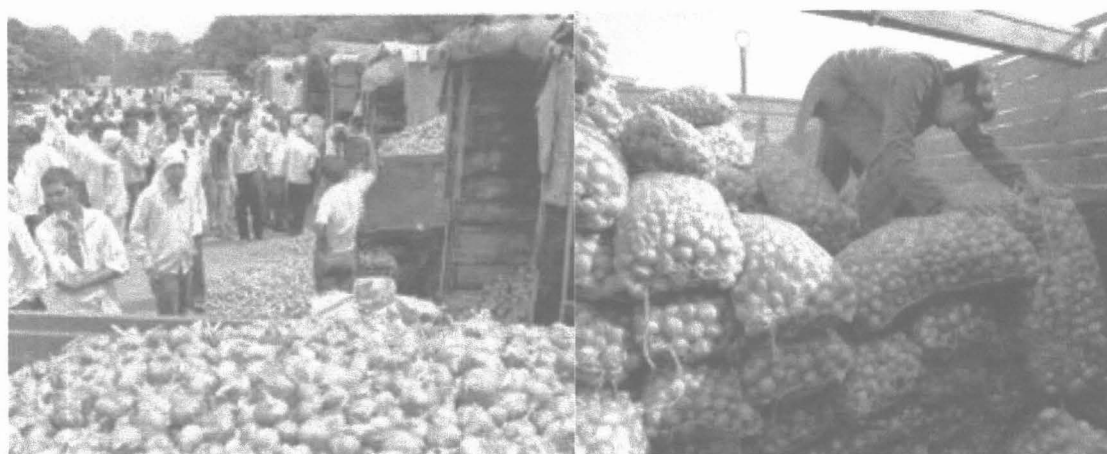


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Study on Competitive Assessment of Onion Markets in India: A Case of Maharashtra

**S.S. Kalamkar,
Sangeeta Shroff
Vikas Dimble**



Gokhale Institute of Politics and Economics
(Deemed to be University)
Pune – 411 004, Maharashtra

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Foreword

Agricultural marketing in India is handled both by private trade as well as government intervention though major part of the agricultural produce is handled by private traders. In order to improve the marketing system of farm products, wholesale agricultural produce markets began to be regulated in the 1950s and 1960s, when each state began implementing its Agricultural Produce Marketing Committee (APMC) Act. The APMCs were established in each state by the respective state governments with a view to regulate the marketing of agricultural produce in market areas. Despite several advantages that regulated markets had, there still existed several limitations. A number of regulated markets could not function efficiently owing to collusion among traders in bidding low prices. There was similar collusion in the lack of prompt action by the Market Committee against breach of rules by any trader. Also, at times the proportion of village sales was so large that it made the operation of the APMC Act ineffective in providing fair price to the producer. There was often congestion in the market yard and farmers had to wait for long to dispose off their produce. The regulated markets also led to the monopolization of trade by way of granting licenses to intermediaries which barricade the entry of new functionaries. Keeping this in mind, a study on Onion crop was sponsored by Competition Commission of India, New Delhi to Institute of Social Economic Change (ISEC), Bangalore. We were commissioned by the Institute of Social Economic Change (ISEC), Bangalore to conduct a part of research project related to Maharashtra. The key objective of the study was to have a comprehensive view of the agricultural marketing in India and Maharashtra with specific focus on onion markets.

The study clearly reveals that there are both intra seasonal as well as inter seasonal fluctuations in prices of onions. Onion is also a perishable commodity and while kharif onion has low keeping quality, rabi crop can be stored for four to six months. A large part of the area in Maharashtra is cultivated in the kharif season and is rainfed. Hence production of the crop is subject to weather and rainfall conditions which also impact prices and cause fluctuations which are sometimes quite severe. Onion marketing is mainly conducted in APMCs through auction method. However, in urban APMCs such as Pune and Mumbai (Vashi), sales often take place through negotiations between traders. The supply chain in onion trade includes a few intermediaries. Traders revealed that it is mostly the retailers who charge higher prices than warranted to the consumers. There is no regulation on prices charged by retailers and at times their rates are exorbitant, especially when the produce is in short supply. The findings of the study will be useful to academicians and policy makers.

I thank S.S. Kalamkar and Sangeeta Shroff of our Institute for undertaking the part of the study jointly with ISEC, Bangalore

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Agro-Economic Research Centre
Gokhale Institute of Politics and Economics
(Deemed to be a University)
Pune – 411 004

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Gokhale Institute of Politics and Economics
(Deemed to be University)
Pune – 411 004

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List of Abbreviations

APMC	-	Agricultural Produce Marketing Committee
ASMO	-	Area Sown More than Once
Av.	-	Average
FCI	-	Food Corporation of India
GCA	-	Gross Cropped Area
GDP	-	Gross Domestic Product
GIA	-	Gross Irrigated Area
GIS	-	Geographical Information System
GOI	-	Government of India
GOM	-	Government of Maharashtra
ha	-	hectare
HYV	-	High Yielding Variety
IMG	-	Inter-Ministerial Group
Kg.	-	Kilo gram
mha	-	Million hectares
MSAMB	-	Maharashtra State Agricultural marketing Board
mt	-	Metric tonnes
NABARD	-	National Bank for Agriculture and Rural Development
NAFED	-	National Agricultural Cooperative Marketing Federation
NCA	-	Net Cropped Area
NHB	-	National Horticulture Board
NHM	-	National Horticulture Mission
NIA	-	Net Irrigated Area
NSA	-	Net Sown Area
PPP	-	Public Private Partnership
Prod	-	Production
Prodvtv	-	Productivity (kg/ha)
Qtls.	-	Quintals
SAP		Structural Adjustment Programmes
SD	-	Standard Deviation

Chapter 1

Introduction

1.1 Background :

Indian agriculture has set new milestones in its progress. Since independence, major strides have been made in production of food grains, not only due to increase in area but also due to technology. As a result the food grain production increased from 50.82 million tonnes in 1950-51 to about 250.42 million tonnes in 2011-12 (GOI, 2012). After self sufficiency in food grains was met, the policy makers realized the need for diversification of agriculture to achieve higher growth rates as well as to adjust to the changing consumption pattern of the population which was experiencing urbanization and rising per capita incomes. Thus dairy, horticulture, poultry and other allied sectors were given impetus and are being promoted through various policy measures. India now ranks first in the world in milk production, second in fruits and vegetables and third in production of eggs (GOI, 2011). This increased production has brought in its wake new challenges to handle in terms of huge marketable surplus. Thus while increasing productivity and production in the agriculture and allied sector have always been the focus of Indian agriculture, attention is now being drawn on building up an efficient marketing system which includes adequate physical facilities for safe and economic handling of produce as well as institutional and legal support for orderly transactions. In the traditional agricultural value chain, bulk of trade in agricultural commodities takes place in the wholesale markets which are managed by Agricultural Produce Market Committees (APMC). Commission agents in these wholesale markets organize auctions on behalf of the farmers so as to sell the produce to the highest bidder. The intended aim of the commission agent is to enable farmers to get highest possible price and the farmer can directly witness the auction of his produce. Further, the commission agents also ensure that accurate and timely payment is made to farmers, so that transactions are in order. Marketing of agricultural produce also serves as a link between the farm sector on one hand and other sectors on the other hand. An efficient marketing system helps in the optimization of resource use, output management, increase in farm

incomes, widening of markets, growth of agro-based industry, addition to national income through value addition and employment creation (Acharya, 2006).

The spurt in food inflation in the recent months has brought back into focus the critical issues of price volatility in agricultural commodities, agricultural market structures and market efficiency. Increasing focus on these issues is clearly evident in recent working papers of the Finance Ministry¹, Finance Minister's Suomoto statement on inflation in Lok Sabha on 22nd November 2011 and in the first position paper by inter-ministerial group (IMG) on inflation. In his statement in Lok Sabha, Finance Minister stated-, "A durable solution to inflation in an economy with rising income levels lies in improving agricultural productivity, *strengthening food supply chains* and"(Ministry of Finance) in the same speech, he went on to express 'an urgent need' to amend and enforce Agricultural Produce Marketing Act and other steps to improve agriculture market structure. The position paper by IMG stated, "The gap between farm gate price and retail price is exceedingly high in India. We clearly need policy measures to bring this down" (P.3), and expressed need of changing APMC act.

Regular price fluctuations - "day-to-day" or "normal volatility" - is both typical and requisite for competitive market functioning. However the high price variability in the case of primary products affects both producers as well as consumers through a spillover effect to the other sectors, thereby leading to high inflation in the economy. The prices of the agricultural commodities are normally more volatile than those of the non-farm commodities due to biological nature of production, low price and income elasticity of demand and risk in production due to exogenous shocks from weather. Such high volatility of prices in agricultural commodities can have a disproportional impact on the economies that endure exceptional shocks, and that impacts are nonlinear, typically being asymmetric. This arises because governments and households are well-adapted to normal volatility but neither anticipates nor considers making worthwhile provisions against extreme shocks, and assign low probability to the risk of such events. However the high inflation of food commodities cannot always be attributed to risks, exogenous shocks and mismatch of demand and supply –it can also be

¹ Basu (2011) and Dasgupta, *et al* (2011)

caused by market inefficiencies, weak supply chains and monopolies in the market. The recent price spikes in some instance could not be explained fully by the fundamentals of demand-supply and that underscores the need to delve into the agro-market structures and identify the real causes of price volatility in agricultural commodities.

Against this backdrop and given that market structure, degree of competition and efficiency at the various levels of the supply chain has impact on the final prices paid by the end consumers with respect to agriculture products, the study proposes to examine the competitiveness in the onion markets in India. Irrational speculative driven bubbles and hoardings by trader lobbies have sometimes been blamed for episodes of high price volatility in India, but with no clear implications in terms of which possible policies could effectively prevent repetition of such crisis. This study aims to fill such gap in case of onion markets.

1.2 Agricultural Marketing in India:

Agricultural marketing in India has grown in historical sense, mainly through State regulations than market signals. This was necessitated as the existing mechanism was more truncated against the sellers and favoured unhealthy practices. The hierarchical society and the production relations were clearly reflected in the existing distortions in the market. The history of regulated markets in India can be traced back to the Hyderabad Residency Order of 1886, which brought Cotton under regulation for marketing. This was followed by the Cotton and Grain Market Act enacted in Berar region of the then Nizam State. The Indian Central Cotton Committee recommended to enact the Cotton Markets Act of 1927. Followed by this, the Royal Commission on Agriculture of 1928 strongly recommended the establishment of regulated markets in the country. A few provinces in British India enacted the Regulated Markets Act and thus by the time of independence, about 250 regulated markets existed in different parts of the country. All these initiatives were directed more towards commercial crop markets and in relatively better-off regions.

It was during the First plan period that the Planning Commission had directed the State governments to bring agricultural marketing under specifically enacted Regulated Market Act (called as Agricultural Produce Marketing Act)

which most of the states complied with, though slowly. The problems of marketing failures were highlighted and it was expected that the legal framework would take care of the following problems:

- Undercover Sale
- Removal of large samples
- Unwarranted trade allowances
- Heavy market charges
- Unauthorised deductions
- Incorrect weighing and multiple units of measurement
- Absence of grading
- Presence of touts

These problems compounded the market imperfections and therefore, a series of steps were taken to deal with these. In view of these problems, agricultural marketing-after independence in India has been undergoing brisk changes over the last five decades.

The Regulated Market Acts enacted by various State governments incorporated a well-designed legal framework to deal with these issues. These changes can be classified in four broad groups, namely:

- a. Introduction of Agricultural Marketing Institutions in India;
- b. Creation of Marketing Infrastructure;
- c. Co-operative Marketing as an alternative to protect weaker participants in the market, and
- d. Emergence of the Regulated Market Act and subsequent modifications in that.

It is quite clear that these changes occurred due to the prevailing circumstances and the on-going reorganisation in the agricultural sector during these early decades. Four components predominated the policy interventions viz.: (i) Putting in place regulation of marketing functions and removing imperfections; (ii) Creating infrastructure to facilitate the process of marketing; (iii) Introduction of Price intervention schemes; (iv) Procurement and distribution of essential commodities. All these measures were operating simultaneously and therefore had a cumulative effect on marketing sector.

The current structure of agriculture produce marketing in India consists of a mix of public and private sectors. Barring direct intervention by the government in some commodities, marketing in most others is dominated by the private sector. According to some sources, the quantity of agricultural produce handled by government agencies has not been more than 10 percent of the total value of marketed surplus. Another 10 percent of the marketed surplus is handled by the cooperatives. Thus, rest of the 80 percent marketed surplus comes in the ambit of private trade. As large part of agricultural produce is marketed through private trade, there are a number of functionaries operating in different activities of marketing of various commodities. Apart from wholesalers and retailers, processors enter the market as bulk buyers and sellers. In the case of fruits and vegetables, only 2 percent of total production is processed and rest 98 percent is traded as fresh farm products in the fruit and vegetable markets. However, Indian food policy and agricultural commodity trade till the early 1990s was based on government interventions to protect consumer and producer interests through regulation of markets, limitation of private stocking, restricted movement of food grains, prohibition of private sector in the international trade of food grains and the dominance of large government parastals like FCI, NAFED, etc.

In the aftermath of structural adjustment programmes (SAP), liberalization of other sectors of the economy raised reservations about government regulations of several spheres of agricultural sector. It was felt that the APMC act has become obsolete and no longer serves its purpose. The regulated markets mainly created a privileged group of licensed traders who blocked entry of new players thus defeating the aim of competition and inhibiting private investment to benefit marketing. A Model Market Act 2003 was passed to reform the market by allowing more competition and encouraging innovative methods to evolve. Private cooperatives, direct marketing and contract farming were to be promoted to bring the producers closer to the processors and the consumers. A system of warehouse receipts that supported grain storage was introduced and the Forward Market Act 1952 was amended in 2007 to allow futures trading in cereals.

Owing to a widening of the production base of the agricultural sector, the market orientation of the farm sector has considerably increased. However, these institutional reforms have not been successful in terms of coverage over the whole

of India. Market imperfections continue to operate in most of the areas where an agricultural breakthrough has not taken place. In the backward regions markets continue to be dominated by the trader - cum- moneylender nexus. Due to the lack of market infrastructure, the marketing system is highly inadequate and consequently the system continues to be non-competitive and dominated by monopolistic interests. Till date, the most common method of sales of agricultural commodities has remained through regulated markets. However, with amendments in APMC, a number of corporates are entering into the retail segment especially with respect to fruits and vegetables. They provide crop specific and soil specific advisory services to farmers, to build brand loyalty, enhance quality of produce and thus increase farm production. They also cater to export markets.

1.3 The Economics of Competitive Markets and Market Failure:

1.3.1 Perfect Competition:

The degree to which a market or industry can be described as competitive depends in part on how many suppliers are seeking the demand of consumers and the ease with which new businesses can enter and exit a particular market in the long run. The spectrum of competition ranges from highly competitive markets where there are many sellers-buyers, each of whom has little or no control over the market price - to a situation of pure monopoly where a market or an industry is dominated by one single supplier who enjoys considerable discretion in setting prices, unless subject to some form of direct regulation by the government.

In many sectors of the economy markets are best described by the term oligopoly - where a few players dominate the majority of the market and the industry is highly concentrated. In a duopoly two firms dominate the market although there may be many smaller players in the industry.

Competitive markets operate on the basis of a number of assumptions. When these assumptions are dropped - we move into the world of imperfect competition. The assumptions behind a perfectly competitive market are (i) many suppliers and buyers, each with an insignificant share of the market ; (ii) an identical output produced by each firm; (ii) Consumers have perfect information

about the prices all sellers in the market charge; (iv) all firms (industry participants and new entrants) are assumed to have equal access to resources ; (v) there are assumed to be no barriers to entry & exit of firms in long run; and (vi) no externalities in production and consumption so that there is no divergence between private and social costs and benefits.

1.3.2 Market Failures and Need of Regulations:

The world is just coming out of the biggest recession since the great depression; the Euro-zone crisis has significantly deepened in last few months and can lead to recession in Europe; and the emerging countries are facing severe inflation. The current time appears to be the most appropriate time to discuss market failures and need of government regulations. Today “almost everyone says that there is a need for regulation-or at least more than there was before the crisis” (Stiglitz, 2011, P.12). Having said this; even today, the subject of market regulation, remains one of the most contentious², Its critics argue that “regulations interfere with the efficiency of the market”, and the advocates argue that “well designed regulations not only make market more efficient but also help ensure that market outcomes are more equitable” (Stiglitz, 2008, P.1).

The case of “free-market” fundamentalism is not new to us; the history of economic thought in the twentieth century is full of “free-market” theories and thoughts (known as classical economics). If one goes by the analogy of Nobel Laurite Prof. Paul Krugmen then the history of economic thoughts in twentieth century is “a bit like the history of Christianity in the sixteenth century” (Krugman). Until John Maynard Keynes published ‘The General Theory of Employment, Interest and Money in 1936, economics at least in the English speaking world- “was completely dominated by free market orthodoxy; where heresies/variation would vocationally pop up, but they were always suppressed” (Krugman, 2008). Classical Economics, wrote Keynes in 1936, “conquered England as completely as the Holy Inquisition conquered Spain.” And classical economics said that the answer to almost all problems was to let the forces of supply and demand do their job.

² See Stiglitz (2008, 2011).

But this classical economics offered neither explanations nor solutions for the Great Depression of 1930s. And in such scenario- Keynes played the important role³, providing the intellectual rigor needed to make heresy respectable. His theory said the free market could not be counted on to provide full employment and way out of recession- and this theory then created a new rationale for large scale government intervention in economy.

But in the 1960's- once again, the climate of opinion in almost all the "western-world" turned decisively against the "Keynesianism". In United States, its acceptance had always been contentious and less enthusiastic- but the stagflation of the late 1960's followed by two oil shocks insured that the Keynesian ideas would almost be completely thrown out of the economic policy making. This was the era when "free-market" fundamentalism reestablished itself with establishment of the "neo-classical" dominance on economic policy making in western world and Latin America.

1.3.3 Why market fails? How it should be regulated?

Markets fail to produce efficient outcomes for a variety of reasons that economists have explored over the last twenty-five years. Markets are plagued by problems of information asymmetries, and there are incentives for market participants both to exploit and to increase these information asymmetries. Even when markets are efficient, they may fail to produce socially desirable outcomes. The wealthy and powerful may "exploit" others in an "efficient" way: the gains to one are offset by the losses to others, and in traditional economic parlance, so long as that is the case, markets are efficient. No one can be made better off without making someone else worse off. But such outcomes are socially unjust, and unacceptable. Governments impose regulations to prevent such exploitation and to pursue a number of other social goals.

Only under certain ideal circumstances may individuals, acting on their own, obtain "pareto efficient" outcomes, that is, situations in which no one can be made better off without making another worse off. These individuals involved must be rational and well informed, and must operate in competitive marketplaces that

³ Role of Martin Luther if consider the analogy of Paul Krugman (New York Times, 2008).

encompass a full range of insurance and credit markets. In the absence of these ideal circumstances, there exist government interventions that can potentially increase societal efficiency and/or equity.

Some of the major elements of these interventions are by now well accepted: antitrust laws, to prevent the creation of monopoly power and/or its abuse; consumer protection legislation, designed especially to address potential problems of exploitation arising from information asymmetries; and regulations to ensure the safety and soundness of the banking system, which are made necessary by systemic externalities (spillover effects of economic transactions affecting many people who were not parties to the transactions) that can arise when a “systemically” important institution fails, or is allowed to fail.

By its nature, a regulation restricts an individual or firm from doing what it otherwise would have done. Those whose behavior is so restricted may complain about, say, their loss of profits and potential adverse effects on innovation. But the purpose of government intervention is to address potential consequences that go beyond the parties directly involved, in situations in which private profit is not a good measure of social impact. Appropriate regulation may even advance welfare-enhancing innovations.

The design of regulatory structures and systems has to take into account:

- a) Asymmetries of information, since the regulator is often at an informational disadvantage relative to the regulated;
- b) Moral hazard, since there are often problems in ensuring that a regulator's behavior is consistent with social welfare (for example, that he/she is not beholden to those whom he/she is supposed to be regulating); and
- c) Human fallibility, since mistakes are inevitable, and we need to minimize the costs of such mistakes.

Well-designed regulations take into account the limitations of implementation and enforcement. While no regulatory system is perfect, economies with well-designed regulations can perform far better than those with inadequate regulation. Regulations can both enhance markets and protect those who might otherwise suffer in unregulated markets.

1.3.4 Market and the State- Perspectives from Literature:

Sizeable amount of work in development economics literature has been devoted to the debate on the role of State as against the role of market as a catalytic institution in the aggregate development process. The debate began with the early theories of economic development, where it was argued that failure of allocation of investment to the deserving developmental sectors created structural imbalances in the process of development. A group of theoreticians blamed it on the failure of the state whereas; a few others held market responsible for that. One common understanding, however, which emerged in this debate was that the role of the state as against that of the market had to be pursued differently in the context of developing and developed world (Chenery and Srinivasan, 1989).

Recently, again, the debate came alive in the context of the process of liberalization, where it is argued that the role of the State should be minimised over time so as the market forces create a proper atmosphere for economic growth. It is currently believed that rational and most desirable resource allocation takes place through the market forces. We find a strong rejection of these views also. An inherent assumption of this argument is that the structure as well as quality of growth will be automatically taken care of, moreover, the aggregate process will help in correcting the distribution parameters. In view of this new thinking in the context of developing countries, it is essential to look into the basic tenets of the role of State and that of the market in the process of development in India. Anne Krueger (1990: p 22) while arguing on the platform of the symposium on the State and Economic Development concluded that "At a general level there are innumerable questions as to how political and economic markets interact. At more mundane levels, there are endless opportunities for research, analysing the functioning of alternative policies and institutions, documenting and hopefully quantifying policy interventions, the response to them, and their evolution over time." But at the same time we find a strong opposition to this view emerging not only from the Indian academic field but vehemently supported by well-known development economists. In the words of Byres (1997), "The current orthodoxy, to the effect that 'rolling back the State' and the full blooded operations of markets are appropriate to India's problems, lacks historical warrant and intellectual

justification" (1997: p 37). This signifies that the scene of argument is not very clear in the minds of development economists, especially speaking in the context of India, viz., Pranab Bardhan, Terence Byres, Amit Bhaduri, Mrinal Datta Choudhury, Arvind Pangaria etc.

After the Second World War and with the emergence of strong socialist block, the role of State in the policy making in the developing countries became very strong. This was intense in the case of democratic countries and the countries that had achieved freedom during that period. The role of State was envisioned, as a body fully aware of the welfare needs of its constituents (Boeninger, 1991, p.268). This amorphous institution was visualised through a collective group of individuals representing various strata in the society. Therefore, it was quite natural to expect that these groups would have full knowledge about the welfare of the society at large and thus, the decisions taken by them would be welfare enhancing for the society. Under this assumption, the process of 'Statisation' became very strong during the late 40s and was consolidated during the following decades. Till the mid-seventies, this process had concretised in the socialist countries as well as in the countries that were favourably placed with socialistic ideas.

However, the failure of the State came to light when the bureaucratisation increased substantially in some of the countries and controls took an enormous form, creating huge transaction costs. In India, controls in terms of Government planning on one hand, and the myopic view of the peoples' representatives on the other, directed the State policies. As a result, the State policies lacked a long-term consistent directions and the belief that all sectors and sub-sectors of the economy could be manoeuvred through plan allocations.

Most of these directions were derived from the bodies, which were outside the country, and at times operated from the precincts of favourite themes of the people who mattered. The private sector initiatives in the process were curbed through controls and licenses. This helped consolidate the State's power but finally provided an undue advantage to the bureaucrats representing the State. Different levels and parts of the Government were poorly coordinating among themselves and that caused poor reading of the initial signals of failures. The controls also created lobbying, corruption and unproductive investment with full

support from the State bureaucracy. The limitations of the State came to the fore during the early eighties and these were strongly put forward by various authors during that period. As Pranab Bardhan (1990:Pp 3) puts it, "The literature in development economics has now turned full circle from the unquestioning dirigisme of the early 1950s to the gory neoclassical accounts in recent years of the failures and disasters of regulatory, interventionist states". The forces of development were formulated in such a way that even in the mixed economies the market operations were strongly influenced through the State policies (Regulated Market Act, Movement of Commodities, price dictations in factor and product markets, etc.).

1.3.5 Systemic View and Failure Paradigm:

In a systemic approach the State is visualised as the provider of basic public goods (merit goods) and organizes the production process through incentives and allocations while operating through monetary and fiscal policies. Thus, coordination becomes an underlined function of the state. But the failure of such coordination due to the emergence of transaction costs and rent-seeking attitude of the polity and bureaucracy together have undermined rather distorted the image of the State. More often, the distortions are recognised as the functional failures on the part of the State or the quality of the State. If the role of the state has to be defined clearly it comes out fewer than six important categories cross-classified in terms of the functions of the state (see, Table 1.1). Two broad aspects of the functions of the state pertain to its addressing to market failure and to the distribution parameters, keeping in view its role as a welfare State.

These two broad aspects are cross-classified with three levels of function from a view point of intensity, viz., minimal, intermediary and activist functions of the state. In this framework, the question does not remain to be state or market as the major or leading catalyst but the debate reflects itself in Ostrom's and Walker's framework of neither of the two playing leading role in a long term perspective.

