

**FORMAL-INFORMAL SECTORS' CONFLICT:
A STRUCTURALIST FRAMEWORK FOR INDIA**

SAUMYA CHAKRABARTI AND ANIRBAN KUNDU*

Visva-Bharati University, Santiniketan and Centre for Development Studies, Trivandrum

The vast informal sector of the developing world in general and of India in particular is increasingly considered as a 'dispersed development engine' by the orthodox schools. It is also argued, though sizeable portion of informal sector exists independent of formal sector, a large segment bears a complementary relationship with these formal productions. However, on the contrary we propose a fundamental conflict between the two sectors given the generic food-supply-constraint. To analyse such a proposition we construct a multi-sector macroeconomic framework and also show that agriculture-formal sector interaction is distinctly different from agriculture-informal sector linkage. Next, we examine the impacts of variations in agricultural productivity and that of fiscal policy changes on this formal-informal conflict. In the first case of increasing agricultural productivity while both formal and informal sectors expand, the former benefits proportionately more than the latter. In the second case of expansionary fiscal policy the informal sector expands even at the cost of contraction of the formal one.

Keywords: Agriculture-Formal Sector Linkage, Domestic Exports, Agriculture-Informal Sector Symbiosis, Agricultural Supply-Constraint, Formal-Informal Conflict
JEL classification: E12, O11, O17, Q18

* We are sincerely grateful to Kalyan Sanyal, Arup Mallik and Sarmila Banerjee. We also thank Aparajita Mukherjee, Sarmishtha Sen, Snehashish Bhattacharya, Anirban Dasgupta, Rajesh Bhattacharya, Vijayamohan Pillai, Sravanthi Choragudi, Gargi Sanati, T.K. Subramanian, Midhun V.P., Uma S. and Gini Paul. We are also grateful to the anonymous referee. The usual disclaimer applies.

1. INTRODUCTION

1.1. Context of the Study

According to the traditional development theory economic development hinges on the growth of 'modern' sector through capital accumulation. It proceeds via realisation and reinvestment of surplus, produced by using fixed capital with labour transferred from the 'traditional' sector. Such a process is supposed to transform the traditional sector into a modern one and thereby to ensure self-sustained growth of the less-developed economy.

This has been the dominant development strategy during 1950s and 1960s. However, since early 1970s it is argued that this 'Lewisian' path is ineffective so far as broad based employment generation is concerned. On the other hand, studies have shown that a vast majority of the population in LDCs has been engaged productively in non-agricultural activities outside the sphere of modern sector.

Consequently, the focus has shifted towards the informal sector (INFS) as capable of creating wide-spread income and employment. It is argued, instead of getting withered away through structural transformation the INFS is rather acting as a dispersed development engine. In fact, we witness a paradigm shift (Mellor (1976), Ranis and Stewart (1993), Bangasser (2000), also see Sanyal (2007) for a critical perspective). The dynamics of INFS and the pattern of its relationship with other sectors have become important issues of research.

From the vast literature several propositions regarding the locus of INFS could be identified. While ILO proposes a relative autonomy of this sector, the structuralist school opines that INFS should be seen as subordinate economic units that serve to reduce input and labour costs of large capitalist firms. According to this latter strand, the nature of capitalist development itself accounts for the persistence and growth of INFS. On the other hand, the legalist school proposes that INFS is comprised of micro-entrepreneurs who operate informally to avoid costs, time and effort of formal registration. According to the 'il-legalist' school informal-entrepreneurs operate illegally to avoid taxation, regulations and costs of operating formally.

Given this mosaic of ideas, conceptualisation of INFS and the nature of its relationship with other sectors form the core of this paper. However, to reach such a target we, first, need to delineate the macroeconomic framework in which we implant the INFS at an appropriate place. Consequently, building up of this macro-structure is the primary task of our project.

At first, we try to analyse, the route of income and employment generation in the formal sector (FS) and the role of agriculture and government in this specific context. Later on, we would locate the INFS in this general frame. Finally, our objective would be to comprehend the nature of relationship between FS and INFS; whether there is complementarity or conflictuality between these two non-agricultural segments of a developing economy.

1.2. Review of Literature on Agriculture-FS Interaction

In the literature agricultural performance is often identified as one of the main factors determining demand for FS products. Thus, agriculture is recognized as the 'home market'. On the other hand, there is a vast literature that emphasises on the supply-side role of agriculture in the expansion of FS. We present a brief review of these writings on agriculture-FS relation.

(a) *Demand-side Linkage:*

Agriculture providing home market for FS through the following channels:

i) Inter-sectoral/ intra-sectoral redistribution of income in presence of differential propensities to consume FS output for different sector / class of people. This redistribution is initiated either by policy or by agricultural growth induced movement in the terms of trade (t-o-t) between agriculture and FS. We can refer in this regard the works of Mitra (1977), Bagchi (1988).

ii) Mutual exchange of surpluses between FS and agriculture. As agricultural production rises, more of its output is sold to FS raising the agricultural income. Consequently, the demand for FS output rises (Raj (1976)). Furthermore, it is sometimes argued that the sectoral rates of growth along with the exchange process equilibrate at the equilibrium t-o-t (Kaldor (1984)).

On the other hand, it is also proposed that the development of capitalism in agriculture creates the home market for FS through the expansion of the scope for inter-sectoral exchange (Mundle (1977)).

(b) *Supply-side Linkage:*

Agriculture providing supply-side support for FS, absence of which restricts accumulation and growth:

i) Supply of wage-goods and raw materials for FS are important contributions of agriculture. These elements are supplied to FS through simple inter-sectoral exchange (Kaldor (1976), Chakravarty (1977)).

ii) Food-constraint leads to deterioration of t-o-t for FS leading to 'profit squeeze'. This constricts the process of capital accumulation and growth in FS. Conversely, cheap and abundant food-supply to FS ensures transfer of surplus (Preobrazhensky (1926), Ranis and Fei (1961)).

(c) *Kalecki on Demand and Supply-side Linkages:*

In Kalecki (1993) the initial demand for FS output and the level of agricultural supply were explicitly treated as exogenous with endogenous determination of the pattern of income distribution and hence the level of induced demand. Thus, following Kalecki we can argue, as the autonomous expenditure on FS rises a part of its internal purchasing power that goes to agriculture on account of the purchase of food does not flow back due to farmers' savings leading to an induced demand problem for FS. This

situation represents an incomplete circulation of purchasing power within the economy where agriculture registers ‘export surplus’ vis-à-vis FS.

On the other hand, according to Kalecki (1971) FS can acquire a market, if it can manage an export surplus vis-à-vis the rest of the world. We know, ‘if exports increase and at the same time there is an equal increase in imports, ...trade is boosted, but production in the (sector) considered does not increase, nor will there be any inducement for expansion...’ - specifically from the demand-side (Kalecki (1971, p. 16)). Hence, in a closed economy, theoretically, FS can create its own market by attaining ‘export surplus’ vis-à-vis agriculture through capital outflow. However, in that case, agriculture plays only a passive role and more importantly, the problem of repayment of loan by agriculture remains unresolved as agriculture cannot issue financial ‘stocks’.

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 departures:

(a) We consider a situation where all the contending groups (capitalists and workers of FS 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’. In a regime of ‘coalition politics’ each of the contending groups try to maintain its relative socio-economic position. Consequently, any process initiating redistribution is blocked through bargaining. Thus, 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 FS real-wage and product-wage and hence, rigidity of agriculture-FS 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, (Bhradwaj (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).¹ In this very context we can provide interesting empirical observations supporting

¹ We can refer for this distributional rigidity the works of Kaldor (1984), 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. Thus, we are enquiring only about real expansions keeping the relative prices unchanged.

our assumption of inflexibilities of distributive factors using Indian data. We have calculated the mean and standard deviations from the series of data on agriculture - non-agriculture ('formal' industry and few services as classified in Indian data) terms of trade and non-agricultural (again 'formal' industry and few services) 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 fluctuations/variability of all these data sets for India have been reduced considerably as we move forward from 1970's to post 2000 years. Thus we found that, at least in case of India, the distributional factors have tended to be more and more stable as we come to the recent period. These results are shown in detail in Appendix Table A1 to A11. This empirical analysis is crucial as the assumption of rigidity of distributive factors will be found to play a very significant role for our basic model economy. It may be the case that in the 'post-liberalization' (post 1990) era economic power has shifted to some extent towards the capitalists (especially the big ones) in India; but the domain of political democracy has also expanded quantitatively and also qualitatively during this period, which may have helped the other classes in Indian society to muster not only political mileage but also relative economic benefits or at least they have been able to maintain the relative positions through the interventions in political processes. Even if the asset distribution in Indian society is skewed, the political checks and balances have restricted the relative incomes of different classes from changing drastically.

(b) We assume absence of any type of capital flow between agriculture and FS. Essentially, it means balanced trade. Implicitly, this assumption indicates that none of the sectors is growing at the cost of the other. Agriculture cannot finance its 'import surplus' vis-à-vis FS, given its inability to issue 'stocks'. 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.

(c) Our claim is that simple (equilibrium) exchange with agriculture-FS balanced trade cannot create any extra demand for FS. Money received by agriculture through the sale of its products to FS, is fully spent back on the latter's products with complete circulation of purchasing power. This, though contributes to the volume of inter-sectoral trade and hence can contribute in production from the supply-side, it cannot influence the demand for the products of FS. Formal sector's purchase of additional agricultural output means a leakage from its internal expenditure. This reduces demand for FS output. On the other hand, when the additional income accrued to agriculture through sale of additional amount of food to FS is, in turn, spent on FS products, demand for FS output rises. However, ultimately the two effects wash off. This follows from one of the fundamental propositions of macroeconomics: In a demand-constrained economy only an increase in 'export surplus' and not that in exports per se can lead to an expansion of output and employment in FS.

1.3.2. Agriculture FS Fall Apart

If we put together all these departures and contentions, it implies complete absence of all the agriculture-FS demand-side interactions and also partial absence of the supply-side closures as discussed in the literature.

