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ARTICLES

Agriculture-Industry Relation and the Question of ‘Home Market’: Towards Closing a Century’s Old Debate

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ABSTRACT

In our journey through the literature on ‘home market’ for industry we find that, time and again, agriculture has been identified as the potential sector. However, our basic point is that, it is rather the appropriate government intervention creating scope for Kaleckian ‘domestic exports’ that can mitigate the short-run problem of ‘effective demand’ faced by industry. But, we also propose that agriculture must provide industry with sufficient quantity of food – the critical ‘wage-good’. Furthermore, our Kaleckian framework shows: consistency requires complementarities between demand and supply-side supports for industrial expansion. Thus, domestic-exports/home-market and adequate food-supply should simultaneously act on industry and only under such a situation ‘realisation crises’ of both agriculture and industry could be mitigated. However, by extending our macro-framework we show, under the possibilities of international food-outflow and especially of finance-capital inflow leading to ‘commodity speculation’ the ‘autonomy’ of ‘domestic exports’ as the home market for industry reduces significantly, even becoming counter-productive.

Keywords: Industrial expansion, Agricultural support, Home market, Supply-constraint, Kalecki, Domestic exports, Commodity mobility, Commodity speculation.

JEL: B51, E12, O11, Q18.

I

INTRODUCTION

One of the main arguments in favour of ‘globalisation’ rests on the view that apart from easing the supply-side bottlenecks, it also helps to provide external market for the demand-constrained industry in less developed economies. However, complete dependence on such an ‘export-led growth’ strategy has been questioned by both the proponents and the critics of globalisation. The strategy gives disproportionate emphasis on volatile foreign markets at the neglect of internal markets as a means to solve the ‘problems of excess capacity and unemployment’ in the industrial sector. Thus ‘home market’ can be an important alternative. This ‘old’ question of home market has justifiably reappeared in times of global economic crisis (Jha, 2010). Against this background, we try to identify the possibilities of domestic demand generation for the industry. Our fundamental emphasis is on the search for home market creating short-run ‘effective demand’ for the industrial sector. In our

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journey we find that the literature time and again indicates at the agricultural sector as the potential home market.¹

However, we analyse this wisdom critically. In course of this critical analysis we develop our position that it is the government sector rather than agriculture that should be the proper candidate. Our basic position is that an appropriate government intervention creating the scope for Kaleckian ‘domestic exports’ for the industrial sector can mitigate the short-run problem of effective demand faced by industry. However, we push our basic argument and explicate the significant binding constraints on the home market in the contemporary world. On the other hand, in conformity with the vast literature that suggests agriculture’s supply-side role in the course of industrialisation, we also propose the primacy of such a role for agriculture. Agriculture must provide industry with ‘food’ – the critical ‘wage-good’ (and also raw materials).

Above all, departing from the literature, we argue that to have a non-inflationary real expansion of industry simultaneous interactions between industry and agriculture on one hand and between industrial sector and the government on the other are essential. The two sectors – agriculture and the government – have to act on the industry conjointly. To show this, we need to build a Kaleckian macro-model and perform few comparative static exercises. We further push this framework to tackle certain contemporary problems with ‘home market’ and ‘agricultural supply-constraint’ for modern industry.

Review of Literature

1.1. *Introduction:* In the literature on industrial problems in less developed countries (LDCs) agriculture is frequently recognised as the potential home market for industry. On the other hand, contrary to these discussions there is a vast literature that emphasises on the supply-side role of agriculture in the expansion of industry. Though chronologically this supply-side literature precedes the home market argument, later on there has been a marked swing. We review the literature on agriculture-industry relation following this chronological order.

1.2. Review of the Supply-side Literature

There are various mechanisms through which agriculture is supposed to induce industrial expansion from the supply-side. In the following section we discuss these mechanisms as mentioned in the relevant writings of the most prominent contributors:

1.2.1. *Ricardo:* One of the major supply-side arguments was initially put forward by Ricardo (1951) during the famous ‘Corn Law’ controversy in England. Ricardo was critical about the ‘Corn Law’ that restricted the import of corn to England, which was supposed to create a shortage of corn for the industrial sector choking off its

expansion. For Ricardo, expansion of industry depends on capital accumulation that, in turn, is determined by the generation and re-investment of industrial profit. Now the question is: How does the shortage of 'corn' squeeze out industrial profit and thereby restrict growth? As accumulation progresses and industry expands, demand for food also rises. This excess demand can be mitigated only with an expansion of food-supply. Given the scarcity of land, food production can be increased by 'intensive' and 'extensive' cultivation. In both the cases, the law of diminishing returns operates which causes a lower rate of profit in agriculture. The law of uniform rate of profit across all sectors implies a fall in the rate of profit of the industrial sector as well. This fall in the rate of profit reduces accumulation and restricts industrial expansion.²

1.2.2. *Preobrazhensky and the Concept of 'Primitive Socialist Accumulation'*: Preobrazhensky,³ understood the limitation of the frame of market-transaction between agriculture and industry (as in Lewis, 1954) in the context of Soviet socialist industrialisation. His conception of agrarian structure is radically different from the structure of subsistence peasant agriculture stereotyped much later by Lewis and Ranis-Fei. Agrarian sector produces a substantive amount of surplus over and above the subsistence requirements of the peasants, which is appropriated by a class of rich landlords or Kulaks. This surplus constitutes a potential savings for investment in state-owned socialist industries. Actualisation of the potential requires a mechanism of the surplus extraction from the landlords to the state through a policy of procurement at a low terms-of-trade against agriculture, fixed and ensured by the state itself. This process of surplus extraction for the purpose of development of socialist industries is – what Preobrazhensky termed – 'Primitive Socialist Accumulation'. The conception owes its origin to the analysis of 'Primitive Accumulation' (Marx, 1958). Extraction of surplus from feudal landlords through application of state-force played a vital role in the emergence of private capitalistic industries in West Europe.

1.2.3. *Lewis, Ranis-Fei*: In the context of 'economic development' of the underdeveloped 'dual economies' Lewis (1954) and Ranis-Fei (1961) discussed similar type of issues. In a dual economy framework the progress of the system primarily depends on the continuous process of accumulation of capital in the capitalistic industrial sector through the transfer of both surplus labour and surplus food grain from the subsistence agriculture. Both the transfers are assumed to take place within a frame of market transaction between the subsistence sector and the industrial sectors.

Existence of surplus labour is primarily on account of disguised unemployment in the subsistence sector. A higher wage rate in the advanced sector compared to the average per capita income in the subsistence sector induces surplus labour to migrate to modern sector. Surplus food, on the other hand, is created by the very process of migration. Disguised unemployment implies that transfer of labour leaves the level of food production unchanged and surplus food is created on the assumption that the

average per capita food consumption remains constant in the subsistence sector. This surplus food is sold to the modern sector against the purchase of industrial goods.

If one assumes a constant wage rate in terms of food in the industrial sector and constant terms of trade between the subsistence sector and the modern sector, then, the product wage in industry is fixed by implication. Constant product wage implies a constant rate of profit and a constant rate of accumulation and industrial expansion. However, this smooth process of industrial accumulation may be hampered due to two factors even in the presence of surplus labour.

First of all, transfer of labour from the subsistence sector to the modern sector increases the average per capita income of the subsistence sector. This increase in the average per capita income may induce the industrial workers to demand a higher wage which reduces the rate of profit and rate of accumulation in the industrial sector. Secondly, increase of per capita income may induce the farmers in the subsistence sector to consume more food in per capita terms and higher wage in the industrial sector may result in a higher per capita consumption of food of the industrial workers compared to what they consumed in the subsistence sector. Both these factors create an excess demand in the food-market which pushes the terms of trade in favour of subsistence sector. A given wage rate in terms of food then means an increase in the industrial product–wage. Rise in industrial product–wage causes a fall in the industrial rate of profit and accumulation.⁴

1.2.4. *Agriculture as the 'Home Market' for Industry*

Till the middle of the 20th century these supply-side arguments were discussed several times by many researchers with only occasional mentioning of the demand-side support of agriculture for the industry.⁵ However, this dominance of supply-side arguments was reversed during the second half of the 20th century. Agriculture as the home market for industry became a dominant viewpoint at the levels of popular perception and of academic discourses.

