Subcontracting and Economic Reforms in India with Special Reference to Agro-based Industries in India

Ajitava Raychaudhuri

Series Editors:
Aasha Kapur Mehta, Pradeep Sharma
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Table of Contents

1 Introduction 1

2 What is subcontracting? 3

3 Different Forms of Subcontracting 4

4 The Advantages of Subcontracting 6

5 The Disadvantages of a Subcontracting Relationship 9

6 Agro-Based Industries in India and Subcontracting 12

7 A Theoretical Model of Subcontracting for High Quality 14

8 Formulation of a Contract Law for Sub-Contracting, Based on the Theoretical Model 17

9 Complete and Incomplete Contracts 18

10 Alternative Remedy Measures 19

11 Damages in Case of Subcontracting 20

12 Conclusions 22
India embarked upon the path of economic liberalisation from 1991 onwards, although trade sector liberalisation started in the middle of the 1980s (Marjit and Raychaudhuri, 1997). One of the crucial aspects of economic liberalisation is freeing the industrial sector from the tyranny of industrial licensing for a majority of the industries. The issue of subcontracting arises in this context for two main reasons - one is that large-scale industries reap the benefits of a small permanent labour force through subcontracting, which helps them to adjust the fluctuating demand more easily (Raychaudhuri and Chatterjee, 1998). Secondly, subcontracting may also prove to be an opportunity for the small-scale sector to face global competition through their association with some large-scale industries, national or foreign. The agro-based industries play a special role in this since they have the unique feature of relating agriculture and industry simultaneously. On one hand, large groups of farmers may be involved and on the other, small-scale firms may be tying up with the large firms in a subcontracting relationship. This feature is absent for pure industrial goods. Thus, subcontracting relationships will have a crucial role for both industry and agriculture when the goods concerned are agro-based in nature.

Going back to the Eighth Five Year Plan document formulated way back in 1992, there was a suggestion that large private sector units should be allowed in the food processing industries since they can create the nucleus for the proliferation of small scale units around these plants (Eighth Five Year Plan, Volume-2). This clearly points to the inter-firm relationship envisaged in such a scenario. All Plan drafts starting from 1992, clearly speak of the urgent need for technology upgradation and quality improvement in the food processing sector, as otherwise, it is difficult for the sector to compete in international markets. In this context subcontracting is a mutually fruitful arrangement, for both the large and small-scale industries.

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The subcontracting relationships in many industries are informal arrangements with mutual trust and long-term associations as the major binding principle. However, with the onset of economic reforms and the subsequent spread of globalisation, formal arrangements are becoming increasingly important. This requires a good look at the contract law of India, which has its origins in 1872. Unfortunately, there is no specific law for subcontracting and subcontract is assumed to be a subset of general law of contract. However, subcontract involves more complications from the point of economic theory and as such it needs special clauses to be explicitly addressed in the contract law.

This paper will discuss the role of subcontracting in some of the major industries in India with implications for the agro-based industries, especially the food-processing industry. It will also discuss the law’s effectiveness in solving the moral hazard problems involved in case of subcontracts. The methodology used is basically borrowed from the industrial organisation literature as applied to the interface of law and economics.
Subcontracting is an inter-firm relationship, where a small firm is either producing different components, intermediate inputs and final output, or providing various assembling activities, post-selling services, etc. for the parent firm. The former class of firms is generally known as the subcontractors. At the time of placing orders, the parent firm usually mentions terms and conditions regarding the quality, special characters, designs, delivery time, financial specifications and other details. Often this outsourcing relation encompasses the risk-sharing arrangement, technology diffusion mechanism, distinctive subcontracting control, financial interdependency, etc. Though subcontracting mainly takes place among firms having unequal bargaining power, two firms, standing on the same bargaining platform may also enter into an outsourcing relationship. This is a long-term relationship rather than a myopic phenomenon. It is not always necessary to maintain the one-to-one correspondence in the subcontracting relationship. That is why it is quite natural for one parent firm to have a relation with a cluster of small subcontracting firms and a single subcontractor may have multiple clients.
The nature of the production process determines the form of subcontracting and also the extent to which the outsourcing relation develops in an industry. Subcontracting is usually possible in those industries, where the production process is divisible in different stages or the final product constitutes several components and sub-assembling activities.

On the basis of the parent firm’s behaviour, subcontracting can be classified into two broad categories. These are:

- Industrial subcontracting; and
- Commercial subcontracting.

These two broad categories can again be classified into several subcategories, which are discussed below:

**Industrial Subcontracting**

In industrial subcontracting, the parent firm purchases different components, intermediate inputs used in the final output production, or different types of assembling services from its subcontractors. The different forms of industrial subcontracting, are mentioned below:

(i) Component subcontracting;
(ii) Activity subcontracting; and
(iii) Assembling subcontracting.

Each sub-category is described in detail.

(i) Component subcontracting

Component subcontracting is the most common form of the outsourcing relationship, under which the nuclear firm purchases different components and intermediate inputs required for the completion of the final outputs from the cluster of subcontractors. Component subcontracting is often observed in the metal industry (Nagaraj, 1984). In this type of inter-firm relationship, the financial and technological support, quality, lay out, etc. are decided by the parent firms. Since in the market, the final products are sold under the nuclear firm’s brand name, the principal firm undertakes the marketing, post-selling services, and research and development activities.