As agriculture experiences bumper harvest, though supply of marketable surplus of food to FS increases, it fails to be absorbed in FS because of the lack of any consequent rise in demand for FS output pushing up FS production. Lack of rise in the complementary demand for FS output from any of the inside or outside sources restrict the increase in demand for food as well. Thus, agriculture suffers from the 'realization crisis'. On the other hand, expansion of FS production crucially depends on the (sufficient) exogenous supply of food, absence of which triggers off the price-wage spiral. Consequently, there is no mechanism left by which one sector can induce the other. Neither from the demand-side nor from the supply the mere expansion of one sector on its own can drive the other to grow. The two sectors fall apart.

Essentially, the simultaneous expansions of both food-supply to and effective demand for FS are crucial for the expansion of FS output and employment, given our proposed departures. Stated otherwise, complementarity of both supply and demand-side supports for FS expansion is necessary. When food-supply rises we have to search for a complementary source of rising demand for FS. If, however, the internal demand is not forthcoming leading to the problem of effective demand, we have to look for some external source.

1.3.3. Kalecki's Concept of 'Domestic Exports'

We assume, for the time being that the primary problem for FS is the lack of 'internal effective demand' while agricultural supply to FS is sufficient. In such a situation, the only option left for the expansion of the demand-constrained FS, in a closed economy, is the path of government intervention given agriculture's inability to provide the 'external market' for FS under the conditions designed by our departures.

Kalecki quite correctly formulated the role of 'external market' and 'home market' in mitigating the demand problem of industry (Kalecki (1971)). He 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. However, there are practical problems in sustaining export-surplus vis-à-vis rest of the world. We therefore shift our 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 (vis-à-vis industry). A well-known fact is that the agrarian sector lacks

the power to issue any financial asset like shares and bonds.² Hence, 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'. The role of agriculture is quite irrelevant in this specific context.

Kalecki (1971, p. 18-19) shows in clear terms the equivalence between foreign trade-surplus driven, domestic debt induced and money financed expansion of effective demand for the industrial sector. We quote from Kalecki: *"If a government borrows from the capitalists at home, spending the proceeds of the loan...on...the result is very similar to that of securing a surplus in foreign trade...A surplus in foreign trade may also be covered by the influx to the country considered of foreign currency or gold rather than by its granting foreign loans. In the case of 'domestic exports' the analogous process is,..., the financing of government expenditure by the Central Bank...If 'domestic exports' are financed by discounting treasury bills in the Central Bank, the notes acquired by the government pass into the hands of capitalists..."*, which raise the profits of the capitalists by expanding effective demand for capitalistic industry. Thus there is equivalence between domestic loan (from net-savers) financed and money financed 'domestic exports' so far as money injection into the economy is concerned.

1.3.4. Kalecki: Agricultural Supply-Constraint

However, in Kalecki (1993) there is clear recognition of agriculture as the source of supply of wage-good or 'food' to the FS. Consider a situation such that wage-share in FS is given and the workers spending a constant fraction of wage income on food at a given t-o-t. Suppose that the level of effective demand is so maintained that FS always produces full-capacity output and this potential output grows at a given rate on account of investment. Then, given the assumptions, demand for food grows at the same rate as the FS 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 it will lead to an upward wage-price spiral in the FS.

Kalecki's concepts of domestic export and of agricultural supply-constraint

² 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 using the 'modern' instrument such as agricultural 'commodity derivatives'. However, in the context of our study, the focus is on the role of expansion of agricultural output per se in creating a home market for industry. This does not happen even in the case under consideration. Here industry creates its own market by using the agricultural commodity derivatives and agriculture on its own is not expanding the market for industrial commodities.

constitute our point of departure. The two concepts are treated by Kalecki in an isolated manner. The initial objective of our paper is to unite the two in a single frame and to develop the frame analytically through the incorporation of INFS.

2. FORMAL SECTOR 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 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 our model formal/modern (non-agricultural) economy's output is assumed to be demand-determined and price is determined separately; quantity-determination and price-determination mechanisms are distinctly different. This demand-determined nature of the modern formal sectors should be especially true in the current period when the modern sectors across the world have entered into a phase of acute recession!

(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 food-grain represents the agricultural supply-constraint for FS. Consequently, we have demand-determined price for food. We consider food to be an important element as without appropriate supply of food the very existence of non-agricultural population is jeopardised. This food-constraint is in fact the 'classical' wage-good constraint. It is not a very strong assumption that the industrial sector or more comprehensively the non-agricultural sectors (our FS) are significantly dependent on adequate supply of 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.³

(f) The government purchases FS products by money creation. It constitutes the 'domestic exports' for FS and relaxes the 'effective-demand-constraint' by providing the 'home market'. These domestic exports do not create inflation in our system in presence of excess capacity unemployment in FS and adequate supplies from agriculture; rather it

³ As mentioned earlier, unbalanced trade is financially unsustainable. Furthermore, it is only a simplifying assumption.

is a must for the absorption of these supplies as shown below. In fact, as we assume afterwards that the government expenditure is fixed in nominal terms and the real expenditure adjusts endogenously with variations in the level of supply. Hence no question of government expenditure induced inflation arises.⁴

(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 A11 below based on Indian data. There we find that the distributive factors or the factor shares, first of all, generally do not fluctuate randomly much beyond a band constructed by [mean \pm standard deviation], and secondly, the degree of fluctuation is diminishing steadily over time indicating a more and more stable behaviour of the factor shares. This trend is captured in the present assumption as exogenous character of the relative factor incomes which remain rigid due to political coalition/resistance to any exogenous or endogenous change in these distributive factors. Even if asset distribution is skewed in Indian economy, the scope for political intervention in a functional democracy by different classes irrespective of their economic positions has given them some mileage to restrict the relative income positions from changing drastically. This class balance is also intermediated by active government intervention in the context of India. We consider a situation where all the contending groups, capitalists and workers of FS and the farmers (specifically the large ones) form separate lobbies and all lobbies are equally strong. Therefore, we have rigidity of FS real-wage and product-wage and hence, rigidity of agriculture-FS t-o-t. Such alliances have been noted by Rao and Storm (1998, p. 217) in the context of New Agricultural Strategy of India. Recognition of existence of a “resilient mechanism for conflict management and transactional negotiations among the proprietary classes” of India can also be found in Bardhan (1998, p. 77). He argues that such a “political equilibrium of subsidies and patronage distribution” persists also in post-reform India (ibid, p. 132-137).

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.

⁴ Government expenditure on FS output is acceptable even to the FS workers and to the farmers as is shown in the following analysis. This government support to FS ensures employment for the FS workers and market for agricultural output. Thus, government intervention is found to be beneficial for all the parties in the coalition of FS capitalists and workers on one hand and farmers on the other, as mentioned earlier.

- (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 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. Hence,

$$L = Y . \quad (1)$$

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

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

where τ is a positive constant.

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

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

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,

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

Terms of trade between agriculture and FS is,

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

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

$$\begin{aligned} \text{Total FS output} = & (\text{Total FS wage-bill in terms of FS output})^5 \\ & + (\text{Total FS investment in terms of FS output}) \\ & + (\text{Total government expenditure on FS in terms of FS output}). \end{aligned} \quad (4)$$

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

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

Investment is governed by “long-run profit expectations, which are completely inelastic with respect to current changes in production” and hence, “the assumption of autonomous investment is eminently suitable for a model which abstracts from monetary complications” (Rakshit (1982, p. 122)). This assumption captures the situation of ‘effective demand problem’ faced by the FS. Furthermore,

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

Government expenditure is fixed in nominal terms given the popular reactions against fluctuating and in particular rising budget deficits. Thus we refrain from assuming the possibility of tinkering with nominal government expenditure in the face of the ‘problem of effective demand’ suffered by the formal sector. Our model, as shown below, ‘closes’ the agriculture - FS interaction even with fixed nominal government expenditure and there is no need of playing with this government expenditure to solve the dual problems of excess supply of both agriculture and FS. Even a fixed amount of nominal government expenditure is sufficient to solve simultaneously the ‘effective demand problem’ of FS and the problem of realization of value of marketable surplus of agriculture. Thus we show as below, our model solves both these problems even without changing budget deficit in the face of varying supplies. However, we also relax this assumption of fixity of nominal government expenditure, as has been discussed below, under the special case of rigidity of prices and wage.

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

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

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

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

⁵ A part of wage-bill though spent on food, it fully comes back to FS as agriculture-FS trade is balanced.

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

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

Solution of (7.2) gives,

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

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

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

Using Equations (3.1) and (3.2),

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

a_f^0 is a positive constant.

Aggregate food-demand from the FS:

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

Substituting from Equation (8):

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

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

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

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

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

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

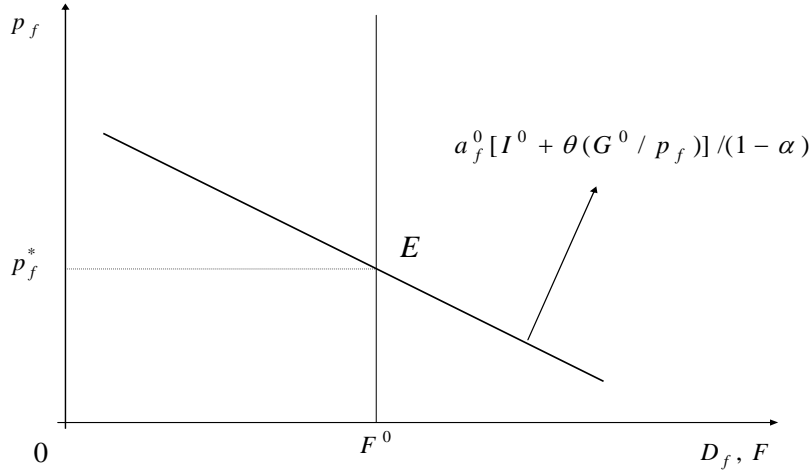


Figure 1. Food-Market Equilibrium for Agriculture-FS Interaction

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

$$g^* = G^0 / p_i^*. \tag{12A}$$

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.

Corollary:

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 visualized through Figure 2.

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' , 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).

