Husbandry*. Vol. 3. author, 1754.

The Patnaiks say that in the case of one country producing two commodities and the other capable of producing only one '*specialisation does not produce a vectorwise increase in the output of the two commodities, taking both countries together, so trade is not mutually beneficial*'[4]

This is an anachronistic formulation, Ricardo does not argue in terms of 'vectorwise increases'. He simply says that the trade is mutually beneficial because each country is able to obtain more of its least efficiently produced product by trade than it can obtain by the direct application of domestic labour to its production. But let us use the more modern language of vectors to my Icelandic example, which corresponds to what the Patnaiks think is the paradigmatic example of trade between cold and hot countries.

Here is the initial distribution of labour in the two countries.

Ricardian example	Fish	Wine
	labour per shipload	labour per shipload
Portugal	90	80
Iceland	100	
Assumed trade rate of fish to wine Iceland	2	1
Initial allocation of labour		
Portugal	90000	100000
Iceland	50000	

This distribution of labour results in the following actual consumption to start with

Initial consumption		
Portugal	1000	1250
Iceland	500	
Total	1500	1250

After trading 10 shiploads of wine to Iceland and getting back 20 of fish we could have the following consumption pattern and distribution of labour :

After trade of 10 ships of wine to Iceland		
production		
Portugal	990	1261.25
Iceland	500	0
total	1490	1261.25
labour		

[4] Patnaiks, A Theory of Imperialism, page 12.

Portugal	89100	100900
Iceland	50000	
consumption		
Portugal	1010	1251.25
Iceland	480	10

The Portuguese have increased their production of wine by 11.25 and reduced their production of fish by 10. The Icelanders produced the same amount of fish as before. The total amount of fish goes down, the total amount of wine goes up. It is not possible to increase the production of both simultaneously. But that is not enough to say that there would be no mutual benefit. The Icelanders have presumably benefited by having some wine which they did not have before and must have thought that giving up some fish for it was worthwhile or they would not have traded. The Portuguese, who have increased their consumption of both wine and fish have unambiguously benefited.

The important point here is that if one country can produce both products and the other can only produce one, the country which can produce both will improve its positions absolutely by trade - it is able to consume more of each product. The country only able to produce one product must reduce its consumption of one product to increase its production of the other. Assuming it does this it can benefit by being able to consume products that it would otherwise never have tasted, but only at the cost of losing output of one of its staples.

But note, this is the direct opposite of what the Patniaks claim to have been the invidious effect of trade between Portugal and England. Their claim is that Portugal, the country able to produce both wine and cloth, would lose out and that England, the country which they claim was only able to produce cloth, would benefit. Their evidence such as it is, consists in pointing out that the Portuguese cloth industry declined following the specialisation of Portugal into wine production after 1704. But that is irrelevant to showing that the trade was not mutually beneficial. To show that the Portuguese lost out they would have to show that *consumption* of cloth declined in Portugal as wine production went up.