1.2.5.1. *The Popular Perception*

The popular perception is that a bumper crop facilitates industrial revival because it leads to an increase in income in agriculture raising demand for industrial goods. The argument is based on an implicit assumption of constant terms-of-trade. The assumption is necessary because a bumper crop, *ceteris paribus*, will change the terms-of-trade against agriculture reducing the purchasing power of agriculture given an inelastic food-demand from the industrial sector. Even if we allow for this assumption of constant terms-of-trade, the increased agricultural output is translated into actual additional purchasing power only after it is sold to the industrial sector.⁶

Moreover, industrial purchases for the additional agricultural output mean a leakage from the expenditure on industrial good incurred by that sector itself. This

reduces the demand for industrial commodities. On the other hand, when the additional income that accrues to the agricultural sector through sale of additional amount of food to industry is, in turn, spent on the industrial products, demand for industrial commodity rises. However, ultimately there is no impact on the demand for industrial commodity, as the two effects wash off. This result also follows from a fundamental proposition of macroeconomics: In a demand-constrained economy only an increase in the 'net exports' or 'export surplus' and not that in exports per se can lead to an expansion of output and employment. In the case under consideration, though the volume of 'trade' between agriculture and industry rises it remains a balanced one. So the popular claim that agriculture can serve as a home market for the industrial sector is a myth as the trade between the two sectors is balanced at constant terms-of-trade.⁷

Few points to be noted in this regard:

(a) In the event of government procurement of the additional agricultural output, industry can have an expanded market. This happens, as the increased agricultural income earned through the sale of surplus agricultural products to the government is spent on industrial output. But in this case, it is the increase in government expenditure and not the expansion of agricultural sector as such that creates the market.

(b) A similar situation appears when the surplus agricultural products is exported and the export earnings of agriculture are spent on industrial output. In such a case the foreign countries are providing the market for industry while agriculture is only an intermediary.

(c) Under balanced trade some industries may enjoy a larger market but it will be accompanied by the corresponding contraction of other industries leaving the aggregate size of the industrial sector unchanged.

(d) Sometimes it is argued that purchase of industrial inputs like seeds, fertilisers and other capital goods creates market for the industrial sector. If such purchases are financed out of agricultural income then there is simply a diversion of 'imports' of the agrarian sector from consumption import to input import from industry leaving the overall situation of balanced agriculture-industry trade unchanged at constant terms-of-trade. On the other hand, purchases of inputs financed by government subsidies can create additional demand for the industrial sector. However, in such a case, government and not agriculture by itself creates the additional market. The only case under which purchase of industrial inputs by agriculture creates home market is when such purchases are financed by loans from the industrial sector through the financial channel. However, in the context of our proposition, the focus is on the role of expansion of agricultural output in creating a home market for industry. This does not happen even in the case under consideration.

(e) Industry may find home market in agriculture, if agriculture stops purchasing (or forced to do so) competing traditional non-agricultural products and undertake a substitution and thereby agriculture – traditional non-agriculture symbiosis is replaced with agriculture – modern industrial trade. It happened in the context of ‘primitive capitalist accumulation’ (Marx, 1958) and could happen now also under variety of strategies like (hi-tech) ‘green-revolution’ and (corporate-driven) ‘globalising traditional agriculture’ and thereby replacing/breaking the deep bondage between ‘farm and non-farm’. However, mere expansion of food production cannot create this home market.

1.2.3.2. *The Academic View*

The academic view on the idea of agriculture being the home market for industry can be decomposed into two broad groups of writings.

a) The first defence of the position is the same as that in popular perception and hence, suffers from similar problem. Such a proposition could be found in Raj (1994), Chakravarty (1994) and, in more formal terms, Kaldor (1996), Thirlwall (1986) and Bhaduri and Skarstein (2003). It is argued that with the growth of agricultural productivity as rural income rises, it expands the home market. This argument is perhaps derived from the doctrine of long-run balanced growth which talks about demand-side as well as supply-side balancing between agriculture and industry ensured through their simultaneous development (as in Rudra, 1964). However, the proposition of short-run expansion of market for industry through the (unilateral) expansion of agricultural output and income violates this very condition of simultaneity. On the other hand, the literature which argues that ‘agricultural transformation’ generates surplus for exchange against industrial commodity and thereby creates the home market for industrial sector (Mundle, 1977; Bagchi, 1981; Nadkarni, 1979) also suffers from a similar problem, if the question of ‘primitive accumulation’ is avoided.

Our claim is that simple short-run exchange with agriculture-industry balanced trade cannot create any additional demand for any of the sectors involved in this exchange process. Accordingly one cannot be a ‘market’ for the other boosting its short-run ‘effective demand’. As this type of mutual exchange expands, the volume of inter-sectoral trade expands without any change in the ‘trade balances’ which remains at zero. Money received by one sector through the sale of its products to the other, is fully spent back on the latter’s products with complete circulation of purchasing power. Hence this full circulation of money though contributes to the volume (value) of inter-sectoral trade and hence can contribute in production in the long-run from the supply-side, cannot influence demand for the products of any of the sectors in the short-run.

In this context an analysis of the discussions by Marx and Lenin on ‘home market’ could be very helpful in clarifying the confusions. It is quoted by Lenin

(1972, p. 42) from Marx (*Capital*, Vol. 1) that, “(t)he expropriation and eviction of a part of the agricultural population not only set free for industrial capital the labourers, their means of subsistence, and material for labour; it also created the home market”. Thus, it is true that ‘agricultural transformation’ – to be precise ‘primitive accumulation’, according to Marx, is creating the ‘home market’ for industry. Now the question arises, is this freeing of agricultural surplus from the rural subsistence economy, to be converted into variable capital for capitalistic industry creating this home market? To answer this we need to go little deeper into the analyses of Marx and Lenin. As ‘primitive accumulation’ proceeds and rural non-agricultural population gets expropriated and thereby free wage-labour becomes available for capitalistic industry along with other means of subsistence and means of labour, the rural small production is destroyed and hence a void is created which is filled up with the products of the upcoming capitalistic industry. Thus ‘home market’ for capitalistic industry is created by ruining and displacing the rural traditional industry through ‘primitive accumulation’ and replacing their demand with induced demand for ‘modern’ industrial products. In fact the ‘modern’ industrial products replace the traditional rural non-agricultural products and muster the agricultural *supply* – the fundamental ‘wage good’ – in exchange of that. Balanced and equivalent exchange between capitalistic industry and rural economy is creating the ‘home market’ for the former, but it is only possible through the destruction of indigenous industry, i.e., by replacing one form of non-agricultural production with the other and not due to simple exchange of commodities. “Thus, from the standpoint of abstract theory, the ruin of the small producers in a society of developing commodity economy and capitalism means.....the creationof the home market” (Lenin, 1972, p. 42).⁸

b) The second defence for agriculture being the ‘home market’ for industry is in terms of redistributive mechanism set forth by a short-run movement of terms-of-trade following a bumper crop. It is this redistributive mechanism which is taken up and clarified in formal terms by the other stream of academic discourse. We can refer in this regard the works of Mitra (1977), Bagchi (1988), Rakshit (1982), Taylor (1983), Bose (1989), Sarkar (1993) and Dutt (2001).

We consider two alternative situations as a convenient starting point for a purposive review of this formal literature:

- A. Situation of balanced trade between agriculture and industry.
- B. Situation of unbalanced trade between the two sectors.

Within each of these two scenarios, two distinct cases are considered in the literature:

- (1) When the real-wage in the industrial sector is fixed in terms of the industrial product, i.e. fixed product-wage (with variable real-wage in terms of food).
- (2) When industrial real-wage is fixed in terms of food i.e. variable product-wage.

Thus, we get four possible combinations:

1.2.3.2.A1. Balanced trade and fixed product-wage. B1. Unbalanced trade and fixed product-wage. A2. Balanced trade and variable product-wage. B2. Unbalanced trade and variable product-wage.

Following the literature let us now discuss these possibilities having short-run consequences.

A1. Balanced Trade and Fixed Product-Wage: For the sake of simplicity, let us assume that only the industrial workers purchase food from the farmers. Food expenditure of these workers constitute the agrarian income. Balanced trade between agriculture and industry implies that the income of the farmers is spent entirely on the purchase of industrial goods.