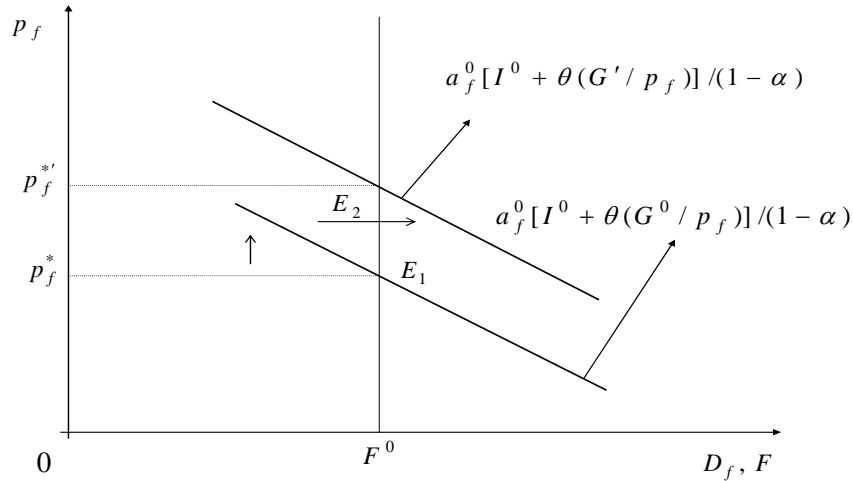


Figure 2. Expansionary Fiscal Policy

We can, therefore, state the following proposition:

Proposition II: Any 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. Rise in Agricultural Productivity

It clearly follows that given the amount of per capita food consumption in FS, rise in agricultural productivity creates a potential for FS expansion. However, realization 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 .

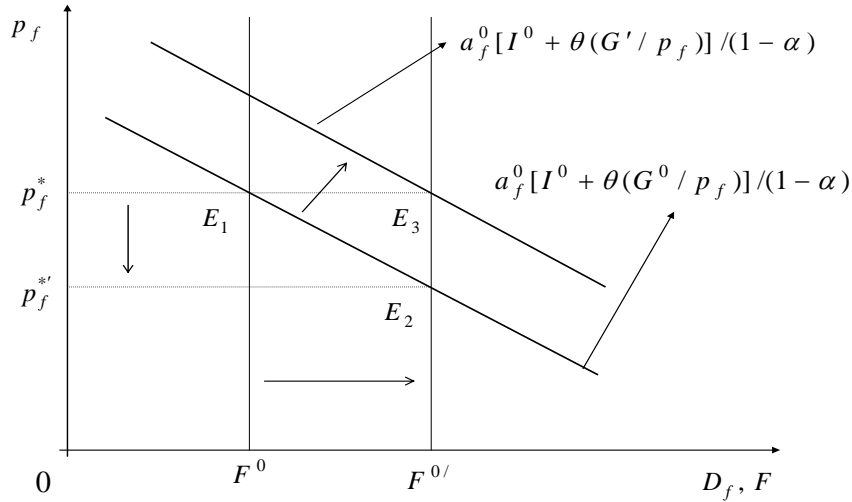


Figure 3. Effects of Bumper Harvest

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 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, realization 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 mitigate the problem of effective demand for FS but also the problem of realization of value of marketable surplus of agriculture. In absence of appropriate government intervention, FS fails to realize the potential level of employment due to demand-shortage. Consequently, agricultural surplus also remains unsold because of lack of demand from FS. Thus, in our model, domestic exports solve the dual problem: the problems of ‘realization of potential surplus’ faced by both agriculture and FS are resolved. In presence of endogenously determined size of real domestic exports, as agricultural production rises, demand-determined FS output and

employment expands, which, in turn, ensures the absorption of agricultural surplus as well. And the whole of this is done even with fixed nominal government expenditure (with downward flexibility of prices and wage) and fixed real investment demand portraying 'effective demand problem' as suffered by FS.⁶

3. FORMAL-INFORMAL DICHOTOMY: ROLE OF AGRICULTURE AND THE GOVERNMENT

The target of this section is to locate appropriately the INFS and to find out its relations with other sectors of a developing economy. Thus, formal-informal dichotomy will be found to provide certain interesting insights that are beyond the scope of traditional dual economy analysis. But before we go for the theoretical analysis incorporating INFS it is appropriate to present certain features of INFS of India in particular. Hence we present certain stylized facts. First of all we look at the standard definition which is also accepted internationally and particularly by ILO (Bangasser (2000)).

"Informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at low level of organization, with little or no division between labour and capital as factors of production and on a small scale. Labour relations, where they exist, are based mostly on casual employment, kinship, or personal or social relations rather than contractual arrangements with formal guarantees." (Source: NSSO, 55th round, 1999-00, Report No. 459(55/2.0/2), National Sample Survey, Govt. of India, pp. 1). Next we look at certain representative data pertaining to India.

From this Table 1 it is found that large percentage of enterprises is stagnant. It may have two implications:

- a) the general environment is discouraging or,
- b) the general motive of these enterprises is not growth as such rather to maintain a historically set standard.

However, comparing the proportions of growing (20.2%) and contracting (9.7%) enterprises, it can be proposed that the second statement is perhaps a more plausible reason for stagnation. This observation supports a vital assumption of our model as specified below that the enterprises of informal sector do not pursue the motive of accumulation. Furthermore the data of table 1 show the enormity, informality as well as the micro-enterprise dependence of the informal sector. It is also clear that a large part of this sector is household-production based. Next we compare between organized and unorganized sector activities in India.

⁶ This whole analysis becomes particularly relevant in the current phase of global crisis, when the major parts of formal sectors are suffering from demand shortage.

Table 1. Informal Sector in India

Indicator	Rural	urban	Combined
Estimated no. of enterprises (millions)	25.07	19.34	44.41
Estimated no. of workers (millions)	39.81	39.97	79.78
Average no. of workers per enterprise	1.6	2.1	1.8
Estimated annual value added per worker (Rupees)	15008	33437	24242
Estimated annual emoluments per hired worker (Rupees)	14108	21681	19876
Estimated value of assets per enterprise (Rupees)	27332	153528	82297
% of entrepreneurs not undertaking any additional economic activity	52.5	79.4	64.2
% of enterprises not registered with any Act / Authority	88.4	68.7	79.8
Percentage distribution of enterprises by location:			
i) Within household premises	44.8	24.4	35.9
ii) Outside household premises but with fixed location	31.4	56.2	42.2
iii) Outside household premises but without fixed location	23.7	19.4	21.8
Distribution of enterprises by growth status (last 3 yrs):			
i) Expanding	18.6	22.3	20.2
ii) stagnant	65.8	58.7	62.7
iii) contracting	9.2	10.3	9.7

Source: NSSO 55th round (1999-00) Report No. 459(55/2.0/2), National Sample Survey, Govt. of India.

There is very close correspondence between informal sector and unorganised sector in India. Hence these values for unorganised sector approximate the relevant data for informal sector as well. The enormity of informal/unorganised sector is evident from these two tables.

Table 2. Share of Organised (O) and Unorganised (U) Sector Employment across Industries (%)

Industry	1983		1987-88		1993-94		1999-00	
	O	U	O	U	O	U	O	U
Agriculture, hunting, fishing	0.6	99.4	0.7	99.3	0.6	99.4	0.6	99.4
Mining & quarrying	55.5	44.5	44.2	55.8	40.7	59.3	43.2	56.8
Manufacturing	19.7	80.3	17.3	82.7	16.1	83.9	14.9	85.1
Electricity, gas & water	90.7	9.3	71.3	28.7	69.7	30.3	79.0	21.0
Trade, hotel & restaurants	2.1	97.9	1.8	98.2	1.6	98.4	1.2	98.8
Construction	17.7	82.3	10.1	89.9	10.0	90.0	6.5	93.5
Transport, storage & communication	38.8	61.2	34.8	65.2	29.7	70.3	21.5	78.5
Services	40.3	59.7	36.8	63.2	31.7	68.3	34.8	65.2

Source: Sakthivel and Joddar (2006).

3.1. Basic Features of Our Model-Economy and Notations Incorporating INFS

3.1.1. Basic Features are Assumed As:

(a) There are four sectors of a closed economy: a capitalistic FS, an agricultural sector, a non-capitalistic INFS and lastly the government sector.

(b) Contrary to FS with capital-labour dichotomy and accumulation motive of production, in INFS the sole objective is consumption in absence of any capital-labour division. INFS is capable of producing surplus though it is not used for accumulation.⁷ Thus, 'maximization' of 'need' is the objective of production in INFS; it is the 'need economy'.⁸ This implies that, the real income in INFS can increase depending on the expansion of food-supply to this sector. However, this increase in real income only improves the food and non-food consumption standard and does not trigger off accumulation.⁹

(c) INFS is self-sufficient in both implements and non-food consumption. Moreover, supply of labour is elastic as surplus labour is drawn from agriculture. However, INFS has to depend on agriculture for 'food'.

(d) Aggregate supply of marketable surplus of food is fixed. It is purchased by both FS and INFS simultaneously at the single open-market food-price. Earning from the sale of food is the sole income of the farmers, which is fully spent on purchase of both FS and INFS output.

(e) We have balanced trade between agriculture and INFS. This is essentially a simplifying assumption. However, we refrain from any interaction between FS and INFS.¹⁰

⁷ Production takes place with the sole objective of consumption. This is the crucial characteristic of INFS. See, Sanyal (2007, p. 211-3) in this regard. In the context of petty producers in Dakar, Gerry (1978) showed evidence that petty producers with accumulated wealth had already invested in house building or in duplication of their existing production process, and this was considered to be a vital cause of petty producers not becoming the small capitalist. Furthermore, simple tools produced in INFS itself are used in the sector, which cannot be treated as 'capital' generating 'profit income' meant for reinvestments.

⁸ Sanyal (2007).

⁹ For such a categorization of INFS we can refer Ranis and Stewart (1993, 1994). In recent writings this INFS has been projected as a dynamic sector capable of producing surplus. However, the difference between FS and INFS is that while in the former production is organized for accumulation in the latter it takes place with the sole objective of consumption.

¹⁰ Unbalanced trade between INFS and agriculture is unsustainable given their inability to issue 'stocks'. Furthermore, agriculture - INFS balanced trade is essentially a simplifying assumption. On the other hand, FS-INFS interaction should be a separate extension of our present analysis. However, it could be tentatively inferred from our following analysis that FS-INFS interaction does not qualitatively modify the impacts on FS, though it may have serious implications for INFS.

(f) FS, agriculture and the government behave and also interact with each other in the same fashion as described by the features (b) to (g) of section (2.1.1). The only additional characteristic is mentioned in feature (d) of this section (3.1.1).