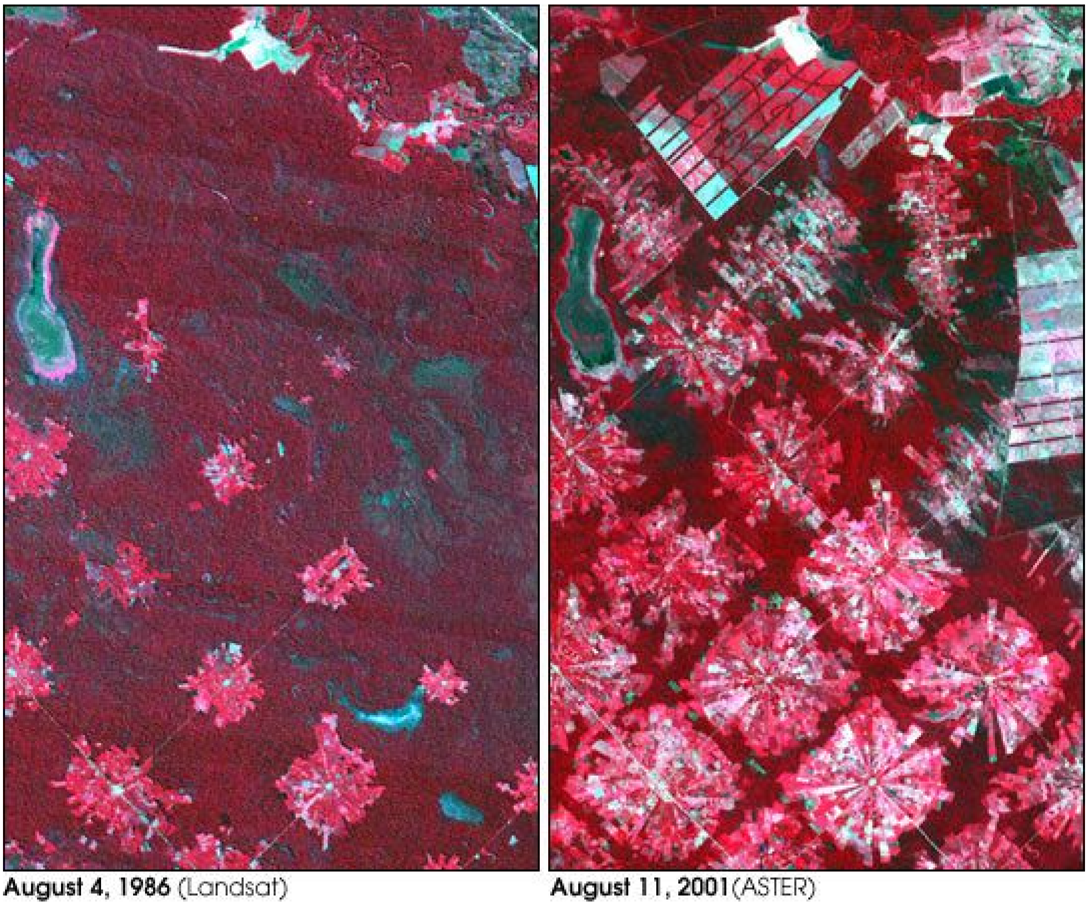
Of course looking back in retrospect from the early 20th century it would have seemed that the specialisation on cloth by England was more to her advantage than that on wine by Portugal, since the cloth industry allowed the use of machinery to greatly increase the productivity of labour and, a century after Ricardo, national income per head in England was much higher as a result. Two centuries after Ricardo, the textile industry in England was dead, but wine growing still thrived in Portugal.

The Patnaiks' discussion on monetary theory

The Patnaiks have as an underlying assumption what they call the 'vertical supply curve of tropical products'. What they are saying is that there is a fixed upper limit to the amount of tropical products that can be produced, because of the shortage of land available for their cultivation.

> " the output of the products produced by the tropical landmass does not increase because of the fixity of this landmass, which is fully used up"[5]

This claim that tropical land is fully used up is repeated at several place in the book.[6]The claim that the landmass of the tropics is fully used up, when satellite images clearly show the deforestation of the tropical forests[7] and their replacement by agriculture is very odd.



Satellite images 25 years apart showing deforestation.(Source Wikemedia)

Deforestation rates 1990 to 1997 according to Achard et al.

Annual deforestation rates	
Africa	0.43%
Latin America	0.38%
South East Asia	0.91%