An increase in food-supply, starting from an initial situation of both food-market and industrial equilibria, creates an excess supply of food, which is eliminated through a fall in food-price increasing the per worker food-demand. Given the industrial product-wage and industrial employment, the industrial wage bill remains constant in terms of industrial goods. However, a lesser fraction of the same wage bill is spent on food on account of price inelastic food-demand. Thus, there is a reduction of farmers' income in terms of industrial good whereas a given product-wage along with a fall in food-price implies an increase in industrial real-wage in terms of food. In this sense, there is a redistribution of income from the farmers to industrial workers.

The effect of this redistribution on demand for industrial output is as follows. Decreased food expenditure of the workers out of the same wage bill in terms of the industrial good creates an equivalent increase in the demand for industrial goods since the workers do not save. However, the positive effect on industrial output is exactly offset by the fact that decreased food expenditure reduces farmers' income and thereby farmers' demand for industrial good by an equivalent amount. An increase in marketable surplus thus has no effect on demand-constrained industrial output (Balakrishnan, 1995; Krishnaji and Krishnan, 1998).

1.2.3.2.B1. *Unbalanced Trade and Fixed Product-wage:* In this case, farmers are supposed to save a constant fraction of their income from the sale of food which means that the industry runs an 'import surplus' vis-à-vis agriculture. An increase in marketable surplus, starting from an initial situation of food-market and industry equilibria, creates an excess supply of food. The same chain of arguments holds here as in the previous case. There is a redistribution of income from farmers to workers. Such redistribution increases the workers' demand for industrial good and reduces the demand of the farmers. However, reduction in demand for industrial goods from the farmers, in this case, is less than the increase in demand of the workers, because a part of reduced income of the farmers is absorbed in the form of reduction of savings. Thus, the net effect of an increase in marketable surplus is an expansion of demand for industrial output. The increase in industrial output reverses the initial fall in food-

price to some extent. But in a well-behaved model, the ultimate effect of an increase in marketable surplus on industrial output is expansionary.⁹

1.2.3.2.A2. *Balanced Trade and Variable Product-wage:* Suppose that a part of marketable surplus is held in the form of inventories by the agrarian sector and the inventory investment in food decreases with movement of terms-of-trade in favour of agriculture. Two other important assumptions are that the real-wage-rate of the industrial workers is fixed in terms of food and the food-expenditure of the workers is exactly equal to the total wage bill. Balanced trade means that the realised income of the farmers from the sale of food is spent entirely on the purchase of industrial product.

Starting from an initial situation of food-market equilibrium, a movement of terms-of-trade in favour of agriculture (for given levels of marketable surplus and industrial output and employment) creates excess supply in the food-market by decreasing the level of inventory investment of the farmers. This excess supply can be eliminated by an increase in the level of industrial output and employment. In other words, a positive relation between industrial output and terms-of-trade for agriculture maintains food-market equilibrium.

Similarly, starting from an initial situation of industry-equilibrium, a movement of terms-of-trade (for given levels of marketable surplus and industrial output and employment) in favour of agriculture increases the income of the farmers and decreases profit-income of the industrial capitalists. Such redistribution of income increases the demand for the industrial sector since the farmers are supposed to have a higher propensity to consume than that of the capitalists. Industry-equilibrium requires an expansion of output with an increase in effective demand. Thus, a positive relation between industrial output and terms-of-trade for agriculture can maintain industry-equilibrium. The intersection of the two positive relations (giving food-market and industry equilibria respectively) defines equilibrium for the system and a stable equilibrium exists under appropriate restrictions.

Given an initial situation of equilibrium of the system, increase in marketable surplus of food pushes the terms-of-trade against agriculture. There occurs a redistribution of income from the farmers to the industrial capitalists, which reduces demand and industrial output. On the other hand, movement of terms-of-trade against agriculture raises the level of inventory investment of the farmers restoring food-market equilibrium as well. The ultimate result is industrial contraction!

1.2.3.2.B2. *Unbalanced Trade and Variable Product-wage:* All the basic assumptions are the same as in the previous case, A2. The only difference is that the farmers are supposed to spend their entire potential income or the full value of marketable surplus on the purchase of industrial product. The potential income is greater than the value of sale of food due to the positive inventory investment of food by the farmers. In other words, the agrarian sector runs an 'import surplus' vis-à-vis

the industrial sector, the value of which is equal to that of inventory stock of food by the farmers.

Given an initial situation of equilibrium of the system, an increase in marketable surplus has two effects on the 'export surplus' of industry. The direct effect increases farmers' potential income or industry's 'export surplus' having in turn a favourable effect on the effective demand for industrial output. On the other hand, an increase in marketable surplus leads to a reverse effect (the resultant of the last case, A2). The net effect depends on the relative strength of the two effects. It is possible for the second effect to dominate so that an increase in marketable surplus of food leads to industrial contraction. These cases have been analysed by Rakshit (1982, Section 7.3).

Now we summarise the above four cases. While in case A1 we find that there is no demand-side impact on the industrial output, in case A2 the impact of rise in marketable surplus of food is rather contractionary! On the other hand, case B2 presents an ambiguous result. Thus, the only case where we have an expansionary impact on industry is B1. But a closer inquiry generates certain doubts. This case (B1) essentially refers to a situation where a rise in marketable surplus of food releases pent up purchasing power as the income is redistributed away from those having higher marginal propensity to save. Thus, there is a movement from a situation of incomplete circulation of purchasing power to a complete one. Now, incomplete circulation of purchasing power implies that, though savings is generated in the economy corresponding (and equivalent) to the investment in industry by the capitalists, it cannot be appropriated fully by them as the farmers retain a part of it. Consequently, the savings appropriated by the industrial capitalists is less than investment. However, 'effective demand problem' refers to an opposite situation where investment is rather less than savings. Hence, incomplete circulation of purchasing power as assumed in case B1 is not a state of lack of 'effective demand' for industry. Thus, it cannot be inferred that in case B1 a rise in marketable surplus of food is mitigating the 'effective demand problem'. Solving the short-run 'effective demand problem' (i.e., planned investment < planned savings or non-realisation of surplus itself) is completely different from mitigating the problem of incomplete circulation of money or non-realisation of savings by the capitalists and not by the economy as a whole. We claim that, neither through mutual exchange of commodities between agriculture and industry nor through inter-sectoral and inter-class redistribution the short-run problem of 'effective demand' faced by the industrial sector could be solved. If planned investment is less than planned savings for the industrial capitalists it cannot be resolved through an increase in the marketable surplus of food. We have to search for the 'home market' somewhere else (see, in this regard, Chakrabarti, 2001, 2003, 2009, 2011; Chakrabarti and Kundu, 2009b).

1.3. *Plan of Work*

1.3.1. *Our Departures*

After setting the context of the study we now specify the targeted project, first, by framing our specific departures:

(a) We consider a situation where all the contending groups (capitalists and workers of industry and farmers) form separate lobbies and all lobbies are equally strong. In such a situation these classes can collude, the political expression of which is a 'coalition government'. Consequently, any process initiating redistribution is blocked through bargaining. Thus, the distributive factors are not determined through demand-supply interactions but by the class-relations, where 'the powerful social forces...make for (this) constancy in relative earnings in different trades and occupations' [Kaldor (1976, p. 708)]. Therefore, we assume rigidity of industrial real-wage and product-wage and hence, rigidity of agriculture-industry terms-of-trade (t-o-t). Essentially, by this very crucial assumption we try to depart from the neo-classical approach where the '(r)elative prices are...all-important in determining allocation of resources and also determining quantity levels and composition simultaneously with prices, (Bharadwaj (1994, p. 74)). Our analysis is based on 'the process of distribution (which involves), inescapably, the clash of class interests and the interplay of historical and political factors...' (ibid, p. 84).¹⁰ In this very context we can provide interesting empirical observations supporting our assumption of inflexibilities of distributive factors using Indian data. We have calculated the mean and coefficient of variation from the series of Indian data on agriculture - non-agriculture terms-of-trade and non-agricultural real-wage measured in terms of wholesale non-food-price index, wholesale food-price index and in terms of consumer price index respectively. We found that the decadal fluctuations of all these data sets for India have been reduced considerably as we move forward from the 1970s to post-2000 years. Thus at least in case of India, the distributional factors have tended to be more and more stable within a decade in the recent periods (though means have changed considerably). These results are shown in Appendix Table A1 to A4. This empirical analysis is crucial as the assumption of rigidity of distributive factors will be found to play a very significant role for our subsequent theoretical analysis. Even if the asset distribution in the Indian society is skewed, the political checks and balances may have restricted the relative incomes of different classes from changing drastically, at least in the short-run.