3.1.2. Notations are as Follows:

(A) Notations (i) through (xiv) of the section (2.1.2) and others used in section (2.2) remain.

(B) Few additional notations are required. Those are:

- (i) α_u : Fraction of aggregate agricultural income or that of aggregate marketable surplus of food used for transaction with INFS.¹¹
- (ii) Y_u : Level of INFS output.
- (iii) p_u : Price of INFS output.
- (iv) L_u : Aggregate employment in INFS.
- (v) l_u : Labour-output ratio in INFS.
- (vi) β_u^0 : Fraction of each unit of output used for self-consumption and reproduction in INFS.
- (vii) β_u^1 : Fraction of each unit of INFS output used to exchange with food.
- (viii) S_u : Aggregate supply of marketable surplus of INFS output.
- (ix) D_u : Aggregate demand for INFS output.
- (x) a_{fu} : Per capita food-consumption in INFS.
- (xi) D_{fu} : Aggregate food-demand from INFS.

3.2. Working of Our Extended Model

3.2.1. Agriculture-INFS Interaction

According to the literature, agriculture is found to play a very crucial role for the sustenance of INFS. Agriculture acts as the provider of food and raw materials. It also acts as a purchaser of INFS goods and services. Agrarian transformation and its consequences, such as growth of agricultural surplus and also that of purchasing power,

¹¹ As we have assumed agriculture-INFS balanced trade and a single food-price, α_u represents fraction of both agricultural income and marketable surplus of food transacted with INFS. α_u fraction of aggregate agricultural income is spent on INFS products and hence, INFS obtains the same fraction of marketable surplus of food. Thus, this is a demand-driven outcome and the division of agricultural supply is just a result of that.

‘pull’ the surplus labour out of agriculture and employ it in informal economy. We undertake a simple analysis with Indian data to show the relationship between agricultural production and INFS.

Table 3. Correlation Coefficients between Different Indicators of Informal Sector and Net State Domestic Product (NSDP) from Agriculture across Different States of India

Indicators of Informal Sector Across States	Enterprise Type	Region	NSDP from Agriculture Across States
Aggregate Annual Value Added Across States	OAE	Rural	0.789*
		Urban	0.929*
	Establishments	Rural	0.746*
		Urban	0.600*
Total Number of Units Across States	OAE	Rural	0.860*
		Urban	0.919*
	Establishments	Rural	0.809*
		Urban	0.800*
Total Number of Workers Across States	OAE	Rural	0.854*
		Urban	0.943*
	Establishments	Rural	0.810*
		Urban	0.755*

Source: Calculated by using CMIE-EIS 2006 and NSSO 55th Round: Informal Sector in India 1999-2000 (Report No.459).

Notes: * significant at 1%. We have calculated the above table based on the data of NSDP from Agriculture from twenty-nine major states (including union territories) of India for the year 2000. This cross-section analysis is done for paucity of time-series data on informal sector.

From the above table we have the following observations: Firstly, both informal own account enterprises (OAEs without any hired labour on ‘fairly regular basis’) and establishments (with at least one hired labour on ‘fairly regular basis’) are linked with agriculture. Fourth column shows that increase in agricultural output/income has a positive impact on informal sector in all respects. This phenomenon supports the prosperity-induced growth of INF theory proposed by many researchers.

We shall try to explore these dimensions of linkages in our following analysis.

First, we specify the per capita food requirement rate in INFS as

$$a_{fu} = a_{fu}(p_u / p_f),^{12}$$

¹² Per capita food-demand in FS is fixed through bargaining. But, a_{fu} depends only on food-availability, given the inability of INFS producers to change p_u unilaterally. Please see below for further details.

$$a_{fu1} > 0.$$

Furthermore, absence of fixed capital implies,

$$l_u = l_u^0, \text{ a constant.}$$

In the market for INFS output there are many small producers and the competitive environment set an upper-limit on price. The small producers cannot increase prices immediately and commensurately with fluctuations in costs out of fear of losing market share. However, the distinctive character of community collaboration (sharing) restricts the prices from falling below the minimum (long-run) subsistence requirement either. Thus, long-term collaborative relationship among the producers on one hand and between producers and consumers on the other make the prices rigid in the short-run.¹³ We assume that the institutional factors set the price in such a way that sufficient income is generated to meet food and non-food consumption and reproduction. Furthermore, short-run cost-fluctuations are absorbed through variations in work-effort, given the price-rigidity. As price cannot be altered in short-run, subsistence requirements are met only through increments in work-efforts (increasing working hours and job-diversification) in the face of rising costs. This is plausible given that work-efforts are guided by socially-determined needs as the motive of participation in INFS is consumption only. Hence, we assume constancy of $p_u (= p_u^0, \text{ say})$.

A part of income per unit of INFS output (i.e., a part of p_u^0) is used for self-consumption and reproduction and another part is used to purchase food from traditional agriculture. The food-cost determines the residual income which is spent for non-food consumption and reproduction. Furthermore, as food-cost rises, the agents of INFS absorb this shock by reducing non-food expenditure, i.e., by cutting down 'surplus consumption'. This is possible as initially the INFS producers are able to maintain their consumption-standard above the minimum subsistence level. Thus, with sticky INFS price, as food-price increases due to fall in food-supply, given price-inelastic per capita food consumption in INFS, fraction of expenditure on food rises reducing the corresponding fraction on non-food. This is plausible given the surplus producing ability of INFS producers.¹⁴

Consequently, allocation of earnings per unit of output in INFS could be expressed as

¹³ We can refer, Piore and Sabel (1984, p. 272-4), Tokman (1978), Mead (1984) and Varcin (2000) for different types of collaborative contracts among micro-entrepreneurs and consumers. Becattini (2004) notes that in case of the products of the micro-enterprises of industrial districts (similar to an INFS conglomeration) the prices are "affected by local demand and supply conditions, and, most importantly, by the stabilizing influence of local institutions, such as associations among ... producers, and the local customs" (p. 27-8). These factors make the prices 'sticky'.

¹⁴ However, this indicates at the phenomenon of immiserisation which is becoming prevalent in many third world countries (Bhaduri (2008)).

$$p_u^0 = \beta_u^1(p_f)p_u^0 + \beta_u^0(p_f)p_u^0,$$

$$\beta_u^1 + \beta_u^0 = 1 \quad \text{and} \quad \beta_{u1}^1 > 0, \beta_{u1}^0 < 0.^{15}$$

Now definitionally,

$$\beta_u^1(p_f)p_u^0 = p_f a_{fu}(p_u^0/p_f)l_u^0.$$

Rearranging the above equations we get:

$$(1 - \beta_u^0(p_f))p_u^0 = p_f a_{fu}(p_u^0/p_f)l_u^0.$$

That is, the value of net output or that of net supply to agriculture from INFS is determined only by the food-cost.

Now, for simplicity we assume, $l_u^0 = 1$.

Hence, the last equation is modified as,

$$p_u^0/p_f = a_{fu}(p_u^0/p_f)/(1 - \beta_u^0(p_f)). \quad (I)$$

We have flexible INFS-agriculture t-o-t. Stated alternatively, in order to produce additional units of INFS output higher real income in terms of food needs to be provided to all the agents working in INFS. Then only increase in L_u and hence, that of Y_u and S_u could be ensured. Consequently, S_u will be positively sloped on ‘ $S_u - p_u/p_f$ ’ plane.¹⁶ This, in turn, is possible only with a rise in food-supply. Thus, the endogenous movement of t-o-t in favour of INFS and away from agriculture is possible through a rise in food-supply to INFS.

In fact, agricultural progress releases food-surplus as well as surplus-labour and thereby ‘pulls up’ INFS. Thus, employment diversification towards INFS away from agriculture occurs due to productivity rise in agriculture. An endogenous movement of terms of trade in favour of urban informal sector away from agriculture that is required

¹⁵ As p_f rises, given price inelastic per capita food consumption, fraction of expenditure on food rises reducing the corresponding fraction on non-food. Thus, food-supply shocks are absorbed through variations in non-food consumption.

¹⁶ The agriculture - FS t-o-t is rigid due to alliances among the dominant lobbies of these two sectors. But participation in such an alliance is practically impossible especially for the innumerable micro-producers of INFS. Hence these millions of micro-entrepreneurs have to accept a kind of ‘competitive price’ for their product which is fixed in short-run and which is beyond their control, even if the food-price fluctuates altering their real income.

to raise per capita food consumption and hence, subsequently, to raise S_u is possible only through a rise in food supply. As food supply rises, both a_{fu} and L_u rises due to endogenous rise in (p_u/p_f) inducing a rise in S_u . On the other hand, an exogenous change in (p_u/p_f) essentially changes the food cost of production in informal sector and hence, shifts up or down the S_u curve altogether.

On the other hand, an exogenous change in (p_u/p_f) essentially changes the food-cost of production in INFS and hence, shifts up or down the S_u curve altogether. When (p_u/p_f) falls exogenously without any change in aggregate agricultural supply, a_{fu} falls as well. To compensate for this fall in INFS real income each agent has to work more to maintain the 'socially-determined' standard of living. This could be the explanation for the rightward shift of S_u curve with exogenous fall in (p_u/p_f) . This is the supply-side response of exogenous change in (p_u/p_f) in absence of any change in food-supply.

As food-supply to INFS increases, it gets absorbed through rise in a_{fu} and L_u . Thus, agriculture is not facing any realization problem so far as INFS is concerned, even if there is no government intervention. In fact, as food-supply to INFS rises, it raises simultaneously the demand for INFS output. Consequently, INFS expands and thereby absorbs food. Though we must mention, INFS expansion, in this case, is purely supply-driven.

Now, through sale of aggregate marketable surplus of food in common food-market farmers earn income of the value $(p_u F)$. Out of this α_u fraction, i.e., $(\alpha_u p_f F)$ is spent on INFS output. Thus, the value of aggregate demand for INFS output is,

$$p_u D_u = \alpha_u p_f F .^{17}$$

Under the condition of balanced trade income of INFS $(= \alpha_u p_f F)$ is fully spent back on food. The value of this food-demand is $(p_f \alpha_u F)$. Thus, INFS purchases α_u fraction of F .