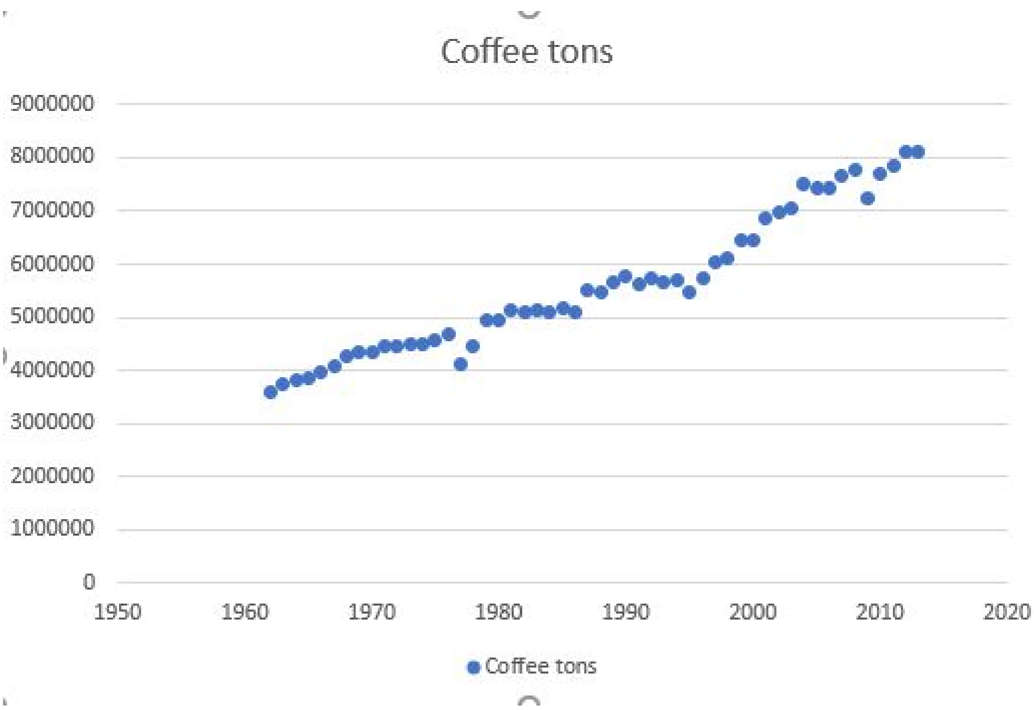
[5] A Theory of Imperialism, pages 14-15.
[6] Pages 10,14,23,27,28
[7] Achard, Frédéric, et al. "Determination of deforestation rates of the world's humid tropical forests." Science 297.5583 (2002): 999-1002.

It is reasonable to say that there must be some finite limit to how much tropical crops can be harvested given the limited area of land in the tropics, but this is not something specific to tropical crops. There is a limited area of land in the temperate zones as well. So any agricultural production, in any climatic zone faces this problem. It seems to me a bit ironic that they pose themselves as critics of Ricardo, since the problem of declining agricultural productivity was at the center of Ricardo's theory of rent, and it was on the analysis of this that he first built his reputation.

Writing during the wars with France, and the resulting import restrictions, Ricardo observed how grain shortages were driving up the cost of corn. He traced the cause of this to the need for farmers to bring into cultivation land that was more and more marginal - literally marginal, merklands on the slopes of hills above previously cultivated plains. The labour required to raise corn on this land was much higher and since prices are, in his theory, proportional to labour expended, the price of corn had to rise.

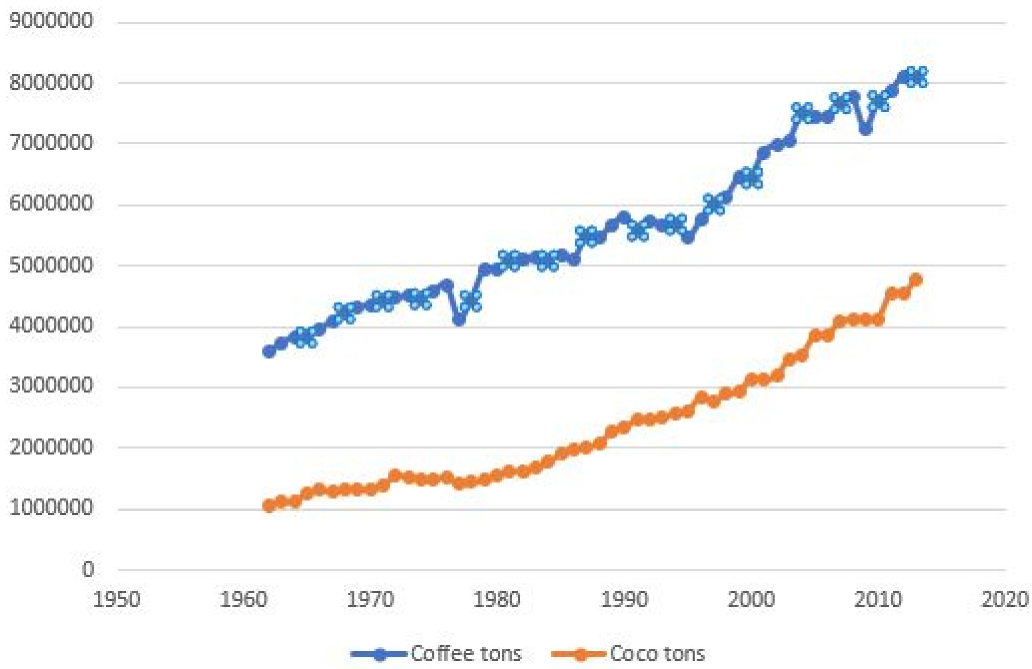
In consequence, the landlord class could levy higher rents on the long established cultivated fields, leading to a shift in national income towards rent at the expense of wages and profits.