The problems of the State intervention can be listed in the best possible manner under following categories:

- Individuals may know better about their requirement and preferences and state fails in aggregating such behaviour.

- State planning may increase the aggregate risk of failure by pointing every policy in the same direction. State may make bigger mistakes with little chance for on-line corrections.
- State centralised planning may be more rigid, inflexible and location non-specific.
- The institutions indicate incapability in administering a detailed plan.
- State may curb private sector's initiative through bureaucratic procedures.
- Organisations and individuals require incentives to work, innovate, control and allocate efficiently.
- Rewards or shocks of market cannot be replicated under the State control.
- Different levels and parts of State usually coordinate poorly. Lack of correcting signals and structural information mars the results of the interventions.
- Controls create lobbying, corruption, unproductive activities.
- Vested interests of bureaucrats, industrialists and rich can manipulate State planning,
- Whereas rural planning may intensify and consolidate the power of interest groups.

Table 1.1: Role of the State

Minimal Functions	Addressing Market Failure		Improving Equity	
	Providing Pure Public Goods Defence Law and Order Macro Economic Management Property Rights Public Health		Protecting the poor Anti-Poverty Programmes Disaster Relief	
Intermediate Functions	Addressing Externalities	Regulating Monopoly	Overcoming Imperfect Information	Providing Social Insurance
	Basic Education, Market Infrastructure	Regulations for Control of imperfections Anti-thrust Policy	Market Information, Insurance, (Health, Life, Pensions), Financial Regulations, Consumer Protection	Pensions, family Allowances, Unemployment Insurance
Activist Functions	Coordinating Coordinating/Regulating Private Activities Markets and Addressing market Imperfections Cikuster initiatives			Redistributive Redistributive for Assets and Access to Resource

Source: Based on World Bank Development Economics Conference (1991) and Journal of Economic Perspective (1990).

Market, on the other hand, is usually visualised as an alternative institution that optimises the welfare function of the stake-holders through price mechanism. Behind the free market ideology, often, Adam Smith's famous quotation is given, viz., '*market having profit motives drive the economy to an efficient solution as if achieved with an invisible hand*'. It is strongly believed that markets as an invisible hand operates the economic forces augmenting welfare of all the players. The Pareto optimality in arriving at the optimal aggregate gains by optimising welfare of all the stakeholders became the theme behind market fundamentalism. It is argued that the interests of the stakeholders crisscross each other to iron out the inefficiencies in the transactions and thereby the profits will be optimally distributed in proportion to the efforts of the individual members in the production process. Many challenged this view in no uncertain terms. Prof Stiglitz wrote very recently, "The rhetoric of market fundamentalism asserts that privatisation will reduce what economists call the 'rent-seeking' activity of government officials who either skim-off the profits of government enterprises or award contracts and jobs to their friends. But in contrast to what it was supposed to do, privatisation has made matters so much worse that in many countries today privatisation is jokingly referred to as 'briberization'. If a government is corrupt, there is little evidence that privatisation will solve the problem" (2002: Pp 55).

Markets thus have palpable problems and especially so in a country which has inadequate infrastructure. Inequalities in terms of non-players provide wrong signals emerging out of the market and such signals end up in either monopolistic or oligopolistic behaviour in the market. The market failures are usually not insured and thus the institutions are governed largely by the State bureaucracy, which remain inflexible thereby obtaining the worst out of the two domains of market and the State. The major reasons for failure of markets are listed hereunder:

- Externalities in terms of non-players are involved in the market but usually not highlighted.
- Market condition is usually Oligopolistic or Monopolistic.
- Increasing returns to scale operate in the market institutions. The larger the share, the larger is the control of the market forces. Thus big fishes dominate.

- There is hardly any insurance of market failures. – Future markets are far from being perfect.
- Market adjustments may move slowly and institutions largely remain inflexible.
- Information regarding the product and prices etc. is always imperfect and does not reach the stakeholder without some time -lag. This time -lag provides the best scope for manipulation.
- Individuals may not necessarily act to maximize anything explicitly.
- Government taxation is unavoidable and may affect the efficiency of the market.

In the context of the above arguments, it is essential to revisit the questions in a more pragmatic manner, specifically in the context of individual policy interventions. Indian state cannot be called as one among the strong states. Moreover, the kind of infrastructure that we have at our disposal surely does not permit the markets to function at the optimal efficiency level. No doubt, market-oriented policies and demand driven planning may have added advantages in the present context of liberalisation, privatisation, globalisation and good governance but the limitations imposed by market operators and operands are not easily surmountable and hence, in this context, it becomes essential to view market as an institution guided both by the price signals and the State policies. After a detailed analysis of South Asian economies, Mrinal Datta-Chaudhuri warns that *“Market failures present serious obstacles to the growth process of a backward economy”* (1990, p.37). The failure of markets to protect the welfare of producers stems largely from the inadequacy of the infrastructure as well as the huge market margins and the participation of the stakeholders.

With this background, an attempt is made in the present study to probe the above questions using field survey data collected from six APMCs in Maharashtra.

1.4 Brief Review of Literature:

In this section, a brief review of literature on studies related to production cost, prices, marketing costs and margins of onion is attempted.

While identify factors influencing onion prices and quantify their influence by using secondary data for a period of 15 years (1978-79 to 1992-93), Kulkarni and Basargekar (1997) observed that onion prices witness a good seasonality, which is larger in prices prevailing in producing markets than in overall all onion prices. The authors opinioned that the acreage under onion is influenced by prices prevailing in the previous two years, while the export quantity is influences by domestic prices and domestic production. The onion prices themselves are influenced by the production in the previous year, exported quantity in the previous and export price in the current year. The author suggested that the construction of proper storage facilities at the village level and encouraging farmers to store their produce during peak season by offering them credit facilities is necessary to safeguard the interests of farmers from heavy seasonal fall in prices.

Elenchezhian and Kombairaju (2003) compared the marketing efficiency of farmers' Market with central vegetable market by collecting data from 90 farmers from three farmers' market in Madurai city. Major vegetables viz. brinjal, bhendi, tomato and small onion were considered for detailed analysis. They noted that two marketing channels existed in the markets for selected commodities, i.e. first starts from farmers and ends with consumers, while another starts with farmers flows through commission agent, wholesaler cum retailer, retailer and finally the ultimate consumer. The farmer's share in consumer rupee was as high as 95 percent in channel I for small onion, while it was very low in Channel II (55 percent). The marketing efficiency was higher in channel I with 16.02 percent for onion as compared to 2.44 percent in channel II. Thus, marketing efficiency in farmer market was higher than central market. Authors concluded that Farmers Market helped in increased farmer's share in consumer's rupee and providing fresh vegetables to consumers at relatively low prices.

While studying the marketed surplus and marketing cost of vegetables in Uttaranchal, Kumar and Arora (2003) observed that there was 93.01 percent marketed surplus in case of onion. The important components of marketing cost of

vegetables were packing costs, transportation and commission charges. The commission was an important component in almost all the vegetables. Improper weighing practices, lack of market information, delay in sale process, delay in payment and lack of effective market regulations were important problems noticed in the selected area.

Murthy and Subrahmanyam (2003) studied the impact of arrivals on prices of onions and observed that there was negative and significant relationship between them indicating that an increase in the prices of onion would reduce the supply of onion to the market and vice versa.

Indra and Velan (2004) studied the marketing of onion in Dindigul district of Tamil Nadu and observed that major share of marketing expenses is the commission charges of commission agents forming 10 percent of value of auction. The authors suggested that the commission agents charges should be reduced by the commission agents to a reasonable level. Also onion grower may group together to form association or cooperatives which can help the storage of excess production and marketing of onion by avoiding dependence on wholesaler and commission agents. They also suggested that onion may be notified in regulated markets of Tamil Nadu and necessary services should be provided to fetch more arrivals in market.

Perumal and Mohan (2004) studied the onion production and market arrivals in Dindigul onion market of Tamil Nadu and observed that imposition of five percent cess on onion in the Madurai and Dindigul markets have created price disparity. Therefore, traders and farmers have demanded that the government should remove cess from onions and ensure price stabilization.

Shroff, Sangeeta (2004) studied the price spread and marketing costs of onions in the markets of Lasalgaon and Pune of Maharashtra state. Author observed that marketing of onions takes place in regulated markets through auction method and the farmer sell it to the wholesalers through the commission agent. The marketing channel observed in the selected market was Farmer, Commission Agent, Wholesaler, Retailer and Consumer. The producer's share in consumer rupee was 45.33 percent in Lasalgaon and 41.88 percent in Pune market. Thus, the share of the farmer in the retail price was less than half the retail price, the balance being accounted by marketing costs and margins. All

farmers responded that although transport to APMC is easily available and loading and unloading is done timely, the transport charges are very high. The study suggests reduction in the length of the marketing channel and also encouragement of cooperative marketing so that farmers can benefit from scale economies.

Verma, et al. (2004) studied the price spread, marketing efficiency and constraints in marketing of onion in indore district of Madhya Pradesh and observed that producer received the maximum share of consumer's rupee in channel I (97.33 percent, Producer- Consumer), followed by channel II (72.00 percent, Producer- Retailer-Consumer) and channel III (58.12 percent, Producer-Wholesaler-Retailer-Consumer). The highest share obtained in channel I due to no intermediary. Thus intervention of market intermediaries has reduced the producer's share in consumer's rupee. The coefficient of correlation between monthly arrivals and prices of onion were mostly positively correlated during the year 1999-2000 to 2001-02. While same were negatively correlated during the year 1996-97 to 1998-99. The prices of onion not only vary year to year but also months of same year. The prices were low in the month of April followed by May. Non availability of adequate storage facilities of onion was the main problem expressed by 88.75 percent of the sample farmers, followed by price fluctuations (73.75 per cent). The problem of collusion (secret agreement) between commission agents and the buyers (outside traders) during the auction was also reported by 35 percent of the sample farmers. Problem of higher market charges was reported by 68.75 percent of total sample farmers followed by delay in payment (37.5 percent) and cheating in weighing by the traders (30 percent). About 72.5 percent farmers felt that there is need for temporary storage facilities in the market because sometimes farm produce could not be sold on the same day due to low price or lack of adequate number of buyers in the market. Authors suggest for constriction of storages at village level and firm onion export policy.

Goyal (2008) studied the growth and instability in revised export marketing of onion during 1985 to 2004 and observed that onion production has increased at 4 percent per annum. The revealed comparative advantage ratio of r export in onion was above unity in all the years under study which implies that India has

comparative advantage in onion export. However comparative advantage may not be in price terms due to high delivery cost.

Malaisamy, *et al.*, (2008) studied economic analysis of supply chain management and marketing efficiency of fruits and vegetables in Tamil Nadu and observed that in case of onion, two marketing channels prevailed in Dindigul, Oddanchatram and Trichy markets. In the first channel, producer, commission agents, wholesalers, retailers and consumers participated in the process of marketing. However, producer, commission agent, retailers and consumers participated in the second marketing channels. They observed that farmer's share in consumer's rupee was varied between 60.1 to 75.5 percent. It was found to be higher in Channel II in all the three markets compared to Channel I. This is because of the fact that there is direct purchase of onion by the retailers from the commission agents. They also noted that this type of marketing channel was not common and more than 70 percent of onion is marketed through wholesaler to retailer facilitated by commission agent. Thus, commission agent plays a major role in marketing of onion in three selected markets. Authors suggested that as stored onion fetches better prices, storage facilities should be provided to the farmers.

A study on organized retailing of fresh fruits and vegetables was conducted by Rasheed *et al.*, (2010) and others in a vegetable growing cluster in Hyderabad. The study observed that producers benefit in terms of better price realization in case of sales to organized retail as compared to *mandi*. The farmers also saved on marketing costs, especially commission charges. Further in case of sales to organized retail there was digital weighing system, which did not exist in the *mandi*. The *mandi* also lacked basic infrastructure such as storage facilities, parking and clean drinking water. However, the study noted that while the *mandi* purchased all the produce brought by the farmers, the purchases by retailers was very limited and hence all farmers could not benefit from the better marketing operations of organized retailers. Finally it was pointed out in the study that some organized retailers also provided inputs and technical advice to farmers.

While studying the impact of emerging marketing channel in agricultural Marketing in Maharashtra, Shorff, *et. al* (2011) observed that although the farmers in the sample received Rs 711/- per quintal, they had to incur marketing costs of

Rs 74.94/- per quintal and hence their net price after deducting marketing costs was Rs 636.06/- per quintal. The farmers sold to wholesalers who incurred marketing costs and margins of Rs 445.05/- per quintal. There was also wastage of onions during the time taken to transport the produce from the APMC to the retail outlets. The sale price of the onion retailer was Rs 1437.65 /- per quintal. Finally, it was observed that the share of the farmer in the retailer's price under traditional marketing channel was 44.24 percent, while marketing costs as a percentage of retailer's price was 44.25 and marketing margins as percentage of retailer's price was 11.05 percent.

After noting the findings of the above mentioned studies, In the present study on 'Competitive Assessment of Onion Markets in India: A Case of Maharashtra', an attempt has been made to observe the trends in production, arrivals, prices and export of onion, different role of various market intermediaries and transaction points in onion marketing by using secondary data as well as properly designed sample survey data collected from six APMCs of Maharashtra. The key objective of the study was to have a comprehensive view of the agricultural marketing in India and Maharashtra with specific focus on onion markets.

1.5 Objectives:

While the major objective of the study is to bring out the causes of fluctuations and difference between prices of onion, the specific objectives of the study are:

- a) Study Macro/micro data on onion with supporting time series statistics on production, yield, area under cultivation and other indicators for last forty years.
- b) Study the trend in production, prices, output and demand of onion.
- c) Study the market structure; that includes-(i) Various market players, and nature of market at each stage of the supply chain of onion, (ii)Details such as regulatory framework for the market, types of market participants, role of each market participants and their relationship, number of primary mandis, number of transaction points etc.

- d) **Competition Assessment of Onion Markets;** that included-(i) a quantitative analysis on price-output and cost relationship in the selected markets, (ii) Comparative analysis of competition and efficiency in regulated and unregulated mandis (iii) Analyze the causes of difference between the wholesale and retail prices of onion, (iv) The supply chain of onion from producer to consumer in selected Markets.
- e) Provide policy initiatives and recommendations, based on the findings of the study.

1.6 Data and Methodology:

The study has been carried out mainly utilizing the field survey data collected from six APMCs of Maharashtra. However, secondary level data have also been used to find out the trends in production, arrivals, prices and export of onion in Maharashtra as well as in the country.

The secondary level data has been used to find out the historical and recent trends of onion production, area under onion cultivation and yield of the onion in India, the same has also been used to find the major onion markets in India- seasonality of onion arrivals and prices in the major markets, and wholesale and retail prices of the onion in these markets. The secondary data has been gathered from websites of international organizations such as Food and Agriculture Organization (FAO), International Food Policy Research Institute (IFPRI) and World Bank- websites of Ministries and Departments such as Ministry of Agriculture, Ministry of Finance, Agricultural Marketing Departments of different States and websites of different research institutes such like NAFED, NHRDF etc. Furthermore the secondary data has also been collected through visiting agriculture and agriculture statistic departments of Maharashtra.

The primary survey has been used to find out structure of onion markets and conduct of major players in onion markets, it has also been used in assessing the competitiveness of onion markets in India. The primary survey is carried out in six largest AMPC markets (mandis) in Maharashtra, i.e. Lasalgaon/Pimpalgaon Basant, Yeola, Sangamner, Ahmednagar, Pune and Mumbai (Vashi). Primary survey is carried out with a structured questionnaire for farmers and market intermediaries.

The market functionaries interviewed-

- Farmers
- Commission Agents
- Wholesalers
- Retailers
- Consumers
- Market Committee Members/APMC Secretary
- Marketing Cooperatives (VEFCO, Lasalgaon)
- Traders Associations- a) Nasik District Onion Traders Association
b) Onion & Potato Traders Association, Mumbai.

The six APMCs were selected from four largest onion markets in two largest onion producing districts of the State, in addition with two largest urban markets, i.e. Pune and Mumbai (Vashi). The sample size for the survey of APMCs, farmers, market intermediaries, retailer and consumer is as follows:

Place	APMC	Farmer	Commission Agent and Wholesaler			Retailer	Consumer
			Commission Agent	Wholesaler	Total		
Ahmednagar	1	25	17	3	20	10	10
Sangamner	1	25	4	6	10	10	10
Yeola	1	25	4	6	10	10	10
Lasalgaon/ Pimpalgaon Basant ⁴	1	25	9	11	20	10	10
Mumbai (Vashi)	1	15	18	2	20	10	10
Pune	1	15	15	5	20	10	10
Total	7	130	67	33	100	60	60

A focus group discussion with the Committee members of APMC, Cooperative Marketing Institutions and Traders Associations was also held in order to get a clear picture of market charges, market practices, etc.

⁴ Lasalgaon and Pimpalgaon APMC are located very close to each other and therefore both markets were considered as one market while collection of primary data. However, secondary data is collected and presented for both markets separately.

Tabulation of the data is carried out by using simple statistical tools to observe the share of farmer in terminal price. The post harvest losses, market practices and constraints faced are also observed using field level data.

1.7 Limitations of the Study:

The main limitation of the study is that as per the study design, it was not possible to get adequate numbers of farmers, commission agents and wholesalers in some of the markets. Secondly, most of the commission agents and wholesaler were not willing to share their transaction/purchase and sale related information. The data on top ten commission agents and wholesalers as per transactions/ purchase and sale was not made available by most of the APMCs. The selection of retailer and consumer is based on the visit and willingness of the particular person to answer the questions, and thus has some limitations. The data collected from the farmers and market intermediaries is based on their memories and thus, has some limitations. In view of sample size, data constraints, the findings of the study cannot be generalized.

1.8 Organization of the Report:

Chapter 1 is the introductory chapter, followed by Chapter 2 which explains the state of agricultural marketing in Maharashtra. In Chapter 3, the analysis of production, export and import of onion in India and Maharashtra is presented. The socio-economic profile of selected area and selected samples is discussed in Chapter 4. In Chapter 5, analysis of primary data is presented. The policy implications are presented in Chapter 6.

State of Agricultural Marketing in Maharashtra

2.1 Introduction:

The process of liberalization relaxed all the control on the market and market-led commercialization was allowed to operate freely. The agricultural markets have never been favorable to the farmers and often the traders and traders-lobby dominated the market enterprises. As a result, even though the wholesale price index shows a small growth rate, the actual prices received by the farmers is far below the indications given by the wholesale prices. Market imperfections are not only relative in the product market but have also spread in the factor market. All this leads to the farmers and consumers being at the receiving end in the process of marketing. We hypothesize that the market forces and infrastructure in current situation has a role in imperfect outcomes for the farmers on the one hand and the consumers on the other.

Agricultural marketing in India is handled both by private trade as well as government intervention though major part of the agricultural produce is handled by private traders. The objectives and form of government intervention however change over time with the intention of protecting the interest of producers and consumers. A number of government organizations such as Food Corporation of India (FCI) are involved in agricultural marketing mainly to procure food grains at minimum support prices from producers and maintain a public distribution system. Similarly government corporations also exist for other crops such as cotton and jute. Further, there are also specialized marketing boards for rubber, coffee, tea, tobacco, etc. and a network of cooperatives at the local, state and national level. The National Agriculture Cooperative Marketing Federation (NAFED) of India handles domestic as well as export marketing for its member organizations. The Directorate of Marketing and Inspection (DMI) under Ministry of Agriculture, Government of India, is responsible for administering federal statutes concerned with marketing of agricultural produce. In order to improve the marketing system of farm products, wholesale agricultural produce markets began to be regulated in the 1950s and 1960s, when each state began

implementing its Agricultural Produce Marketing Committee (APMC) Act. The APMCs were established in each state by the respective state governments with a view to regulate the marketing of agricultural produce in market areas. The regulation of markets had several positive features such as sale through auction method, reliable weighing, standardized market charges, payment of cash to farmers without undue deductions, dispute settlement mechanism, and reduction in physical losses of produce and availability of several amenities in market yards.

Despite several advantages that regulated markets had, there still existed several limitations. A number of regulated markets could not function efficiently owing to collusion among traders in bidding low prices. There was similar collusion in the lack of prompt action by the Market Committee against breach of rules by any trader. The Market Committees for all practical purposes were dominated by traders' interest. Also, at times the proportion of village sales was so large that it made the operation of the APMC Act ineffective in providing fair price to the producer. In some regulated markets, there was no elected Market Committee, nor a market yard of the Committee where produce could arrive and auctions take place. Sales often took place in the shop of the commission agent without any supervision.

Further, the market fee collected by the APMC was barely used for development of the market and provision of modern facilities. There was often congestion in the market yard and farmers had to wait for long to dispose off their produce. Also, there were no proper facilities for the farmer to wait till his produce was finally disposed off. Finally when the produce was disposed off, deductions were made from the price to be paid to him on grounds that his produce was not up to the mark. The regulated markets also led to the monopolization of trade by way of granting licenses to intermediaries which barricade the entry of new functionaries.

In view of the uneven development of regulated markets, the inability to fight the vested interests of traders, the persistence of traces of collusion amongst traders even in regulated markets deprived the farmer of his due share in the final consumer's rupee, besides facing other hardships during sale of his produce. Therefore, due to these bottlenecks in the APMC Act and also new

challenges and opportunities associated with agricultural marketing, across all states, the Government of India felt it was necessary to undertake market reforms through a change in market legislation. This matter has been under continuous scrutiny as agricultural marketing and exports of agricultural commodities were assuming increasing importance due to liberalization of trade, need for better supply management and need to improve infrastructure and market information. An Expert Committee on "*Strengthening and developing Agricultural Marketing*" under the chairmanship of Shri Shaknerlal Guru was appointed by government in December 2000. This committee (Guru Committee) reviewed the entire system of marketing of agricultural commodities and submitted its recommendations to the government in June 2001 and recommended requirement of a vibrant and dynamic marketing structure and system to meet the challenges emerging out of globalization in the post WTO period. An Inter-Ministerial Committee (chairman: Shri R.C.A. Jain, Additional Secretary, Ministry of Agriculture) was set up to examine the report and the legislative changes required for the implementation of this report. The Inter-Ministerial Task force recommended the formulation of a Model APMC Act which would improve the efficiency of the marketing system and encourage private sector investment in agricultural marketing. The amended Act aims at complete transformation of agricultural marketing in India to make it more market and growth oriented. The spirit of the Model Act was to enable producers to undertake market-driven production planning, facilitate integration of farm production with domestic and global markets and attract massive investments for building up post-harvest infrastructure. Accordingly a Model APMC Act was finalized in 2003 and circulated to states by GoI. All state governments were required to amend the state Agricultural Produce Marketing Regulations Act and make changes which should be in tune with the Model Act.

It was observed in earlier chapter that in order to improve the marketing system of farm products, wholesale agricultural produce markets began to be regulated in the 1950s and 1960s, when each state began implementing its Agricultural Produce Marketing Committee (APMC) Act. The APMCs were established in each state by the respective state governments with a view to regulate the marketing of agricultural produce in market areas. However, after

nearly five decades of the implementation of the APMC Act, an amendment was proposed. This was mainly because it was felt that the provisions of the APMC Act were not compatible with free and competitive market structure sought by the government. The Act it was felt adversely affected farmers by restricting their market options and compelling them to sell in the market yards. A Model APMC Act which would improve the efficiency of the marketing system and encourage private sector investment in agricultural marketing was therefore proposed by a committee constituted by the government. The aim of the amended act was complete transformation of agricultural marketing in India so as to make it more market and growth oriented. The Model APMC Act was finalized in 2003 and circulated to states by Government of India. All state governments were required to amend the State Agricultural Produce Marketing Regulations Act and make changes which should be in tune with the Model Act. Accordingly, the state of Maharashtra followed suit and made suitable amendments in the Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963. The Act was amended in June 2006 and rules were framed in June 2007. When the APMC Act was framed in 1963, the focus was on regulation of marketing but in the amended Act, the concept of development was also introduced. The title of the amended Act is "Maharashtra Agricultural Produce Marketing (Development and Regulation) (Amendment) Act, 2006.

In the light of the above, in this chapter an attempt is made to discuss the features of the marketing reforms in Maharashtra.

2.2 Features of APMC Act:

2.2.1 The Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963:

The regulation of markets in India had very limited progress in the country prior to independence. However, soon after independence, the Planning Commission in its First Five Year Plan laid stress on regulation of markets which led a number of states to take steps in the direction of enacting legislation on agricultural marketing. Accordingly the state of Maharashtra also enacted the

Maharashtra Agricultural Produce Marketing (Regulation) Act in 1963. With the implementation of this Act, various legislative measures were passed which aimed at improving marketing of agricultural produce by regulating marketing procedures, sales, practices and providing the needed market information to facilitate informed and free competitive conditions of marketing so that the producers-sellers would be able to strike the best possible deals. Under this act, all notified agricultural commodities, about 286 in number, grown within a notified area of a regulated market or mandi, if sold wholesale must be marketed through the designated mandi.