Proposition IV: The mechanism for agriculture-INFS interaction is distinctly different from that of agriculture-FS inter-linkage. The latter interaction crucially depends on real domestic exports, absence of which creates effective demand problem

¹⁷ As FS-INFS interaction is assumed away for simplification, there is no demand boost from FS for INFS. Only transactions between agriculture and INFS induces latter's expansion through demand and supply side boosts via market exchange.

for both these sectors. Conversely, the former interaction operates through (market) exchange where effective demand problem does not at all emerge.

From our preceding analyses we know that,

$$p_u D_u = \alpha_u p_f F. \quad (\text{II})$$

Now, we can define the parameter α_u in the following way:

$$\alpha_u = \alpha_u(p_f / p_u, p_f / p_i), \quad \alpha_{u1} > 0, \alpha_{u2} < 0. \quad (\text{III})$$

Now using Equation (3.2), Equation (III) can be written as,

$$\alpha_u = \alpha_u(p_f / p_u, \theta) = \alpha_u(p_f / p_u^0) \quad [\text{at } p_u = p_u^0 \text{ as per assumption}], \quad \alpha_{u1} > 0. \quad (\text{IV})$$

Now, rearranging Equation (II) and putting Equation (III) there we get,

$$D_u = (p_f / p_u) \alpha_u(p_f / p_u, p_f / p_i) F. \quad (\text{V})$$

Generalizing this equation we get,

$$\begin{aligned} D_u &= D_u(p_u / p_f, \alpha_u, F), \\ D_{u1} &< 0, D_{u2} > 0, D_{u3} > 0. \end{aligned} \quad (\text{VI})$$

Using the assumption of $F = F^0$ (Equation 11), Equation (VI) can be modified as,

$$\begin{aligned} D_u &= D_u^0[p_u / p_f, \alpha_u, F^0] = D_u^0(p_u / p_f, \alpha_u), \\ D_{u1}^0 &< 0, D_{u2}^0 > 0. \end{aligned} \quad (\text{VIA})$$

This gives a downward sloping D_u^0 curve on the ' $D_u - p_u / p_f$ ' plane Figure 4.

It is to be noted that the equilibrium value $(p_u^0 / p_f^1)^*$ is determined from demand-supply conditions prevailing in INFS. Hence from Equation (I) we get,

$$p_u^0 / p_f^1 = a_{fu}(p_u^0 / p_f^{1*}) / (1 - \beta_u^0(p_f^{1*})). \quad (\text{IA})$$

Putting this Equation (IA) in Equation (IV) we get α_u^* as,

$$\alpha_u^* = \alpha_u^*[(p_f^{1*} / p_u^0)]. \quad (\text{VII})$$

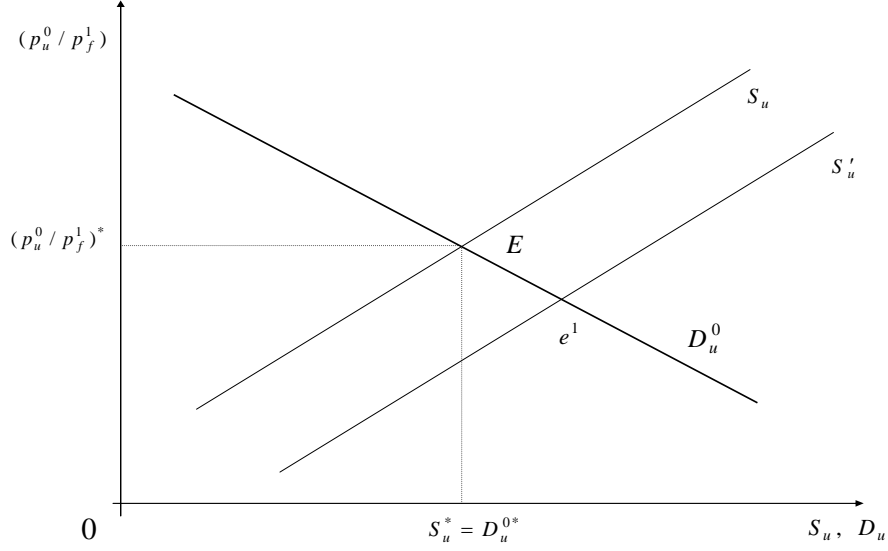


Figure 4. INFS Equilibrium

Now, using Equations (IA), (VII) and (11), Equation (V) can be written as,

$$D_u^{0*} = [(1 - \beta_u^{0*}(p_f^{1*})) / a_{fu}^*(p_u^0 / p_f^{1*})] \alpha_u^* F^0. \quad (\text{VA})$$

From our characterization of agricultural supply-determined D_u and hence, that of S_u we can find out S_u^* by solving the following equation:

$$S_u^*(p_u^0 / p_f^{1*}) = D_u^{0*}(p_u^0 / p_f^{1*}, \alpha_u^*). \quad (\text{VIII})$$

Substituting Equation (VA) in the equilibrium condition (VIII) we get the equilibrium value of S_u as,

$$S_u^* = D_u^{0*} = [(1 - \beta_u^{0*}(p_f^{1*})) / a_{fu}^*(p_u^0 / p_f^{1*})] \alpha_u^*(p_u^0 / p_f^{1*}) F^0. \quad (\text{IX})$$

This solution could be shown graphically by using the S_u and D_u^0 curves on ' $S_u, D_u - p_u$ ' plane, as in Figure 4. Point E (Figure 4) represents the solution (IX).

At equilibrium we have,

$$Y_u^* = [S_u^* / (1 - \beta_u^{0*})].$$

Furthermore, using $l_u^0 = 1$ we have,

$$Y_u^* = L_u^* = [S_u^* / (1 - \beta_u^{0*})].$$

Now, substituting in it the value of S_u^* derived from Equation (IX), we get,

$$Y_u^* = L_u^* = [(\alpha_u^* F^0) / a_{fu}^*]. \quad (X)$$

From this Equation (X) we can also derive:

$$D_{fu}^* = a_{fu}^* L_u^* = \alpha_u^* F^0. \quad (XI)$$

3.2.2. Interactions Between FS, Agriculture and Government

As in section 2, interaction between FS and agriculture is mediated by government through endogenously determined real domestic exports. Moreover, Equations (1) to (12A) and propositions I, II and III in essence remain unchanged. The only revision that we have here is: instead of the whole amount of marketable surplus of food only a positive fraction $(1 - \alpha_u)$ is directed to FS. Thus, Equation (12) is modified as

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

Now, substituting from Equations (11) and (VII), Equation (XII) can be written as,

$$(1 - \alpha_u^*(p_u^0 / p_f^{1*}))F^0 = D_f^* = a_f^0 [I^0 + \theta(G^0 / p_f^{1*})] / (1 - \alpha). \quad (XIII)^{18}$$

We can compare the two equilibrium conditions (12) and (XIII) pertaining to agriculture-FS interaction. This comparison can be done through an appropriate modification of Figure 1.

In the present case, supply of food to FS is $[(1 - \alpha_u(p_u / p_f))F]$, instead of F . Hence, food-supply to FS squeezes in presence of INFS. Moreover, from Equation (IV) we have an inverse relation between food-price and food-supply to FS. Hence, we have negatively slopped supply curve for agriculture vis-à-vis FS on ' $F, D_f - p_f$ ' plane. For stability we assume, absolute slope of demand curve to be less than that of supply. Thus, we get Figure 5.

¹⁸ If we consider all the four sectors together aggregate food-market equilibrium could be derived through the combination of Equations (10.2), (11) and (XI) as, $F^0 = D_f + D_{fu} = [a_f^0 \{I^0 + \theta(G^0 / p_f)\} / (1 - \alpha)] + [\alpha_u F^0]$. This equation could be rearranged to arrive at the Equation (XIII).

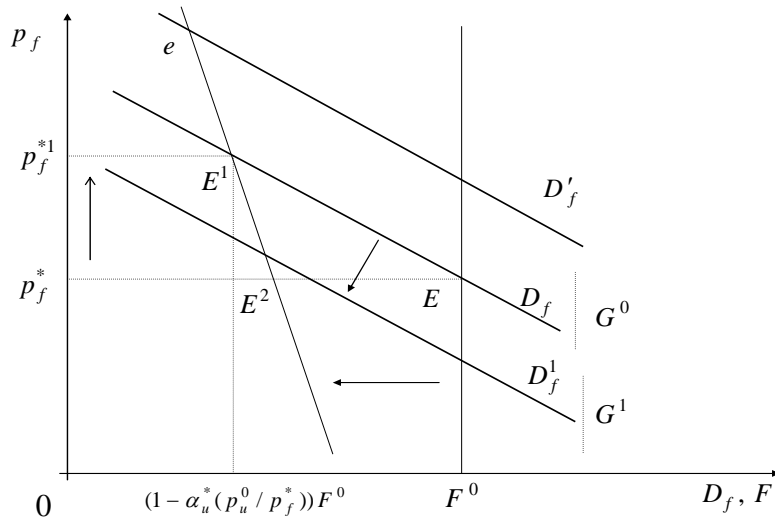


Figure 5. Food-Market Equilibria with and without INFS

In absence of INFS, F^0 is directed only to FS. However, in presence of INFS, FS faces shrinkage of food-supply to $[(1 - \alpha_u^*) \cdot F^0]$. As the supply-constraint becomes more stringent for FS, its potential employment and output reduce with contraction of domestic exports. This shrinkage occurs either through price-wage rise given G^0 , or through a proper reduction in this G (from G^0 to G^1 , say) to avoid general inflation. Thus, ultimately, Y^* and L^* as derived in absence of INFS (as in section 2), are reduced. Consequently, D_f^* also falls. Moreover, for $G = G^0$, p_f^* , w_m^* and p_i^* are increased accordingly from their initial levels due to the incorporation of INFS.

The incorporation of INFS into our overall analysis of agriculture-FS-government inter-linkage squeezes down the equilibrium levels of output and employment in FS.

Proposition V: Thus we have a basic conflict between formal and INFS in terms of employment and output in presence of the agricultural (supply) constraint.

3.3. Rise in Agricultural Productivity through ‘Modernization’

It is found in several studies that there is a positive correlation between productivity raising technological progress in agriculture and expansion of INFS (Mellor (1976), Hazell and Haggblade (1990), Lanjouw and Lanjouw (2001)). Rise in agricultural

productivity can act as a boost for INFS through backward and forward linkages. Thus bumper harvest creates surplus that helps the expansion of INFS from supply-side. On the other hand, increase in rural incomes leads to increase in demand for INFS output as well.