(ii) Activity subcontracting

Activity subcontracting generally takes place in those production processes that can be separated. In activity subcontracting, the production method is divided into several stages. The inputs are transformed through a number of activities, some of which are undertaken by a cluster of subcontractors, since due to various technological reasons those distinct, separate activities cannot be carried out continuously in the same premises. The parent firm organises the whole production course and sells the final product under its own brand name. This type of subcontracting is usually observed in the Indian cotton industry (Nagaraj, 1984).

(iii) Assembling subcontracting

Assembling subcontracting is the service subcontracting, that is, the principal firm is purchasing different types of assembling services from its subcontractors (Nagaraj, 1984). Mainly the parent firm outsources highly labour-intensive assembling activities to the small firm, to those who have
access to the vast cheap and informal labour market. This
type of subcontracting is generally observed in the electri-
cal and electronic industries.

**Commercial Subcontracting**

Commercial subcontracting is developed on the basis of
the commercial interdependency between two business
units. In commercial subcontracting, the parent firm only
executes the marketing, advertising and distribution of the
product, produced by the subcontractors (Ramaswamy,
1999). In this type of inter-firm relationship, the mother
firm may not directly participate in the production pro-
cess. Subcontractors usually produce the final output on
the basis of the quality and design guidelines provided by
the parent firm. Product subcontracting is one type of
commercial subcontracting.

**Product subcontracting**

Under this sub-heading, the subcontractors produce the
final products individually; the parent firm only undertakes
the marketing and the advertising activities. This type of
subcontracting is usually observed in industries producing
consumer products and durable goods, like food, cloth-
ing, leather products and electronic appliances, metal prod-
ucts, etc. Agro-based industries, especially the food pro-
cessing industry falls in this category.

Apart from the above mentioned classifications, subcon-
tracting can be categorised from the relative position of
the firms along the production axis. These are:

- Horizontal subcontracting; and
- Vertical subcontracting.

In horizontal subcontracting, two interdependent firms
operate on the same horizontal stage of the vertical pro-
duction process. Vertical subcontracting occurs between
two firms, operating at different stages along the vertical
production axis. There are many advantages in developing
the subcontracting inter-firm relationship. It may be ob-
served that the specialisation subcontracting is vertical in
nature and capacity subcontracting is horizontal
(Ramaswamy, 1999).
Subcontracting and Economic Reforms in India with Special Reference to Agro-based Industries in India

In recent days, subcontracting or outsourcing is very often observed in different types of industry, including consumer durables, consumer non-durables and also in the capital goods sector. This section describes the principal reasons that encourage the evolution of the outsourcing relationship.

Specialisation

The basic theoretical reason behind the emergence of the outsourcing relationship, especially in the manufacturing industry, is the principle of division of labour and specialisation. In the case of the divisible production process, subcontracting may help substantially to achieve economies of scale. It has been observed that new-sprung industries are more likely to be vertically integrated, that is, they prefer in-house activities rather than outsourcing. Yet, as the demand for the product increases, the industries have a greater tendency to disintegrate the production process and to enter into a subcontracting relationship.

From the above discussion, it can be observed that the specialisation phenomenon is facilitated by this outsourcing relationship. Specialisation subcontracting is commonly observed in Japan and North America (Ramaswamy, 1999).

Labour Market Fragmentation

In most of the developing economies the labour market is often segregated into two components, having opposite characteristics - organised labour market and unorganised labour market. In the organised labour market, the workers are well paid, governed by long-term contracts, subject to government regulations and trade union pressure. On the other hand, workers in the unorganised labour market, are low paid. There is no job security, nor pressure of trade union and government regulations on the health and safety of the employees. The unorganised sector is completely outside government patronage.

This binary character of the labour market often encourages product subcontracting as well as employment subcontracting. The large unionised firms can utilise this vast informal labour market indirectly by giving the subcontract to a cluster of small firms, who have access to the unprotected labour supply at a cheap rate. The problem of the informal sector or the small firms is an insufficient supply of capital. The nuclear firm usually provides the technology and finance to the subcontractors. This outsourcing helps the principal firm to reduce its overhead costs and the bargaining power of the union. According to Deshpande (1997), the trade unions noticed that their bargaining power has a negative correlation with the availability of the outsourcing relation to the management. In fact, Ramaswamy (1999) has also mentioned that some unorganised, but high wage business units may increase profit by farming out certain labour-intensive peripheral activities. Subcontracting, emerging due to the fragmented nature of the labour market is seen in the Indian garment, shoe and electrical fan industries and in Japan.
Flexibility Relating to the Demand Uncertainty and Business Strategy

Today, many industries may face demand uncertainty due to cyclical and seasonal fluctuation. In such situations, a large firm may use outsourcing to expand its capacity without increasing its permanent and regular employment level and infrastructure. Here farming out is preferred to in-house activity, since in-house production increases the permanent costs even during recession.