The main feature of regulated markets is that the system of sale is designed to be open and an opportunity is provided to the producers to sell their produce by a method which ensures the possibility of the presence of several buyers and a competitive bidding for every lot sold. Thus vigorous competition among buyers results in higher prices for producers. Further, the net returns to the cultivators would also be increased by market regulation eliminating superfluous charges and minimizing the various costs of handling. This practice would protect farmers from exploitation by middlemen and get competitive prices. The regulated markets are designed to ensure that the various market charges are fixed, correct weighing of produce is assured and arrangement is made for the settlement of disputes. Grading of agricultural produce was also introduced in the regulated markets to enable the farmers to get the benefit of it.

The main market functionaries in regulated markets are the commission agents, traders, brokers, processors, weighmen, helpers and hamals, who must hold a license from APMC to operate in the mandi. The market fees range from 0.75 percent to 1 percent of the value of produce sold. Agricultural Produce Market Committees are constituted for each regulated market and comprised of farmers, traders and other market functionaries who are responsible for day-to-day management of the market. They control and regulate admissions to the market, issue and renew trader licenses, and suspend or cancel them. The members of the APMC are elected by members of agricultural credit societies and other cooperative societies and by village panchayats within the area. The APMCs are supervised by the Maharashtra State Agricultural Marketing Board (MSAMB).

The APMCs generate income by charging market fees, license fees and rentals. A part of the APMC income is passed on to MSAMB to undertake infrastructure development. A number of schemes are promoted by MSAMB for construction of internal roads, road asphaltting, providing drinking water facilities, auction platforms, auction halls, warehouses, cold storage, common export facility centres, etc. The Marketing Boards also provides training, extension and financial support for modernizing infrastructure and other development initiatives in regulated markets by way of loans and subsidies.

In Maharashtra there are 295 main market yards and 609 sub market yards. The division-wise break up of APMCs in Maharashtra is indicated in Table 2.1 and their classification according to income is indicated in Table 2.2. It can be observed from Table 2.1 that maximum main markets were in Amravati division while Pune division had maximum sub-yards.

Table 2.1: Division wise break-up of APMCs in Maharashtra

No.	Division	Main Market	Sub Market
1	Konkan	20	34
2	Nashik	51	112
3	Pune	43	122
4	Aurangabad	33	72
5	Latur	48	91
6	Amravati	55	101
7	Nagpur	45	77
	Total	295	609

Source: www.msamb.com

It may also be noted that besides enacting the Market Regulation Act so as to promote orderly marketing of agricultural marketing, all round efforts were made to improve the marketing infrastructure in the country. Roads and rail roads have been constructed which have helped to shorten distances and have brought villages, markets and towns nearer and easily accessible. State warehousing Corporations have been set up to increase the withholding capacity of cultivators so as to avoid sales when there are glut conditions in the market. Market intelligence has improved and Market Committees make arrangement for dissemination of information on the current price. The institutional credit agencies also provide crop loans as well as long term loans to farmers for agricultural operations. Support prices are also announced by the government so as to give stability to prices in the post harvest season.

Table 2.2: Classification of APMCs (2007-08)

No.	APMC class	No. of APMCs	Total Income
1	"A"	42	Above Rs 1 crore
2	"B"	58	From Rs 50 lakhs to Rs 1 crore
3	"C"	70	From Rs 25 lakhs to Rs 50 lakhs
4	"D"	125	Less than Rs 25 lakhs
	Total	295	

Source: www.msamb.com

From the above it may be concluded that regulation of markets had several positive features such as sale through auction method, reliable weighing, standardized market charges, payment of cash to farmers without undue deductions, dispute settlement mechanism, reduction in physical losses of produce and availability of several amenities in market yards.

However, although market legislation greatly improved marketing of agricultural produce, a number of enquiries and studies (e.g. Dantwala, M.L. 1951, Shirname, T. G. 1956) observed that the intended regulation of markets had not always been carried out and at times proved to be ineffective. These studies indicated that improvements had taken place in the marketing of agricultural produce, for example reduction in market charges, standardization of weights and measures and improvements in methods of sale. The reports however emphasized that certain mal-practises were persistent which made the producer remain indifferent to or be reluctant to sell his produce in the markets. The market functionaries accustomed to unrestricted freedom, could not reconcile to the spirit of the Act and tried to counteract its repercussions on the strength of their collective influence, power and action. In fact in some markets near monopsony conditions existed, where only a few buyers controlled the whole market. They were thus in a position to dictate the prices to the producer. The concerted action on the part of the traders thus frustrated the purpose of the Act and the classic solution of sale by auction method was defeated.

Market legislation had several other limitations. The provisions of the APMC Act are not compatible with free and competitive market structure sought by the government. The Act adversely affects farmers by restricting their market options and compelling them to sell in the market yards. This leads to rise in

transaction costs. The Act also hampers the development of wholesale markets in the state by restricting their establishment to the public sector. The provision that no person could carry on trade in agricultural produce without license of the APMC essentially granted monopoly power to the APMC. A study (Acharya 2006), identified several problems associated with regulated markets. Since the APMCs do not allow the traders to buy from farmers outside the specified market yards or sub-yards, the cost of marketing increases. The area served per market yard is high and long distance travel to reach the market yard is a disincentive for farmers with small surplus to sell. Several markets are also poorly equipped. In several states, elections of APMCs are not held regularly, and hence they are superseded by the government and administered by bureaucrats, depriving them of the characteristic of being farmer-dominated managerial bodies. The staff remains overly occupied with the collection of market fees and construction work rather than market development. Congestion in the market yard delays the disposal of farmer's produce, frustrating the farmers. In several markets, malpractices by traders persist, such as late payment, deduction from payment and non issue of pay slips. In some markets, the market functionaries have formed strong associations, barricading the entry of new functionaries. In some cases, market fee has become a source of revenue for the government. By and large, APMCs have emerged as some sort of government sponsored monopolies in the supply of marketing services, with all the drawbacks and inefficiency associated with public sector monopolies.

In view of the above inherent bottlenecks in the APMC Act and also new challenges and opportunities associated with agricultural marketing, not only in Maharashtra but across all states, the GoI felt it was necessary to undertake market reforms through a change in market legislation. This matter has been under continuous scrutiny as agricultural marketing and exports of agricultural commodities were assuming increasing importance due to liberalization of trade, need for better supply management and need to improve infrastructure and market information. As mentioned earlier, an Expert Committee on "Strengthening and developing Agricultural Marketing" under the chairmanship of Shri S. Guru was appointed by GoI in December 2000. This committee (Guru Committee) reviewed the entire system of marketing of agricultural commodities

and submitted its recommendations to the government in June 2001 and recommended the requirement of a vibrant and dynamic marketing structure and system to meet the challenges emerging out of globalization in the post WTO period. An Inter-Ministerial Committee (chairman: Shri R.C.A. Jain, Additional Secretary, Ministry of Agriculture) was set up to examine the report and the legislative changes required for the implementation of this report. The Inter-Ministerial Task force recommended the formulation of a Model APMC Act which would improve the efficiency of the marketing system and encourage alternative markets with private sector investment in agricultural marketing. The present marketing system of sales through regulated markets had limitations and alternative marketing systems which provide better returns to farmers and reduce inefficiencies were required. The alternative marketing systems will ofcourse operate parallel to and in addition to the present system of auction sales in regulated markets. Issues that plague supply chains in India include non – transparent pricing, limited investment, primitive sorting and grading facilities, post harvest losses, etc. Therefore the purpose of the alternative marketing structure is to establish modern efficient trade practices as a catalyst for change in the market towards improved transparency and efficiency. Accordingly a Model APMC Act was finalized in 2003 and circulated to states by Gol. All state governments were required to amend the state Agricultural Produce Marketing Regulations Act and make changes which should be in tune with the Model Act.

2.2.2 Amended Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963:

As noted earlier, all states were required to amend their APMC Act, which had to be based on the Model Act, circulated by Gol to the states. Accordingly, the state of Maharashtra followed suit and made suitable amendments in the Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963. The Act was amended in June 2006 and rules were framed in June 2007. When the APMC Act was framed in 1963, the focus was on regulation of marketing but in the amended Act, the concept of development was also introduced. The title of the amended Act is "Maharashtra Agricultural Produce Marketing (Development and

Regulation) (Amendment) Act, 2006 and the following amendments are made in the Act:

1. Competitive Markets:

As per the APMC, 1963 Act, the farmers were not in a position to enter into direct contact with the processors/manufacturers located outside the market area as the commodity had to be channelized through regulated markets. However, as per the amended Act, and rules framed thereafter known as Maharashtra Agricultural Produce Marketing (Regulation) (Amendment) Rules 2007, provision is made for Private markets, Farmer- Consumer Markets and Direct Marketing.

(a) **Private Markets:** Any person, Partnership firm, Co-operative society, NGO or company can establish a Private market. Any person desiring to establish a Private market in one or more than one market area, has to make an application to the Director of Agricultural Marketing (henceforth called Director) for grant of license. Further, no private market can be located within the market area of the Bombay Agricultural Produce market Committee and no private market can be located within the radius of ten kilometers from the main yard of the existing Market Committee at district place having Municipal Corporation and five kilometers from the main yard of the existing Market Committee at other district places, taluka places and the sub-yards of any Market Committees. Necessary infrastructure like auction hall, sheds, godowns, cold storages, electrical weigh bridges, internal roads, drinking water, etc. with an investment of Rs 5 crores, including the cost of land near the district place with Municipal Corporation or similar kind of infrastructure with total investment of Rs 2 crores near the main market yards of other district places, and similar kind of infrastructure worth Rs one crore at all other places, is to be created by the applicant. Agricultural produce should be sold by open auction in private markets.

The license fee for establishing a private market near the district places having Municipal Corporations shall be Rs 50,000 and Rs 25,000 for all other places. A Bank Guarantee worth Rs 20 lakhs is to be deposited with the Director while applying for a license to establish private markets near the district place having Municipal Corporation and Rs 5 lakhs is to be deposited with the Director

while applying for a license to establish private markets at all other places. A license of a private market can also be granted to the Commodity Exchange registered under the Forward Market Commission (www.msamb.com)

(b) **Farmer-Consumer Market** : Any person, partnership firm, Co-operative society, NGO or Company can establish a Farmer Consumer market in one or more than one market area for which a license has to be obtained from the Director. In this market the transactions will take place directly between farmers and consumers. However, no Farmer-Consumer market shall be established within the market area of the Bombay Agricultural Produce Market Committee and shall be established on minimum one acre of land with clear title or leasehold title having the lease agreement for a minimum period of thirty years. A Farmer-Consumer market should have infrastructure like auction hall, sheds, drinking water facilities, toilets, internal roads, etc with total investment of not less than Rs 10 lakhs. The license fee for this market is Rs 10,000 and a Bank Guarantee of Rs 1 lakh is to be deposited with the Director while applying for license to establish Farmer-Consumer market. The farmer in the farmer-consumer market is not permitted to sell more than 10 kg of fruits and vegetables or other perishable agricultural produce and fifty kgs of foodgrains or other non-perishable agricultural produce to one consumer. (www.msamb.com).

(c) **Direct Marketing**: Any person, Partnership firm, Co-operative society, NGO or Company can obtain a license for direct marketing in one or more than one market area. This provision is likely to give a boost to processing units, exports and retail business. The license fee for direct marketing is Rs 50,000 for operating in the whole state and Rs 15,000 per Division. A Bank Guarantee worth Rs 15 lakhs is to be deposited with the Director of Marketing while applying for license for direct marketing for operating in the entire state or more than one Division and Rs 10 lakhs for one Division. However, government organizations and local authorities are exempted for payment of Bank Guarantee. No license for establishing a Private market or Farmer-Consumer market can be granted to the direct marketing license holder. The direct marketing license holder has to pay the market fee on the commodities purchased by him within a period of 15

days of purchase to the Maharashtra State Agricultural Marketing Board who has to distribute the same to the Market Committees concerned within a period of one month (www.msamb.com).

Any dispute between the direct marketing license holder, private market license holder, farmer-consumer market license holder and the Market Committee, agriculturist, trader, consumer can be filed by the complainant himself or his authorized representative to the Director with the court-fee stamp of Rs 20 along with the necessary documents, within a period of sixty days from the date of arising of the dispute. The dispute may relate to payment to be made to the farmers for purchase of agricultural produce from him while dealing in direct marketing, private markets or farmer-consumer markets. The dispute may also be related to weight of agricultural produce, price, fees, etc. (www.msamb.com)

(d) The government may declare certain markets as Special Commodity markets on the basis of arrivals, turnover, and geographical area. These Special Commodity markets are to have modern infrastructure and storage facilities as per the requirement of the agricultural produce.

2. Contract Farming:-

Contract farming refers to a system for the production and supply of agricultural and horticultural produce by farmers under advance contracts with the main aim of providing an agricultural commodity of a type, at a specified time, price and in specified quantity to a known buyer. An amendment has been also made in the APMC Act, 1963 to make provision for contract farming. As per the amended Act (Maharashtra Agricultural Produce Marketing (Development and Regulation) (Second Amendment) Rules, 2007 "Contract farming means farming by a Contract Farming Producer under written agreement with Contract Farming Sponsor to the effect that farm produce shall be purchased by the Contract Farming Sponsor as specified in the agreement" (www.msamb.com). Any dispute arising out of the Contract Farming Agreement shall be referred to the District Deputy Registrar of Co-operative Societies who has to give his decision within 30 days after giving an opportunity of being heard to the concerned parties.

Under contract farming the farmer will not be deprived of his right to the title of his land under any circumstances and the agricultural produce will be directly delivered from farm yards.

Thus from the above it can be observed that amendments have been made in Maharashtra APMC Act, 1963, according to which private players will be allowed to open and operate in agricultural markets, where farmers can sell their produce. It will bring an end to state monopolies and result in competitive pricing for farmers. There is no compulsion for farmers to bring their produce to the market yard. They can directly sell the produce to private players, food processing industries and retailers.

2.2.3 Implementation of Agricultural Marketing Reforms under amended Act:

The Maharashtra APMC Act, 1963, has been amended so as to promote competitive marketing. After amendment the following marketing reforms can be observed:

- Direct marketing - 72 Licenses issued
- Private markets - 07 approvals given
- Farmer-Consumer Markets - 33 locations
- Contract farming – 1 lakh hectares under various crops
- Single License System – 09 private players
- Special Commodity markets – 20 festivals organized

Efforts are also being made to promote Public Private Partnership. The state has proposed the setting up of a Terminal market for fruits and vegetables in the private or joint sector at Mumbai, Nashik and Nagpur. The project will be implemented by competitive bidding process. The key objective of terminal market is to ensure a more transparent, efficient and modern marketing system for perishable fruits and vegetables with few or no middlemen so that farmers/growers/producers can receive more remunerative prices for their produce. The terminal markets provide multiple options to farmers for disposal of produce. Such markets are expected reduce post harvest losses and increase farmer's realization. Maharashtra State Agricultural Marketing Board (MSAMB) is nodal agency for the Mumbai and Nashik terminal market. Further Modern

markets in Hingoli and Aurangabad district through Public Private Partnership are under preparation.

Marketing infrastructure is also undergoing major changes. Under MARKNET project computerization of 291 APMCs and 54 submarkets is complete. Agri-Export Zones (AEZ) have been set up in the state and six facility centers for export have been created. The concept of AEZs aims at strengthening the entire value chain in a comprehensive manner for an identified crop coming from a geographically contiguous manner. Rural godowns, and onion storage structures are being constructed and grading and standardization of produce is encouraged. Television to disseminate arrival and price information of agricultural commodities has made inroads to strengthen infrastructure. A Memorandum of Understanding (MoU) between Reuters and MSAMB was signed in May 2007 to provide information about market arrivals, prices, weather forecast and market guidelines to farmers through mobile telephones. More than 10,000 farmers have subscribed to this facility.

It can be observed that under amended APMC Act, there exists scope for private investment in agricultural markets and also direct buying of produce from farmers by traders and processors. Thus the monopoly of APMC controlled markets has been extinguished and the scenario related to agricultural marketing has begun to change. In view of the changes made in APMC Act, direct marketing, contract farming, corporate entry into agricultural markets etc. have begun to make inroads into agricultural marketing. The Act of 1963 led to the supply chain in India becoming inefficient because of the presence of a large number of intermediaries in agricultural marketing. The presence of intermediaries in India is a substitute for infrastructure. These intermediaries perform the distribution function as produce is normally consolidated at the village markets and reconsolidated again by intermediaries atleast two to three times before it reaches the final consumer. The supply chain is dominated by traders who operate on high margins for not much value added. In such a process there is wastage and huge losses besides both the farmer and consumer lose in terms of price. A more integrated market structure where the farmer is provided by both backward and forward linkage as incorporated in the amended Act will therefore help to minimize on inefficiencies in the marketing system.

Corporate units like Reliance, Godrej, Deepak Fertilisers and Petro Chemicals Ltd, ITC, Bharati group, etc. have entered agricultural markets to capitalize on opportunities such as processing, marketing and export of agricultural products. These companies have linkages with small and large farmers to source the produce, besides procuring through contract farming. ITC is linking farmers across the country on the online platform through e-choupal, while Reliance Retail has an ambitious "field to fork" retail plan whereby it directly sources produce from fields, routes it through its natural distribution centers and supplies it to consumers. Mahindra Shubhlabh came into existence to provide total farm solution to the problems of farmers. Other companies such as Hindustan Lever Limited, Nijjer and Pepsico are involved in contracts where produce is processed into value added food products for domestic as well as export markets. Deepak Fertilisers and Petro Chemicals Ltd through its Agribusiness and Farming Solutions (ABFS) also entered into agricultural marketing. DFPCL through its ABFS Division is involved in agricultural marketing and provides various services to farmers. The agronomists provide complete agronomic advice to farmers and work with them so as to increase yields. The company has well equipped laboratory for soil, water, plant and fertilizer analysis, in-house availability of all necessary expertise required for crop production and produce marketing, certified pack houses and also maintains systematic monitoring of consignments in the supply chain. The company besides procuring produce from farmers also provides cost effective technology to registered farmers. Thus it can be observed that changes are taking place in agricultural marketing with corporate entry and amendments made in APMC Act.

2.3 Marketing Infrastructure in Maharashtra

The agricultural sector in Maharashtra has undergone commercialization and diversification in recent decades. The production and yield of major crops in the state have shown statistically significant growth rates (1972-73 to 2001-02), despite irrigation being a severe constraint. However, in order to further capitalize on yields and sell the produce at the best price, so that incomes of farmers are maximized, agricultural marketing has a major role to play. Agricultural marketing

refers to both –marketing of farm inputs as well as marketing of farm produce. Marketing and production are interdependent. A timely and adequate supply of farm inputs - seeds, fertilizers, pesticides, farm equipment, electricity, diesel, credit and extension services at reasonable prices will help to raise productivity levels. Further, if farmers are assured of a remunerative price for their output, they will have resources to make more investment and to produce more. Thus, since marketing plays an important role in promoting agricultural growth, marketing of output as well as imperfections and infrastructure bottlenecks associated with marketing have been discussed in this section.

Market infrastructure is important not only for the performance of various marketing functions and expansion of the size of the market but also to disseminate appropriate price signals to farmers. Infrastructure facilities lead to reduction in marketing costs which enables the grower to realize a higher price and also benefits the consumer. In this context, we have attempted to assess the infrastructure facilities that exist in the state and the extent to which these facilities are conducive to efficient marketing (Kalamkar, 2006).

2.3.1 Present Status of Infrastructure in Maharashtra:

In Maharashtra, the agricultural marketing is more or less entirely in the hands of the middle men, they are called link agents, subagents, processors, and so on. Agricultural marketing is predominantly traditional in as much as it does not have strong network of post-harvest services, infrastructural facilities and amenities and marketing system (GOM, 1991). Given the appropriate irrigation and technology development, it is the efficient infrastructure particularly good roads, communication and markets which create an enabling environment in which farmers receive their due share in prices paid by the ultimate consumers. Situation in this respect in many rural areas of Maharashtra is far from satisfactory. The producers of not only more perishable products like vegetables, fruits, flowers, etc., but many a times even of others receive unjustifiably low prices for their produce and are not assured of even the minimum stable return over their cost of production. It is true that collective or cooperative marketing on the part of the producers would greatly help in improving the situation. But, the poor state of infrastructure is the main hindrance in many areas in the respect. If a

gradual trend towards commercialization and diversification of agriculture that has emerged in the eighties needs to be sustained and promoted, rural infrastructure supporting trade in farm products and inputs and processing of the produce must be strengthened with an emphasis on its quality. There is a strong case for increased investment in rural infrastructure in the relatively backward and neglected area like Konkan region and even more so in high growth potential but infrastructurally under developed area like Vidarbha region (Sawant, *et al*, 1999).

The availability of general as well as activity specific infrastructure facilities is an essential pre-requisite for the development of efficient marketing system. The relative infrastructure development indices constructed by CMIE are given in Table 2.3. There appears to be no change in the relative position of the states in terms of infrastructure facilities over time. Marketing infrastructure is well developed in the states of Punjab, Kerala, Tamilnadu and Haryana. Maharashtra ranks sixth to seventh positions during the periods; however, index has fallen down from 120 in 1980-81 to 107 in 2000. The farmers in the states with poorly developed infrastructural facilities do not get adequate price signals for adoption of new technology which may be a reason for lower economic status of farmers in these states (Acharya, 2004).

Table 2.3: Relative Infrastructure Development Index in States of India

(All India =100)

Sr No	States	1980-81	1993-94	2000
1	Andhra Pradesh	98.1	96.1	104.01
2	Assam	77.7	78.9	104.39
3	Bihar	83.5	81.1	91.31
4	Gujarat	123.0	122.4	105.33
5	Haryana	145.5	141.3	133.12
6	Himachal Pradesh	83.5	98.8	113.88
7	Jammu Kashmir	88.7	84.0	92.03
8	Karnataka	94.7	96.9	106.12
9	Kerala	158.1	157.1	162.42
10	Madhya Pradesh	62.1	75.3	86.66
11	Maharashtra	120.1	107.0	106.77
12	Orrisa	81.5	97.0	101.45
13	Punjab	207.3	191.4	171.92
14	Rajasthan	74.4	83.0	87.27
15	Tamilnadu	158.6	144.0	145.62
16	Uttar Pradesh	97.7	103.3	112.04
17	West Bengal	110.6	94.2	102.09
	All India	100.0	100.0	100.0

Source: CMIE (1997 and 2000).

Infrastructure in the regulated markets has been created as per the need in terms of volume of market arrivals. The regulated markets with larger arrivals of produce have been designed as principal market yards and those with lower arrivals and turn over as sub-market yards. Each market yards is attached to one or the other principal market to minimize the establishment cost. On the whole, there are in the ratio of 1:2 i.e., on an average, each principal yard has two sub yards. The primary rural markets are the first contact point for the rural producers and sellers. At the end of March 2001, there were 27294 primary rural markets scattered across the country, out of these about 13 per cent were in Maharashtra State (see, Table 2.4). However, out of the total 2354 principal regulated markets in the country, around 12 per cent were in Maharashtra. These are, however, not equipped with basic facilities like platforms for sale and auction, electricity, drinking water, link roads, traders premises, facilities for post harvest management etc. Therefore, these markets require attention for price competitive marketing to attract more buyers (GOI, 2002).

Table 2.4: Distribution of Wholesale Assembling, Primary and Regulated Markets in Maharashtra and India (on March 31, 2001)

		<i>(Number)</i>		
Markets	Type	Maharashtra	All India	% to All India
Number of Markets	Wholesale Markets	857	7293	11.75
	Primary Rural Markets	3500	27294	12.82
	Total	4357	34587	12.60
Regulated Markets	Principal Markets	266	2354	11.30
	Sub-yards	591	4807	12.29
	Total	857	7161	11.97

Source: NIAM (2001).

2.3.2 Growth in Wholesale and Regulated Markets:

The growth in number of wholesale and regulated markets in Maharashtra and India over last twenty-five years is presented in Table 2.5. It can be observed from this table that there is significant increase in number of wholesale as well as regulated markets in Maharashtra as well as at national level. The wholesale and regulated markets per lakh hectare of cropped area were higher in Maharashtra as compared to national level.

Table 2.5: Growth of Wholesale and Regulated Markets in Maharashtra and India

State	Maharashtra				All India			
	Wholesale Markets		Regulated Markets		Wholesale Markets		Regulated Markets	
	No.	Per lakh ha	No.	Per lakh ha	No.	Per lakh ha	No.	Per lakh ha
1975-76	571	2.90	427	2.17	4140	2.42	3619	2.12
1980-81	571	2.91	548	2.79	5016	2.91	4588	2.66
1984-85	658	3.21	658	3.21	5625	3.19	5673	3.22
1989-90	799	3.93	773	3.80	6366	3.52	6173	3.42
1994-95	838	3.92	827	3.87	6384	3.39	6785	3.61
1999-2000	857	3.83	857	3.83	7000	3.63	7049	3.66
ACGR (1975-76 to 1999-00)	1.64	1.12	2.83	2.30	2.12	1.64	2.70	2.21

Source: GOI (various issues).