(b) We assume the absence of any type of capital-flow between agriculture and industry. Essentially, it means balanced trade. Agriculture cannot finance its 'import surplus' vis-à-vis industry, given its inability to issue 'stocks' in general. Though agriculture running an 'export surplus' may be a possibility, it could be shown, this cannot fundamentally modify the results so long as distributive factors are given (Chakrabarti, 2001).

(c) Our claim is that simple (equilibrium) exchange with agriculture-industry balanced trade cannot create any extra demand for industry.

1.3.2. *Agriculture and Industry Fall Apart*

If we put together all these contentions, it implies complete absence of any of the demand-side ‘closing mechanisms’ for agriculture-industry interaction. As agriculture experiences bumper harvest, though supply of food to industry increases, it fails to be absorbed in the industry because of lack of any consequent rise in demand for industrial output pushing-up industrial production and its sale. Lack of rise in complementary demand for industrial output from any of the inside or outside sources, can restrict the increase in demand for food as well from this industrial sector. Thus, the agricultural sector suffers from the ‘realisation crisis’. On the other hand, expansion of industrial production crucially depends on (sufficient) exogenous supply of food, absence of which triggers off the price-wage spiral only by creating excess demand for food, which is not automatically mitigated unless and otherwise the initial expansion in industry is checked fully. Thus, agriculture acts as a significant supply-side bottleneck for industrial expansion.

Summarising, we can say, though without sufficient and exogenous expansion of food-supply industry cannot expand in real terms, its mere expansion also does not at all guarantee the expansion in demand for industrial output and hence cannot guarantee its own absorption either. Consequently, from our review of the existing literature we can say that there is no mechanism left by which one sector can induce the other; neither from the demand-side nor from the supply. The two sectors thus, fall apart without any ‘closing’ mechanism. Essentially, the simultaneous (and adequate) expansions of both the food-supply to and the effective demand for industry are crucial for the short-run expansion of industrial output and employment. When food-supply to industry rises we have to search for a complementary source of rising demand or that of expanding market for the industrial sector. If, however, the internal demand for industry itself is not forthcoming leading to its problem of ‘internal effective demand’ we have to look for some ‘external’ source of this demand or market.

In our case, essentially, both agricultural sector and industry suffer simultaneously from surplus productions that remain unrealised. Thus, both suffer from the ‘realisation crises’. This “problem of realisation is how to find for each part of the product, in terms of value.....and in its material form (means of production, and articles of consumption...), that other part of the product which replaces it on the market” (Lenin, 1972, p. 46). In the present case it is rather this non-concurrence of ‘material forms’ originating in the two lines of production that is creating the problem for exchange. Even if there is concurrence in terms of value there is failure of exchange. This is because the industrial capitalists’ motive of production is accumulation of surplus value through sale of their products at profitable prices and

not the simple exchange of the whole of their real surplus with that of food.¹¹ Food is nothing but one of the inputs that can only generate still higher amount of unsold stock of industrial output, if used in production.

1.3.3. *Kalecki's Concept of 'Domestic Exports'*

We assume, for the time being that the primary problem for industry is the lack of 'internal effective demand' while agricultural supply to industry is sufficient. In such a situation, the only option left for the short-run expansion of the demand-constrained industry, in a closed economy, is the path of government intervention given the agriculture's inability to provide the 'external market' for industry. Kalecki quite correctly formulated the role of 'external market' and 'home market' in mitigating the demand problem of domestic industry (Kalecki, 1971a, b). Many economists before and after Kalecki wrongly asserted that boosting up the level of exports are equivalent to expansion of external market.¹² Kalecki pointed out in clear terms that the extent of foreign market relevant in the context of effective demand problem is not given by the level of export but by that of export-surplus. In his own words, "if exports increase and at the same time there is an equal increase in imports,...trade is boosted, but production in the country considered does not increase, nor will there be any inducement for expansion..." (Kalecki, 1971a, p. 16) in particular from the demand-side, as "the imported goods absorb purchasing power just like those home produced and thus, to the extent that exports are offset by imports they do not contribute to the expansion of the markets.." (Kalecki, 1971b, p.152). However, there are practical problems in sustaining the export-surplus vis-à-vis rest of the world. The balance of payments consideration requires a matching capital outflow corresponding to the export-surplus. It is difficult to ensure the readiness of rest of the world to absorb such capital-flows. Moreover, all countries of the world cannot follow simultaneously a policy of export-surplus. Kalecki therefore shifted his focus from external market to home market. Home market for industry is defined as any non-industrial sector within the national economy vis-à-vis which domestic industry can enjoy 'export-surplus'. The agrarian sector cannot be the home market since it suffers from the problem of financing its import-surplus (i.e., export-surplus of industry).¹³ According to Kalecki, the government sector is the proper candidate to play the role of home market. It can purchase goods from the industrial sector given its monopoly power over printing money. In its trade with government sector domestic industry 'exports' goods against the 'import' of money. This export which is, by definition, an export-surplus is what Kalecki terms as 'domestic exports' (Kalecki, 1971a, p.19).

1.3.4. *Kalecki: Agricultural Supply-Constraint*

Kalecki rules out agriculture as a possible home market for industry. However, this does not mean that he considers agriculture as totally unimportant. There is clear

recognition of agriculture as the source of supply of wage-good or food to the industrial sector. Consider a situation such that wage-share in industry is given and the workers spending a constant fraction of wage-income on food at a given terms-of-trade. Suppose that the level of effective demand is so maintained that industry always produces full-capacity or potential output and potential output grows at a given rate on account of investment. Given these assumptions, demand for food grows at the same rate as the industrial growth rate. Non-inflationary growth requires that agricultural production grows at an adequate rate such that the growth rate of supply of food matches the growth rate of demand. If agricultural production fails to grow at the required rate, persistent excess demand for food will continually increase food-price which in turn, will lead to an upward wage-price spiral in the industrial sector (Kalecki, 1993a, b).

Thus, Kalecki's concepts of domestic export and of agricultural supply-constraint can constitute the point of departure from the existing literature. With these perspectives, it can be shown that these demand-side and supply-side inducements should be complementary in nature to ensure a non-inflationary expansion of industrial output and employment (see, in this regard, Chakrabarti, 2001, 2003, 2009, 2011, 2014; Chakrabarti and Kundu, 2009b).¹⁴

II

INDUSTRY EQUILIBRIUM: AGRICULTURAL SUPPLY-CONSTRAINT AND DOMESTIC EXPORTS

2.1. *Basic Features of Our Model-Economy and Notations*

2.1.1. Basic features are assumed as

(a) There are three sectors of a closed economy: a vertically integrated capitalistic formal industrial sector (FS), an agricultural or 'food sector' and the government sector.

(b) FS is characterised by excess capacity, unemployment and mark-up pricing. Price is cost-determined and output is demand-determined. Thus quantity-determination and price-determination mechanisms are distinctly different.

(c) All profits in the FS are saved whereas all wages are consumed. A part of wage-income is spent on food so that there is the possibility of FS facing an agricultural supply-constraint.

(d) A fixed marketable surplus of the generic 'food' represents the agricultural supply-constraint for FS. Consequently, we have demand-determined price for food.

(e) Income earned from the sale of food to the FS is the sole income of the farmers. It is spent entirely on the purchase of FS good. In other words, there is agriculture-FS balanced trade.¹⁵

(f) The government purchases FS products by money creation. It constitutes the 'domestic exports' for FS and relaxes the short-run 'effective-demand-constraint' by providing the 'home market'.

(g) The distribution of income among different classes is determined exogenously and there is social resistance to any change in this pattern. This is consistent with the empirical findings reported in appendix A1 to A4. Therefore, we have rigidity of FS real-wage and product-wage and hence, rigidity of agriculture-FS t-o-t.