The small peripheral firms are used as the buffer stock. In most cases, the relationships between the parent firm and the ancillaries are not equal. So the parent firm can easily transfer the burden of the market fluctuation to its peripheral firms by delaying payment or by refusing to take delivery of the goods or by postponing inspection of the material. Moreover, the workers of the unorganised sector are less unionised and have lower bargaining power compared to the large firms’ workforce. So during the recession period, it is easier to lay them off rather than the permanent employees of the nuclear firm. This type of subcontracting is used in the Indian garment and electrical industries.

Transaction Cost

According to Coase and Williamson, one important concern of the firm is to design the production process in such a way that transaction cost is minimised. The transaction cost is the cost relating to the transactional environment, which includes relation-specific assets and cost due to poor labour relations, etc. There are also other types of transaction costs. If the transaction cost related to in-house production is very high, then subcontracting can act as a device to reduce the high transaction costs (Kimura, 2001).

Usually infant industries, facing high contracting costs, prefer the vertically integrated production process, but once the industry matures and the products are standardised, the firm would like the outsourcing relation.

Long Term Relation on the Basis of Game Theory Approach

The subcontracting relationship can be explained by using the game theoretic approach. It can be shown that a long-term co-operative relation between a principal firm and subcontractors can be developed on the basis of the repeated game theory and reputation facet. So a successful farming-out relation can be formed if there is repeated interaction between principal firms and peripheral units in the long run (Kimura, 2001).

Information Approach

The theoretical foundation of the outsourcing relation can also be found in the economics of information approach. This approach is based on the contract theory, particularly the principal-agent model in which long-term relationships work for fostering efficient risk sharing arrangements under incomplete information (Kimura, 2001). The information approach describes the logic of saving monitoring costs, which partially explains why subcontracting is chosen instead of purchasing in the spot market.

Network Approach

The network approach advocates that the subcontracting relation is an intermediate organisation in which the market principal coexists. Under a particular economic environment, an outsourcing relationship with an efficient combination of competition and co-ordination is formed (Kimura, 2001). The network approach suggests that subcontracting, rather than vertical integration, is chosen when upstream production requires specialised technology or uses a particular productive factor such as specialised machines or unskilled labour in the secondary labour market.
State Policy

Sometimes different government policies encourage subcontracting relationships. In the case of the Indian economy, an outsourcing relationship can take full advantage of the dual state policies. There are two types of policies affecting the development of the farming-out relationship. One of them is the positive measure of promoting small-scale industries through product reservations, concessional credit for fixed and working capital and fiscal incentives. A large number of products are reserved exclusively for small-scale producers and large business units are not allowed to enter into those product lines. The small-scale sector is not subject to capacity licensing. Exemption from payment of excise tax has been the most attractive fiscal incentive for small firms. The value of this incentive scheme is found to be very high, as rates of duty vary from 15 percent to 105 percent.

The second strategy is the protective measure to restrict the growth of large business units. The MRTP Act (Monopolies and Restrictive Trade Practices Act), and FERA (Foreign Exchange Regulation Act) put restrictions on the expansion of large firms. The second policy forces the large firms with frozen capacities to outsource additional output. The first policy facilitates outsourcing by creating a small-scale sector capable of producing numerous intermediate and final products with simple technology. Small firms usually obtain the technology from their customer firms and equipment suppliers. So a subcontracting relationship gives them an opportunity to acquire technical skills and managerial capabilities (Ramaswamy, 1999).
The Disadvantages of a Subcontracting Relationship

Though the outsourcing relationship provides flexibility, diversification of risk and uncertainty regarding market demand, opportunities for reducing the labour cost and fixed overhead costs, this sort of relationship has some major disadvantages. Some of these adversely affect the principal firms; some others hit the interests of the subcontractors. The problems associated with the development of the outsourcing relation, can generally be classified into two broad categories -

1. Problems faced by the principal firms.
2. Problem faced by the cluster of ancillaries.

1. Problems Faced by the Principal Firms

The major difficulties faced by the parent business unit entering in an outsourcing relationship are:

- Deterioration of the product quality.
- Hindrances in the expansion of the scale of production.
- Failure in delivering the product within the stipulated time.
- High monitoring cost, avoidance of which leads to the moral hazard problem.

These problems, however, are interdependent. Each of them is discussed below.

Deterioration of the product quality

In recent decades, globalisation has put more stress on non-price competition - mainly on the upgradation of quality (Marjit and Raychaudhuri, 1997). It is often observed that this farming-out relationship leads to poor quality of final output (Raychaudhuri and Chatterjee, 1998). In the case of vertical subcontracting, the disintegration of the production process and poor quality goods and services, at the initial stages, leads to deterioration in the quality of the product at the final stages. On the other hand, horizontal subcontracting often gives rise to a heterogeneous package of final output with a high degree of variability in quality.

Though the above discussion establishes the fact that outsourcing could result in quality degradation, recent studies point out that entrepreneurial myopic vision, rather than the farming-out relation, aggravates the problem (Raychaudhuri and Chatterjee, 1998; Banerjee, 1988). This type of problem is commonly observed in the garment and electrical industries of West Bengal.

Hindrances in the expansion of the scale of production

As the outsourcing activities give the chance to expand output without augmenting the production infrastructure and employment level, sometimes the inter-firm relationships restrict the expansion of the scale of production.
In many situations, though expansion of production leads to scale economy, the large business units may continue to outsource the products to avoid volatility in their own production due to market uncertainty. This leads to the inefficient use of factor inputs.