The level of spread of regulated markets in the major states of India is presented in Table 2.6. At the end of March 2003, Maharashtra had third highest number of regulated markets in the country, however, the area covered by each market (359 sq. km) and population fed by each market (113 thousand) in very less as compared to the other states in India. The area covered by each regulated market across the state reveals large variation. The area served per regulated market varies from 74 sq km in Punjab to 2227 sq km for Assam. On an average, a regulated market serves 442 sq km area in the country, which is quite high. However, the each market area served about 359 sq km of area in Maharashtra, which is less than all India average. Farmers have to travel long distance with their produce to avail the facility of regulated markets. The National Commission on Agriculture (1976) had recommended that the facility of regulated market should be available to the farmer within range of 5 km. If, this is considered a benchmark, the command area of a market should not exceed 80 kilometers. However, in existing situation, except Punjab, in no state, the density of regulated market is even close to the norm. The studies have shown that increase in the density of markets has a positive impact on agricultural productivity. Out of total 5.81 lakh inhabited villages in the country (excluding Jammu and Kashmir), each regulated market served about 81 villages in the year 2001. Against this, each regulated market served about 47 villages in Maharashtra, however, 18 in Punjab

and 24 in Haryana. This may be due to high-marketed surplus of wheat and paddy in these two states.

Table 2.6: Level of Spread of Regulated Markets in the Major States of India (as on March 31, 2001)

States	Population in 2001 (Lakhs)	Area in '000 sq. km	No. of Regulated Markets	Density /'000 sq. km	Area covered by each market (in sq.km)	No. of Villages 1991 (000) markets	No of Villages Served	Population fed by each market (in '000)
Andhra Pradesh	762.10	275	861	2.77	319	26.6	30.9	88.5
Assam	266.56	78	35	3.42	2229	24.7	705.3	761.6
Bihar	829.98	174	813	4.77	214	67.5	83	102.1
Gujarat	506.71	196	396	2.59	495	18	45.5	128.0
Haryana	211.44	44	284	4.81	155	6.8	23.8	74.5
Himachal Pradesh	60.78	56	35	1.09	1600	17	485.6	173.7
Karnataka	528.51	192	473	2.75	406	27	57.2	111.7
Kerala	218.41	39	39	5.60	1000	0		560.0
Madhya Pradesh	603.48	443	616	1.36	719	71.5	116.1	98.0
Maharashtra	968.78	308	857	3.15	359	40.4	47.2	113.0
Orissa	368.04	156	144	2.36	1083	47	326.3	255.6
Punjab	243.58	50	675	4.87	74	12.4	18.4	36.1
Rajasthan	565.07	342	412	1.65	830	37.9	92	137.2
Tamil Nadu	624.05	130	270	4.80	481	15.8	58.6	231.1
Uttar Pradesh	1661.97	294	645	5.65	456	112.8	174.9	257.7
West Bengal	801.76	89	587	9.01	152	37.9	64.6	136.6
All India	10286.1	3166	7161	3.25	442	580.8	81.1	143.6

Sources: NIAM (2001); Rangi and Sidhu, 2004 and www.censusindia.net.

Inadequate infrastructure in rural area is a major obstacle to efficient marketing. Table 2.7 presents the number of districtwise-regulated markets in Maharashtra. It could be seen from the table that Western Maharashtra region districts has higher infrastructure index, however, the Vidarbha, Marathwada and Konkan region has low/less infrastructure index indicating that its backwardness which may be due to less funding/investment in infrastructure development in these regions. Further, it is observed that the state had 258 principal regulated markets. The district-wise number of regulated markets varies from 1 in Ratnagiri to 15 in Yavatmal. At the state level, average area served by these markets was 1266 sq. km. The district-wise infrastructure index varies from 73.86 for Aurangabad to 216.49 for Solapur district. The Vidarbha region had

highest number of regulated markets (35.66 per cent) followed by Western Maharashtra (32.94 per cent), Marathwada region (24.42) and the lowest in Konkan region (6.98). Area served per regulated markets and village served by each market reveals lot of variation among the districts. It varies from 603 kilometer for Mumbai to 4804 kilometer for Gadchiroli district. However, the number of villages served per market is lowest in Mumbai and Highest in Ratnagiri district. On an average 162 villages served by each market in the state. It is clear from the table that there is a strong case for increased investment in rural infrastructure in the relatively backward, neglected area and infrastructurally under developed area like Konkan and Vidarbha region.

Table 2.7: Districtwise Regulated Markets and Road Infrastructure in Maharashtra (1996-97)

District	Infra. Index	Regulated Markets			Road Infrastructure (in km)			
		No. of regulated markets	Villages served/ market	Area served/ regulated market (km)	Road length/ 100sq kms.	Road length/ lakh population	Villages linked with roads	
							Number	%
Mumbai	142.17	1	29	603	8	0.59	-	-
Thane	90.29	7	168	1365	57	162.73	1651	94.56
Raigad	94.18	9	176	794	59	285.12	1656	90.59
Ratnagiri	88.28	1	1515	8208	64	384.56	1330	65.34
Sindhudurg	113.95	-	-	-	65	465.80	684	96.61
Nasik	101.54	13	138	1194	67	351.43	1691	98.14
Dhule	89.64	8	150	1637	58	377.41	1420	93.61
Jalgaon	102.83	12	111	980	63	284.14	1500	99.87
Ahmednagar	97.69	13	113	1311	72	457.38	1487	98.80
Pune	106.08	11	113	1422	71	268.99	1790	93.96
Satara	110.02	9	171	1164	84	433.05	1326	93.57
Sangli	110.0	5	154	1714	94	441.34	700	98.87
Solapur	216.49	10	111	1489	67	383.60	1089	90.09
Kolhapur	110.01	4	293	1921	81	249.48	1123	98.08
Aurangabad	73.86	8	156	1263	69	375.18	1077	86.79
Jalna	93.24	5	183	1543	40	417.98	763	84.30
Parbhani	77.33	13	119	849	58	353.52	1148	80.90
Beed	96.64	8	115	1337	55	399.66	1097	91.26
Nanded	88.06	15	100	701	72	435.56	1350	94.74
Osmanabad	77.42	7	942	1081	60	438.73	677	95.47
Latur	87.78	7	129	119	66	402.00	869	96.17
Buldhana	75.61	11	126	878	41	266.20	900	98.19
Akola	86.54	13	128	813	46	266.28	1149	70.70
Amaravati	85.33	12	156	1017	48	318.43	1353	74.33
Yavatmal	77.22	15	132	905	46	367.53	1462	79.66
Wardha	90.56	7	148	900	45	311.21	839	83.49
Nagpur	96.58	10	194	989	51	199.18	1382	82.66
Bhandara	126.33	10	132	931	71	360.66	1464	83.35
Chandrapur	107.95	11	180	1040	62	465.93	1410	90.15
Gadchiroli	97.47	3	332	4804	34	837.46	1376	96.24
Maharashtra	106.77	258	162	1266	60	298.97	35763	90.49

Sources: GOM (2003); CMIE (2000).

2.3.3 Road Infrastructure (Transportation):

Besides the regulated markets, road infrastructure is also important to facilitate transport of commodities from the point of production to the point of consumption. Roads stimulate agricultural change and modernization not only through their immediate effect on relative prices and marketing opportunities but also through backward linkages. The roads open up opportunities for commercial agriculture and encourage shifts to production of high value- sensitive products. Transport helps to widen the market and bridge the gap between producers and consumers. The transport of goods from surplus areas to places of scarcity helps in checking price rise in the scarcity areas and price fall in the surplus areas. Motorable roads are, therefore, necessary for efficient marketing. The market, particularly a rural cannot be effective unless it is connected with a network of feeder roads with its hinterland. In agriculture, transportation is an indispensable input in the pre and post harvest operations. Transportation bottlenecks adversely affects the production and marketability of goods and lead to heterogeneous market condition. Inadequate road connectivity is largely responsible for the slow rate of increase in marketing efficiency and for the continuance of subsistence farming in many areas (Bansal, 2002).

Rural roads constitute one of the most important marketing infrastructure which reduce the cost of production and marketing by providing external economic of farmers, traders and public at large. It is well know that investment in infrastructure of this type has very high returns to the society. With total road length of 124 kilometer per hundred square kilometer of geographical area at the end of March 1999, Maharashtra stands fourth in the major states in the country. At the end of March, 2003, 93 per cent villages in the state were connected by all weather roads, while 5 per cent villages were connected by fair weather roads. Majority of the non-connected villages by roads in the state were from tribal areas having population less than 500 (GOM, 2004). The details regarding the district-wise road infrastructure during 1996-97 is presented in Table 5. It can be observed from the table that the number of villages linked with roads were 90.49 per cent in 1996-97. More than two third of districts (69 per cent) of the state, 90 per cent of the villages are linked to the roads. The situation is poor in Ratnagiri district where only 65.34 per cent of the villages were linked with roads. For the

state as whole, the road length per 100 kms was 60 square kilometers, however, district-wise figures range from 8 kilometer for Mumbai to 81 kilometer for Kolhapur. The road length according to surface type is presented in Table 2.8. It can be seen from this table that near about 84 per cent roads are surfaced and 16 per cent are still un-surfaced road. Out of total, only 38 per cent roads are cement concrete. Therefore, there is urgent need for investment in providing cement concrete and black road and connectivity to remain villages. Further, it is observed that the road length per hundred square kilometer has increased significantly from 55.90 in 1980 to 117.61 in 2000. However, railway route length per hundred square kilometer has increased at lower rate (Table 7). The area under village roads has been increased from about 20 thousand kilometers in 1970-71 to 95 thousand kilometer in 2002-03, an increase of more than 375 points. However, number of good carriers/vehicles increased from about 53 thousand to 677 thousand in corresponding years, an increase of 1186 points.

Table 2.8: Road Length according to Surface Type (2008)

Road type	Length (kms)	% to total
Cement concrete and Black road	129003	54.76
Water bound macadam road	84092	35.69
Un-surfaced roads	22500	9.55
Total road length	235595	100.00

Source: GOM (2010).

2.3.4 Telecommunication:

Telecommunication facilities for conveying accurate timely market information is essential for all sections of population engaged in the trade of agricultural commodities. Agriculture products prices fluctuate more violently than other products. The growth in telephone connection per hundred persons, percentage of villages electrified is presented in Table 2.9. It is observed that telephone connections per hundred persons has increased from 0.68 in 1980 to 4.10 in 2000, an increase of about 413 points. Up to the year 2000, almost all the villages were electrified.

Table 2.9: Growth in Road and Railway Route Length, Telephone Connection and Villages Electrified in Maharashtra

Particulars	1980	1985	1990	1995	Latest	CARG 80	CARG 90
Road Length/100 km	55.90	61.92	70.45	73.11	117.61	2.34	7.60
Railway route length/100 sq. km	1.70	1.76	1.77	1.78	1.80	0.38	0.31
Telephone Connections/100 persons	0.68	0.89	1.26	3.75	4.10	6.39	14.00
Village Electrified (%)	71.15	92.84	99.37	99.37	100.00	4.39	0.37
Credit to agriculture (Rs/capita)	48	99	189	243	420	14.59	9.24

Source: CMIE (2000).

2.3.5 Storage Infrastructure:

Besides transport, infrastructure in the form of storage also assumes importance. In the absence of storage facilities, prices in the post harvest period would crash due to glut in the market, while in the lean period, it would rise to unduly high levels. The storage functions thus adds time utility to the produce and helps to prevent distress sales by giving the producers holding power. Lack of adequate scientific storage facilities causes heavy losses to farmers in terms of huge wastage in quantity and quality of products. Seasonal fluctuations in prices are aggravated in the absence of proper scientific storage facilities. Warehouses also meet the financial needs of farmers who store their produce in the warehouses. The existing storage potential in the state is approximately 40 lakh metric tones, which is less by around 20 lakh metric tones than actual need (GOM, 1996). It can be observed from the Table 2.10 that although the Food Corporation of India has only 7 storage units, but it can hold 49.30 per cent of the storage capacity of the state. The State Warehousing Corporation has maximum number of storage units' (627) with 28 per cent storage capacity followed by Central Warehousing Corporation (71) of 23 per cent. During 1996-97, the data is available, the Maharashtra government owned warehouses were 930 with the capacity of 5744.5 lakh tones (Table 2.11).

Table 2.10: Number and Capacity of Storage Units in Maharashtra (1996-97)

Name of agency	Number	Capacity	% to total storage capacity
Food Corporation of India*	7	1730694	49.30
State Warehousing Corporation	627	982150	27.98
Central Warehousing Corporation	71	797637	22.72
Total	705	3510481	100.00

Note: * refers to 1995-96.

Source: GOM (2003).

Table 2.11: Number and Capacity of State Owned Warehouses in Maharashtra (1996-97)

Godown	Number	Capacity ('000 M. Ts)
Government Owned	930	574458
Hired	84	75387
Let Out	35	17414
Godown Capacity Available	840	563061

Source: GOM (2003).

Cold storage units are an important infrastructure for storage of perishable and semi-perishable agricultural commodities. The sector-wise distribution of cold storage facilities in Maharashtra and India is presented in Table 2.12. At the end of December 2003, a total of 414 cold storage with the capacity of 4.24 lakh tones were exists in Maharashtra in different sectors, which is 9.12 per cent of total units and 2.33 per cent of storage capacity at national level. Commodity-wise distribution of cold storage shows that in Maharashtra, of the total 4.24 lakh tones capacity, 0.57 per cent is used for potato, 78.70 per cent for multipurpose use, 4.27 per cent for fruits and vegetables, 11.19 per cent for fish and meat, 4.61 per cent for milk and milk products and remaining (0.65 per cent) for other commodities. Of the available cold storage, 80.19 per cent cold storage units accounting for 93.47 per cent storage capacity are in the private sector. The direct involvement of government in cold storage units is negligible. The state contribution in public cold storage unit and its capacity was only 21.17 and 8.00

per cent respectively. There exists large scope for the state as well at national level for protecting existing production of fruits, vegetables, and fish products.

Table 2.12: Sector-wise Distribution of Cold Storage Facilities in Maharashtra and India (2003)

Sector	Maharashtra		India	
	No. of Cold Storage	Capacity (m tones)	No. of Cold Storage	Capacity (m tones)
Private	332 (80.19)	396395 (93.47)	4032 (88.70)	17215077 (94.54)
Co-operative	53 (12.80)	19839 (4.68)	372 (8.19)	895824 (4.92)
Public	29 (7.01)	7851 (1.85)	137 (3.02)	98197 (0.54)
Total	414 (100.0)	424085 (100.0)	4541 (100.0)	18209098 (100.0)

Note: Figures in brackets are percentage to total.

Source: <http://agmark.nic.in>

2.3.6 Processing and Value Addition:

Processing industry provides ready market for agricultural raw materials (cotton, jute, sugarcane, oilseeds, pulses and several other commodities), reduces losses in marketing chain and expands market in addition to creation of employment opportunities. At the end of 1994, there were 8199 hullers, 273 shellers, 541 hullers cum shellers, and 1759 modern rice mills, which were 9.06, 6.02, 6.39 and 5.16 per cent of all India level, respectively (see, Table 2.13). Wheat is converted into wheat flour by processing the commodity at domestic level initially by hand-*chakkies* and now power *chakkies*. The number of roller flour mills were 61 in Maharashtra accounting about 10 per cent share at national level. The roller flourmills command considerable share of total wheat procured in the country. Almost all the roller flour mills in the country are in the private sector (Acharya, 2004).

Table 2.13: Number of Rice Mills and Roller Flour Mills in Maharashtra and India (As on 1st January)

State	Rice Mills					Roller Flour Mills
	Hullers	Shellers	Huller Cum Shellers	Modern Rice Mills	Total	
Maharashtra	8199 (9.06)	273 (6.02)	541 (6.39)	1759 (5.16)	10772 (7.83)	61 (7.63)
All India	90525	4538	8462	34113	137638	800

Source: mofpi.nic.in

2.3.7 Income and Expenditure/Distribution of Regulated Markets:

The incomes and expenditure of regulated markets in Maharashtra is given in Table 2.14. It is observed from the table that the regulated markets made a profit of Rs. 341 million in 1999-2000. These revenues are to be used for providing market infrastructure, such as internal roads, auction halls, trader shops, and platforms for agricultural produce, storage facilities, etc. The division-wise distribution of income and expenditure of regulated markets reveals that Mumbai and Pune divisions together accounting more than 50 per cent of profit in the state. However, only 33.83 per cent profit has earned by Vidarbha region i.e. Amravati and Nagpur division. Aurangabad division has recorded less profit. This may be due to the fact that Western Maharashtra districts has good infrastructure and export facilities as compared to Vidarbha and Marathwada region.

Table 2.14: Division-wise Income and Expenditure of Regulated Markets in Maharashtra (1999-2000)

Division	Income (Rs billion)	Expenditure (Rs. millions)	Profits (Rs. million)
Mumbai	385 (25.16)	284 (23.89)	101 (29.62)
Nasik	254 (16.60)	220 (18.50)	33 (9.68)
Pune	302 (19.74)	229 (19.26)	74 (21.70)
Aurangabad	198 (12.94)	180 (15.14)	18 (5.28)
Amravati	210 (13.73)	148 (12.45)	62 (18.18)
Nagpur	181 (11.83)	128 (10.76)	53 (15.54)
Total	1530	1189	341

Note: Figures in brackets are percentage to total.

Source: Maharashtra State Agricultural Marketing Board, Pune.

2.4 The Maharashtra State Agricultural Marketing Board (MSAMB),

The Maharashtra State Agricultural Marketing Board (MSAMB), Pune was established on 23rd, March 1984, under section 39A of Maharashtra Agricultural Produce Marketing (Regulation) Act, 1963. MSAMB has done pioneering work in the field of Agricultural Marketing in the State and achieved success in various areas. MSAMB is having an important role in developing and coordinating agricultural marketing system in the State of Maharashtra. The projects undertaken by the MSAMB for infrastructure development in Maharashtra are as follow.

▪ **Market Information Network:**

The Maharashtra State Agriculture Marketing Board has established MARKNET (Agricultural Market Intelligence Network in Maharashtra State), a network of APMCs in the State. Under this project, APMCs have been computerized and connected through the Internet for information exchange. Presently MARKNET has 93 nodes (computers) all over the State. The process of computerization and connectivity of the remaining APMCs is in progress. Daily market arrival and price information is being entered into the computer at the APMCs level and being sent to a central communication server located at MSAMB, through modem and telephone. The newly received information is processed automatically with the help of software installed on the server, and the processed information is downloaded by APMCs for further dissemination through notice board or Projection TV. The results after implementation of the project are encouraging and shows signs of an optimistic future for information culture in agricultural marketing through Regulated Markets. Day to day market trade information on agricultural commodities is collected at all important APMC in the state. All district centres of NIC are being used as data entry points and for reporting. This data is made available on the NEC System installed at New Delhi through NICNET for easy access by any other APMC. All the APMC's become aware of the latest market trends all over India within a day.

The MSAMB has participated in AGMARKNET scheme of the Director of Marketing & Inspection (DMI), Government of India. The DMI is establishing a comprehensive Market Information Network in the country. This network will be used to upload daily arrival and price information of APMCs to the national portal developed by DMI. The daily arrival and price information at major markets of various States is made available through this portal. The Maharashtra State Agricultural Marketing Board, Pune is named as nodal agency for the State to implement & monitor the scheme. Under this scheme DMI is provided one computer, Printer, Modem, U.P.S. and necessary softwares, to 64 APMCs of Maharashtra, in two phases. All the computers have been made functional and data exchange has been started on regular basis.

▪ ***Pre Cooling and Cold Storage (PC and CS):***

The Maharashtra State Agricultural Marketing Board undertook the first initiative in the State (1990), and even in the country, to promote the use of Temperature Management Technology (TMT) by setting up of PC & CS facilities under the Co-operative sector. The principle objective was to promote exports of fresh fruits and vegetables from the State. The MSAMB then identified technology, imported the technology, planned and implemented PC & CS facilities. Since then, under the guidance of the MSAMB, 32 PC & CS facilities have been set up in the co-operative sector in the State. Due to this pioneering effort by the MSAMB, today Maharashtra is the largest exporter of fresh grapes from the country and exports nearly 70 per cent of all fresh fruits and vegetables from the country. The State has also successfully exported fresh pomegranate and mango using the PC & CS facilities. Today the MSAMB monitors the running of these PC & CS units from time to time (www.msamb.com).

In response to findings by an Expert Committee setup by the GOI (1998) that identified a need for 12 lakh metric tones of additional cold storage capacity and the need for creation of another 8 lakh metric tones cold storage capacity through expansion, repair and modernization of existing cold storages in the country, the Government of Maharashtra has taken initiatives to promote the setting up of cold storages in the State. Director of Marketing, Government of Maharashtra and the MSAMB have taken a lead in promoting the construction of commercial cold storages for perishable horticultural produce by APMCs and farmers co-operative. APMC Solapur has set up a commercial cold storage in its premises. It is in the process of setting up a pack house, pre-cooling and cold storage as a common facility. Few other APMC's are in the initial stage of setting up of cold storage (www.msamb.com).

Infrastructure of the Cotton Monopoly Procurement Scheme

(Maharashtra State Cooperative Cotton Growers' Marketing Federation):

Maharashtra ranks second in India in the production of cotton. About 3 million farmers are engaged in cotton cultivation in the state mostly in the backward region of Marathwada and Vidharbha. Till 1971, the cotton trade in the state was in private hands and farmers were not able to realise appropriate prices

for their produce though the terminal markets were commanding higher prices. In order to bring benefits of higher prices to the farmers, the Government of Maharashtra launched the Cotton Monopoly Scheme in 1971 by enacting The Maharashtra Raw Cotton (Procurement, Processing & Marketing) Act 1971. The Monopoly Procurement Scheme is operated on behalf of the state by the Maharashtra State Cooperative Cotton Growers' Marketing Federation (MSCCGMF) as the chief agent for the state government. In order to operate the scheme, the entire cotton growing area in the state has been divided into twelve zonal offices located in Vidharbha, Marathwada and Khandesh and Western Maharashtra region of Maharashtra with 68 subzones and 523 procurement centres so that cotton growers can easily tender their cotton within the radius of 15 kms. Procurement is done in compound of ginning and pressing factories, with the help of 157 APMCs. Cotton brought by the cultivator is graded, weighed and stored in the compound. Payment to the cultivator is made with the help of 166 talukas sale purchase societies. All the cotton procured by the Federation is graded before processing. The federation has set up a network consisting of pre-cleaning centres and four cotton testing laboratories. The labs work around the year to ensure that the customers get the same quality of cotton they intend. Every year these labs, test and analyses thousands of samples for - fibre length, strength and trash analysis. Raw cotton is handled with utmost precautions to maintain the quality standards during the processing. To improve processing infrastructure federation offers incentives for the modernisation of the ginning and pressing units. Out of the total 793 ginning/pressing factories, 349 are of cooperative and 444 are private factories.

Investment requirement:

As stated earlier, availability of different marketing infrastructure affects the choice of technology to be adopted, reduces the cost of transpiration, produces powerful impetus to production and also affects income distribution in favour of small and marginal farmers by raising their access to the marketing. Looking to this, every country poised for growth includes development of agricultural marketing infrastructure as part of its agricultural development strategy; the relationship between agricultural development and investment in infrastructure

has been long recognized. The studies have shown that infrastructure and agricultural development are highly correlated, as infrastructure index increase by one point, output increased by 47 kgs per hectare. In the context of need of stepping up agricultural growth, emphasis was considered necessary for developing rural infrastructure. Upto 31st December, 2003, National Bank for Agricultural and Rural Development (NABARD) has sanctioned Rs. 2795 crore to the government of Maharashtra for rural infrastructure development under Rural Infrastructure Development Funds (RIDF). Out of this amount, Rs. 1620 have already disbursed for creating irrigation potential of 3.8 lakh hectares, block tapping of 15000 km rural roads, constructions of 1195 rural bridges and implementation of water supply scheme (GOM, 2004). The expert committee on strengthening and developing of agricultural marketing constituted by the government of India has estimated the investment requirement of Rs. 428 crore for the development of wholesale markets and Rs 350 crore for rural periodic markets. The total investment requirement for the development of wholesale and periodic rural markets in Maharashtra is Rs. 778 crore which is about 10 per cent of investment require at national level (see, Table 2.15). However, the projections of investments in the food processing estimated Rs. 150000 crore required within next ten years to achieve the targeted 10 per cent growth in processing and 35 per cent in value addition. The maximum investment of Rs. 22786.40 crore are proposed for Maharashtra (15.19 per cent).

Table 2.15: Investment Requirement for Development of Wholesale and Rural markets in Maharashtra and India

State	Total number of wholesale markets	Investment need for market development (Rs Crore)	Number of rural Periodic Markets	Investment Required	Total investment required (Rs in crore)
Maharashtra	857 (11.75)	428.0 (7.10)	3500 (12.82)	350.0 (16.31)	778.00 (9.52)
India	7293	6026.0	27294	2146.4	8172.40

Note: Figures in brackets are percentage to all India figures.

Source: GOI (2001).