2.1.2. The important notations are

(i)	Y	: Level of FS output.
(ii)	p_i	: Price of FS output.
(iii)	τ	: Mark-up over prime (wage) cost in FS.
(iv)	w_m	: Money wage rate in FS.
(v)	L	: Total FS employment.
(vi)	l	: Labour-output ratio in FS.
(vii)	I	: Real investment in FS measured in terms of FS output.
(viii)	g	: Real government expenditure on FS measured in terms of FS output.
(ix)	G	: Nominal government expenditure on FS output.
(x)	F	: Aggregate supply of marketable surplus of generic 'food' to FS.
(xi)	a_f	: Demand for food per worker employed in FS.
(xii)	p_f	: Food-price.
(xiii)	D_f	: Aggregate food-demand from FS.
(xiv)	W	: Total wage-bill of FS measured in terms of FS output.

2.2. Working of Our Model

Excess capacity implies a given l , and we take $l = 1$ by appropriate choice of unit.

$$\text{Hence, } L = Y \quad \dots(1)$$

Using Equation (1), mark-up pricing on unit wage-cost in the FS can be represented as

$$p_i = (1 + \tau) w_m \quad \dots(2)$$

where τ is a positive constant.

Workers' demand for a targeted real-wage is given by

$$w_m / p_f = \beta \quad \dots(3)$$

where β is a positive constant.

Equations (2) and (3) clearly bring out the exogenous nature of income distribution in the model. From Equations (2) and (3), we write the following: Real-wage in terms of FS output is,

$$(w_m / p_i) = 1 / (1 + \tau) = \alpha \quad \dots(3.1)$$

Terms-of-trade between agriculture and FS is,

$$(p_f / p_i) = \beta / (1 + \tau) = \theta \quad \dots(3.2)$$

Both α and θ are exogenously determined.

The basic income-expenditure accounting equation for the FS using the features (c), (e) and (f) of (2.1.1) can be written as:

$$\begin{aligned} \text{Total FS output} &= (\text{Total FS wage-bill in terms of FS output})^{16} \\ &+ (\text{Total FS investment in terms of FS output}) \\ &+ (\text{Total government expenditure on FS in terms of FS output}) \end{aligned} \quad \dots(4)$$

We take *real* FS (autonomous) investment and *nominal* government expenditure on FS output (government budget) as exogenously given, i.e.

$$I = I^0 \quad \dots(5)$$

$$G = G^0 \quad \dots(6)$$

Government expenditure is fixed in nominal terms given the popular reactions against fluctuating budget deficits.

Substituting Equations (5) and (6) in Equation (4) and using notations we obtain the following:

$$Y = W + I^0 + G^0 / p_i = (w_m / p_i) L + I^0 + (p_f / p_i) (G^0 / p_f) \quad \dots(7)$$

Using Equations (1), (3.1) and (3.2), Equation (7) can be rewritten as

$$Y = \alpha Y + I^0 + \theta (G^0 / p_f) \quad \dots(7.1)$$

Given Equation (1), Equation (7.1) can be written as

$$L = \alpha L + I^0 + \theta (G^0 / p_f) \quad \dots(7.2)$$

Solution of (7.2) gives,

$$L^* = [I^0 + \theta \cdot (G^0 / p_f)] / (1 - \alpha) \quad \dots(8)$$

Food-demand per worker employed in the FS can be expressed as

$$a_f = a_f(w_m / p_i, p_f / p_i) \quad a_{f1} > 0, a_{f2} < 0) \quad \dots(9)$$

Using Equations (3.1) and (3.2),

$$a_f(w_m / p_i, p_f / p_i) = a_f^0 \quad \dots(10)$$

a_f^0 is a positive constant.

Aggregate food-demand from the FS:

$$D_f = a_f^0 L \quad \dots(10.1)$$

Substituting from Equation (8):

$$D_f = a_f^0 [I^0 + \theta (G^0 / p_f)] / (1 - \alpha) \quad \dots(10.2)$$

There is inverse relation between food-price and aggregate food-demand from the FS.

The assumption of a fixed marketable surplus can be written as

$$F = F^0 \quad \dots(11)$$

Using Equations (10.2) and (11), food-market equilibrium condition is

$$F^0 = D_f = a_f^0 \cdot [I^0 + \theta \cdot (G^0 / p_f)] / (1 - \alpha) \quad \dots(12)$$

Equation (12) determines the equilibrium food-price p_f^* . It can be represented in a simple food-market demand-supply diagram Figure 1.

The equilibrium food-price, p_f^* determines the equilibrium money-wage in FS, i.e., w_m^* given Equation (3). This w_m^* , in turn, determines equilibrium price of FS output, i.e., p_i^* given Equation (2). Consequently, the equilibrium size of real domestic exports is endogenously determined as

$$g^* = G^0 / p_i^* \quad \dots(12A)$$

We can, therefore, state our first basic proposition as:

Proposition I: Given an exogenous food-supply-constraint and exogenous pattern of income distribution, the size of the real domestic exports or that of the home market for FS will be endogenously determined.

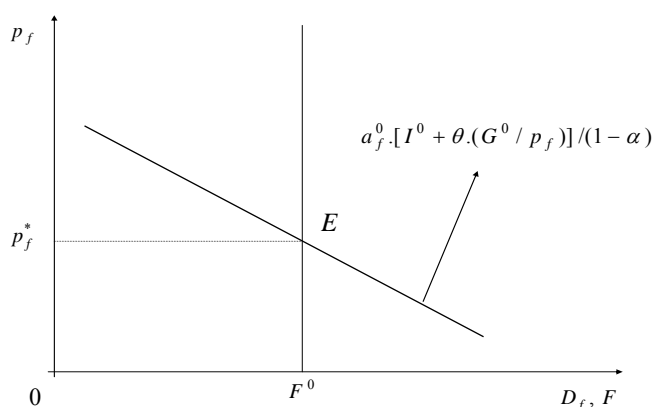


Figure 1. Food-Market Equilibrium for Agriculture-FS Interaction

Corollary-I:

We assume that, the government is spending on industrial output not only through money-creation, but also through taxation.

Hence, the total government expenditure on industrial output, in real terms, is: $[(\theta . G^0 / p_f) + (t . Y)]$, where 't' is the constant tax-rate, and we assume that, the total tax amount is spent back on industry. Under such a situation, the food-market equilibrium condition (12) is modified as:

$$F^0 = D_f = a_f^0 . [I^0 + \theta . (G^0 / p_f)] / [1 - (\alpha + t)].$$

However, it is clear from this equation that, there is no substantive change in Figure 1; as the multiplier is larger, that pushes up aggregate demand, the equilibrium food-price p_f^* has to be higher than the present one.

Corollary-II:

Now as a corollary to Proposition I, we can analyse the effect of an expansionary fiscal policy without any change in agricultural production. Thus, we assume an increase in nominal government expenditure on FS. The effect of this policy can be visualised through Figure 2.

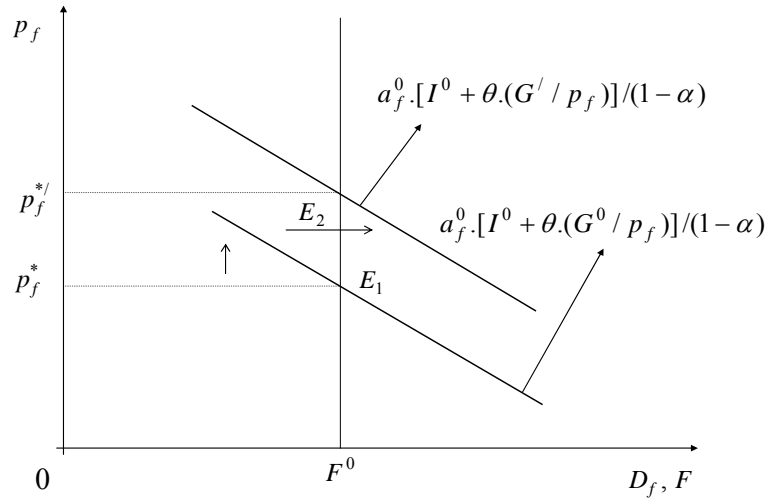


Figure 2. Effect Expansionary Fiscal Policy

We start with the food-market equilibrium position E_1 with equilibrium food-price p_f^* . Now, G rises from G^0 to say, G^1 with $F = F^0$. It leads to a rise in p_f . The process continues until one arrives at $p_f^*/$ such that the size of real domestic exports shrinks back to its original value, i.e., g^* as in Equation (12A).