Let us first look to see whether this vertical supply curve actually exists for the products of tropical agriculture. I am using the UN FAO online database for the statistics here. First lets look at coffee:

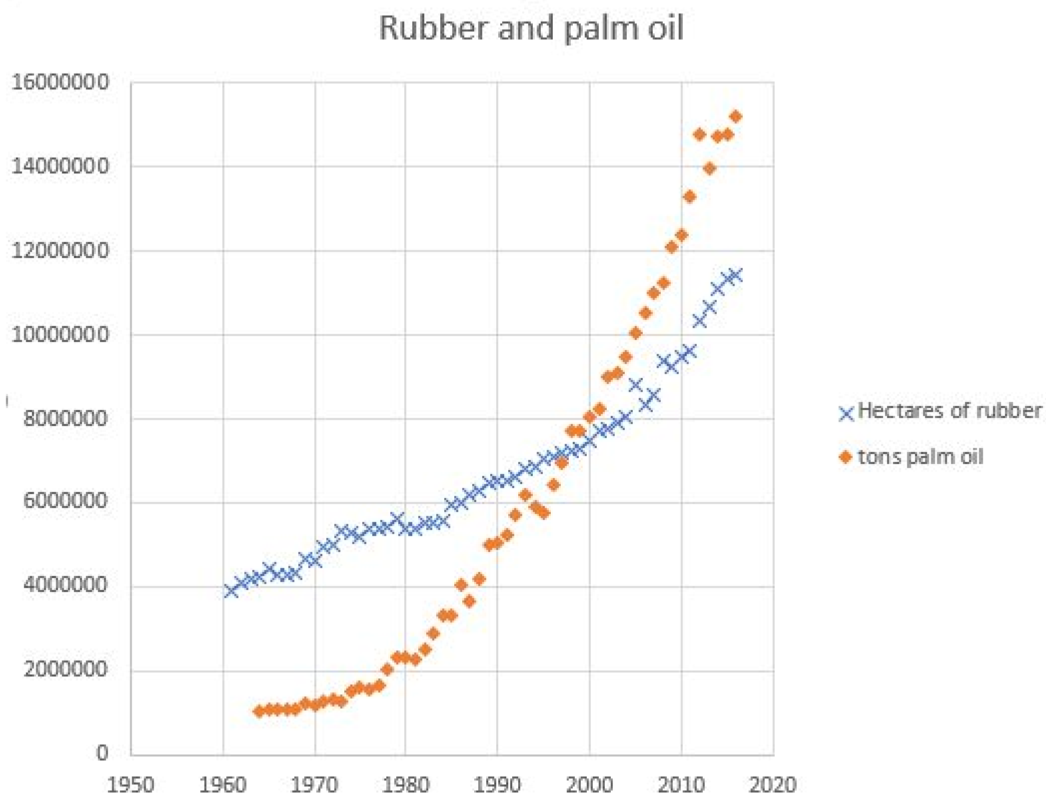


Well that does not look like a perfectly inelastic supply. It doubled over a 50 year period.

Let me add the trend line for coco.



No sign of perfect inelasticity there either. Coco production more than quadrupled in the same period. Lets now look at rubber and palm oil.



Again the production is not inelastic. Both show very rapid increases. The claim by the Patnaiks that the available land in tropical areas was all used up long ago, is just not true. There has been a vast process of clearing virgin forest to create land for tree crops like the four shown above.

Is this the same as the process analysed by Ricardo of agriculture moving up-slope into more marginal fields? Or is it like the process described by Marx in his analysis of differential rent, where he looks at the effect of bringing into cultivation of the marginal lands of the US frontier. In Ricardo's case, the labour input required on the marginal lands in England rose, in the US case the marginal labour input fell. The land of the Great Plains yielded more per worker day than the soils of New England, with the consequential decline of the agriculture of New England, and a fall in the value of wheat.