Conclusions:

In Maharashtra, the agricultural marketing is more or less entirely in the hands of the middlemen and it does not have strong network of post-harvest services, infrastructural facilities and amenities and marketing system. It is true that collective or cooperative marketing on the part of the producers would greatly help in improving the situation. But, the poor state of infrastructure is the main hindrance in many areas for development. Maharashtra is one of the progressive and industrial states in the country, but it does not compare favorably with the national average. As per the CMIE infrastructure index, Maharashtra state has a good compatible score, but in case of facilities necessary for marketing, the condition seems rather poor. There is significant increase in number of wholesale as well as regulated markets in the state as well as at national level. Maharashtra had the third highest number of regulated markets. However the area covered by each market and population fed by each market is very less as compared to the other states in India. The number of villages linked with roads was more than 90 per cent in 1996-97. Though, Maharashtra has relatively more number of regulated markets and level of spread of regulated markets is relatively better in the state, the farmers still continue to face lot of difficulties while selling their produce. Exploitation by middlemen from the farmers have been continuing due to inadequate marketing facilities. It is clear from the infrastructure index that there is a strong case for increased investment in rural infrastructure in the relatively backward neglected area and infrastructurally under developed area like Konkan and Vidarbha region. The process of computerization and connectivity of the APMCs is in progress. The Maharashtra State Agricultural Marketing Board undertook several projects on infrastructure development in the state. The total investment requirement for the development of wholesale and periodic rural markets in Maharashtra is Rs. 778 crore which is about 10 per cent of total investment require at national level.

An Analysis of Production, Prices and Export Trends of Onion in India and Maharashtra

3.1 Introduction:

Onion (*Allium cepa* L.) is one of the most important commercial vegetables and important spices used, for cooking vegetable or pulses in the Indian kitchen. It is grown in western, northern as well as in southern India in both rabi as well as kharif seasons and its supply is available throughout the year. Onion is also one of the oldest cultivated plant species and its reference can be found in the inscription of ancient civilization of Egypt, Rome, Greece, India and China. It is one of the few vegetables which can be kept for long period of time and can safely withstand the hazards of rough handling.

3.2 Characteristics of Onion:

The outstanding characteristic of Onion is its pungency; this is due to the presence of a volatile oil known as Allyl-propyl di sulphide. The pungency varies with variety, growing conditions, stage of maturity, type of soil, soil temperature and storage conditions. The chemical composition of onion (per 100 gram material) is- carbohydrates (11 gm), proteins (1.20gm), fibre (0.60 gm), moisture (86.80 gm) and energy (38 calories), apart from these vitamins like vitamin-A (0.012 mg), vitamin-B (11 mg), thiamine (0.8 mg), riboflavin (0.01) and niacin (0.20 mg), and minerals like phosphorus (39 mg), calcium (27 mg), sodium (1.0), iron (0.70 mg) and potassium (1.57 mg) (NIN, Hyderabad¹, USDA²).

The varieties of onions are grouped according to their size, colour and pungency. The most important ones are brown red, yellow and white. Yellow coloured onions are rarely grown. The big sized bulbs have a mild flavour, sweet in taste and are less pungent when compared to the local small sized onions. The varieties are known after the place in which they are grown, such as Patna Red, Patna white, Poona Red, Nasik red, Bellary Red, Bangalore Rose Onion, etc.

¹Nutritive Value of Indian Foods, NIN, Hyderabad

²http://www.nal.usda.gov/fnic/foodcomp/cgi-bin/list_nut_edit.pl-USDA National Nutrient Database for Standard Reference, Release 24 (2011)

Origin of onion

Onion is probably native of Asia comprising North West India, and Afghanistan though it is likely that onions may have been growing wild on every continent dating back to 3500 BC. It probably acquired its name from the city built by ONIA in 1703 BC near gulf of Swez. It is believed that species *Allium cepa* has been domesticated independently at several places and occupied vast area in Western Asia, extending perhaps from Palestine to India³.

Medicinal properties

The onion qualities make it a prince among vegetable. It is a good cleanser and healer. If it is eaten more often, it is certain that there would be fewer colds, less catarrh, less anaemia, fewer gastric ills and less insomnia.

The characteristic flavour of onion, on account of which it is considered taboo by certain section of people in India, is due to an volatile oil containing allyl propyl disulphide, which is excreted through the lungs when this vegetable is eaten giving the breath a characteristic odour. The onion also contains a peculiar form of sugar to which sweet flavour of roasted onion is due. It affords a very excellent form of food iron and on this account may often be eaten freely with advantage by persons suffering from anemia. It is regarded in antiquity as a diuretic of the first order. Onion juice is applied to burns, chilblains and bites or stings. It is believed to be very useful to cure sores and ulcers. It cures certain kind of dropsy. It is also claimed to be of value as a digestive stimulant, as an anti-fermentative and as an anti-diabetic.

Onion is useful in fever, dropsy, catarrh and chronic bronchitis and mitigate cough in phthisis. In case of bleeding at the nose, an onion is cut in halves and placed on the nose. Warts also sometimes disappear if rubbed with cut onions. Roasted onions are applied as a poultice to indolent boils, bruises, wounds to relief heat sensation and bring the boils to maturity. Fresh onion juice promotes perspiration, relieves constipation and bronchitis, induces sleep, is good for cases of scurvy and suffers from lead colic. Onion juice is given an antidote in tobacco poisoning.

³ (a) Mara Reid Rogers, *Onions: A Celebration of the Onion through Recipes, Lore, and History*, Addison-Wesley Publishing Co., Copyright © 1995, p. 6 (b). Tanya J. Fell, Director of Public and Industry Relations, *Onions Historically Healthy*, National Onion Association, Greeley, Colorado.

3.3 Current Scenario of Onion in World:

A global review of area and production of major vegetable crops shows that onion ranks second in area under vegetables and third in production in the world. India is the second largest onion producing country after China. In 2009-10, India produced 12.15 million tonnes in the area of 756 thousand hectare with the productivity of 16.08 Metric tonnes per hectare. Table 3.1 presents the area, production and productivity (MT/ha) of major onion producing countries in the world. It can be seen from the table that India is the second largest prouder of onion followed by U.S.A, Pakistan, Turkey and Russian Federation. India had about 21.6 per cent of total world's area under onion cultivation and had produced 12.2 per cent of world's onion in 2008.

Being the second largest onion producer and cultivator, India significantly lack behind in the productivity or yield of the onion. The Republic of Korea has the highest onion production/ per hectare in the world with the productivity of 67.25 MT/ha followed by USA (53.91 MT/ha), Spain (52.06 MT/ha) and Japan (47.55 MT/ha). The onion yield in India (10.16 MT/ha) is one of the lowest in the world. Only Indonesia and Bangladesh has the lower onion yield than India. The major reasons behind low productivity in India are as follow;

- a. Using local varieties,
- b. old package of practice,
- c. small land holding and poor economic background of small farmers
- d. lack of use of improved method of cultivation
- e. less use of chemical fertilisers and pesticide
- f. higher post-harvest losses
- g. absence of good scientific storage facilities

Table 3.1: Area, Production and Productivity of Onion in Major Onion Producing Countries

Countries	Area		Production		Yield (mt/ha)
	(000 ha)	% to total	(000 mt)	% to total	
China	1001171	26.83	20817295	31.15	20.79
India	804600	21.56	8178300	12.24	10.16
U.S.A.	62120	1.66	3349170	5.01	53.91
Pakistan	153100	4.10	2015200	3.02	13.16
Turkey	75000	2.01	2007120	3.00	26.76
Russian Federation	128600	3.45	1900000	2.84	14.77
Egypt	52885	1.42	1728417	2.59	32.68
Iran, Islamic Republic	50000	1.34	1700000	2.54	34.00
Brazil	63639	1.71	1299815	1.94	20.42
Mexico	42998	1.15	1252441	1.87	29.13
Japan	24500	0.66	1165000	1.74	47.55
Netherlands	26200	0.70	1130000	1.69	43.13
Spain	21100	0.57	1098400	1.64	52.06
Ukraine	62000	1.66	1049200	1.57	16.92
Korea, Repluckib	15392	0.41	1035076	1.55	67.25
Bagladesh	125226	3.36	889260	1.33	7.10
Indonesia	91780	2.46	824064	1.23	8.98
Myanmar	60000	1.61	740000	1.11	12.33
Uzbekistan	23000	0.62	728000	1.09	31.65
Argentina	24000	0.64	700000	1.05	29.17
Algeria	38000	1.02	700000	1.05	18.42
Morocco	27900	0.75	662140	0.99	23.73
Peru	18879	0.51	634393	0.95	33.60
Nigeria	42000	1.13	621000	0.93	14.79
Poland	30187	0.81	618233	0.93	20.48
Germany	8942	0.24	407602	0.61	45.58
Italy	13589	0.36	403521	0.60	29.69
Romania	34810	0.93	395579	0.59	11.36
South Africa	17000	0.46	380386	0.57	22.38
Kazakhstan	18500	0.50	376840	0.56	20.37
Niger	10500	0.28	373637	0.56	35.58
United Kingdom	8575	0.23	349200	0.52	40.72
World	3731659	100.00	66829917	100.00	17.91

Source: FAO 2008.

3.4 Production and Productivity of Onion in India (1978-79 to 2008-09):

India produces all three varieties of onions – red, yellow and white⁴. In some parts of the country, onions are grown in all the three seasons. In the northern part of the country, onion is usually grown in the winter (rabi) season. However, in the southern and western states of Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat and Maharashtra, it is grown in winter (rabi) as well as in the rainy (kharif) seasons. Currently kharif onion is gaining ground in the northern part of the country. Thus, onion is cultivated and is available to domestic consumers, as well as for export throughout the year. During the agricultural year 2008-09, onion crop was grown on an area of 8.34 lakh ha and production was of 13.57 million tonnes in the country. Although onion is cultivated almost all over the country, the major producing states are Maharashtra, Karnataka, Madhya Pradesh, Gujarat, Rajasthan, Andhra Pradesh, Uttar Pradesh, Orissa, and Tamil Nadu. Maharashtra is the leading producer of onions in the country contributing to more than 30 per cent of total onion production followed by Karnataka (22 per cent), Gujarat (10 per cent), and Bihar (7 per cent). Almost in all the important onion growing states, there is increase in both area and production of onion by around twofold or more during the period between 1998-99 and 2008-09. The increase in production is attributed to an improvement in yield as well. The improvement in yield was significant in the states like Karnataka, Bihar and Rajasthan. It increased by four times in these three states and while in other states also, there is considerable improvement in yield. It may be attributed to efforts put in by the state horticulture departments under the National Horticulture Mission which was launched in early 2000.

Due to unseasonal rains in 2009, both area under onion and production has come down in all the important states of Maharashtra, Karnataka, Gujarat and Haryana. The magnitude of decline in production of onions was the highest in Gujarat (24 per cent) followed by Maharashtra (20 per cent) and Karnataka (14.42 per cent). Recent reports suggested that the same situation repeated itself

⁴ The details about the onion type and its characteristics and agro-export zone for onion in India are presented in Annexure I.

during the year 2010-11, resulting in reduction in onion production to the extent of 30-40 per cent in different places. Samra, *et al* (2006) reported that onion crop has suffered huge losses due to abnormal weather events during rabi 1997, kharif 1998 and kharif 2005 causing considerable losses to producers and consumers, drawing the attention of the government to urgently take up remedial measures to overcome the crisis.

Table 3.2: Area, Production and Productivity of Onion in India (1978-79 to 2011-12)

Year	Area (Million Hectare)	Production (Million Tons)	Yield (Kg/Hectare)
1978-79	0.21	2.2	10403
1979-80	0.24	2.5	10232
1980-81	0.25	2.5	9961
1981-82	0.25	2.65	10562
1982-83	0.24	2.43	10330
1983-84	0.27	2.7	9982
1984-85	0.28	3.1	11139
1985-86	0.28	2.86	10202
1986-87	0.26	2.53	9659
1987-88	0.27	2.7	9857
1988-89	0.32	3.35	10620
1989-90	0.30	3.07	10176
1990-91	0.30	3.23	10686
1991-92	0.32	3.58	11088
1992-93	0.32	3.49	10791
1993-94	0.37	4.01	10902
1994-95	0.38	4.04	10661
1995-96	0.40	4.08	10316
1996-97	0.40	4.18	10348
1997-98	0.40	3.62	9091
1998-99	0.47	5.33	11391
1999-00	0.49	4.9	9932
2000-01	0.42	4.55	10786
2001-02	0.45	4.83	10686
2002-03	0.42	4.21	9912
2003-04	0.50	5.92	11784
2004-05	0.55	6.43	11718
2005-06	0.66	8.68	13118
2006-07	0.70	8.89	12655
2007-08	0.70	9.14	12974
2008-09	0.83	13.59	16260
2009-10	0.76	12.19	16039
2010-11	1.06	15.12	14264
2011-12	1.04	15.75	15106

Sources: Directorate of Economics and Statistics for data till 2007-08 and National Horticulture Board M/o Agriculture for 2008-09 (www.nhrdf.org).

Table 3.2 presents the trends in the area under onion, production and productivity in India since from 1978-79 to 2011-12. As it is evident from the table, the area under onion cultivation has gone up consistently from 1978 -79 to 2011-12. In 1978-79, the area under onion cultivation was 0.21 mha, which was almost stagnant till 1987-88. Thereafter, area has increased significantly to 0.49 mha in 1999-2000 and reached the highest level of 1.06 mh in 2010-11. At the same time, production of onion has increased by more than seven times and has gone up from 2.2 mt in 1978-79 to 15.75 mt in 2011-12. The productivity of onion has also increased over a period of time, from 10403 kg/ha in 1978-79 to 15106 kg/ha in the 2011-12, while rate of growth in productivity was lower as compared to increase in area under onion.

3.4.1 Onion Production in Major States:

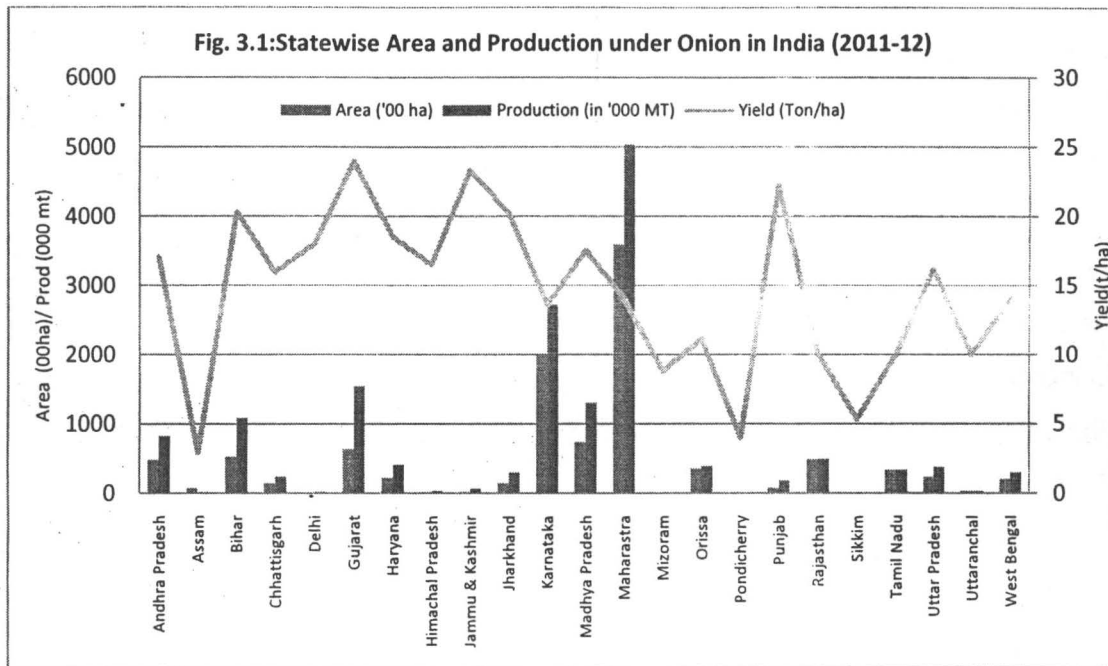
As mentioned earlier, India is a world leader in onion production and it is cultivated almost all over the country. The major onion growing states are Maharashtra, Karnataka, Madhya Pradesh, Gujarat and Bihar (Fig. 3.1 and Table 3.3). In the northern part of the country, onion is usually grown in winter (*rabi*) season. Whereas in the southern and western States like Andhra Pradesh, Karnataka, Tamil Nadu, Gujarat and Maharashtra, it is grown in winter (*rabi*) as well as in the rainy (*kharif*) seasons.

Table 3.3: Major Onion Producing States in India

State	2009-10			2010-11			2011-12		
	Area (000 ha)	Prod (000 mt)	Yield (tons/ha)	Area (000 ha)	Prod (000 mt)	Yield (tons/ha)	Area (000 ha)	Prod (000 mt)	Yield (tons/ha)
Maharashtra	200.0 (26.4)	3146.0 (25.8)	15.7	415 (39.0)	4,905.0 (32.4)	11.82	359 (35.2)	5,036.0 (32.6)	14.03
Karnataka	141.3 (18.7)	2266.2 (18.6)	16.0	190.5 (17.9)	2,592.2 (17.1)	13.61	200 (19.6)	2,721.90 (17.6)	13.61
Gujarat	43.4 (5.7)	1078.6 (8.8)	24.9	62 (5.8)	1,514.1 (10.0)	24.42	64.1 (6.3)	1,535.5 (9.9)	23.95
Bihar	53.0 (7.0)	972.0 (8.0)	18.3	53.3 (5.0)	1,082.0 (7.2)	20.3	53.3 (5.2)	1,082.0 (7.0)	20.3
Madhya Pradesh	57.3 (7.6)	952.3 (7.8)	16.6	58.3 (5.5)	1,021.5 (6.8)	17.52	74.1 (7.3)	1,298.4 (8.4)	17.52
Others	261.8 (34.6)	3775.6 (31.0)	14.4	284.9 (26.8)	4003.1 (26.5)	14.1	270.3 (26.5)	3769.9 (24.4)	13.9
Total	756.8 (100.0)	12190.7 (100.0)	16.1	1064 (100.0)	15117.9 (100.0)	14.2	1020.8 (100.0)	15443.7 (100.0)	15.1

Note: Figures in parenthesis are percentage to all India total.

Source: www.nhrdf.org.



Maharashtra, the highest onion producing state had about 359 thousand hectares land under onion cultivation and had produced 50.363 lakh tones onions in 2011-12. Maharashtra was followed by Karnataka with about 200 thousand ha land under cultivation and 27.21 lakh tone production. Area under onion in Gujarat during the year 2011-12 was around 64 thousand ha and produced 15.35 lakh tones of onion followed by Bihar (53.3 thousand ha area and 10.82 lakh tones production) and Madhya Pradesh (74.1 thousand ha area and 12.98 lakh tones production) respectively. The table also shows that, with an exception of Bihar, all other major onion producing states have seen increase in the area under cultivation of onion and production of onion in the years 2009-10 to 2011-12. In the case of country as a whole, the total area under onion cultivation has gone up from 757 thousand ha in 2009-10 to about 1021 thousand hectars in 2011-12. Similarly, the total production of onion has also gone up from about 121.91 lakh tone in 2009-10 to 154.43 lakh tone in 2011-12.

Table 3.4: Production of Onion in the Major States of India (1974-75 to 2011-12)

Year	Production in '000 mt			
	Maharashtra	Karnataka	Gujarat	Madhya Pradesh
1974-75	870.1	155.0	199.5	103.9
1975-76	743.0	145.3	312.3	120.4
1976-77	870.6	132.8	295.8	111.8
1977-78	786.9	198.2	293.5	127.3
1978-79	774.6	253.6	197.7	149.7
1979-80	684.3	227.3	249.2	134.6
1980-81	789.2	224.1	339.4	154.8
1981-82	745.6	253.3	269.9	144.9
1982-83	759.1	295.3	364.1	118.7
1983-84	732.8	287.2	491.1	196.6
1984-85	643.0	196.1	477.7	135.8
1985-86	600.2	183.6	477.7	151.3
1986-87	630.0	212.0	216.2	196.3
1987-88	780.9	315.3	528.0	221.7
1988-89	711.6	316.8	453.4	196.7
1989-90	804.0	251.0	463.6	204.4
1990-91	840.1	328.9	424.4	212.6
1991-92	831.6	477.4	605.3	172.5
1992-93	1210.0	414.1	549.3	227.1
1993-94	1206.7	431.5	561.5	214.7
1994-95	1120.5	440.3	444.0	235.4
1995-96	1189.1	558.6	433.0	279.7
1996-97	491.0	517.4	619.0	281.8
1997-98	1183.6	508.4	1462.1	337.6
1998-99	1392.6	594.7	450.7	366.3
2000-01	1687.5	665.4	131.2	272.7
2001-02	1307.0	721.0	640.2	324.6
2002-03	1427.0	535.8	717.4	345.0
2003-04	1645.0	360.5	1479.3	416.2
2004-05	1645.0	856.0	1223.0	535.6
2005-06	2469.0	870.0	2128.0	572.0
2006-07	2812.4	859.1	2128.0	629.7
2007-08	2713.3	1107.0	2059.0	559.7
2008-09	3932.5	3031.8	1409.6	881.8
2009-10	3146.0	2266.2	1078.6	952.3
2010-11	4905.0	2592.2	1514.1	1021.5
2011-12	5036.0	2721.9	1535.5	1298.4

Note: Production in '000 MT.

Source: NHRDF.

After having discussed about the major onion producing states in India, let us try to track the trends of onion production in these states for a longer period of time. Table 3.4 present the trends of onion production in four major onion producing states of India for the period 1974-75 to 2011-12. It is evident from the table that the onion production in major states had improved nominally in the

seventies and eighties; in case of Maharashtra- it was almost stagnant. The production trends in all major states remain almost the same even in the nineties- with an exception of Maharashtra where the stagnant production trend of earlier decades started moving in the nineties. The first decade of the new century however brought drastic improvement in onion production, improving production by several folds in all the major states. The onion production in Maharashtra has increased from 1687.5 thousand metric tones in 2000-01 to 5036 thousand metric tones in 2011-12, while same increased from 665.4 to 12721.9 thousand mt in Karnataka during corresponding years. In case of Gujarat, onion production has increased to 1535.5 thousand mt in 2011-12 from 131.2 thousand mt in 200-01. Madhya Pradesh has also recorded significant increase in production onion during corresponding period, which may due to increase in area under onion in this state. The increase in production of onion during the decade can be attributed to increasing area under horticultural crop, improving technology as well as to the government efforts under National Horticultural Mission (NHM).

Table 3.5: Growth rates of Area, Production and Productivity of Onion in Major Onion Producing states in India (1974-75 to 2011-2012)

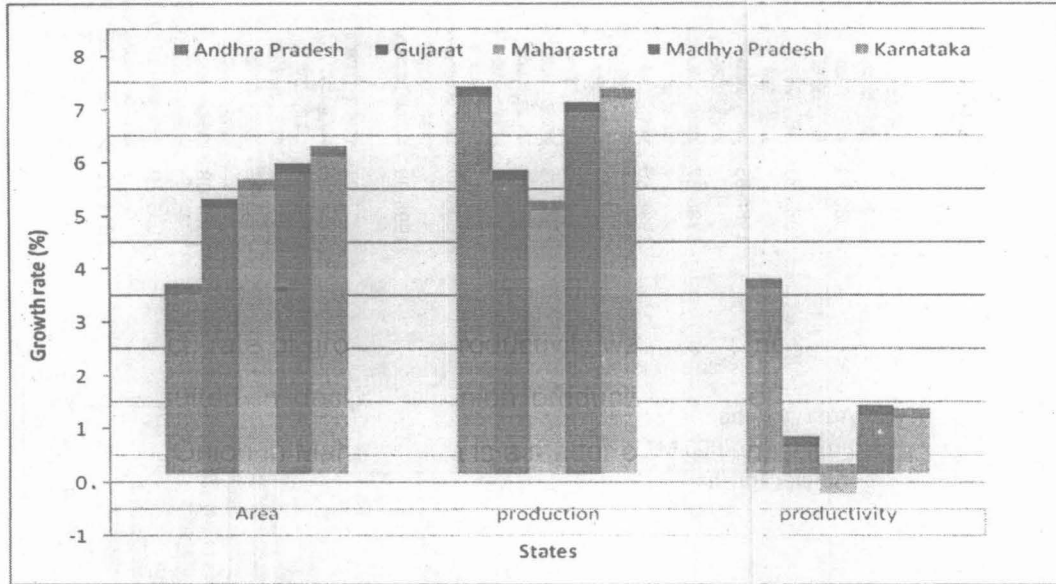
States	CGR (%)		
	Area	Production	Productivity
Andhra Pradesh	3.36	7.07	3.46
Gujarat	4.96	5.50	0.51
Maharashtra	5.33	4.94	-0.36
Madhya Pradesh	5.63	6.77	1.08
Karnataka	5.95	7.04	1.02

Source: Computed from NHDRF data.