We can, therefore, state the following proposition:

Proposition II: Attempt to expand real domestic exports beyond the endogenously determined equilibrium level can initiate an increase in prices and wage with only stagnation in FS.

2.3. Bumper Harvest

It clearly follows that given the amount of per capita food consumption in FS, bumper harvest creates a potential for FS expansion. However, realisation of this potential requires an adequate increase in the value of real domestic exports. Such a case can be presented in terms of Figure 3.

Consider a case of downward flexibility of FS money-wage: Let us assume a bumper harvest raising the value of F to say, $F^{0/}$. As a result equilibrium food-price falls from p_f^* to $p_f^{*/}$. Given the distributive factors this reduces w_m and subsequently p_i also falls. This, in turn, expands the size of real domestic exports. Thus we get the equilibrium position E_2 .

However, with downward rigidity of w_m a fall in p_f due to bumper harvest does not automatically increase the real domestic exports. In that case, adequate expansion

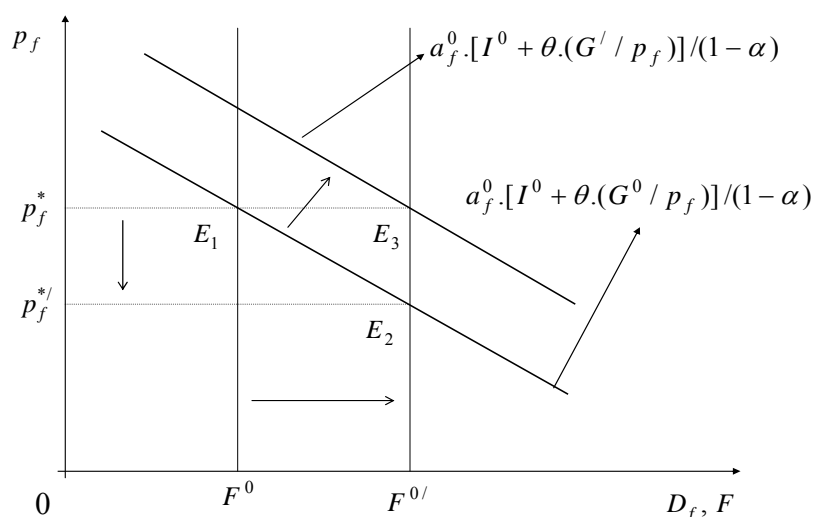


Figure 3. Effects of Bumper Harvest

of home market can only be achieved by a proper expansion of nominal government expenditure. The required expansion is such that the food-market clears at p_f^* .

We can sum up through the following proposition:

Proposition III: Bumper harvest creates the potential for FS expansion from the supply-side. However, on the demand-side, realisation of this potential requires an adequate expansion of real domestic exports. Such an expansion can be achieved by price-wage fall in case of downward flexibility of money-wage. A proper expansion of nominal government expenditure, on the other hand, is required in case of downward rigidity of money-wage.

Furthermore, as an elaboration of this analysis we can also say that the government expenditure on FS output not only mitigates the problem of effective demand for FS but also the problem of realisation of value of marketable surplus of agriculture.

III

INDUSTRY EQUILIBRIUM: DOMESTIC EXPORTS AND AGRICULTURAL SUPPLY-CONSTRAINT UNDER OPEN-ECONOMY AND COMMODITY SPECULATION

3.1. Open-Economy: Let us first extend our above short-run framework by assuming international flow of 'food' (assuming away forex considerations). A 'global free-market' for food should make the food-constraint flexible. But, it may be

counterproductive as well, under certain conditions. We, in this section of the paper, analyse these diverse outcomes.

Under the condition of international food-flow the modified macroeconomic equilibrium (deviating from the earlier closed economy situation captured by equations 7 through 8) is generated as below:

The demand-determined aggregate output is derived as,

$$Y_1 = \alpha \cdot Y_1 + I^0 + \theta \cdot (G^0 / p_f) + \theta \cdot X_f(e^0 / p_f, Y_w^0, p_{ws}^{f0})$$

where X_f is the amount of export (import) of food in real terms (i.e. X_f could be positive/negative according as there is food-export/food-import), e^0 is the given nominal exchange rate, Y_w^0 is the given income of the rest of the world and p_{ws}^{f0} is the given price of the world-substitute for domestic food-output. It is assumed that, the export-income (import-expenditure) of food sector is fully injected into (deducted from the income of) the domestic economy (in particular, the FS).

Hence, equilibrium employment in the FS is,

$$L_1^* = [I^0 + \theta \cdot (G^0 / p_f) + \theta \cdot X_f(e^0 / p_f, Y_w^0, p_{ws}^{f0})] / (1 - \alpha)$$

Now, the total food output of the economy – F^0 (that is given in the short-run) is either divided between domestic food-supply and food-export (F_d and X_f respectively) or enhanced by food-import ($-X_f$).

Hence, domestic food-supply: $F_d = (F^0 - X_f)$; with the usual assumption that $F_d > 0$.

Accordingly equation 12 capturing domestic food-market equilibrium is modified as,

$$F_d = D_{f1} = a_f^0 [I^0 + \theta \cdot (G^0 / p_f) + \theta \cdot X_f(e^0 / p_f, Y_w^0, p_{ws}^{f0})] / (1 - \alpha)$$

This equation solves for p_f^* and thereby other variables, like Y , L , X_f etc.

Corollary: Given F^0 (as in the previous closed-economy model), if we have export (import) of food (i.e. $X_f >, =, < 0$), equilibrium output in the present case will be less (more) than that of the closed-economy situation, as food is now exported (imported) squeezing (relaxing) the food-supply constraint for industry/FS. Though food-export (food-import) squeezes (relaxes) the domestic food-supply constraint, the domestic demand constraint for the FS is relaxed (tightened), as purchasing-power gained (lost) by the economy through export (import) of food fully influences the level of activity in the FS (given that, $MPC = 1$ for industrial commodities, so far as expenses from agriculture are concerned – farmers do not save). Thus, we have a conflict of demand and supply so far as the FS is concerned, in the presence of international flow of food, given that there is a constant short-run aggregate food-supply in the economy.

Given this macroeconomic structure and the resultant processes, we could have the following policy implications:

We start from the initial equilibrium situation E in Figure 4, where there is neither export nor import of food. But as domestic food-price rises (falls) vis-à-vis international price, ceteris paribus, there is food-inflow (food-outflow) from (to) rest of the world and therefore, the domestic food-supply curve becomes upward rising with $F'(p_f) > 0$ as in Figure 4.

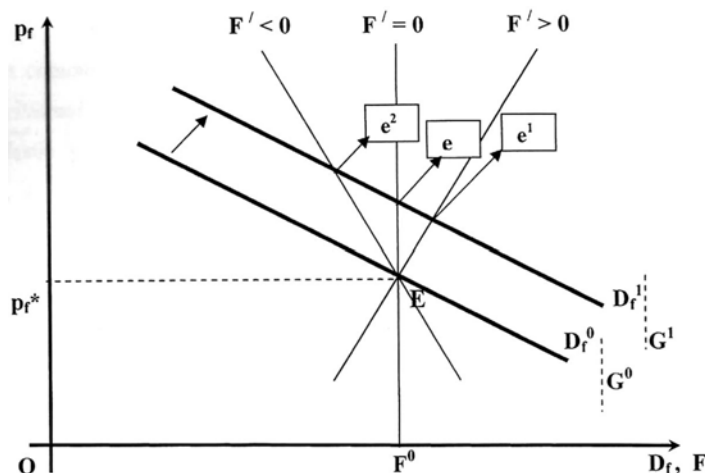


Figure 4. Effects of Increase in G under Alternative Conditions of International Food-Flow and Commodity Speculation.

Note: The horizontal and vertical parts of the food-supply curves signify limits of food export-import and speculative-holding, given the aggregate food outputs, in the short-run, of the domestic and world economies.