Let us assume that with a rise in agricultural productivity F^0 (Equation, 11) rises to say,

$$F = F^1. \quad (11.1)$$

Now, for $F = F^1$, Equation (VIA) is modified as,

$$D_u = D_u^1(p_u / p_f, \alpha_u, F^1) = D_u^1(p_u / p_f), \quad D_{u1}^1 < 0. \quad (VIB)$$

As $F^1 > F^0$, comparing Equations (VIA) and (VIB) we can say, $D_u^1 > D_u^0$ for each (p_u^0 / p_f) . That is, D_u^0 curve (Figure 4) shifts accordingly to D_u^1 as shown in Figure 6. Now with rise in F , p_f falls (refer Figure 7). Consequently, equilibrium values of the relevant variables will change. The equilibrium values $p_f^{*1}, (p_u^0 / p_f^{*2})$ and α_u^{*1} are derived through the modification of Equations (IA) and (VII) respectively with rise in F and the consequent fall in p_f . Moreover, equilibrium values of $\beta_u^0, a_{fu}, D_u^1, S_u, Y_u, L_u$ and D_{fu} change accordingly.

Now, given Equation (VIB), Equation (VIII) is modified as,

$$S_u = D_u^1. \quad (VIII A)$$

Furthermore, using the above modifications of Equations (IA) and (VII) and using the assumption $F = F^1$ (Equation, 11.1) Equation (V) can be written as,

$$D_u^{1*} = [(1 - \beta_u^{0*1}) / a_{fu}^{*1}] \alpha_u^{*1} F^1. \quad (VB)$$

Substituting Equation (VB) in Equation (VIII A), we get a modification of Equation (IX) and accordingly the modified S_u^* as

$$S_u^{*1} = D_u^{1*} = [(1 - \beta_u^{0*1}) / a_{fu}^{*1}] \alpha_u^{*1} F^1. \quad (IXA)$$

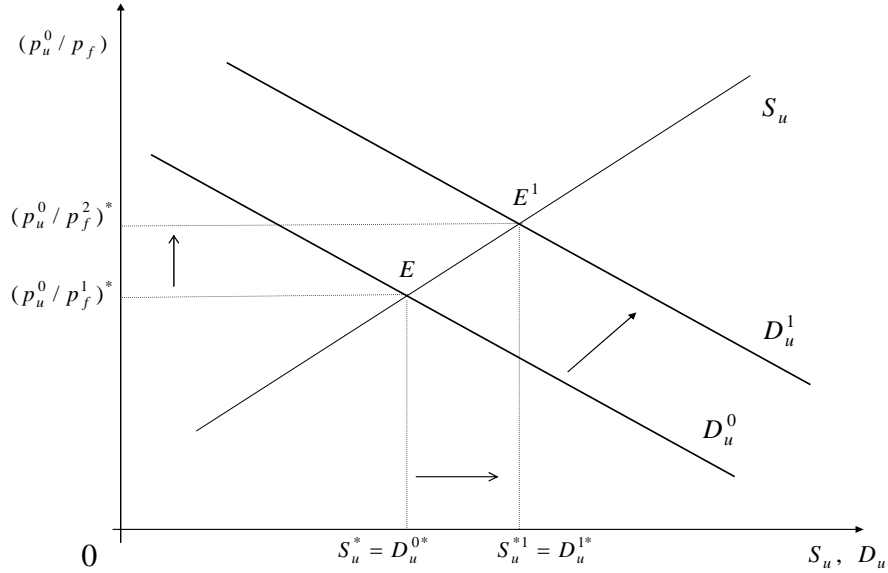


Figure 6. Effect of Bumper Harvest on INFS

This solution could be shown graphically by using the S_u and D_u^1 curves as in Figure 6.

Demand-supply equilibrium for INFS as expressed in Equation (IXA) is represented by point E^1 in Figure 6. Furthermore, Figure 6 also shows the initial demand-supply equilibrium for INFS as point E as in Figure 4. The movement of equilibrium position from E to E^1 and hence, that of the equilibrium value of S_u from S_u^* to S_u^{*1} are due to rise in agricultural productivity.

Consequently, modifying Equation (X) with $F = F^1$, we have,

$$Y_u^{*1} = L_u^{*1} = [(\alpha_u^{*1} F^1) / a_{fu}^{*1}]. \tag{XA}$$

As $F^1 > F^0$, comparing Equations (X) and (XA) it can be proved that $Y_u^{*1} > Y_u^*$ and $L_u^{*1} > L_u^*$. As F rises, p_f falls reducing α_u as well, putting a check on the rise in D_u . However, as (p_u^0 / p_f) rises S_u must rise. Hence, we can say that even if α_u falls, $(\alpha_u F)$ rises unambiguously. Here, rise in (p_u^0 / p_f) has also increased a_{fu} . However, the actual equilibrium value of p_f and consequently the other equilibrium values could be derived through the analysis of agriculture-FS interactions. Essentially,

the aggregate food-market equilibrium condition with the present changes could generate the equilibrium value of p_f .

Furthermore, the initial equilibrium value of aggregate food-demand from INFS as expressed by Equation (XI) is also modified as

$$D_{fu}^{*1} = a_{fu}^{*1} L_u^{*1} = \alpha_u^{*1} F^1. \quad (\text{XIA})$$

It is clear that $D_{fu}^{*1} > D_{fu}^*$.

Now we turn to the analysis of FS-agriculture interactions. As a consequence of changes in agriculture, FS activities also change accordingly. Given Equation (VII) and condition (11.1), the food-market equilibrium condition (XII) can be rewritten as

$$(1 - \alpha_u^{*1}) F^1 = a_f^0 [I^0 + \theta(G^0 / p_f^{2*})] / (1 - \alpha). \quad (\text{XIIIA})$$

This is clearly different from the Equation (XIII). Now following Figure 3 and proposition III both of section 2, Figure 5 will be accordingly modified as Figure 7.

By solving Equation (XIII) we get the point E^1 as the initial food-market equilibrium for FS-agriculture interaction in presence of INFS. This E^1 is identical to that of Figure 5. Consequently, we get p_f^{*1} (Figure 5) and other equilibrium values. Now, for $F = F^1 (> F^0)$, supply of food to FS rises from $[(1 - \alpha_u^*) F^0]$ to $[(1 - \alpha_u^{*1}) F^1]$. Due to this relaxation of supply-constraint for FS the new equilibrium is at E^3 (Figure 7) as the condition, $G = G^0$ remains unaltered. Consequently, we have $p_f^{*2} (< p_f^{*1})$ and hence lowering of the equilibrium values of w_m and p_i . Thus, we get higher equilibrium values for g , Y , L and D_f than what we have in section 3.3.2 or what we have at E^1 .

On the other hand, if there is downward rigidity of prices, nominal expenditure G has to increase accordingly from G^0 to say, G^1 with increase in F . In such a case, the new food-demand curve will be D_f^1 and the equilibrium position will be E^4 (Figure 7). Under such a situation, S_u curve of Figure 6 will shift down appropriately so that agriculture-INFS t-o-t remains unchanged at the pre-expansionary stage, i.e., $(p_u^0 / p_f^1)^*$.

This above comparative static analysis could be generalized as below:

As agricultural supply-constraint is relaxed not only INFS but also FS benefit in real terms. However, the proportion of division of expenditure of agricultural income (and hence the proportion of allocation of the marketable surplus of food) between these two sectors is changed as with rise in F food-price falls reducing $\alpha_u (= \alpha_u (p_u^0 / p_f))$. Thus,

$(1 - \alpha_u(p_u^0/p_f))$ rises, creating an additional impact on FS over and above the direct impact of rise in F .¹⁹ However, this additional impact is absent if along with rise in F there is an appropriate rise in G as well.²⁰

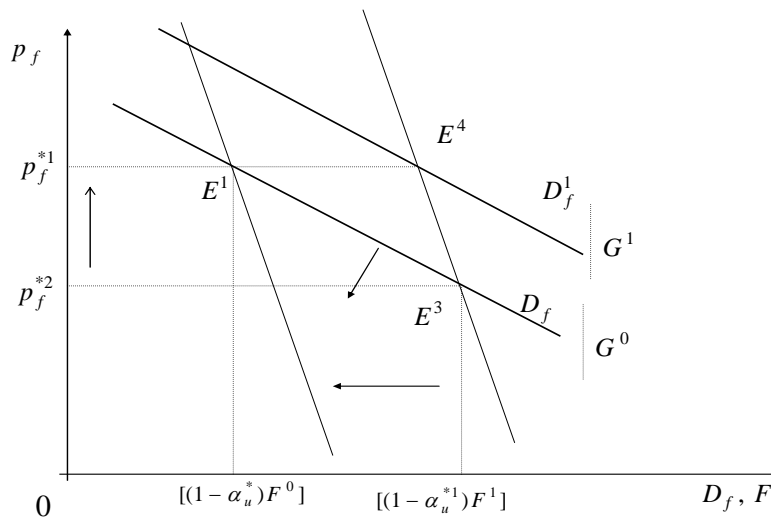


Figure 7. Effect of Bumper Harvest on FS in Presence of INFS

Proposition VI: Rise in agricultural productivity initiates simultaneous expansion of both FS and INFS. But it also extends the basic conflict between these two sectors (as mentioned in proposition, V) as proportion of food-supply to FS rises.

As agricultural productivity rises, food-price falls reducing the price of FS commensurately, given the agriculture - FS t-o-t. However, this fall in food-price tilts the t-o-t in favour of INFS, as price of INFS output is invariant in short-run with variation in food-price. Thus the relative price of INFS product vis-à-vis FS price rises reducing demand for the former output. Hence the positive impact of rise in agricultural productivity on INFS is partially counter-balanced.

To counter such a tendency rise in agricultural productivity through re-distributive land-reforms could be a policy option. As INFS is argued to be linked closely with small-farmer agriculture, equitable land-distribution should promote INFS activities

¹⁹ Hence, E^3 lies to the right of E^4 in Figure 7.

²⁰ Hence, FS would try to resist such a rise in G .