Table 3.5 and Fig. 3.1 present the rate of growth rates in area, production and productivity of onion in major states from 1974-75 to 2011-12. It can be seen from the table that the area under onion cultivation has at the highest rate of 5.95 percent per annum in Karnataka, followed by Madhya Pradesh (5.63 per cent per annum) and Maharashtra (5.33 per cent per annum). However, in case of production of onion, Andhra Pradesh recorded the highest rate of growth of 7.07 per cent per annum during the period 1974-75 to 2011-12, followed by Karnataka (7.04 per cent per annum) and Madhya Pradesh (6.77 per cent per annum). The productivity of the onion has also recorded the highest rate of growth in Andhra

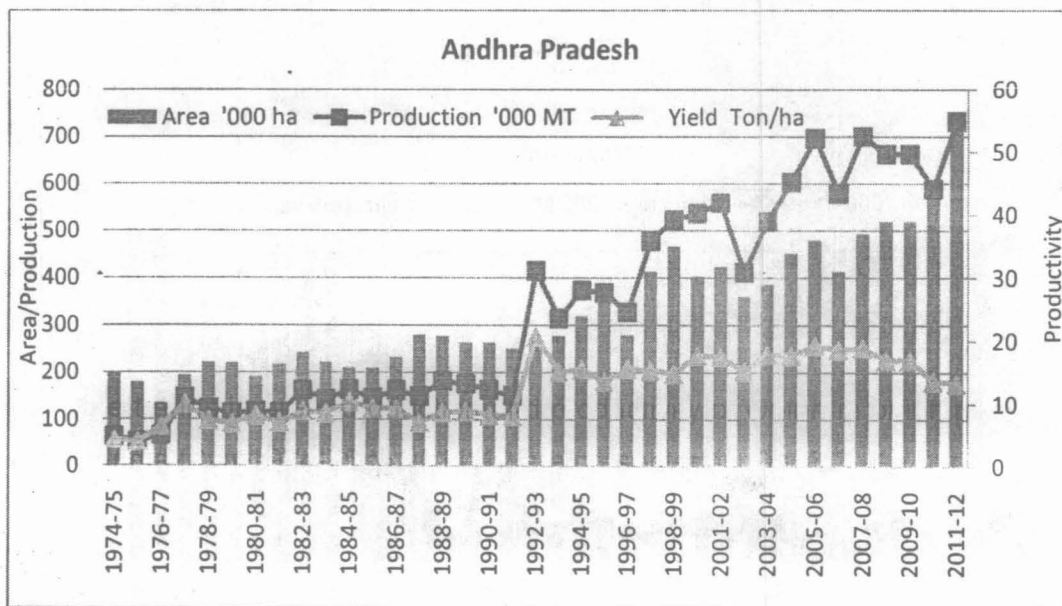
Pradesh. In fact, rate of growth of productivity was rather negative in Maharashtra, which has resulted in decline in onion production in the State. The decline in productivity of Onion in Maharashtra is a matter of concern.

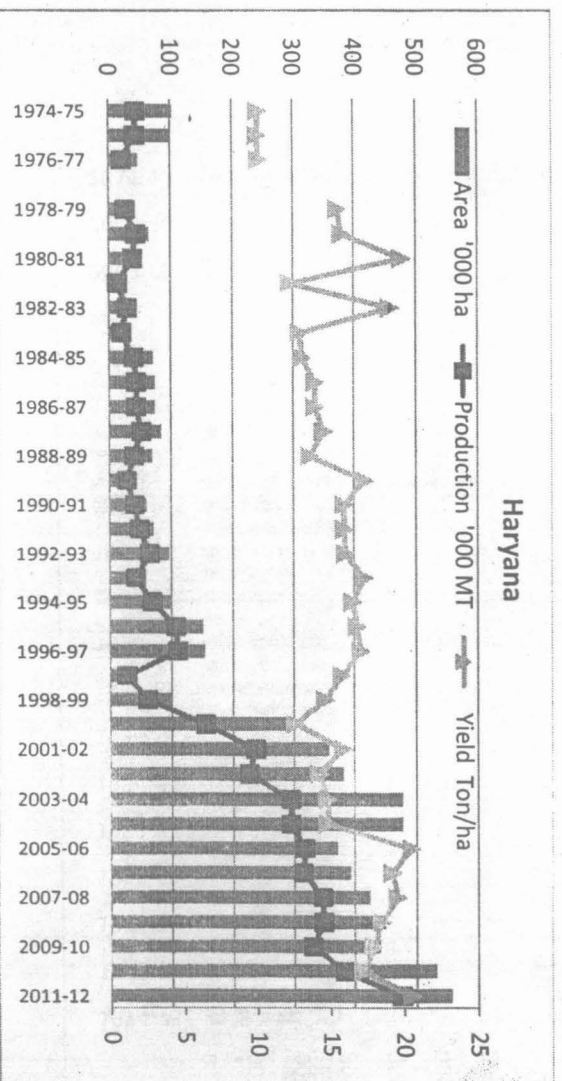
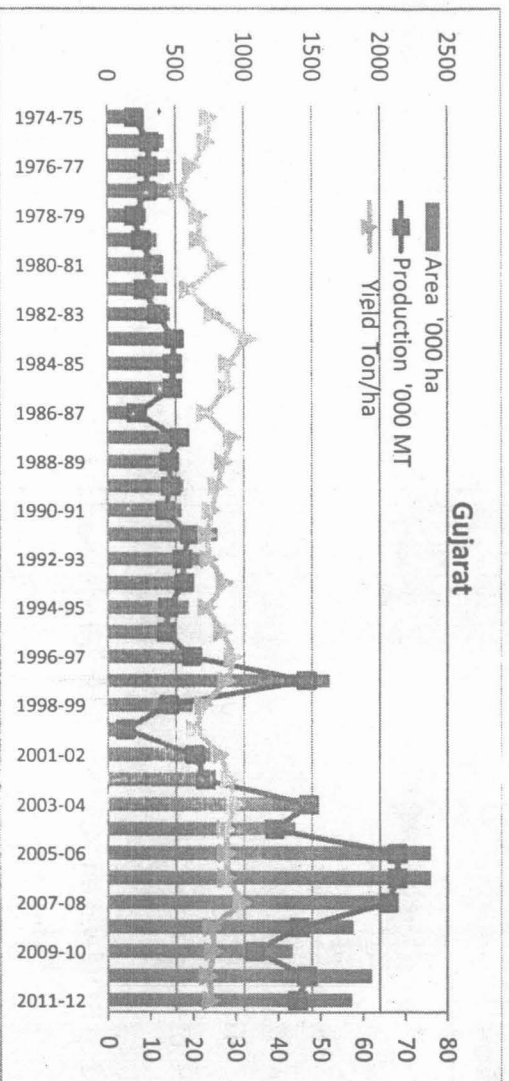
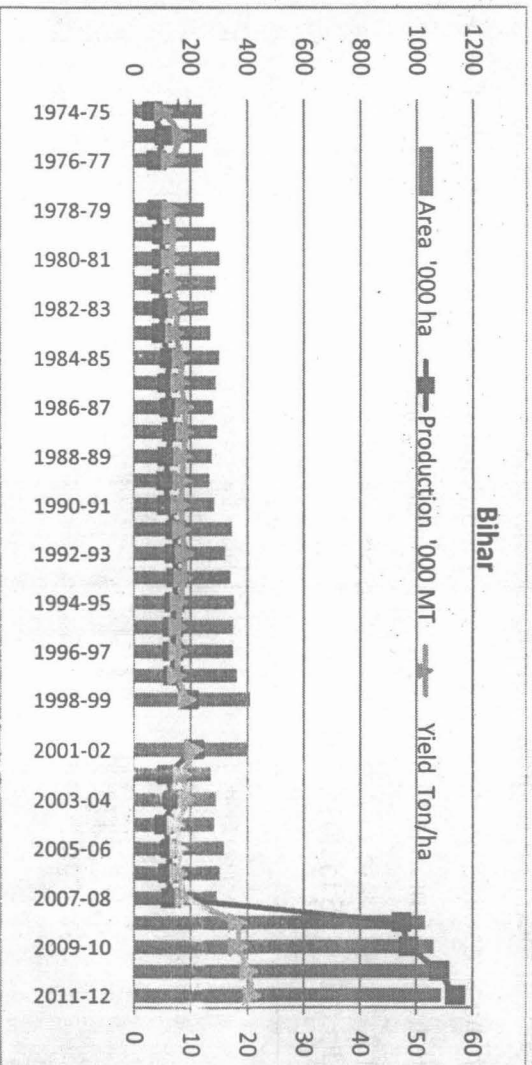
Fig 3.2: Growth rate of Area, Production and Productivity of onion in major states of India (1974-75 to 2011-2012)

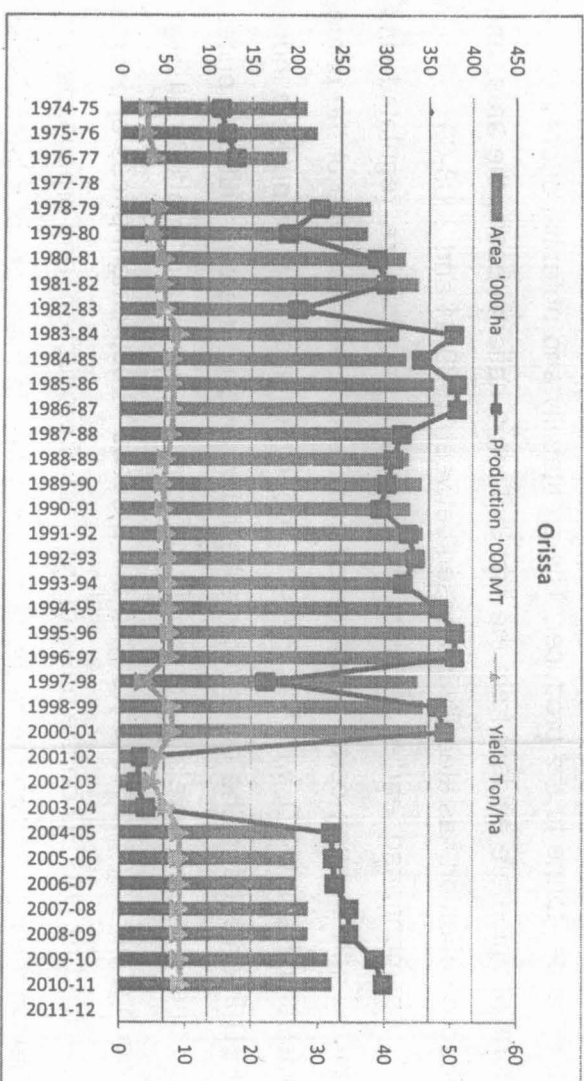
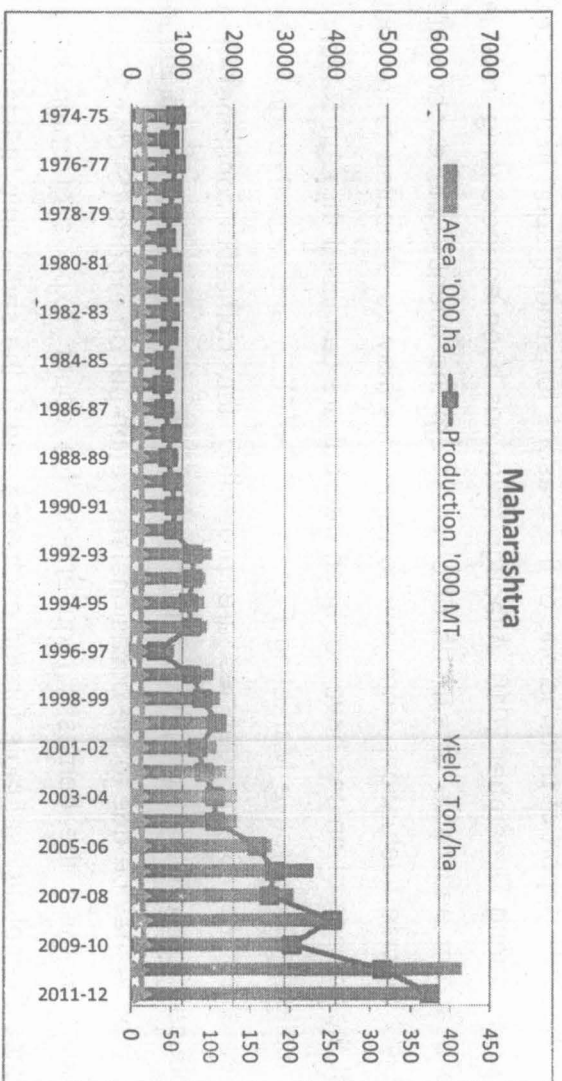
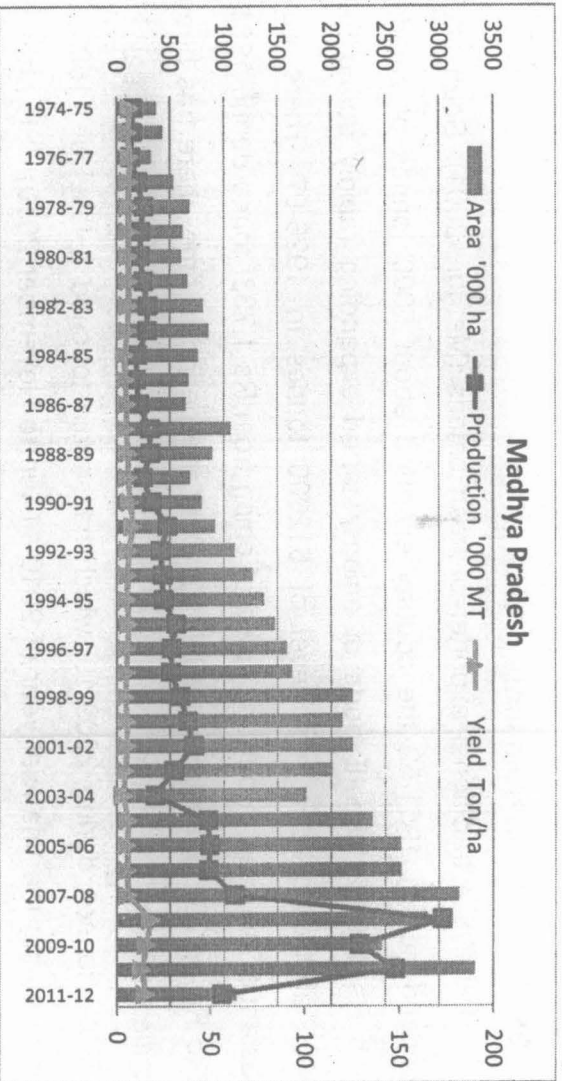


The trends in area, production and productivity of Onion in onion producing states of India from 1974-75 to 2011-12 are presented in Fig. 3.3.

Fig. 3.3: State-wise Growth in Area, Production and Productivity of Onion







3.5 Export of Onion from India

India is a traditional exporter of fresh onions (Mathur, 2001). Soon after Independence in 1951-52 the country exported about 5000 tonnes of onions, worth Rs 106.69 lakh. Exports of onions started expanding rapidly during the 1960s and reached a high level of 512000 tonnes in 1996-97. There was substantial increase in per unit value of onion from Rs 1,733/ tonne during 1981-82 to Rs 4,078/ tonne during 1990-91. Over the period of time, there has been significant increase in the exports of onion from India and touched a peak of 1873000 tonnes during 2009-10, which has again touched a level of 1158000 tonnes during the financial year of 2010-11 (up to November 2010). It is argued that the large export of onion is one of the reasons for sudden spurt in the prices of onion during December 2010. Although there has been an increasing trend in the quantum and value of exports of onions from the country, the exports are subject to wide fluctuations from year to year. This may be attributed to the fact that the exports of onions have not been free but are canalised through National Agricultural Cooperative Marketing Federation (NAFED) and now through some other agencies. Such agencies are protecting the domestic consumer and producer from unduly high prices and gluts as well. The cause of fluctuations in the exports may be due to the occasional restriction put on exports (Sudhir 2004), keeping in mind the domestic requirement. No doubt, exports of onion have fetched the country valuable foreign exchange and at the same time, it has given high price per tonne to the producer. The profitability and potential offered by the exports of onion are evident from the fact that, on a national basis, the area, and production of onion has steadily increased between 1980-81 and 2008-09.

As mentioned earlier, exports of onions from India are regulated and permitted only through certain designated canalising agencies. One of the prime agencies is the NAFED, which is the sole agency for exports of onion from India. NAFED intervenes in the domestic marketing whenever there is glut and prices reach uneconomical levels for onion. Prices prevailing in major markets all over the country are reviewed every day in this process. Procurement prices of onions are decided by NAFED on the basis of the cost of production, and procurement is initiated in the markets and from the farmers directly. In the event of a large rise in

prices, the commodities are sold at a controlled price to the consumers through its outlets of other agencies.

3.5.1 Growth in Export of Onion from India during 1951-52 to 2010-2011

Table 3.6 and Fig. 3.4 presents the growth in onion export from India during the period 1951-52 to 2011-12 and the value of the export. The onion export from India has increased drastically in last sixty years and gone up from 56986 million tonnes in 1951-52 to 1340747 million tonnes in year 2011-12. It is an increase by around 23 times during this period. The total value of the export has also gone up from Rs. 1070 crore in year 1951-52 to Rs. 2159060 crore in year 2010-11. Another point that deserves attention here is that the sharp increase in the onion export in last decade- particularly from year 2003-04. In the year 1999-2000, India exported 318,230 million tones onion worth of Rs.26704 crore. The quantity of export increased up to 840,717 million tones in year 2003-04 and to 1,340,771 million tones by the 2010-11.

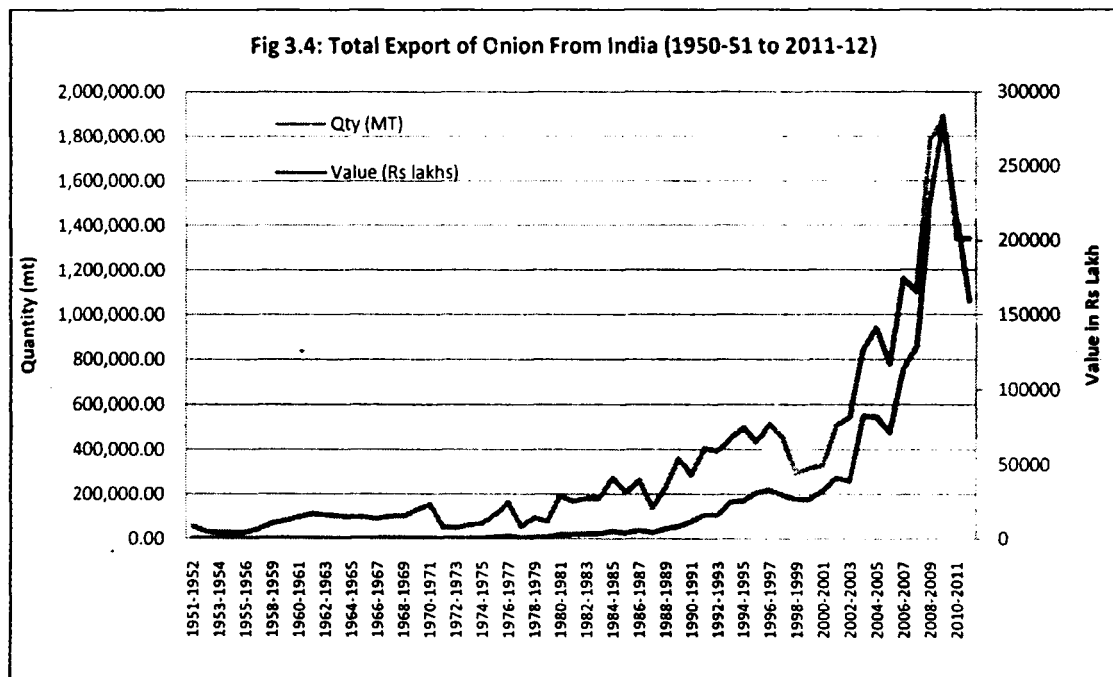


Table 3.6: Export of onion from India (1951-52 to 2011-12)

Year	Qty (mt)	Value (Rs '000 lakhs)
1951-52	56,986	107
1952-53	33,716	113
1953-54	28,842	99
1954-55	29,402	78
1955-56	30,037	77
1956-57	44,316	135
1958-59	70,737	208
1959-60	83,945	216
1960-61	99,949	212
1961-62	114,023	291
1962-63	106,653	247
1963-64	102,697	291
1964-65	99,500	299
1965-66	98,830	252
1966-67	91,919	444
1967-68	103,362	410
1968-69	103,094	457
1969-70	130,026	592
1970-71	154,625	621
1971-72	54,866	228
1972-73	51,763	267
1973-74	64,440	517
1974-75	68,983	534
1975-76	111,998	1,385
1976-77	163,533	1,885
1977-78	56,821	907
1978-79	95,541	1,365
1979-80	79,370	1,125
1980-81	193,658	2,768
1981-82	169,771	2,944
1982-83	181,313	3,166
1983-84	181,510	3,560
1984-85	274,803	5,369
1985-86	207,709	4,124
1986-87	265,845	5,845
1987-88	141,325	4,344
1988-89	228,174	6,693
1989-90	360,227	8,455
1990-91	289,380	11,803
1991-92	406,135	16,297
1992-93	395,685	16,256
1993-94	448,874	24,411
1994-95	496,881	25,676
1995-96	434,655	30,874
1996-97	512,879	33,163
1997-98	446,820	29,526
1998-99	298,427	26,436
1999-2000	318,230	26,704

Table 3.6 continues.....

Year	Qty (mt)	Value (Rs '000 lakhs)
2000-01	330,207	32,362
2001-02	506,924	41,141
2002-03	545,211	38,719
2003-04	840,717	82,123
2004-05	941,448	81,749
2005-06	778,134	71,597
2006-07	1,161,062	113,543
2007-08	1,101,404	128,582
2008-09	1,783,820	224,312
2009-10	1,873,002	283,429
2010-11	1,340,771	215,906
2011-12	1,340,747	159,151

Source: www.nhrdf.com

3.5.2 Monthly export of onions and value of export- 1991 to 2011-12

Tables 3.7 and 3.8 show the monthly quantity and value of Indian onion export from year 1991-92 to 2011-12. The months with above average export quantity in the particular year has been coloured with red colour. It is clearly evident from the tables that the quantity and the value of the Indian onion export has risen significantly in last two decades, the rise in last decade (from 2000-01 to 2011-12) is particularly dramatic. Another point that comes out of the tables is that, the March, May, April and January are the highest onion export months.