Given this, an increase in G (from say, G^0 to G^1) shifts up domestic food-demand D_f (D_f^0 to say, D_f^1) as discussed earlier, which, however, moves domestic food-market equilibrium from E to e^1 , instead of to e as in Figure 2 (E^1 to E^2 generating proposition II). Consequently, there is positive effect of expansionary domestic exports on FS, even if domestic food-supply remains unchanged. Hence, food-supply-constraint becomes less binding over real domestic exports under the condition of international food-flow. Short-run manoeuvrability of domestic exports as home market for FS rises.

However, international food-flow may not always be good for the economy. If, ceteris paribus, international food-price relative to domestic one rises, there is food-outflow (similar phenomenon took place for Indian wheat recently). This will have two simultaneous effects: domestic food-supply falls (F^0 shifts to the left) but domestic food-demand may rise due to injection of purchasing power through high-value exports (D_f^0 shifts to the right). This will trigger off contraction of FS with rise in prices and wage (new food-market equilibrium like e^2).

However, this international outflow of high-value-food (and bio-fuel ingredients) could be countered with policy-driven 'crop-diversification' feeding domestic FS. But, large-scale commercial crop-diversification requires complementary modern inputs, implements and modern infrastructure substituting traditional supports and thereby creating home market for FS at the cost of contraction of demand for traditional industry (Chakrabarti and Kundu, 2009a).

3.2. *Commodity Speculation*: Even though international food-flow may provide more space for domestic exports as home market for FS, international capital-flow could be detrimental under the specific condition of 'Commodity Speculation'. Even domestic finance capital could generate identical results.

Rakshit (1982, pp. 146-7) talked about the concept of food as a tradable asset. According to him there is short-run price inelastic expectation and hence, when relative price of food rises, short-run food-supply in domestic market increases (see also Baland, 1993). But now across the globe we experience elastic expectation in the presence of speculating finance capital in food, mineral, oil derivative markets (naïve speculation of Mellor and Dar, 1968, as cited in Baland, 1993, p.176; World Bank, 2009, p.63-64¹⁷, p.90; Ghosh, 2010). Though world-wide measures are being taken to restrict commodity speculation, it is quite unlikely to generate expected results, given the present crisis and greed of modern finance capital (Goswami, 2010).

Given the elastic price expectation, in the short-run, rise in food-price generates cumulative response, as food is siphoned off from 'free-market' as a speculative asset. As we consider international speculative capital, this price-driver works even if domestic terms-of-trade are given (unlike Rakshit, 1982 and Baland, 1993). Domestic food-price rise relative to international price triggers off finance capital inflow with elastic (speculative) expectation, which holds domestic food-stock. Consequently, starting from the initial equilibrium situation E in figure 4 when domestic food-price rises (falls), ceteris paribus, there is food-stock accumulation (decumulation) with price-elastic expectation. Thus domestic food-supply curve becomes downward sloping with $F'(p_f) < 0$ as in Figure 4.

Given this, an increase in G shifts up domestic food-demand as discussed earlier, which, however, moves domestic food-market equilibrium from E to e^2 (assuming stability of equilibrium), instead of to e as in Figure 2. Consequently, there is negative effect of expansionary domestic exports on FS, even if domestic food-supply remains unchanged. Hence, food-supply-constraint becomes more binding over real domestic exports under the condition of aggressive commodity speculation. Short-run manoeuvre of domestic exports as home market for FS is now counter-productive!

Even if we ignore the exact path of adjustment of our model, the result is understandable. When there are 'speculative threats' in commodity futures and spot markets (for minerals, oil and food) with possibilities of inflation, governments hesitate to inject demand and thus the home market for FS is restricted.

There is as if the death of the issue of 'autonomous home-market'. This is not because of globalised export possibilities, but because of international finance capital engaging forcefully in commodity speculation or because of the possibility of international 'commodity-flight'. Even if we assume partial financial autonomy of the national governments, the autonomy in real economic terms may be compromised in the presence of global commodity speculation or global commodity mobility in resource-constrained developing economies.¹⁸ Alleviating such problems of home market under international food-flow and finance-flow requires national and even international non-corporate stock of commodities (Kaldor, 1976; Sekhar, 2008).

The analysis with non-food commodities particularly oil needs a little different framework, but the fundamental result of irrelevance of home market stands. To handle the problem we need a proper open-economy macro-model, which should be an effective extension.

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NOTES

1. The issue of home market has not only been debated in academic discourse but also been deliberated intensely in the arena of politics. Many of the contending political doctrines dealing with the issue of agrarian transformations consider expansion of home market for demand-constrained industry as one of the prime objectives of such changes.

2. 'Ricardian profit-squeeze' mechanism can be reinterpreted as operating through movement in the terms-of-trade between agriculture and industry. Due to 'intensive' and 'extensive' cultivation as cost of food-production rises, food-price rises as well. This, in turn, raises money-wage rate in industry to maintain the real (corn) wage rate. Hence, product-wage in industry rises given the inability of industrial capitalists to raise industrial product-price for fear of loosing market. Consequently, rate of profit in industry falls.

A similar type of argument could also be found in Chakravarty (1977) in the context of debate on Indian industrial stagnation. Food-supply-constraint was supposed to move the terms of trade in favour of agriculture initiating a transfer of resources from industry and thereby restricting accumulation and growth (see also, Jorgenson, 1961; Lipton, 1974; Kaldor, 1976).

3. Period of work: 1925-29.

4. A similar type of argument could also be found in Chakravarty (1977) in the context of debate on Indian industrial stagnation. Food-supply-constraint was supposed to move the terms of trade in favour of agriculture initiating a transfer of resources from industry and thereby restricting accumulation and growth (see also, Lipton, 1974 and Mitra, 1977).

5. We can mention in this regard, the following contributions: Malthus, (1951) in the context of the debate over Corn Law in England, Bukharin (1979) proposing agricultural income led industrialisation during the Soviet industrialisation debate and Luxemburg (1951) in the context of realisation crisis in capitalistic industry arguing as agriculture/'natural-economy' providing the 'external market'. In all these cases, agriculture is assumed to provide demand-side support for industry.

6. The mere rise in production in agriculture does not automatically guarantee a rise in agrarian incomes, because agriculture may face a 'realization crisis' in absence of adequate demand for food from the industrial sector. This leads to either accumulation of undisposed stocks of food or sharp fall in food prices reducing the corresponding incomes.

7. Balanced expansion of trade between agriculture and industry can affect aggregate demand for industrial output under certain cases of redistribution of income on account of variation in the terms of trade. But the popular perception abstracts totally from such redistribution effect. We will elaborate the point when we take up the academic discourse.

8. Similar replacement of traditional non-agriculture with modern industrial products could be found in Neo-classical readings (e.g. Hymer and Resnick, 1969). But the fundamental difference from Marx and Lenin is that, there this substitution occurs in a choice-theoretic framework and the question of economic-political-social power/force of 'capital' is completely obscured.

9. See in this regard, Taylor, 1983; Bose, 1989; Dutt, 2001. Though the exact mechanisms of agriculture-industry interaction differ in all these models, the underlying principle is same as that discussed in this case (B1).

10. We can refer for this distributional rigidity the works of Kaldor (1996), Thirlwall (1986) and Bhaduri and Skarstein (2003). First, the scope for redistribution is always limited. Secondly, with this assumption we concentrate only on the possibilities of real expansion of industry arising out of the changes in the level of agricultural production by blocking the redistributive channel.