For tropical producers the in recent years the picture is varied, some show sharply rising labour productivity in agriculture, some show falls. For example, Brazil, Indonesia, Malaysia had the following performances between 1993 and 2008.

agricultural sector	year	Agriculture value added in constant 2010 national currency	Agricultural workforce	value added per person year in constant 2010 national currency	productivity gain
Indonesia	2008	892,886,201,338,125	39,556,000	22572712.14	0.91
	1993	605,779,889,869,550	24485000	24740857.25	
Malaysia	2008	80,898,186,840	1,366,000	59222.68436	1.55
	1993	59,555,409,054	1558600	38210.83604	
Brazil	2007	147,204,128,712	16207220	9082.626676	2.00
	1993	82,779,953,687	18254000	4534.893924	

It would be quite unsafe to assume that agricultural production in the tropics was in general faced with declining labour productivities. So the Patnaik's claim that tropical agriculture generally faces a vertical supply function because of absolute land limits should be rejected.

But this supposed supply inelasticity of tropical products means, according to the Patnaiks, that the entire monetary system of the capitalist metropoles is thrown into crisis.

The first step is that a rise in the price of tropical agricultural products is supposed to produce a reduction in local consumption in the tropical country.

> "Even if the output of the products produced by the tropical landmass does not increase because of the fixity of this landmass, which is fully used up, supplies to the metropolis of these products can still increase as a consequence of the rise in their prices; but this can happen only if the money wages of the workers or the money incomes of the petty producers, including the peasants, who are engaged in producing this output do not increase in tandem with the rise in prices"[8].

How coherent is this?

It only works if the tropical crop in question enters into the real wage of its direct producers. But many cocoa farmers in West Africa have never eaten finished chocolate in their lives, and if we consider rubber, rubber goods make up a relatively tiny portion of the real wage of rubber tappers.

[8] Patnaiks, A Theory of Imperialism, pages 14-15

So if, counterfactually, the land available for the growth of tropical crops really was fixed, there is no reason to suppose that more expensive rubber and cocoa would price it out of the consumption bundles of the direct producers. The bulk of the food consumed by the rural population in Africa, for example, is made up of crops which do not enter on a large scale into world trade: yams, cassava, sorghum, teff, millet.

> "Generally, Africans eat ore grain foods, but most of them consume less than one serving of fruits per day. Locally available staples generally form the basis of a meal, but the meal becomes nutritionally adequate and tasty if a relish or soup (consisting of beans or groundnuts, vegetables, fats or oils, condiments and spices) and fruits are eaten with the staple. In most African communities, people rely on one or two staple crops. Most common are maize, teff, cassava, yam, sweet potato, plantain and enset. These crops provide the bulk of energy intake of household members."[9]

Of this only maize is a major world commodity foodstuff, and production is dominated by the USA and China. The African rural workers' real consumption will be more affected by a rise in the price of maize imported from the US than by a rise in the price of cocoa which they do not eat. African urban workers will be additionally affected by the price of rice imported from India, Thailand and Vietnam.

If we drop the counterfactual hypothesis of a fixed area of tropical agriculture and a perfectly inelastic supply then a rise in production of rubber, palm oil etc will take place on marginal land recently converted from virgin forest. In the case of some countries like Malaya and Brazil we know this increase goes hand in hand with an increased labour productivity, and would, therefore, be expected to lead to a fall in price. Only a country like Indonesia with a falling labour productivity in agriculture would experience a rise in the local labour value of agricultural products.

> "If the rise in prices also affects the buyers whose money incomes do not increase in tandem in the metropolis itself, then they too are forced to consume less."[10]

This is surely incoherent. A few sentences ago the claim was that exported output had risen from tropical lands because those there were consuming less, but now we have the claim that not only are the tropics consuming less, but the metropoles were too because they also could not afford the high prices. If more is being outputted but less is being consumed everywhere, what is supposed to be happening to it?

The Patnaiks claim that there is a persistent long-term rise in the prices of tropical crops and that the effect is to cause lasting inflation in the metropoles and a flight from currency into gold. It seems a bit strange that a book on imperialism seems to operate on the assumption in Chapter 2 that all countries are operating on fiat money system. For the period of colonialism the world operated on a gold standard, prices were measured in currencies, the £ or Franc that had a fixed gold equivalence. Under these circumstances, there can be no flight into gold. If and when a rise in the price of import crops occurs it is a rise with respect

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[9] Oniang'o, Ruth K., Joseph M. Mutuku, and Serah J. Malaba. "Contemporary African food habits and their nutritional and health implications." Asia Pacific journal of clinical nutrition 12.3 (2003).
[10] A Theory of Imperialism, page 15

to a gold currency - the value of gold relative to imported corn or imported tea falls if the price of corn or tea rises. This did not destabilise the monetary system or lead to generalised inflation.