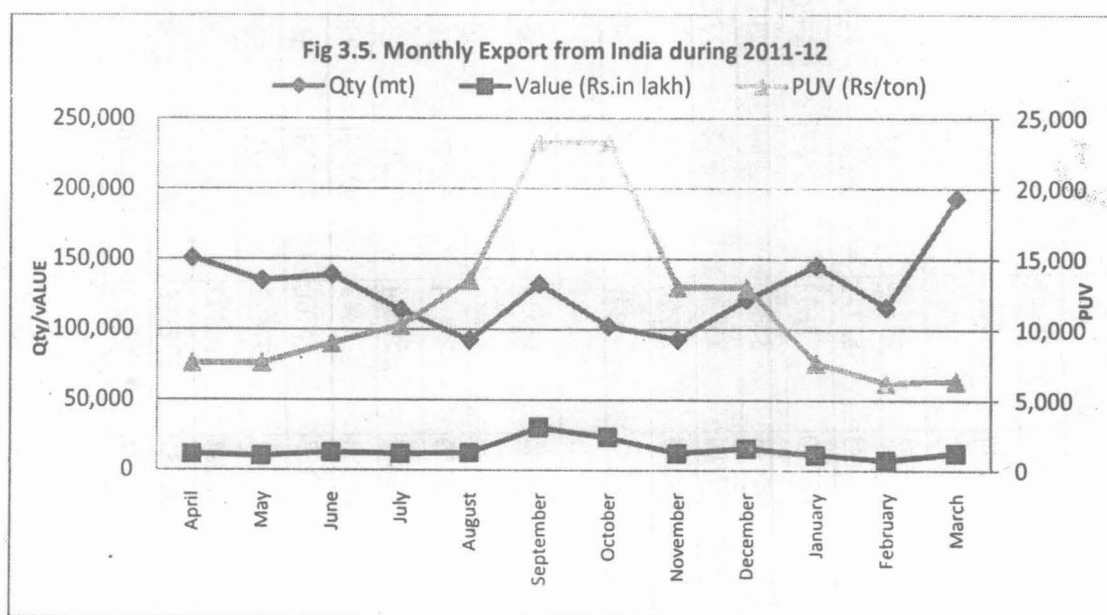


Table 3.7: Monthly Export of Onion from India

Year	Monthly Export of Onion (Qty in MT)											
	April	May	June	July	August	September	October	November	December	January	February	March
1991-92	27020	42500	31030	30720	29828	23753	24317	33322	23817	33935	50288	55605
1992-93	33215	45372	30367	22582	29134	35813	30188	25614	22501	35025	31484	54390
1993-94	46549	45935	47768	37163	60953	37269	29139	10846	13441	21152	43161	55498
1994-95	58469	36210	42888	21567	37059	23825	21748	18947	45244	61737	59658	69529
1995-96	44573	52771	38659	29274	33181	25405	28235	15538	36015	45644	37405	47955
1996-97	45070	52693	30467	48215	50775	41222	33303	15880	30818	56881	53066	54490
1997-98	51713	54309	41958	45437	50070	40218	37760	35139	8832	7263	3486	70630
1998-99	70284	56765	40834	27853	15264	5486	537				23908	57496
1999-2000	56305	70278	2235	50	25	1500			36830	58554	47952	44501
2000-01	19826	33635	21762	14805	17211	48034	23345	19308	34121	12093	41981	44086
2001-02	8385	77481	54056	58914	28540	26880	26057	20661	27542	70204	46229	61975
2002-03	59541	64311	41005	39445	36335	26619	25592	25276	49693	53770	57248	65973
2003-04	62636	69579	62811	49269	64464	63459	56242	72168	98580	100155	53495	87859
2004-05	93255	90154	86246	98317	78039	87785	90387	46690	70374	65525	64401	70275
2005-06	99798	56804	61581	55390	68519	45616	40546	47813	75477	82423	62094	78473
2006-07	88553	104343	92979	102603	115304	102163	88389	108170	123818	67194	73862	93684
2007-08	94167	84760	70576	61629	71320	64188	26067	58803	158734	133887	137781	139089
2008-09	131082	177626	149821	168498	154653	134246	125912	108907	100379	114317	158990	258849
2009-10	238234	190602	159765	205072	186144	141298	177962	84220	98921	108237	114983	167564
2010-11	186631	172188	149844	175034	158515	92078	103822	80314	17708	45409	159229	
2011-12	151179	116433	127903	94559	26540							

Table 3.8: Value of Monthly Export of Onion

Year	Value of the Monthly Export of Onion (Rs in Lakhs)											
	April	May	June	July	August	September	October	November	December	January	February	March
1991-92	1,088.6	1,472.6	1,118.6	1,387.8	1,661.1	1,755.9	1,417.8	1,674.9	920.1	1,042.0	1,503.4	1,242.9
1992-93	1,021.1	1,431.5	1,300.0	1,093.1	1,138.8	1,232.8	1,135.5	1,058.3	918.3	1,454.9	1,675.7	2,735.0
1993-94	2,426.0	1,974.9	2,214.4	1,502.5	2,607.3	1,922.7	2,077.4	919.7	1,517.3	2,061.9	2,511.2	2,584.9
1994-95	2,401.9	1,488.7	1,816.2	1,069.9	2,030.3	1,753.5	1,742.2	1,443.7	2,952.4	3,736.6	2,439.9	2,790.2
1995-96	2,001.8	2,715.0	2,331.0	2,178.1	2,727.3	2,743.2	2,518.7	1,801.5	3,863.2	3,136.4	1,948.3	2,903.1
1996-97	2,499.7	3,100.5	1,879.0	3,175.8	3,649.3	2,554.4	2,527.7	1,430.0	2,354.2	3,826.8	2,750.5	3,295.3
1997-98	2,737.8	2,619.0	2,280.6	2,301.9	2,699.5	2,484.5	2,241.7	2,902.4	1,211.2	1,405.3	608.7	6,032.9
1998-99	4,765.3	3,395.2	3,582.1	3,001.1	2,276.1	958.3	118.5				2,816.4	5,523.3
1999-2000	5,510.1	7,237.6	219.6	6.1	3.5	144.2			2,995.1	4,628.0	3,156.5	2,802.9
2000-01	2,821.3	2,679.1	1,746.0	1,178.3	1,272.4	4,143.0	1,852.8	1,964.4	3,640.5	1,203.7	4,897.2	4,963.3
2001-02	801.2	5,532.7	3,652.0	4,134.0	2,211.2	3,330.5	2,458.9	2,192.3	2,883.7	5,724.3	3,463.1	4,650.7
2002-03	4,200.6	4,071.7	2,764.4	2,880.2	2,868.3	2,355.5	2,153.2	2,462.0	3,668.3	3,351.7	3,666.9	4,266.0
2003-04	4,677.6	5,547.8	4,729.7	4,232.4	5,706.5	6,050.9	5,841.2	8,142.6	9,621.9	12,074.1	6,303.8	9,184.0
2004-05	7,459.2	6,369.5	7,252.0	8,954.5	7,163.1	8,187.8	8,828.0	4,742.9	6,564.9	5,610.0	5,113.8	5,503.6
2005-06	7,216.4	4,636.7	5,355.1	5,924.5	6,893.6	4,952.3	4,449.3	5,347.8	8,042.8	7,434.2	5,056.5	6,277.4
2006-07	6,457.3	7,917.8	7,632.9	8,242.9	9,274.0	9,253.2	8,127.0	11,072.5	12,920.6	8,043.1	10,554.3	14,031.2
2007-08	11,160.8	8,114.0	7,690.0	8,334.6	10,905.7	11,952.8	5,238.4	10,804.7	19,288.6	13,213.2	11,101.0	10,778.6
2008-09	10,670.8	14,411.4	12,035.0	17,481.1	18,192.1	16,507.9	15,634.7	16,304.5	17,433.9	22,208.9	26,513.0	36,858.8
2009-10	27,454.5	18,989.3	15,619.5	23,717.4	22,117.2	17,572.1	26,202.7	19,182.4	23,542.0	25,825.6	26,721.4	35,384.1
2010-11	24,047.2	19,629.2	19,495.7	22,511.5	20,824.6	17,011.0	24,255.7	20,298.9	5,606.5	13,494.0	29,740.9	
2011-12	11,475.2	8,864.4	11,511.3	9,712.1	3,596.4	1,32,539.0	1,02,139.0	92,758.0	1,21,509.0	1,45,557.0	1,15,851.0	

3.5.3 The Marketing System: Institutional Support for Marketing and Trade

Exports of onions from India are not free but are permitted only through certain designated canalizing agencies. Foremost among these agencies is the National Agricultural Cooperative Marketing Federation of India, Limited (NAFED), which was from 1974-75 till January 1999, the sole canalizing agency for onion exports. NAFED, located in New Delhi, was set up in October 1958 to provide market support to agricultural producers. This market support to producers is provided by NAFED through various state level marketing federations, primary agricultural marketing societies and the National Cooperative Development Corporation.

In order to provide marketing support to producers and ensure a better price to them, and also to maintain the availability of the commodities in the domestic market at reasonable prices, NAFED undertakes internal trade in agricultural commodities especially food grains, pulses, oilseeds, cotton, jute, spices, fruits, vegetables and eggs. NAFED also engages in external trade and a variety of agricultural commodities are exported by NAFED. In fact the exports of agricultural commodities through the cooperative system in India developed only after NAFED came into existence. As a part of its external trade activities, NAFED also undertakes imports of agricultural commodities as and when requested by the government.

Price support programs

Since NAFED is responsible for providing marketing support to producers and ensure that they receive a remunerative price for their product, it also undertakes support price purchases of various commodities for the government. It is the key agency for implementing the price support policy program in respect of oilseeds and coarse grains. For onion, NAFED intervenes in the domestic marketing whenever there is glut in the market and prices reach uneconomical levels. Prices prevailing in major markets all over the country are reviewed every day in this process. Procurement prices of onion are decided by NAFED on the basis of cost of production and procurement is initiated in the markets and from the farmers directly. This benefits the producers, particularly the small producers,

who have low carrying capacity and are constrained to sell immediately after harvest on account of financial constraints.

In case of external trade, NAFED is responsible for fixing the minimum export price (MEP) of onions, which is done on a monthly basis. The Price Fixation Committee of NAFED decides this price. Factors such as market trends, world prices and domestic prices, and margins are considered for arriving at the MEP of onion.

Technological and extension support

A National Horticultural Research Development Foundation has been set up by NAFED to undertake research on development of varieties of onion suitable for cultivation in different agro-climatic regions of the country as well as the development of suitable production practices. NAFED has also set up units for the production of bio-fertilizers and rhizobium culture. Besides NAFED, other public research agencies are also involved in technology development and upgradation for onion.

The technologies and package of practices developed are passed on to the producers through an extensive system of extension. Seed, and, at times, other critical inputs are provided to farmers by NAFED. Plant protection operations have also been undertaken to provide protection against pest and disease infestations. Technical knowhow is extended to farmers to improve production and productivity. Seed production is undertaken by the NAFED sponsored NHRDF and seed is sold by NAFED under its own name.

External trade support

From 1974-75 to January 1999, the NAFED was the sole canalizing agency for external trade and exports of onions from India. In January 1999, the new export - import policy of the Government of India introduced certain changes in the system of onion trade by including some other agencies as additional canalizing agencies for onion trade. These were the Maharashtra Agricultural Marketing Board and the Gujarat Agro Industries Corporation. In December 1999, the list was extended with the inclusion of Karnataka State Cooperative Marketing Federation, Andhra Pradesh Marketing Federation, Spices Trading Corporation,

Limited, National Consumers Cooperative Federation, and Andhra Pradesh State Trading Corporation as canalizing agencies for onion exports. The reasons for allowing other agencies to enter into the canalized exports of onion is that the Government does not want any agency to acquire a monopoly position in this respect and also to facilitate the easy procurement, distribution and exports of the commodity from the widely distributed producing centers of the country. However, NAFED continues to be a monitoring agency.

Each canalizing agency is allocated a quota for exports. An inter-ministerial group comprising representatives of the Ministries of Commerce, Consumer Affairs, and Agriculture and NAFED decide the quotas for exports to be allocated to each canalizing agency. These quotas are decided for varying periods of say 15 days to a month and generally not for a long period.

The share of NAFED in the total quantity exported is around 50 per cent, with the remaining being shared by the other co-canalizing agencies. Having been responsible for exports of onions since its inception, NAFED has been able to establish markets for Indian onion abroad, which is evident from the increasing volume of onion exports.

NAFED has set up modern state-of-the-art storage facilities in Maharashtra, Gujarat and Tamil Nadu near its major procurement centers. Onions require storage facilities that require sufficient inflow of fresh air. Consignments are packed in hessian bags which allow air to pass through. Export consignments meant for long distance are transported by NAFED's associated shippers in specially equipped sea vessels in which air is blown in storage areas through fans and blowers.

Box 3.1: Economic Theories for Commodity Prices

Although there are several theories related to commodity prices, here, we give an overview of two theories of commodity prices that are related to onion prices in India : the storage model, the scarcity rent model and the cobweb model.

The storage model:

There is one theory about commodity price behaviour that tends to dominate: the storage model. The storage model has a long history, beginning with writings of Gustafson (1958) and later exhaustively presented by Williams & Wright (1991, we believe that, it is sufficient here to provide a brief description with an emphasis on the time series price properties that the model predicts.

The storage model studies how speculators will engage in commodity transactions based on their expectations of future price changes. Typically, when the actual price is below the level speculators expect to prevail in the next period (namely, the long-term mean of the price adjusted for storage and interest rate costs), speculators will store the commodity in order to sell it at a higher price during the next period. By contrast, when the current price is above the next period's expected value, speculators will not store the commodity. In the case when there are no incentives to store (the so-called stock-out case), price dynamics simply follow the path of the underlying supply shocks.

Clearly, the storage model theory is best suited for commodities like onion, which are easily stored and whose production is unpredictable (such as those dependent on weather conditions). In regard to the commodity groups analysed for the current study, the storage model is best suited to describe staple commodities and non-perishable plantation crops.

The "Cobweb" model:

Finally, mention should be made of a compelling model for predicting the prices of livestock products known as the "cobweb model." This model, which was introduced by Ezekiel (1938), considers price fluctuations as endogenous, rather than exogenous (as in the storage model). The storage model asks how exogenous shocks in the supply will be transmitted into price movements. By contrast, the cobweb theory explains that price variations are the results of the behaviour of market participants.

Agent's price expectations play a crucial role in the livestock industry, where the lag between producing decision and effective production can be up to 3 years. While both the cobweb and storage theories model how agents form their expectations, they are based on two fundamentally different assumptions: while the storage model assumes that agents have rational expectations, adherents of the cobweb model assume that producers have naive expectations. Thus, according to the cobweb model, agents will base their production decision on the prevailing price, even if they know that the next period's price will likely diverge (this explains the term "naive expectations"). By doing so, agents' expectations can create variations in price: when prices are low (high), they will reduce (increase) their production, so that the next period will see opposite high (low) prices.

Even though the model of naive expectations has been deemed improbable and has received little attention in the mainstream literature, it has not been altogether disregarded in the study of agricultural commodity pricing (see, for example Mitra & Boussard, 2008). A reason for continued interest is its ability to generate oscillatory prices, which are considered applicable in describing cattle dynamics. For example Aadland (2004, p. 1977) writes,

"Aggregate cattle stocks are a peculiar economic time series. To the best of my knowledge, no other series displays such regular and lengthy economic cycles. The regularity of the cattle cycle, [...] is unmistakable-spanning approximately 10 years from peak to peak. (Aadland, 2004)"

As the other theory mentioned above do not account for such cyclical behaviour, this makes the cobweb model an interesting candidate to help predict prices.

Firstly, it should be noted that the theories elucidated thus far consider markets free from government intervention. However, it is clear that price stabilization (especially minimum price programmes,) and trade policies may have important impacts on commodity price behaviour. Moreover, there are theories that emphasize the importance of the macroeconomic environment, such as the "overshooting" model of (Frankel, 1986, 2006), in which monetary expansion induces commodity price inflation in the short-run.

3.6. Analysis of Onion Prices

In this section, an attempt is made to observe the behavior of onion prices. A comprehensive understanding of the prices play important role in shaping agricultural policies, as well as guiding the decision making process of economic agents. We focus on three indicators in order to analyse trend of onion prices- seasonal index of onion arrivals and prices in major markets, volatility of onion prices and wholesale and retail prices of onion in major markets.

3.6.1 Seasonal Indices:-

Seasonal or inter-year price variations are upward or downward movements in prices that occur with some regularity during the year. Seasonal price variations resemble a cycle covering a period of 12 months or less. The general pattern of general variations in prices, i.e. lower prices during the post harvesting months and higher prices during the pre-harvest or off-season months is a normal feature for many agricultural commodities and it is repeated year after year. Some of the factors that affect extent of seasonality in prices include- extent of seasonal concentration in production, Degree of perishability of the commodity, the cost of storage (including direct cost, losses in storage, risk involved), degree of seasonality in consumption, facility of storage available to farmers or with public agencies, restrictions imposed on traders in terms of stock limits. In this section, we will discuss the seasonal index of onion arrivals and onion prices in major onion markets of the country. The index has been developed using the monthly data on arrivals and prices of onions in these markets from 2002 to 2011 and using Acharya and Agarwal (1994) methodology⁵.

Seasonal Index-

Table 3.9 and Figure 3.6 present the seasonal index of onion arrivals and onion prices in the Major markets of the country (i.e. Bangalore, Ahmadabad, Hyderabad, Mumbai, Delhi, Kolkata and Chennai). While it is difficult to draw any particular trend of arrivals and prices for all the markets- an interesting thing to note is the behaviour of arrivals and prices. It is clearly evident from the table that,

⁵ The seasonal index numbers are calculated by using Simple Average Method.

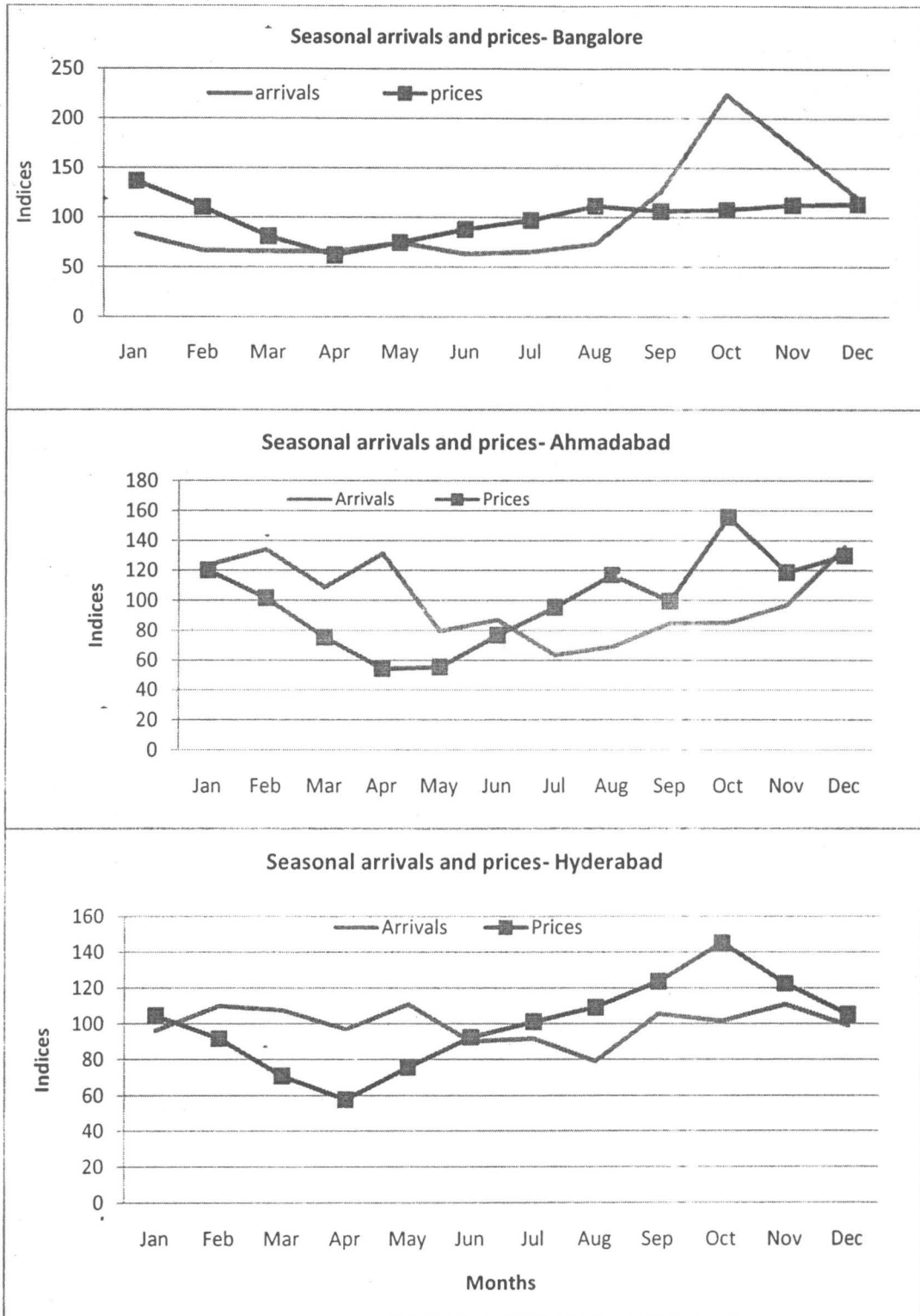
in all the markets- the months with above average onion arrivals and above average onion prices are almost the same- implying that the months with highest onion supply also have the highest prices of Onion.

Table 3.9: Seasonal Index of Arrivals and Prices of Onion in Major Markets

Markets	Seasonal index	Jan	Feb	March	April	May	June	July	August	Sept.	October	Novem ber	Decemb er
Bangalore	Arrivals	↓83.29	↓66.9	↓66.02	↓65.81	↓74.38	↓63.1	↓65.35	↓73.16	↔126.2	↑224.2	↑171.6	↔120
	Prices	↑136.8	↔110.4	↓80.79	↓61.87	↓74.29	↔87.61	↔96.94	↔111.4	↔106.2	↔107.7	↑112.6	↑113.4
Ahmadabad	Arrivals	↑123.7	↑134.2	↔108.7	↑131.4	↓79.53	↓87.22	↓63.57	↓68.9	↓84.8	↓85.15	↔96.9	↑135.9
	Prices	↔120.1	↔101.6	↓75.45	↓54.24	↓55.39	↓76.78	↔95.44	↔116.9	↔99.59	↑155.7	↔118.8	↑130
Hyderabad	Arrivals	↔96.24	↑109.9	↑107.7	↔96.98	↑110.9	↔90.25	↔91.69	↓79.04	↑105.6	↑101.8	↑110.9	↔99.1
	Prices	↔104.5	↔91.64	↓70.88	↓57.87	↓75.57	↔92.38	↔101.1	↔109.2	↑123.8	↑145.3	↑122.5	↔105.3
Mumbai	Arrivals	↑119.4	↑117.5	↑122.2	↔100.7	↓84.4	↔97.43	↔97.51	↓78.21	↓86.17	↓86.6	↔100.8	↑109.5
	Prices	↔114.9	↔86.81	↓64.4	↓56.87	↓67.02	↓79.44	↔86.76	↔107.7	↑123.8	↑145.2	↑136.5	↑130.6
Delhi	Arrivals	↓81.46	↓84.54	↔111.5	↔99.85	↔104.4	↑115.6	↔108.6	↓88.18	↓82.78	↓84.13	↑132	↔107
	Prices	↑127.4	↔103.8	↓81.84	↓64.4	↓72.65	↓74.71	↓81.01	↓91.2	↔108.2	↑147.3	↑126.3	↑121.2
Kolkata	Arrivals	↔105.7	↑127.5	↔99.33	↓75.4	↔104.5	↓88.09	↔105.8	↔107.7	↔97.65	↓88.07	↓87.02	↑113.4
	Prices	↑119.6	↔92.18	↓60.51	↓55.73	↓63.18	↓74.86	↔89.69	↔106.6	↑122.3	↑148.9	↑132.7	↑133.8
Chennai	Arrivals	↑107.3	↔101.9	↔104.8	↓85.44	↓90.84	↑106.1	↑116.1	↓89.3	↔104.8	↓90.21	↔102.8	↔100.4
	Prices	↑128.5	↔96.54	↓70.13	↓66.33	↓70.39	↓83.28	↓89.31	↔101.5	↔103.3	↑136.5	↑127.8	↑126.5

(Note- the months with above average seasonal index has been colour with yellow and red colour).

Fig. 3.6: Seasonal Arrivals and Prices of Onion at various National Markets



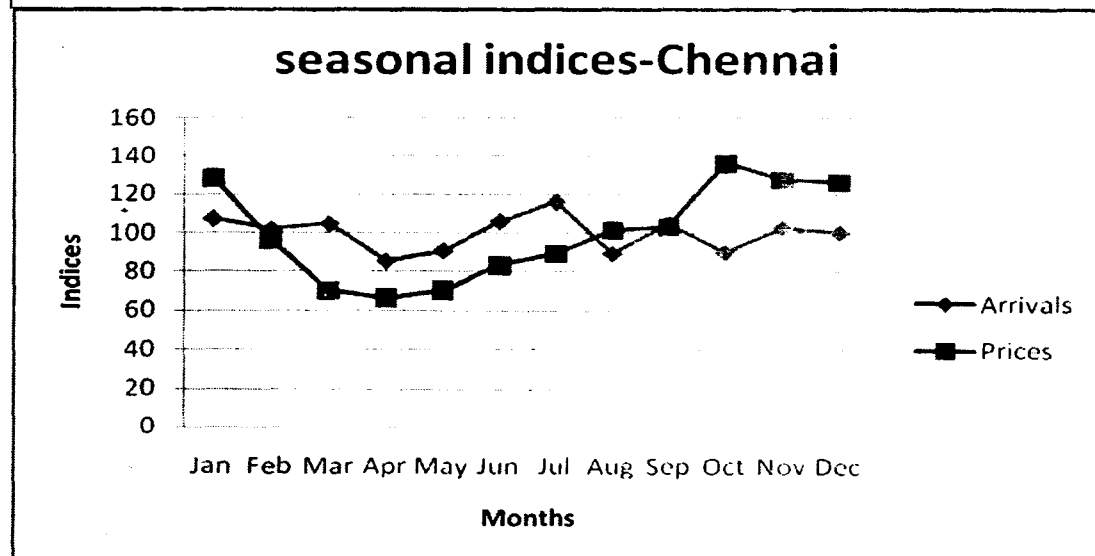
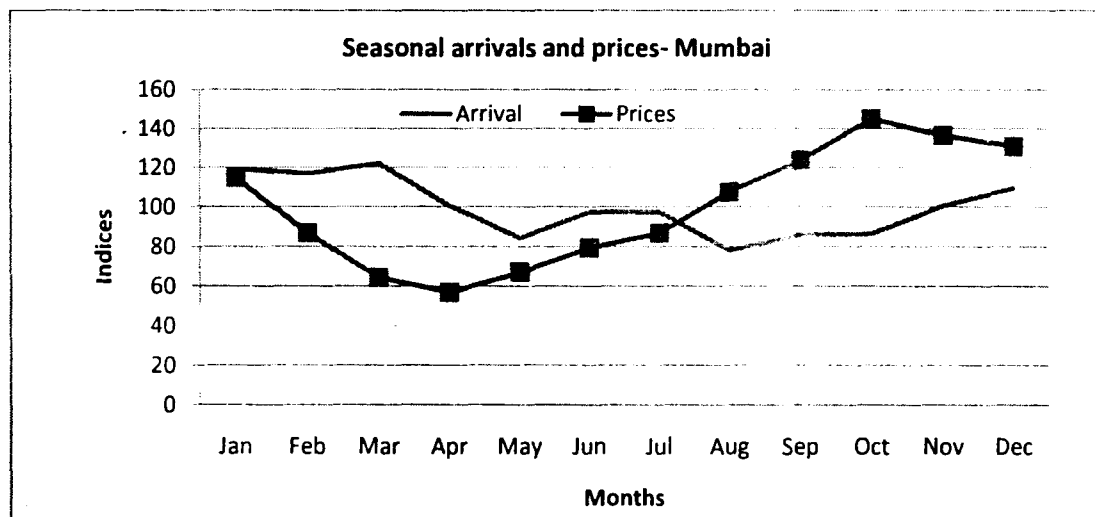
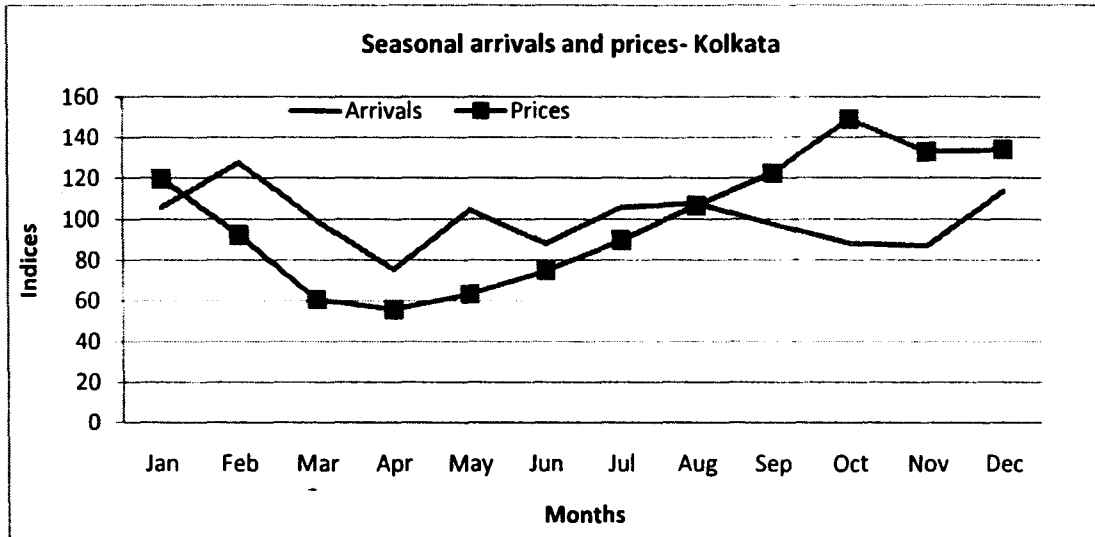