**Failure in delivering the product within the stipulated time**

As the intermediate inputs (in case of vertical subcontracting) and final outputs (in case of commercial subcontracting), are physically manufactured by the cluster of ancillaries, delivery time turns out to be a crucial variable. If the supply of any one intermediate input is delayed, then the completion of the final outputs is also delayed, which may have a negative impact on the principal firm’s reputation.

**High monitoring cost, avoidance of which leads to moral hazard problem**

As subcontracting activities are executed outside the premises of the principal unit, direct monitoring of the production process is not possible. Quite often subcontractors do not undertake proper quality control measures, which has a negative impact on the quality of the final output. Though sometimes piloting or quality checking is done by the parent firm, it does not completely overcome the moral hazard problem. It can only reduce the intensity. For example, in West Bengal’s electric fan industry, subcontractors do the painting of electrical parts. Though the mother firm provides the expensive paint, finance etc., the subcontractors often keep aside a part of the expensive input. This affects the quality of the product. At the time of quality checking, this deviation cannot be detected, but in the long run it reduces the longevity of the goods (Banerjee, 1988).

2. **Problems Faced by the Cluster of Ancillaries (or the Subcontractors)**

Not only the principal firm, but the ancillaries also face some disadvantages in a subcontracting relationship. The most common problems suffered by the peripheral firms are listed below:

- Exploitation of the subcontractors.
- Uncertainty.
- Uneven risk sharing.

These difficulties are explained below.

**Exploitation of the subcontractors**

As the core firm and the peripheral firms are standing on unequal bargaining pedestals, the exploitation of the weaker party is quite possible. In fact, one of the economic foundations of the development of this inter-firm relationship is the dual fragmentation of the labour market. As the informal sector, consisting a group of small firms, has access to the large, cheap and unorganised labour market, the large business houses often show an interest in entering into an outsourcing relation to utilise this low-cost working force. There is a huge wage difference between the employees of formal and informal sectors. As the workers in the informal sector are not unionised, they are often jobless during the recession period.

This might lead to generation of little or no surplus in the informal sector, resulting in no investment for the upgradation of the existing technology. The whole cluster of subcontractors is confined to a low technology and low quality vicious circle. This type of problem mainly occurs in developing countries, like India (Banerjee, 1988).

**Uncertainty**

A group of the subcontracting firms is usually clustered around a single nuclear firm. In this case, rejection of products by the mother firm leaves them with practically no option to dispose off their products. This uncertainty is reduced to some extent, if the ancillary has more than one client.

**Uneven risk sharing**

One of the basic reasons behind the evolution of the outsourcing relationship is the diversification of the risk portfolio, emerging out of market uncertainty. Yet, as the bargaining power of the small and large firms differs,
The risk sharing is also uneven, tilted more towards the small firms. So, any type of market shock affects the subcontractors first. Though the complementary association provides the basis of the outsourcing relation, the knowledge level, technological upgradation or the availability of the financial capital are different for the principal firm and the subcontractor firms. Often the principal firm rejects the product lot. In such a situation, the subcontractors have to bear the total loss. This type of exploitation can be reduced if the subcontractor has multiple clients. If the subcontractors recognise their collective bargaining strength, they can negotiate with the parent firms. But in the presence of huge unemployment, there remains a possibility that anybody can undercut the cooperation (Banerjee, 1988).
Subcontracting in the agro-based industries in India did not develop as fast as some other industries. This is fairly consistent with some other countries like Japan where, in the 1990s, less than 15 percent of agro-based industries went for subcontracting (Kimura, 2001). However, in India, there are tremendous possibilities for developing important subcontracting relationships in the burgeoning agro-based industries, especially in the food-processing industries segment. The following data, taken from indiainfoline (http://www.indiainfoline.com) database, gives a comprehensive view of agro-based industries in India.

- India is among the world’s major producers of food, producing over 600 million tonnes of food products every year.
- India’s share in international food trade is a minuscule 1.5 percent. Value addition to foods by processing is a mere 8 percent of the total production.
- A majority of the food units are occupied in primary processing. The production base of secondary and tertiary processed foods is low, resulting in low value addition.
- The Ministry of Food Processing estimates the size of the processed food industry at Rs. 1,440 billion. Unorganised, small players (processing less than 0.5 tons per day) process more than 75 percent of the industry output in terms of volume and 50 percent in terms of value.
- The processed food industry ranks fifth in size in the country representing 6.3 percent of the GDP, accounts for 13 percent of the country’s exports and involves 6 percent of total industrial investment in the country.
- The industry employs 1.6 million workers, who constitute 18 percent of the country’s industrial labour force.
- Processed food exports were Rs 48.95 billion (US$ 1.04 billion) in 2000-01, registering a 23 percent decline over the previous year.
- There are very few large Indian food brands with an established global presence. Most exports are in bulk form and branding is minimal.
- The packaged foods industry, consisting of semi-processed and ready-to-eat packaged food is estimated to be close to Rs 40 billion, and is growing at a fast pace.
- Since liberalisation in August 1991, upto December 2000, 6,427 proposals for projects of over Rs. 538 billion (US$ 11.4 billion) have been received from various segments of the food and agro-processing industry. Besides this, the government has also approved

6

Agro-Based Industries in India and Subcontracting
1135 proposals for joint ventures; foreign collaboration, industrial licenses and 100 percent export oriented units envisaging an investment of Rs 194 billion (US $ 4.1 billion).