A central concern, as I wrote above, of Ricardian economics was the tendency of corn to become more expensive in absolute terms due to the limited quantity of fertile soil. The analysed effect of this was to raise the price in gold coin of corn. Insofar as there was a subsistence minimum below which the real wage could not fall, the rise in corn prices would force wages up and reduce profits. The gainers would be the landlord class who could levy high rents on the existing more fertile fields, appropriating the profits that farmers renting those fields would otherwise have made.

> “Notwithstanding, then, that the advantages of fertile over inferior lands are in no case lost, but only transferred from the cultivator, or consumer, to the landlord, yet, since more labour is required on the inferior lands, and since it is from such land only that we are enabled to furnish ourselves with the additional supply of raw produce, the comparative value of that produce will continue permanently above its former level, and make it exchange for more hats, cloth, shoes, &c. &c. in the production of which no such additional quantity of labour is required.”[11]

The Patnaiks are, in essence, just recapitulating this Ricardian argument with tropical crops substituted for corn, but presenting a poorer analysis of the consequences: no mention at this point of rent or the landlord class. They make no mention of the effect on rent incomes that would arise from an increase in commodity prices for tropical crops. Instead, they suggest that the effect would be to create a generalised inflation due to a flight to gold. Clearly, if the currency system was based on the gold standard this would not occur. But even if the gold standard has been dropped, which it is generally recognised will open up the possibility of long-term inflation, it does not follow that a rise in the value of agricultural products would be enough to precipitate such an inflation. The Patnaiks' argument is that if there is the anticipation of long-term inflation there will be a flight from money into commodities and that this will intensify the inflation. The Patnaiks try to emphasise that they are not monetarists and that monetarists underestimate the role of money as a store of value. But this argument is just a recapitulation of that of the well known monetarist Cagan[12]. Cagan attributes inflation to an excessive issue of paper money, and for all the Patnaiks' anti monetarist pretentions there is nothing in their explanation of the collapse of the convertibility of the dollar in the 1970s with which Cagan could have objected.

> “the US current account deficit widened, and a torrent of dollars poured out of the United States even as excess demand pressures appeared in the world economy and increased the rate of inflation to levels that could no longer be ignored. There was, therefore, a rush to gold” [13]

But this was not caused by a rise in the cost of tropical products but by the US monetarising its public debt. A rise in the value of crops, whether tropical or temperate, cannot produce this effect since the crops rise in value not only against currency but also against gold

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[11] David Ricardo, Principles of Political Economy, Chapter 2 on Rent.
[12] Cagan, P. "The monetary dynamics of hyperinflation, in; M. Friedman, ed." Studies in quantity theory of money (University of Chicago Press, Chicago. IL) (1956).
[13] Patnaiks, A Theory of Imperialism, page 19.

bullion. In consequence, gold bullion is no more of a hedge against a long-term crop price rise caused by real production conditions than cash would be. The specific hedge that would be adopted would be the commodity futures market.

Their argument becomes even more confused when they ague that even if the rise in the price of imported tropical crops were to have a marginal effect on metropolitan inflation rates, it would be brought about as a secondary effect. Wealth holders in the tropical region, where the inflation was more marked, would bring about the collapse of the monetary stability.

> "Faced with a rise in the price of local products, wealth holders in the tropical region would like to hedge against inflation by moving to gold. They would, it may be argued, move to the metropolitan currency from their own currency, since the price of the metropolitan currency vis-a-vis gold should have no reason to change."[14]

This is, to put it mildly, an unusual proposition. First, the tropical commodity would have moved up against gold to start with, as argued above. Secondly, the effect of a rise in the export prices of the main export of a tropical country will surely be to cause its currency to appreciate because the country can now purchase its existing imports with a lesser quantity of exports. It is likely therefore to, at least initially, run a trade surplus. The currency of the tropical country would thus be a better hedge against inflation than that of another nation. There might be other reasons, tax evasion, wealth hiding etc, for wealth holders in the tropical country to shift funds to London, New York or Geneva, but depreciation of their native currency would not be one of them.

[14] Patnaiks, A Theory of Imperialism, page 21