(Dunham (1991), Harriss (1991), Saith (1991, 1992, 1993), Ray (1994)). In fact, extending our framework we can show, rise in agricultural productivity through land-reforms raises the values of F as well as α_u boosting up INFS unambiguously. However, even if F rises, simultaneous fall in $(1-\alpha_u)$ generates ambiguous effects on FS output and employment. Hence, the conflict between FS and INFS intensifies. This should obviously generate reactions from the beneficiaries in FS against a policy of land-reforms.

3.4. Expansionary Fiscal Policy

A ceteris-paribus increase in nominal domestic exports G can generate interesting repercussions in our framework. We trace the effects using Figures 4 and 5. As G rises, D_f of Figure 5 shifts up to D'_f changing the equilibrium position from E^1 to e . Consequently, p_f rises which, in turn, reduces (p_u/p_f) , given p_u^0 and unchanging aggregate food-supply F . Thus, the value of α_u rises following Equation (IV). A higher proportion of F is exchanged with INFS output inducing its demand. On the other hand, as (p_u/p_f) falls, a_{fu} falls. This induces a rightward shift of S_u to S'_u in Figure 4, which marks an increase in work-effort by the agents of INFS to counterbalance the fall in a_{fu} so that each agent's total income can be kept unaltered. The new demand-supply equilibrium for INFS is at e^1 in Figure 4. Comparing E and e^1 we can clearly say that INFS expands. However, as α_u has increased with rise in p_f , $(1-\alpha_u)$ falls which reduces $(1-\alpha_u)F$ given F . Thus, food-supply to FS falls initiating a contraction of output and employment in this sector, which is evident from the movement of equilibrium position from E^1 to e in Figure 5. This contractionary effect on FS arising out of an expansionary fiscal policy is counter-intuitive. But, it happens just because of the presence of INFS which acts as a 'vent for surplus' for agriculture and in presence of agricultural supply-constraint. Such an effect is really plausible if agriculture is dominated by small-farmers who are more close to petty-production based INFS. As with exogenous rise in p_f incomes of the vast majority of small and marginal farmers rise, they spend higher proportion of their income on INFS products as these are now relatively cheaper with lower (p_u/p_f) , (p_i/p_f) remaining unchanged as capitalists and workers in FS do not allow the terms of exchange to deteriorate.

Thus, we find that an expansionary policy intensifies the FS-INFS conflict. In fact, it could be inferred, any expansionary step by the FS is self-defeating, so long as INFS exists and there are close ties between agriculture and INFS.

The logical reactions from the FS beneficiaries to such counter-productive effects could be to advocate such policies that disentangle agriculture from INFS and bring it

closer to FS. This could be done either by changing land-distribution pattern in such a way that small-farmers' dominance is curbed and large-farm based agriculture is integrated with capitalistic FS, or by initiating 'crop-diversification' towards high-value-crop and furthering commercialisation so that directly or indirectly through variety of contracts 'modernised' agriculture gets tied with FS. However, all such policy-packages could, in fact, endanger the very existence of INFS. Here lies the dilemma of the FS. FS derives various benefits from the existence of INFS, but at the same time, the supply-driven conflict between the two pushes the FS to champion such policy prescriptions which may shatter the very foundations of INFS. These analyses could constitute certain extensions of our basic framework.

4. CONCLUDING REMARKS

Throughout the above analysis especially in the basic model of section 3 and in the two subsequent comparative static analyses involving rise in agricultural productivity and increase in nominal government expenditure on formal sector we have tried to show the formal-informal conflict given the generic food-supply-constraint. The orthodox schools either propose complementarities between these formal and informal sectors or at the best assume independence between the two. We on the contrary propose a basic formal-informal conflict due to 'resource constraint' and due to the dependence of both these sectors on this same set of resources.

This theme of formal-informal generic conflict is subsequently extended in the two comparative static analyses. We show that, even if due to agricultural expansion through technical progress both the formal and informal sectors expand, the effect is more pronounced for the formal sector compared to the informal one. On the contrary, if agricultural progress is initiated through land-reforms this tendency is reversed; the informal sector expands comparatively more than the formal sector. Thus rise in agricultural productivity not only keeps the basic formal-informal conflict intact it even extends this contradiction, as either the formal sector or the informal one grows proportionately more than the other due to this agricultural boost depending on particular agricultural strategy undertaken.

On the other hand, expansionary fiscal policy increasing the nominal government expenditure on formal sector intensifies this formal-informal conflict. As government expenditure on formal sector rises raising the demand for agriculture as well, it increases the prices across the board in formal sector and agriculture given the food-supply-constraint and given the formal sector agriculture terms of trade; though the price in the informal sector remains the same as it is not dependent on other prices and is set by non-market institutional factors. Consequently, informal sector output becomes comparatively cheaper compared to formal sector and agricultural products whose prices rise due to demand-boost from the government given the agricultural supply-constraint. As a result of that agriculture now prefers informal sector products compared to formal

sector and hence higher amount of food is transacted with the informal sector squeezing down the food-supply to the formal one. Thus the generic agricultural supply-constraint becomes more binding on the formal sector while it is relaxed for the informal one. This generates the counter-intuitive result of expansion of informal sector at the cost of contraction of formal one even if government expenditure on the latter rises. Thus we have a clear case of intensification of formal-informal conflict.

APPENDIX

Table A1 and A2 provides the information on terms of trade between agriculture and non-agricultural sectors for two series, viz. 1982-83 to 2005-06 and 1990-91 to 2003-04. Upper and lower limits of the terms of trade series are constructed with the help of standard deviation (SD) of this series by adding it with and subtracting it from the corresponding mean value. It is evident that though the mean value rises for the more recent truncated series compared to the overall one, the index of TOT fluctuation, i.e., the standard deviation 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 Index of TOT	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
	91.4	91.6	93.9	93.6	95.7	97.4	98.3	99.4
Year Index of TOT	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97	1997-98
	101.9	105.6	103.9	103.6	106.6	105.3	103.1	105.6
Year Index of TOT	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	2004-05	2005-06
	105.2	102.7	100.9	102.8	103.6	101	100.3	101.9

Source: Agricultural Statistics at a Glance, Government of India, 2006-07.

Notes: Upper Limit = 105.1955 and Lower Limit = 96.07949. Mean = 100.63 and Standard Deviation = 4.55.

Table A2. Index of Terms of Trade (TOT) between Agriculture and Non-Agriculture Sectors from 1990-91 to 2003-04 (Base: Triennium Ending 1990-91=100)

Year Index of TOT	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
	101.9	105.6	103.9	103.6	106.6	105.3	103.1
Year Index of TOT	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
	105.6	105.2	102.7	100.9	102.8	103.6	101.0

Source: Agricultural Statistics at a Glance, Government of India, 2006-07.

Notes: Upper Limit = 105.4768 and Lower Limit = 101.9232. Mean = 103.7 and Standard Deviation = 1.77.

Table A3 to A5 depict 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 started from 1973-74 to 2003-04. Upper and lower limits of the series are specified as earlier. Though the mean value rises for the more recent truncated series compared to the overall one, fluctuation of the index measured in terms of the standard deviation (SD) 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 Non-Food Items (1973-74 to 2003-04)

Year	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Index of Real Non-Agricultural Wage Rates	139.75	143.58	188.82	159.5	156.58	192.05	185.02	183.29
Year	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Index of Real Non-Agricultural Wage Rates	182.76	205.6	215.86	224.58	256.02	254.94	228.03	268.67
Year	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	283.72	271.7	238.16	276.25	268.74	257.26	274.07	296.03
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	
Index of Real Non-Agricultural Wage Rates	305.69	259.77	296.96	311.5	304.36	294.39	271.16	

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

Notes: Upper Limit = 290.6303 and Lower Limit = 186.4543. Mean = 238.5423 and SD = 52.08803.

Table A4. Index of Annual Real Non-Agricultural Wage Rates in Terms of Wholesale Price Index of Non-Food Items (1983-84 to 2003-04)

Year	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
Index of Real Non-Agricultural Wage Rates	215.86	224.58	256.02	254.94	228.03	268.67	283.72
Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	271.7	238.16	276.25	268.74	257.26	274.07	296.03
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Index of Real Non-Agricultural Wage Rates	305.69	259.77	296.96	311.5	304.36	294.39	271.16

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

Notes: Upper Limit = 296.6973 and Lower Limit = 242.1465. Mean = 269.4219 and SD = 27.27539.

Table A5. Index of Annual Real Non-Agricultural Wage Rates in Terms of Wholesale Price Index of Non-Food Items (1990-91 to 2003-04)

Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	271.7	238.16	276.25	268.74	257.26	274.07	296.03
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Index of Real Non-Agricultural Wage Rates	305.69	259.77	296.96	311.5	304.36	294.39	271.16

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

Notes: Upper Limit = 301.9054 and Lower Limit = 258.9574. Mean = 280.4314 and SD = 21.4739.

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 mean value rises for the more recent truncated series compared to the overall one, the index of fluctuation markedly falls indicating increasing stability of the series in recent times.

Table A6. Index of Annual Real Non-Agricultural Wage Rates in Terms of Wholesale Price Index of Food Items (1973-74 to 2003-04)

Year	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Index of Real Non-Agricultural Wage Rates	167.21	152.26	179.89	191.68	178.99	211.62	215.12	213.97
Year	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Index of Real Non-Agricultural Wage Rates	208.43	212.97	218.98	242.4	262.44	264.09	263.42	277.47
Year	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	299.9	300.31	258.49	266.17	268.74	283.26	303.68	289.35
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	
Index of Real Non-Agricultural Wage Rates	297.26	247.39	256.59	267.65	264.26	271.72	278.33	

Sources: Wage data calculated from Annual Survey of Industries, Government of India. WPI data are taken from Reserve Bank of India, Government of India.

Notes: Upper Limit = 287.9935 and Lower Limit = 203.2349. Mean = 245.6142 and SD = 42.379.

Table A7. Index of Annual Real Non-Agricultural Wage Rates in Terms of Wholesale Price Index of Food Items (1983-84 to 2003-04)

Year	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
Index of Real Non-Agricultural Wage Rates	218.98	242.4	262.44	264.09	263.42	277.47	299.9
Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	300.31	258.49	266.17	268.74	283.26	303.68	289.35
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Index of Real Non-Agricultural Wage Rates	297.26	247.39	256.59	267.65	264.26	271.72	278.33

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

Notes: Upper Limit = 291.471 and Lower Limit = 249.661. Mean = 270.5667 and SD = 20.90483.