- Foreign investment in the sector has been comparatively more encouraging with 24 percent of the proposed projects implemented. Total foreign investment up to December 2000 in the Food Processing sector has been Rs 26 billion.

Apart from the above facts, one may note the following as revealed by the Five-Year Plan drafts of the Planning Commission of India:

- India is now the largest producer of milk.
- India is the second largest producer of fruits and vegetables.
- In India, only 2 percent of fruits and vegetables are processed as opposed to 80 percent in Brazil, 80 percent in Philippines, 83 percent in Malaysia and 30 percent in Thailand.
- In 1996, only 35 percent of installed capacity was utilised in the food-processing industry, mainly due to a narrow product base, technological obsolescence, high cost and poor quality of raw materials.
- The bakery sector is the largest sector of the processed food industry, although in 1996, per capita consumption of bread in India was 1.4 kilograms a year compared to 25 kilograms in USA.
- In 1996, the food processing industry contributed 19 percent of the industrial GDP, but got only 5.2 percent of total industrial investment.

- The major impediments in the expansion of the food processing industry are lack of good quality and hygienic raw materials, poor technology, low investment and absence of large industries.

The above description makes it clear that among the agro-based industries, the food-processing industry has a huge potential for development. Subcontracting in food-processing industries can be successful provided large firms enter this sector and develop a cluster of small firms around them. The small firms are in a better position to get the raw materials from the farmers and bring them to the production location. This saves transaction costs in terms of distance, time and monitoring. Some large firms in India have started production through a network of small firms. Mention may be made of ITC Agro, Dabur, Hindustan Lever and Nestle. The first one has entered the processed wheat, ready-to-eat meals and bakery segments, while Dabur has entered the processed fruit drink segment. Hindustan Lever has captured a large part of the jam and jelly segment of the Indian market. Nestle is doing good business in pasta and sauce products.

In order for the subcontracting relationship to succeed in the food-processing segment, one must have a clear idea about two aspects of subcontracting, namely:

1. Theoretical underpinning of having a successful subcontracting relationship; and

2. The need to incorporate changes in the existing laws of contract to accommodate subcontracting.
A Theoretical Model of Subcontracting for High Quality

The following is a model applicable to a new processed food introduced under monopoly. Although some modifications are needed to fit it in the monopolistic competition models, which may be prevalent for some food products, the essence of the story does not change. Chatterjee and Raychaudhuri (2000) originally proposed this type of a model.

The Model

In this model we try to find whether it is possible for the parent monopoly large firm to maintain the quality level of the final product in the industry with subcontracting. We assume that a monopolist is bringing a new product into the market and that the product is a non-durable processed food commodity. The production process is subdivided into two stages. Subcontracting small firms undertake the first stage of the production process. In the second stage, the monopolist finishes the product and supplies it to the market.

It is assumed that quality level of the final product is determined by the quality of the unfinished product supplied by the subcontractors to the monopolist. The monopolist only finishes the product and supplies it to the market. The contractor can supply a high or low quality product.

In this paper, we assume that the monopolist has no information about the product quality served by the subcontractors, thus the quality level of the final product is also unknown to him. In this case we consider that there are two periods. The consumers can infer about the quality of the product at the end of the first period. In the second period, the product quality is common knowledge. The product becomes obsolete at the end of the second period. We assume that in the first period, consumers form an expectation about the quality of the product supplied by the monopolist and this expectation is formed exogenously (Metrick and Zeckhauser, 1996). Given these assumptions, we try to find the incentives scheme, which will induce the agent firms to produce a high quality product, whereby the monopolist can continue to exist in the market in the second period.

We assume that a monopolist is facing a continuum of consumers with the index of willingness to pay defined by the variable θ, where θ is distributed uniformly over the range \([θ, \bar{θ}]\) with unit density. We define ‘q’ as the quality level of the final product, where ‘q’ can assume two different values \(q_h\) and \(q_l\) where \(q_h > q_l\). It is assumed that a representative consumer considers that the quality of the product is high with probability \(μ\). This probability is independent of firm’s pricing decision that is, \(μ\) is exogenously given. In the first period the consumer expects that a firm will supply quality level \(\overline{q}\) where

\[
\overline{q} = μq_h + (1-μ) q_l \quad q_h > q_l \quad 1
\]

It is assumed that consumers will infer about the quality
perfectly at the end of the first period and they will purchase the product again if the quality is high, that is, \( q = q_h \). It is assumed that the product becomes obsolete at the end of the second period. The utility function of an individual is defined as
\[
u = \theta q - p \quad \text{if consumer purchases one unit of product with quality } q \quad \text{and price } p \\
= 0 \quad \text{otherwise}\]

Assume \( p_1 \) and \( p_2 \) be the prices charged by the monopolist in periods 1 and 2 respectively and \( x_1 \) and \( x_2 \) are the corresponding demands.

Thus \( x_1 = \frac{\theta - p_1}{q} \) and \( x_2 = \frac{\theta - p_2}{q_h} \) for \( q = q_h \) in previous and current period and \( x_2 = 0 \) otherwise.