11. In this context we can refer, Marx (1951) and Bhaduri (1985).
12. Luxemburg, 1951; see also, Patnaik, 1972, 1997; Thirlwall, 1986; Bhaduri and Skarstein, 2003.
13. (a) The only case under which purchase of industrial products by agriculture creates home market is when such purchases are financed by loans from the industrial sector through the financial channel. However, in the context of the contemporary debate, the focus is on the role of expansion of agricultural output in creating a home market for industry. This does not happen even in the case under consideration. (b) Industry can run an export-surplus vis-à-vis agriculture as in case (B2) of section 1.2.3. However, even in that case an expansion of agricultural output may not expand the market for industrial good.
14. These models have been used here for the sake of continuity of analysis. However, these have been elaborated significantly to analyse the specificities of agriculture-industry interactions and to extend this framework in the next section (III).
15. As mentioned earlier, unbalanced trade is financially unsustainable. Furthermore, it is only a simplifying assumption.
16. A part of wage-bill though spent on food, it fully comes back to FS as agriculture-FS trade is balanced.
17. Investment funds' "influence on prices is especially likely, if the rapid expansion of these markets contributed to expectations of rising prices, thereby exacerbating swings,.....it seems likely that real-side speculation (the decision to hold stocks in anticipation of further price increases or to order more than needed now for the same reason) likely contributed to the rapid increase in prices during 2007 and 2008.....".
18. Problems with national governments due to control over domestic finance by global finance capital could be found in Bhaduri, 2007. But our problem, though deals with financial market, is perhaps more fundamental which intensifies the Ricardian 'wage-good-constraint'.

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APPENDIX TABLE A1

Table A1 provides the information on terms-of-trade between agriculture and non-agricultural sectors for the series, 1982-83 to 2005-06. It is evident that though the decadal mean value rises for more recent truncated series compared to the earlier one/s, the index of TOT fluctuation, i.e., the coefficient of variation markedly falls, indicating increasing stability of the series in recent times.

TABLE A1: INDEX OF TERMS-OF-TRADE (TOT) BETWEEN AGRICULTURE AND NON-AGRICULTURE SECTORS FROM 1982-83 TO 2005-06 (BASE: TRIENNium ENDING 1990-91=100)

Year (1)	Index of TOT (2)
1982-83	91.4
1983-84	91.6
1984-85	93.9
1985-86	93.6
1986-87	95.7
1987-88	97.4
1988-89	98.3
1989-90	99.4
1990-91	101.9
1991-92	105.6
1992-93	103.9
1993-94	103.6
1994-95	106.6
1995-96	105.3
1996-97	103.1
1997-98	105.6
1998-99	105.2
1999-00	102.7
2000-01	100.9
2001-02	102.8
2002-03	103.6
2003-04	101.0
2004-05	100.3
2005-06	101.9

Source: *Agricultural Statistics at a Glance*, Government of India, 2006-07. Summary stats for 1982-3 to 1993-4: Mean = 98.025 and Coefficient of variation = 0.050309148. Summary stats for 1994-95 to 2005-6: Mean = 103.25 and Coefficient of variation = 0.019915296.

TABLE A2: INDEX OF ANNUAL REAL NON-AGRICULTURAL WAGE RATES IN TERMS OF WHOLESALE PRICE INDEX OF NON-FOOD ITEMS WITH BASE 1993-94 (1973-74 TO 2003-04)

Year (1)	Index of Real Non-Agricultural Wage Rates (2)	Year (1)	Index of Real Non-Agricultural Wage Rates (2)	Year (1)	Index of Real Non-Agricultural Wage Rates (2)
1973-74	139.75	1984-85	224.58	1994-95	257.26
1974-75	143.58	1985-86	256.02	1995-96	274.07
1975-76	188.82	1986-87	254.94	1996-97	296.03
1976-77	159.5	1987-88	228.03	1997-98	305.69
1977-78	156.58	1988-89	268.67	1998-99	259.77
1978-79	192.05	1989-90	283.72	1999-00	296.96
1979-80	185.02	1990-91	271.70	2000-01	311.5
1980-81	183.29	1991-92	238.16	2001-02	304.36
1981-82	182.76	1992-93	276.25	2002-03	294.39
1982-83	205.6	1993-94	268.74	2003-04	271.16
1983-84	215.86				

Table A2 depicts the index of real non-agricultural wage rate in terms of wholesale price index (WPI) of non-food articles (with the base 1993-94 = 100) for various years from 1973-74 to 2003-04. Though the decadal mean value rises for more recent truncated series compared to the earlier ones, fluctuation of the index measured in terms of the coefficient of variation markedly falls indicating increasing stability of the series in recent times.

Sources: Wage data is calculated from Annual Survey of Industries, Government of India. PI data is obtained from Reserve Bank of India, Government of India.

Summary stats for 1973-4 to 1983-4: Mean = 177.5281818 and Coefficient of variation = 0.138619379. Summary stats for 1984-5 to 1993-4: Mean = 257.081 and Coefficient of variation = 0.080191089. Summary stats for 1994-5 to 2003-4: Mean = 287.119 and Coefficient of variation = 0.068979.

Similarly, index of annual real non-agricultural wage rates in terms of wholesale price index of food articles (with base 1993-94 = 100) from 1973-74 to 2003-04 is calculated. Though the decadal mean value rises for more recent truncated series compared to the earlier ones, the index of fluctuation markedly falls indicating increasing stability of the series in recent times.

TABLE A3. INDEX OF ANNUAL REAL NON-AGRICULTURAL WAGE RATES IN TERMS OF WHOLESALE PRICE INDEX OF FOOD ITEMS (1973-74 TO 2003-04)

Year (1)	Index of Real Non-Agricultural Wage Rates (2)	Year (1)	Index of Real Non-Agricultural Wage Rates (2)	Year (1)	Index of Real Non-Agricultural Wage Rates (2)
1973-74	167.21	1984-85	242.40	1994-95	283.26
1974-75	152.26	1985-86	262.44	1995-96	303.68
1975-76	179.89	1986-87	264.09	1996-97	289.35
1976-77	191.68	1987-88	263.42	1997-98	297.26
1977-78	178.99	1988-89	277.47	1998-99	247.39
1978-79	211.62	1989-90	299.90	1999-00	256.59
1979-80	215.12	1990-91	300.31	2000-01	267.65
1980-81	213.97	1991-92	258.49	2001-02	264.26
1981-82	208.43	1992-93	266.17	2002-03	271.72
1982-83	212.97	1993-94	268.74	2003-04	278.33
1983-84	218.98				

Sources: Wage data calculated from Annual Survey of Industries, Government of India. WPI data are taken from Reserve Bank of India, Government of India. Summary stats for 1973-4 to 1983-4: Mean = 195.5563636 and Coefficient of variation = 0.116725672. Summary stats for 1984-5 to 1993-4: Mean = 270.343 and Coefficient of variation = 0.066550168. Summary stats for 1994-5 to 2003-4: Mean = 275.949 and Coefficient of variation = 0.064776587.

Finally, Table A4 depicts the index of annual real non agricultural wage rates in terms of consumer price index of industrial worker (base 1993-94 = 100) from 1973-74 to 2003-04. Though the mean value rises for more recent truncated series compared to the earlier one/s, the index of fluctuation markedly falls compared to the first decade (though second decadal value is the lowest), indicating increasing stability of the series in recent times compared to first decade.

TABLE A4: INDEX OF ANNUAL REAL NON-AGRICULTURAL WAGE RATES IN TERMS OF CONSUMER PRICE INDEX OF INDUSTRIAL WORKER (1973-74 TO 2003-04)

Year (1)	Index of Real Non-Agricultural Wage Rates (2)	Year (1)	Index of Real Non-Agricultural Wage Rates (2)	Year (1)	Index of Real Non-Agricultural Wage Rates (2)
1973-74	173.92	1984-85	245.61	1994-95	290.26
1974-75	157.36	1985-86	253.38	1995-96	305.89
1975-76	178.98	1986-87	258.46	1996-97	299.70
1977-78	188.26	1987-88	258.37	1997-98	296.29
1976-77	182.56	1988-89	273.48	1998-99	245.74
1978-79	209.82	1989-90	281.97	1999-00	255.98
1979-80	212.25	1990-91	283.16	2000-01	265.18
1980-81	211.17	1991-92	258.15	2001-02	259.32
1981-82	206.83	1992-93	272.65	2002-03	260.63
1982-83	217.65	1993-94	268.74	2003-04	260.66
1983-84	226.39				

Sources: Wage data is calculated from Annual Survey of Industries, Government of India. CPI data is obtained from Reserve Bank of India, Government of India.

Summary stats for 1973-4 to 1983-4: Mean = 196.8354545 and Coefficient of variation = 0.11011514. Summary stats for 1984-5 to 1993-4: Mean = 265.397 and Coefficient of variation = 0.047082643. Summary stats for 1994-5 to 2003-4: Mean = 273.965 and Coefficient of variation = 0.078964.