Table A8. Index of Annual Real Non-Agricultural Wage Rates in Terms of Wholesale Price Index of Food Items (1990-91 to 2003-04)

Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	300.31	258.49	266.17	268.74	283.26	303.68	289.35
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Index of Real Non-Agricultural Wage Rates	297.26	247.39	256.59	267.65	264.26	271.72	278.33

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

Notes: Upper Limit = 292.58 and Lower Limit = 257.87. Mean = 275.2286 and SD = 17.35214.

Finally, Table A9 to A11 depict 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 the more recent truncated series compared to the overall one, the index of fluctuation markedly falls indicating increasing stability of the series in recent times.

Table A9. Index of Annual Real Non-Agricultural Wage Rates in Terms of Consumer Price Index of Industrial Worker (1973-74 to 2003-04)

Year	1973-74	1974-75	1975-76	1976-77	1977-78	1978-79	1979-80	1980-81
Index of Real Non-Agricultural Wage Rates	173.92	157.36	178.98	188.26	182.56	209.82	212.25	211.17

Year	1981-82	1982-83	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89
Index of Real Non-Agricultural Wage Rates	206.83	217.65	226.39	245.61	253.38	258.46	258.37	273.48
Year	1989-90	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	281.97	283.16	258.15	272.65	268.74	290.26	305.89	299.7
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04	
Index of Real Non-Agricultural Wage Rates	296.29	245.74	255.98	265.18	259.32	260.63	260.66	

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.

Notes: Upper Limit = 283.9745 and Lower Limit = 203.6907. Mean = 243.8326 and SD = 40.14186.

Table A10. Index of Annual Real Non-Agricultural Wage Rates in Terms of Consumer Price Index of Industrial Worker (1983-84 to 2003-04)

Year	1983-84	1984-85	1985-86	1986-87	1987-88	1988-89	1989-90
Index of Real Non-Agricultural Wage Rates	226.39	245.61	253.38	258.46	258.37	273.48	281.97
Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	283.16	258.15	272.65	268.74	290.26	305.89	299.7
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Index of Real Non-Agricultural Wage Rates	296.29	245.74	255.98	265.18	259.32	260.63	260.66

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.

Notes: Upper Limit = 287.3289 and Lower Limit = 247.9101. Mean = 267.6195 and SD = 19.70941.

Table A11. Index of Annual Real Non-Agricultural Wage Rates in Terms of Consumer Price Index of Industrial Worker (1990-91 to 2003-04)

Year	1990-91	1991-92	1992-93	1993-94	1994-95	1995-96	1996-97
Index of Real Non-Agricultural Wage Rates	283.16	258.15	272.65	268.74	290.26	305.89	299.7
Year	1997-98	1998-99	1999-00	2000-01	2001-02	2002-03	2003-04
Index of Real Non-Agricultural Wage Rates	296.29	245.74	255.98	265.18	259.32	260.63	260.66

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.

Notes: Upper Limit = 291.7607 and Lower Limit = 254.2893. Mean = 273.025 and SD = 18.73573.

REFERENCES

- Bagchi, A.K. (1988), "Problems of Effective Demand and Contradictions of Planning in India," in A.K. Bagchi (ed.), *Economy, Society and Polity*, OUP.
- Bardhan, P. (1998), *The Political Economy of Development in India*, N. Delhi: Oxford University Press.
- Becattini, G. (2004), *Industrial Districts: A New Approach to Industrial Change*, UK, Edward Elgar.
- Bhaduri, A. (1986), *Macroeconomics: The Dynamics of Commodity Production*, India: Macmillan.
- _____ (2008), "Predatory Growth," *Keynote Address*, Department of Economics, Calcutta University, March 28.
- Bhaduri, A., and R. Skarstein (2003), "Effective Demand and the Terms of Trade in a Dual Economy: A Kaldorian Perspective," *Cambridge Journal of Economics*, 27(4), 583-595.
- Bangasser, P.E. (2000), "The ILO and Informal Sector: An Institutional History," *ILO Employment Paper*, Geneva, (Informal Economy Resource Database).
- Bharadwaj, K. (1994), "Analytics of Agriculture-Industry Relation (1986)," *Accumulation, Exchange and Development*, India, Sage Publications.
- Chakravarty, S. (1977), "Reflections on the Growth Process in the Indian Economy (1974)," in C.D. Wadhwa (ed.), *Some Problems of Economic Policy*, N. Delhi, Tata McGraw-Hill.
- CMIE (2006), *EIS: Time-Series Database*, India: Centre For Monitoring Indian Economy.
- Dunham, D. (1991), "Agricultural Growth and Rural Sector: Some Reflections on the Rural Growth Linkages Debate," Working Paper, 114, The Hague, Institute of Social Studies.
- Gerry, C. (1978), "Petty Production and Capitalist Production in Dakar: The Crisis of the Self-Employed," *World Development*, 6(9/10), 1147-1160.
- Harriss, J. (1991), "Agriculture/ Non-agriculture Linkages and the Diversification of Rural Economic Activity," in J. Breman, and S. Mundle (eds.), *Rural Transformation in Asia*, India, Oxford University Press.
- Hazell, P., and S. Haggblade (1990), "Rural-Urban Growth Linkages in India," PR Working Paper, 430, World Bank.
- Kaldor, N. (1976), "Inflation and Recession in the World Economy," *The Economic Journal*, 86(December), 703-714.
- _____ (1984), "The Problem of Intersectoral Balance," in Mattioli Lectures (ed.), *Causes of Growth and Stagnation in the World Economy*, Cambridge, Cambridge University Press, 39-54.
- Kalecki, M. (1971), "On Foreign Trade and 'Domestic Exports'," in *Selected Essays on the Dynamics of the Capitalist Economy*, Cambridge, Cambridge University Press.
- _____ (1993), "The Problem of Financing Economic Development," in J. Osiatynski

- (ed.), *Collected Works of Michal Kalecki*, 5, Oxford, Clarendon Press, 45-60.
- Lanjouw, J.O., and P. Lanjouw (2001), "The Rural Non-Farm Sector: Issues and Evidence from Developing Countries," *Agricultural Economics*, 26(1), 1-23.
- Lewis, W.A. (1954), "Economic Development with Unlimited Supplies of Labour," in A.N. Agarwala, and S.P. Singh (eds.), *The Economics of Underdevelopment*, India, Oxford University Press, 400-449.
- Marx, K. (1951, Reprint), *Theories of Surplus Value*, K. Kautsky (ed.), London, Lawrence and Wishart.
- Mead, D.C. (1984), "Of Contracts and Subcontracts: Small Firms in Vertically Dis-Integrated Production/Distribution Systems in LDCs," *World Development*, 12 (11-12), 1095-1106.
- Mellor, J.W. (1976), *The New Economics of Growth - A Strategy for India and Developing World*, New York, Cornell University Press.
- Mitra, A. (1977), *Terms of Trade and Class Relations*, London, Frank Cass.
- Moser, C.O.N. (1978), "Informal Sector or Petty Commodity Production: Dualism or Dependence in Urban Development?" *World Development*, 6(9/10), 1041-1064.
- Mundle, S. (1977), "Home Market, Capitalism in Agriculture and Drain of Agricultural Surplus," *Economic and Political Weekly*, June, A49-A54.
- NSSO, National Sample Survey Organization, Government of India, Report 459, http://mospi.nic.in/mospi_nssso_rept_pubn.htm.
- Piore, M.J., and C.F. Sabel (1984), *The Second Industrial Divide: Possibilities for Prosperity*, New York, Basic Books.
- Preobrazhensky, E. (1926), *The New Economics*, Oxford, Clarendon Press, (1965 edn).
- Raj, K.N. (1976), "Growth and Stagnation in Indian Industrial Development," *Economic and Political Weekly*, Annual Number, February.
- Rakshit, M. (1982), *The Labour Surplus Economy*, India, Macmillan.
- Ranis, G., and J. Fei (1961), "A Theory of Economic Development," *American Economic Review*, 51(4), 533-565.
- Ranis, G., and F. Stewart (1993), "Rural Non-Agricultural Activities in Development: Theory and Application," *Journal of Development Economics*, 40(1), 75-101.
- _____ (1994), "V-Goods and the Role of the Urban Informal Sector in Development," Centre Discussion Paper, 724, Economic Growth Centre, Yale University.
- Rao, J.M., and S. Storm (1998), "Distribution and Growth in Indian Agriculture," in T.J. Byres (ed.), *The Indian Economy: Major Debates since Independence*, India, Oxford University Press.
- Ray, S. (1994), "Farm - Non-farm Interaction in a Labour-surplus Economy," *Economic and Political Weekly*, 30(53), A171-A174.
- Sakthivel, S., and P. Joddar (2006), "Unorganised Sector Workforce in India," *Economic and Political Weekly*, XLI (21), May 27.
- Sanyal, K. (2007), *Rethinking Capitalist Development: Primitive Accumulation, Governmentality and Post Colonial Capitalism*, N. Delhi, Routledge.
- Saith, A. (1991), "Asian Rural Industrialisation: Context, Features and Strategies," in J.

- Breman, and S. Mundle (eds.), *Rural Transformation in Asia*, India, Oxford University Press.
- _____ (1992), *The Rural Non-Farm Economy: Processes and Policies*, Geneva, ILO.
- _____ (1993), *Chinese Rural Industrialisation: Some Lessons for Reforming and Developing Economies*, N. Delhi, ILO-ARTEP.
- Thirlwall, A.P. (1986), "A General Model of Growth and Development Along Kaldorian Lines," *Oxford Economic Papers*, 38, 199-219.
- Tokman, V.E. (1978), "Competition Between the Informal and Formal Sectors in Retailing: The Case of Santiago," *World Development*, 6(9/10), 1187-1198.
- Varcin, R. (2000), "Competition in the Informal Sector of the Economy: The Case of Market Traders in Turkey," *International Journal of Sociology and Social Policy*, 21 (3/4).

Mailing Address: Saumya Chakrabarti; Department of Economics and Politics, Visva-Bharati (University), Santiniketan-731235, West Bengal, India. E-mail: saumyavb72@yahoo.co.in.

Received June 17, 2008, Revised March 4, 2009, Accepted August 19, 2009.