In this case the subcontractor undertakes the first stage of production of each unit of output and the quality level is determined at this stage of production. However, the monopolist cannot observe the quality level supplied by the subcontractor. In the second stage of production, the monopolist finishes the product and supplies it to the market. Let \( c' \) be the monopolist’s per unit finishing cost of the product. It is assumed that \( c' \) is constant and independent of the level of output and quality level of the product. It is assumed that there are a large number of identical competitive contractors and each can produce one unit of output in a particular period. Each subcontractor maximises the present value of his two periods’ incomes. Let \( \pi' \) be the income that a contractor in each period gets from his alternative source of employment. If he works under the monopolist, he earns income \( r_1 \) per unit of output in the first period. If he produces high quality goods his unit cost of production is \( c_h \) and if he produces low quality product, his unit cost of production is \( c_l \) where \( c_h > c_l \). If the subcontractor produces a high quality product in the first period only then does the monopolist give the contract to the subcontractor again. The subcontractor will supply the product and receive \( r_2 \) in the second period. In the second period, quality is common knowledge. Given \( r_2 \) and \( p_1 \), the monopolist determines \( p_2 \) and \( p_2 \) is equal to full information monopoly price.

However, if quality supplied at the initial period is poor, the monopolist faces zero demand in the second period. Thus, the monopolist’s profit when high quality is supplied in the first period is given as
\[
\pi = (p_1 - c - r_1) \left( \frac{\theta - p_1}{q} \right) + \delta (p_2 - c - r_2) \left( \frac{\theta - p_2}{q_h} \right)
\]

In this case the monopolist is dealing with a large number of identical agents. It is a two-period model. So he cannot employ new agents in the second period, because the new agent will supply a low quality product. There are two reasons for this situation. Firstly there is no future and secondly the monopolist cannot observe the quality level served

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1 If a contractor firm takes quality decision in each period then in the last period, that is, in the second period he will obviously cheat, as there is no future.
by the contracting firms. For this reason the monopolist faces a sales constraint in the second period. The size of the second period demand must be equal to the size of the first period demand as in this case, the size of demand is equal to the number of agents employed. Thus, while determining the product’s price, the monopolist faces the additional constraint that the size of demand in both periods must be equal.

After solving the profit maximisation of the monopolist subject to IR and IC constraints, the maximum profit of the monopolist is given as,

$$
\pi = \frac{\left( \delta (q + \delta q_b) - (c_1 + \delta) - (r_1 + \delta r_2) \right)^2}{4(q + \delta q_b)}
$$

In this case incentive compatibility constraint is not binding. In this two-period framework, due to imperfect information, the monopolist will employ the same set of agents in both periods. So, to induce them to produce a high quality product for both periods, the monopolist has to offer an excessively high value of $r_2$ which is more than enough to induce agent firms to produce a high quality product. So we have,

$$
r_2 > \left\{ \left( \frac{\pi + c_h}{\delta} \right) + \frac{c_h - c_1}{\delta} \right\}
$$

Given this restriction on $r_2$ any combinations of $(r_1, r_2)$ can be chosen by the monopolist, which will satisfy reservation constraint as equality. Due to imperfect information, with a large number of agents, the monopolist is facing a sales constraint in the second period and that is leading to excessive payment in the second period.

However, the monopoly large firm will sign a contract with the promise of such a high payment in the second period, provided it is the best option for him too. As shown above, the stylised scheme discussed above leaves no other option for the monopolist. Hence, we conclude that when the monopolist’s future profit depends on the level of quality served in the initial period, the monopolist will find an incentive scheme for which an agent will actually supply the high quality product. The major implication is that the second period’s price per unit of product supplied by the agent should be announced higher than the minimum required to induce the agents to supply the high quality product.
Formulation of a Contract Law for Subcontracting, Based on the Theoretical Model

Indian Contract Law was originally formulated in 1872, and is still the core law, which governs the contract between two parties doing lawful business between them. The process of subcontracting is of more recent origin and there is no separate set of laws for subcontracting. The Contract Law is meant to address the problems of subcontracting as well. However, the Indian Contract Law is not comprehensive enough to tackle the problems mentioned in the theoretical section mentioned above. Let us first summarise the main sections of the Indian Contract Law, 1872 (taken from the internet site www.saarcnet.com):

1. A contract is an enforceable agreement, where a person accepts a proposal to perform an act (designated as promisee) at the desire of another person (designated as promisor) (Preamble of Indian Contract Act).

2. For the purpose of a contract, all agreements are contracts if they are made by the free consent of parties competent to contract, for a lawful consideration and with a lawful object, and are not expressly declared void (Chapter II of Indian Contract Act).

3. The term Fraud is defined in the following way in the Indian Contract Act (Chapter II, section 17):
   (a) The active concealment of a fact by one having knowledge or belief of the fact;
   (b) A promise made without intention of permitting it;
   (c) Any other act fitted to deceive; and
   (d) Any such act or omission as the law specially declares to be fraudulent.

4. A contract is called “contingent contract” if the contract is dependent on the happening of some collateral event. Such contracts cannot be enforced by law unless and until that event occurs. If the event becomes impossible, such contracts become void (Indian Contract Act, Chapter III).

5. On the performance obligations, the Indian Contract Act clearly states that parties to the contract must either perform, or offer to perform unless excused by the law (Indian Contract Act, Chapter IV).

6. Chapter VI of the Indian Contract Act deals with the question of breach of contract. Let us quote two relevant sections from the Act:

   Section 73 - “When a contract has been broken, the party who suffers by such breach is entitled to receive, from the party who has broken the contract, compensation for any loss or damage caused to him thereby, which naturally arose in the usual course of things from such a breach, or which the parties knew, when they made the contract, to be likely to result from the breach of it”.

   Section 74 - “When a contract has been broken, if a sum is named in the contract as the amount to be paid in case of such breach, or if the contract contains any other stipulation by way of penalty, the party complaining of the breach is entitled, whether or not actual damage or loss is proved to have been caused thereby, to receive from the party who has broken contract, reasonable compensation not exceeding the amount so named or, as the case may be, the penalty stipulated for”.


The above contract law for India can only be understood in the present context if one clearly brings out the distinction between complete and incomplete contracts. According to Shavell (2003), “A contract will be said to be completely specified (or simply complete) if the list of conditions on which the actions are based is completely exhaustive, that is, if the contract provides literally for each and every possible condition in some relevant universe of conditions” (Shavell, Chapter 13, p.1). The Indian Contract Law is an incomplete contract when it comes to cases of subcontracting. We will discuss specific reasons later, from the theoretical model detailed out earlier.

Shavell next defines the concept of a mutually beneficial contract: “A contract is said to be mutually beneficial or, in the language of economics, Pareto Efficient, if the contract cannot be modified so as to raise the well-being – the expected utility – of each of the parties to it” (Shavell, Chapter 13, p.2).

The next important question is the desirability of enforcement of contracts. Shavell quite rightly mentions the two most important reasons for such enforcement, namely “A party might not deliver the promised good or perform the promised service….If there is failure to perform even though performance would be best, because its value exceeds its true cost, then the value of the contractual arrangement is diminished for the parties. Such reductions in the value of contracts can be avoided if contracts are enforced” (Shavell, Chapter 13, p.5). The other reason is that “without enforcement, the price cannot be fixed in advance, which is to say, a price hold up might occur – a party might bargain opportunistically about the price of a transaction – reducing the value of the contract or discouraging the making of it altogether” (Shavell, Chapter 13, p.5).

**Theoretical Dimensions of Breach of Contract**

The Indian Contract Act does talk about breach of contract and the resulting need of compensation to the aggrieved party. However, the Act does not specify in clear detail the possible theoretical dimensions of damages to be paid when a breach of contract occurs. A complete contract should also specify the rules or formulae to pay for damages. In such case the damage is sometimes referred to as liquidated damage, since this is intended to terminate all the legal obligations of the party in breach (Shavell, Chapter 13, p.9). It is clear that when it comes to subcontracting, due to the asymmetric nature of information, the contracts are not complete and as such the rules are also not exhaustively specified.

When contracts are incomplete, what could be the best measure of damage, so as to provide maximum incentives to the party who might suffer? This requires knowledge about different theoretical measures (which are supported by economic theory) of damage as discussed in the context of contract law.
**Alternative Remedy Measures**

**Expectation Damages**
Cooter and Ulen (2000) define expectation damages as follows: “Damages for breach of contract compensate the promisee for the injury caused by the non-performing promisor”. The promisee is supposed to gain from the contract. Common Law tradition brands this as “expectation damage”. Thus, the expected performance of the promisor is crucial in guaranteeing the gain of the promisee. In our example, the promisor is the subcontracted unit, on whose expected performance the parent unit earns profit from the transaction.

**Reliance Damages**
The promisee may invest in reliance on the promise of the promisor. Thus, breach of contract makes all the investment made by the investor based upon this reliance irrelevant. Thus, common law tradition calls damages paid due to this kind of breach as “reliance damage”. This damage really amounts to the difference in gain between making the contract and no contract (Cooter and Ulen, 2000). In our example, this amounts to the extra gain or profit that the parent firm could have made had it relied on the performance of the subcontracted unit.

**Opportunity Cost Damages**
Making a contract with the promisee excludes the promisee from entering into a contract with another party. The loss of gain due to the lost opportunity should be compensated in case the promisee breaches the contract. Such damages are called “opportunity cost damages” (Cooter and Ulen, 2000). Cooter and Ullen (2000) have shown, when the court can measure damages perfectly, expectation damages ✓ opportunity costs damages ✓ reliance damages. Expectation damage is greater than opportunity cost damage, since the contractor firm must have chosen the best available option in the first place. The expectation damage is greater than reliance damage, since there must be some possibility of gain in the contract over no contract, so the contract was signed. It is easy to see why the opportunity cost damage then will exceed reliance damage, since some contract is always better than no contract in terms of gain in profit. However, if the court can measure damages imperfectly, reliance damage can exceed expectation damage too. This can happen when the investor has his reputation at stake, which is essentially subjective in nature, based on the reliance he had placed on the subcontractor. If the court does not recognise this subjective damage then the reliance damage will exceed the court-settled expectation damage.
Among the cases of subcontracting, the most important for our purposes is industrial and product subcontracting. This may be any one of the types we have mentioned, namely component, activity, assembly or product subcontracting. Here, the thorny issue is the imperfect or asymmetric knowledge about the quality supplied by the subcontracted units to the parent firm. This problem will obviously be more acute in case of food-processing, or agro-based industries, since there are three parties involved in the process. The subcontracted units or the parent firms procure the raw materials from the farmers and then the subcontractors produce their output. Hence, there has to be multi-stage quality checking. In case such checks are not satisfactory at any stage, the whole process gets upset. It is assumed in the kind of models we have discussed that the initial quality of inputs used by subcontractors is good. In other words, parent firms may be producing the agricultural crops on their own farms or the farmers are planting and sowing according to pre-specifications. The problem starts with the subcontractors. Now there are two options with the producers - to have quality checks every time and for every unit or to have some incentive schemes, which will induce the subcontractors to produce the best. The last option is definitely more cost effective and time saving.

In the theoretical model discussed above, there is no role of the legal system. However, as explained earlier, Indian Contract Law is not very informative when asymmetric information is the basis of a contract as in case of subcontracting. The alternative concepts of damages clarify the issues much better when the contracts are not complete (always true when information is incomplete). Let us see which type of damages can be written in a formal contract between the principal firm and the subcontracted agent. Since the model is of two periods, in case of bad quality supplied by the subcontracted unit, the monopolist loses his profit of the second period. From equation 3 in the model, the damage to be paid by the subcontractors to the monopolist should be the lost profit in the second period. And this is, by the solution of the model, should be more than the alternative income of each subcontractor. Thus the expectation damage, when the court has knowledge about costs and prices, but not the quality should be:

\[ D_e = \text{expectation damage} = \text{Equal share of the lost profit of the principal firm,} \]

where lost profit incorporates the high rates of prices declared by the monopolist for the subcontractors.

In this case, since all subcontractors are assumed to be alike, the expectation damage and opportunity cost damage will be the same. What about reliance damage? In case the contractor had breached the contract, the parent firm would have lost its reputation as well as customers in the second period. Thus, the damage is lost profit of the parent firm in the second period. So the reliance damage would be again equal to the expectation damage.

The crux of the damage measure is that it is calculated on the basis of incentive compatibility non-binding high prices. Hence in this example, in case of a perfect damage reward, the court should award the same amount of damage under all the alternative definitions. The asymmetry of information about quality requires damage to be computed not only on differential gain, but also on
opportunity income of the subcontractors. However, in case of imperfect damage (under incomplete contract), expectation damage may be less than reliance damage as the court may not go by incentive compatibility non-binding prices and may look only into reservation constraint prices.

The problem can be made more complicated if one brings in the case of risk. There, attitudes towards the risk will be crucial and the model has to be recast in terms of expectations. This poses additional problems. The important point which must be stressed is that it is not uncertainty which is the key to the calculation of damage measure, it is the asymmetry of information about quality, which creates the problem. It is only the subcontractor who has the sole knowledge about quality of inputs supplied. Neither the parent firm nor the court knows the true quality, since the good has to be consumed to understand its true quality. The purpose of the contract is to do what the incentive mechanism is supposed to do. It acts as a proxy for the actions of the principal firm, which satisfies the incentive compatibility of the subcontractors and ensures high quality on its part. The existing contract law should thus be suitably modified to specify damages in case of incomplete contracts in cases of subcontracting.
India is undergoing a rapid phase of liberalisation and economic reforms. The industrial sector is facing new challenges and within this agro-based industries have tremendous potential since the latter have not been exploited properly. One of the major characteristics of the Indian industrial production scenario is the prevalence of subcontracting, which has flourished for several reasons. One is to avoid the burden of fixed overhead costs and the other is to avoid the risk of labour trouble and fluctuating demand. Since the agro-based industries, especially the food-processing sector might flourish under a similar type of subcontract system, the paper looks into the problem of moral hazards associated with subcontracting in general. The main outcome of the moral hazard problem is its adverse impact on the quality of the products, which starts from production to delivery and after sales services. This raises the issue of what could be done to solve the problem. In this context, a preliminary exercise is done regarding how the Indian Contract Act may be suitably enlarged and modified to tackle the question of moral hazard associated with the process of subcontracting.
References


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Economic reform in India. Economic reforms, which have been based on market liberalization and a larger role for private enterprise. Why the POST-1990 reforms? Economic reform in India. Macro-economic stabilization would provide a sound foundation for medium and reforms although overlaps exist with agro-economic policies in our discussion. For an annual overview of structural reforms carried out in India, see Government of India Economic Survey for the relevant year (latest available being 2002-03).

Financial sector reforms were initiated on the basis of two reports by the Narasimham. To get the answer of: What Sort of Economic Reforms have been introduced in Indian Agriculture? Before 1991, markets and price mechanism were not the policymakers’ tool. On the other hand, governments, both at the Centre and at the States, were serious in intervening markets for agricultural commodities and inputs. Here we will present the types of economic reforms that have been introduced in Indian agriculture. Agricultural reform policies may be related to foreign trade as industrial and trade policies hurt the agricultural sector. Restrictions and controls were in the form of. Here one finds declining growth rates in major agri-business exports from India. Despite level-playing field given to all players, few countries control most of the world markets.