Table 3.10: Selected Marketwise Seasonal Particulars of Arrivals and Prices

Market	Seasonal particulars of arrivals and prices
Bangalore	<p>The seasonal index of arrivals and prices in Bangalore shows that, the arrival of onion is highest in the period of September to December. The arrivals in Bangalore markets start rising in late August and increase significantly in following months of September and October, it reach to the peak in the October and come down again in November and December and continue in the similar range from January to August. The prices of onion on the other hand are highest in the months of January and February- it then come down to its lowest in month of April and rise steadily from May till December.</p> <p>Highest arrivals months- October, November, September Lowest arrival months- June, July, April and March Highest Prices months- - January, February, August Lowest Prices months- April, May and March</p>
Mumbai	<p>The seasonal index of arrivals and prices in Mumbai shows that, the December, January, February and March are the highest onion arrivals months in the Mumbai Market. The onion arrivals go down steadily from its peak in March to almost bottom in month of May. The arrivals go up a bit in June and July- come dawn again in August and start rising steadily From September till its peak in February. In the case of onion prices- the October, November and December are the months with highest onion prices. Interestingly- in the months of November, December and January- both the arrivals of the onion and the prices of the onion are above average- indicating that the supply and prices instead of behaving oppositely are moving up together.</p> <p>Highest arrivals months- December, January, February, March Lowest arrival months- August, May, September, October Highest Prices months- October, November, December Lowest Prices months- April, March, May, June</p>
Hyderabad	<p>The seasonal index of arrivals and prices in Hyderabad shows that, the arrivals of the onion are highest during the months of November, December and May- while the prices are highest in the months of October, November and December. One interesting thing about the onion arrival in Hyderabad is the consistency in arrivals- it is the market with lowest arrival fluctuations in all major markets. With an exception of August (79) all other months have arrival index in the range of 90 to 110.</p> <p>Highest arrivals months- <u>November, December, May</u> Lowest arrival months- August, June, July Highest Prices months- October, November, December Lowest Prices months-April, March, May</p>

<p>Ahmadabad</p>	<p>The seasonal index of arrivals and prices in Ahmadabad shows that, the December, February and April are the highest onion arrival months while the October, November December and January are the months with highest onion prices. The arrivals of the onion are above the market average from the month of December to April- while the prices are above the average from the October to February and in August. Highest arrivals months- December, February, April Lowest arrival months- July, August, May Highest Prices months- October, November, December, January Lowest Prices months- April, May, March</p>
<p>Kolkata</p>	<p>As per the seasonal arrival and price index for Kolkata- the months of December, February and January has the highest arrivals of the onion while the October, November, December and January are the months with highest onion prices. The December, January, February, May, July and August are the months with above average onion arrivals whereas the prices are above average from the August to the January. Highest arrivals months- December, February, January Lowest arrival months- April, November, October Highest Prices months- October, November, December, January Lowest Prices months- April, March, May</p>
<p>Delhi</p>	<p>The seasonal index of arrivals and prices in Delhi shows that, the arrivals of the onion are highest in the months of November, December, March and June whereas the prices are highest in the months of October, November, December and January. November, December, March, May, June and July has the above average arrivals of the onion while the prices are above average from the September to the February. Highest arrivals months- November, December, March and June Lowest arrival months- January, September, October Highest Prices months- October, November, December and January Lowest Prices months-April, May, June</p>
<p>Chennai</p>	<p>The seasonal index of arrivals and prices in Chennai shows that, the July, January, March and November are the highest arrivals months for the market whereas the onion prices are highest in the months of October, November, December and January. Highest arrivals months- July, January, March and November. Lowest arrival months- April, August, October Highest Prices months- October, November, December and January Lowest Prices months-April, March, May</p>

3.6.2 Volatility in Onion Prices-

As it is stated in the introductory section, regular price fluctuations- “day-to-day” or “normal volatility”- is both typical and requisite for competitive market functioning. The essence of the price system is that when a commodity becomes scarce its price rises, thus inducing a fall in consumption and signalling more investment in the production of that commodity. It is important to know why prices have risen in order to counteract the scarcity appropriately (Grossman, 1976). However, the efficiency of the price system begins to break down when price movements become increasing uncertain and precipitous, and ultimately reaches the point of redundancy when prices undergo “extreme volatility”- or “crisis” – in more popular terminology.

With above explanation- volatility may seem a rather obvious concept, but a precise definition of volatility is elusive and its measurement is prone to much subjectivity. In mainstream economic theory, however, volatility connotes two principle concepts: *variability and uncertainty*, the former describing overall movement while the latter referring to unpredictable movement. As households and planning agencies are able to cope better with predictable variation, unpredictable changes- or “shocks”- are primary concern. When shocks surpass a certain critical size or threshold and persist at those level, traditional policy perceptions and coping mechanisms are likely to fail (wolf, 2005).

In addition to the distinction between normal and extreme volatility, price movements may be excessive relative to changes in “fundamentals”- i.e. shocks to demand and supply- over and above that which is predicted by the efficient market hypothesis and is termed “excess volatility” (Shiller, 1981; LeRoy and Porter, 1981). Prof. Shiller of the Yale, takes the view that excess volatility is attributed to investors’ psychological behaviour, by which substantial price changes are the outcome of a market-wide cognitive process that can only be explained by its thoughts and beliefs about future events.

Onion Price Volatility in major Markets-

We have calculated the price volatility in different markets by two different methods- (a) First, we have calculated price volatility by calculating coefficients of variations of the onion-prices in major Markets for the period of three years (from

2009 to 2011); (b) Second, we have used the Acharya methodology to calculate yearly price volatility in major onion markets for the years 2009, 2010 and 2011.

The coefficients of variations of onion prices in major markets for the period of 2009 to 2011 have been given in the following Table 3.11. It is clearly evident from the table that the wholesale prices of the onion are more volatile than the retail prices in all major cities. If we consider the variation across the country then, the wholesale prices in the Mumbai, Ahmadabad and Chennai are more volatile than the remaining markets. In case of retail prices- Ahmadabad, Bangalore and Mumbai are more volatile than the remaining markets.

Table 3.11: Average Wholesale and Retail Prices of Onion in Major Markets

Major Markets	2009 to 2011	
	Wholesale Prices	Retail Prices
Delhi	0.47	0.44
Jaipur	0.51	0.48
Mumbai	0.66	0.51
Kolkota	0.56	0.48
Bangalore	0.56	0.53
Chennai	0.57	0.50
Ahmadabad	0.63	0.55

The following tables 3.12 and 3.13 shows volatility of onion prices in major markets. The coefficients of variations here have been calculated using the Acharya Methodology.

Table 3.12: Wholesale and Retail Prices of Onion during 2009 to 2011

Major Markets	2009		2010		2011	
	Wholesale Prices	Retail Prices	Wholesale Prices	Retail Prices	Wholesale Prices	Retail Prices
Delhi	29.77	26.81	23.44	42.29	30.70	61.71
Jaipur	15.82	39.94	44.91	40.68	95.76	73.01
Mumbai	NA	29.55	63.70	16.45	65.16	54.53
Bhopal	31.35	21.05	62.13	54.57	39.29	47.72
Patna	Na	22.82	48.80	48.31	71.16	62.48
Bhuvaneswar	35.41	30.12	54.52	47.41	66.41	53.42
Kolkota	NA	29.23	75.61	1.97	69.46	65.08
Hydrabad	NA	40.44	56.81	47.32	77.01	50.08
Bangalore	33.32	29.59	50.28	48.71	75.32	71.39
T.Puram	NA	42.77	72.53	32.05	20.1	21.27
Chennai	43.53	35.73	57.38	50.28	74.87	65.63
Gauhati	NA	32.4	70.85	50.19	67.09	57.99
Shilong	NA	22.18	NA	56.35	57.91	44.76
Agarthala	Na	28.32	49.87	41.40	57.29	54.24

Table 3.13: Monthly Wholesale and Retail Prices of Onion in Major Markets

Month	DELHI		AHMADABAD		JAIPUR	
	Wholesale Price	Retail Price*100	Wholesale Price	Retail Price*100	Wholesale Price	Retail Price*100
Jan-09	1081.47	2130	NR		1175	1520
Feb-09	945.74	1823	1050	1275	1225	1450
Mar-09	787.45	1755	1150	1500	960	1590
Apr-09	665.89	1311	NR	1500	562.5	1167
May-09	652.25	1145	650	1350	515.71	815
Jun-09	670.76	1293	NR	1109	538.33	718
Jul-09	799.65	1435	641.67	1278	660	939
Aug-09	851.89	1457	600	1200	680	1060
Sep-09	796.65	1520	NR	1200	724.29	1305
Oct-09	1525.89	2507	NR	1271	1272.73	2114
Nov-09	1106.88	2470	1325	1850	800	2400
Dec-09	1015.29	2174	NR	2305	NR	2400
Jan-10	1145.36	2350	NR	2000	1200	1910
Feb-10	1050.63	2310	1100	1855	1287.5	1605
Mar-10	730.87	1738	NR	1520	1050	1431
Apr-10	616.2	1450	797.14	1400	563.16	850
May-10	473	1155	900	1400	583.33	900
Jun-10	499.25	1111	861.9	1327	404.55	818
Jul-10	617.5	1377	800	1200	436.36	945
Aug-10	697.68	1530	931.17	1200	542.5	991
Sep-10	1115.48	2186	1505.56	1650	937.5	1322
Oct-10	1355.63	2548	1970	2150	1200	1500
Nov-10	1625	2835	2395	2475	1320	1795
Dec-10	2169.89	4164	3590.91	3995	1686.36	2755
Jan-11	2428.13	4871	3205	3953	2095	3432
Feb-11	944.74	1995	1594.74	1747	881.58	1305
Mar-11	640.91	1459	NR	1273	504.55	918
Apr-11	561.81	1169	NR	1167	400	800
May-11	516.67	1083	NR	1000	300	562
Jun-11	560.8	1086	NR	845	304.55	505
Jul-11	751.79	1479	NR	762	516.67	905
Aug-11	965	1845	NR	0	660	1080
Sep-11	1022.62	2283	NR	0	NR	1400
TOTAL	31388.77	63044	25068.09	48757	25987.17	45207
Mean	951.17	1910.42	1392.67	1523.66	838.30	1369.91
Std Dev	449.68	840.34	873.20	831.86	426.21	658.82
CV	0.47	0.44	0.63	0.55	0.51	0.48

Table 3.13 continues

Months	Mumbai		Kolkata		Chennai		Bangalore	
	Wholesale Price	Retail Price* 100	Whole Sale Price	Retail Price* 100	Whole Sale Price	Retail Price* 100	Wholesale Price	Retail Price* 100
Jan-09	Nr	1900	Nr	1870	1492	1785	1663.64	2160
Feb-09	Nr	1493	Nr	1695	1200	1435	1240	1730
Mar-09	741.67	1495	NR	1545	1090	1220	900	1470
Apr-09	575	1083	764	1289	800	1028	700	1100
May-09	615	955	NR	1160	928.57	1060	700	1000
Jun-09	787.5	1180	NR	1223	853.85	973	816.67	1100
Jul-09	800	1278	1061.54	1339	1000	1035	820	1200
Aug-09	775	1260	1005.56	1340	970	1100	800	1200
Sep-09	875	1200	1000	1350	884.62	1105	725	1050
Oct-09	1526.67	1807	1875	2214	1266.67	1514	1683.33	1829
Nov-09	3500	2155	2023.08	2430	1414.29	1725	1915.38	2360
Dec-09	2124.15	2367	1871.43	2538	2200	2262	1975	2600
Jan-10	1270.3	2045	1800	2450	2092.86	2330	1480	2440
Feb-10	1106.11	1800	1700	2165	1640	1725	1200	1830
Mar-10	742.65	1358	NR	1178	1100	1213	822.22	1274
Apr-10	582.1	1285	NR	811	800	905	655	1000
May-10	549.74	1128	753.33	1005	733.33	900	660	1060
Jun-10	673.5	1155	767.78	1123	840	955	842.86	1200
Jul-10	764.18	1168	923.53	1259	900	1000	800	1200
Aug-10	882.71	1291	1005	1418	1032.95	1134	1019.05	1423
Sep-10	1366.67	1829	1467.5	1980	1441.18	1505	1452.38	1733
Oct-10	1677.5	2305	1932.5	2400	1585	1685	1665	1960
Nov-10	2296.25	3250	2600	2930	2535	2715	2530	2990
Dec-10	3222.73	4900	3609.52	4024	3043.18	3295	3140.91	4123
Jan-11	2910	4926	3120	4311	4355	4832	3230	4074
Feb-11	1030.26	2137	1036.84	1747	1700	2117	1168.42	1705
Mar-11	612.5	1473	738.64	1023	1061.36	1255	636.36	1027
Apr-11	584.72	1361	552.78	872	719.44	939	605.56	900
May-11	657.62	1510	652.38	962	700	900	600	924
Jun-11	800	1600	745.45	1109	879.55	1055	686.36	1009
Jul-11	910.71	1610	995.24	1400	1183.33	1367	800	1100
Aug-11	1145	1710	1000	1400	1345	1465	1170	1524
Sep-11	1290.48	2024	1290	1860	1509.52	1519	1085.71	1436
TOTAL	37395.72	60038	36291.1	57420	45296.7	51053	40188.85	54731
Mean	1206.31	1819.33	1395.81	1740.0	1372.63	1547.06	1217.84	1658.52
Std Dev	799.56	928.50	782.31	830.04	763.34	816.49	692.72	823.46
CV	0.66	0.51	0.56	0.48	0.56	0.53	0.57	0.50

Source: www.nhrdf.com

Box 3.2: Four dimensions of producer vulnerability: a survey

Infrastructure: Several authors share the view that public investment in infrastructure has a positive impact on agricultural supply, especially through the influence by generating productivity increases (Binswanger & Deininger, 1997). In an analysis of agricultural policies in 18 countries between 1960 and 1983, Krueger et al. (1991) show that the macroeconomic environment and the supply of public goods may influence performance in the agricultural sector. They demonstrate that investing in rural infrastructure and coordinating with social services and viable systems of credit for small producers enabled agricultural production to rapidly grow and reduced poverty in Southeast Asia and China. Similarly, Heath & Binswanger (1996) point out that in Kenya, where infrastructure supports market access, growth in agricultural production more than compensated for growth in rural population; while in Ethiopia, a country deprived of infrastructure favourable to producers, the strong population density implied significant degradation of land.

Faini (1992) suggests that the level of infrastructure could improve the supply response to producer price changes - for example, by reducing the high costs for transporting locally produced commodities to the border for export through the development of road networks. It can be argued that infrastructure development may also improve the efficiency of public expenditure for education and health services. Agenor & Moreno-Dodson (2006) find that investment in infrastructure interacts with social public services, thus influencing growth via a complementary effect. In addition, Knight & Woldehanna (2003) and Weir & Knight (2004) suggest that education and health services can reduce producers' risk aversion. Moreover, infrastructure can help develop risk-sharing networks (Dercon, 2002; Fafchamps, 2003) and improve, in turn, a producer's capacity to deal with price volatility.

Inflation: Mundlak et al. (1997) have studied the direct effect of inflation on agricultural production in a cross-country analysis covering 37 countries between 1970 and 1990. Inflation can influence agricultural productivity directly as an incentive and indirectly via investment. However, it can also affect a producer's capacity to cope with price risk by reducing real producer prices and the real value of their savings. When inflation reduces the real value of a producer's revenues and assets and devalues precautionary savings, producers may be forced to reduce their supply. Furthermore, producers may be forced to liquidate their productive assets - land, cattle, bullocks and tools - in the face of price shocks, even though inflation makes such liquidation less profitable. Thus, inflation can exacerbate producers' responses to price volatility.

Financial development: There have been many attempts by the international community to deal with commodity price volatility, though these stabilization or compensatory mechanisms have been abandoned as financially unsustainable. International commodity agreements have either collapsed (sugar, tin) or have been replaced by agreements whose primary role is to improve information (cocoa, coffee) (Gilbert, 1995). While market instruments can reduce uncertainty arising from volatile prices, they are typically less effective for inter-year volatility. They are only used in a very few developing countries (which have relatively low levels of governmental intervention in terms of commodity production and trade of commodities) and, as of yet, have hardly provided a global solution. Microfinance can help producers cope with price volatility. Better access to credit markets helps improve productivity through increased savings and investment (Levine, 2004) and can attenuate supply response to price shocks by buffering income and revenue shocks. Although informal mechanisms of credit and insurance are most common (see Besley, 1995), the development of formal credit institutions can influence the risk-coping capacity of producers in an indirect manner. Guillaumont Jeanneney & Kpodar (2005) argue that the development of informal credit, which is often the only source of borrowing for the poor, is made easier by improving the formal financial system, which offers profitable investment opportunities to informal financial institutions that are not directly offered to small producers (Beck et al., 2004). Furthermore, the formal financial system gives producers financial opportunities for savings. Producers who are forced into self-financing and self-insurance have access to interest-linked deposits, and thus have a savings incentive (McKinnon, 1973). Therefore, by facilitating the build-up of savings, financial development may also contribute to reducing the supply response to price volatility.

Lack of diversification: Farmers in many developing countries are prevented from participating in high-return activities because downside risks will be too severe in the advent of a crisis. Wealthy households can borrow during such times as they have assets that can be collateralized. Even if credit is unavailable, they are able to smooth their income by selling their assets. With no access to income buffers, poor households tend to restrict their enterprise to low-risk and hence low-return strategies. Behaviour here does not reflect risk preferences but rather reveals the lack of risk-coping strategies, such as risk management, insurance and finance.

Source: Subervie (2008); Dehn et al. (2005).

3.6.3 Wholesale and retail prices in different markets-

The great Indian Onion Robbery? :-

On December 23 of 2010- The Times of India, a leading Indian newspaper daily, run an article titled "The Great Indian Onion Robbery". The starting paragraph of the article stated "Speculative traders are making super-profits by fixing prices in the onion trade while the government is playing around with ad hoc fixes. On Tuesday alone, wholesale traders in Delhi bought onions at about Rs.34 per kg while it was sold in retail at Rs. 80 per kg. That's margin of Rs. 46 per kg or 135 per cent." The same article then went on investigating the amount fleeced from consumers by intermediaries and stated that the amount fleeced every day would be over Rs 4 crore in Delhi, Rs 81.4 lakh in Mumbai, Rs 10.5 crore in Bangalore, Rs 1.3 crore in Kolkata and so on.

Of course, between the wholesaler buying the onion and the retailer getting it to the local market, there are transport costs, wastage and so on but can it be 135 per cent? What is a average margin that intermediaries make on onion sale in major markets? How justifiable the margin and can it be called robbery? These are some of the questions we would like to answer with a secondary time series data on wholesale and retail prices in major markets.

The December 2010 spurt in Onion prices - Economics or something more?-

The spurt in food inflation in the year 2010-11, particularly the sky high price of onion in December 2010-has brought back into focus the critical issues of price volatility in agricultural commodities, agricultural market structures and market efficiency.

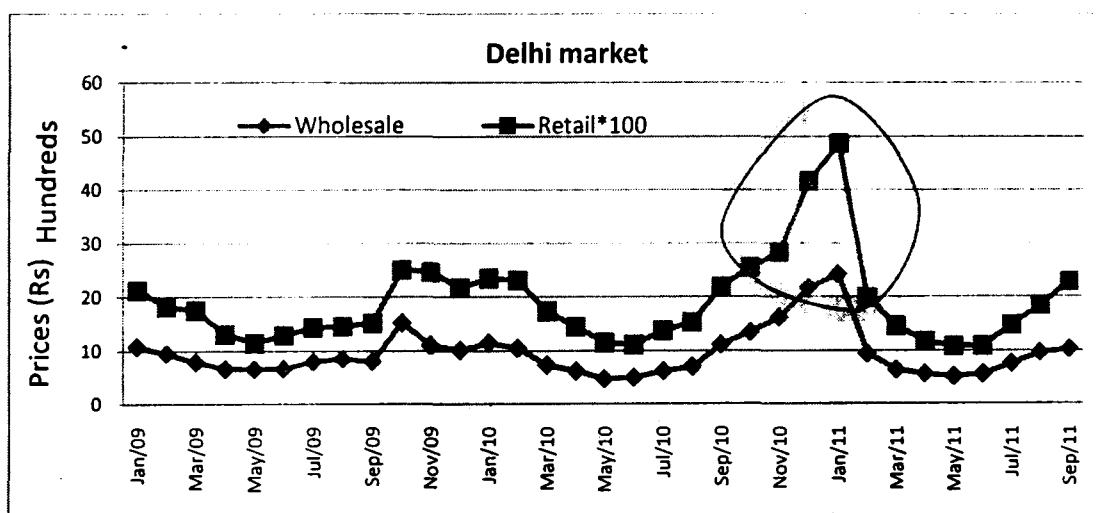
Regular price fluctuations - "day-to-day" or "normal volatility" - is both typical and requisite for competitive market functioning. However the high price variability in the case of primary products affects both producers as well as consumers through a spillover effect to the other sectors, thereby leading to high inflation in the economy. There is enough evidence to show that prices of the agricultural commodities are more volatile than those of the non-farm commodities due to their low price and income elasticity and inherently unstable agriculture production due to risk and exogenous shocks from weather.

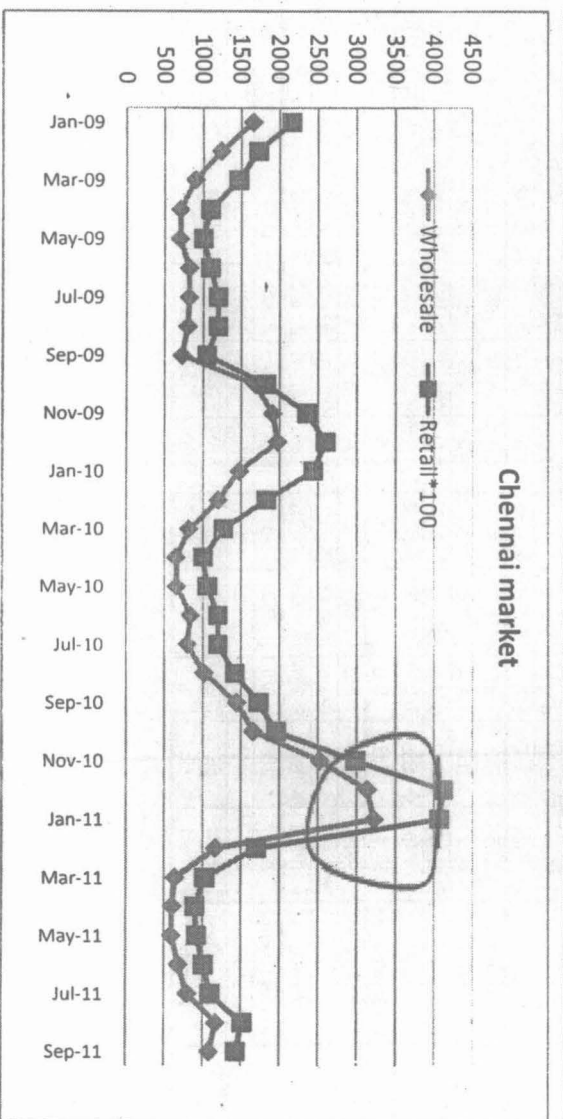
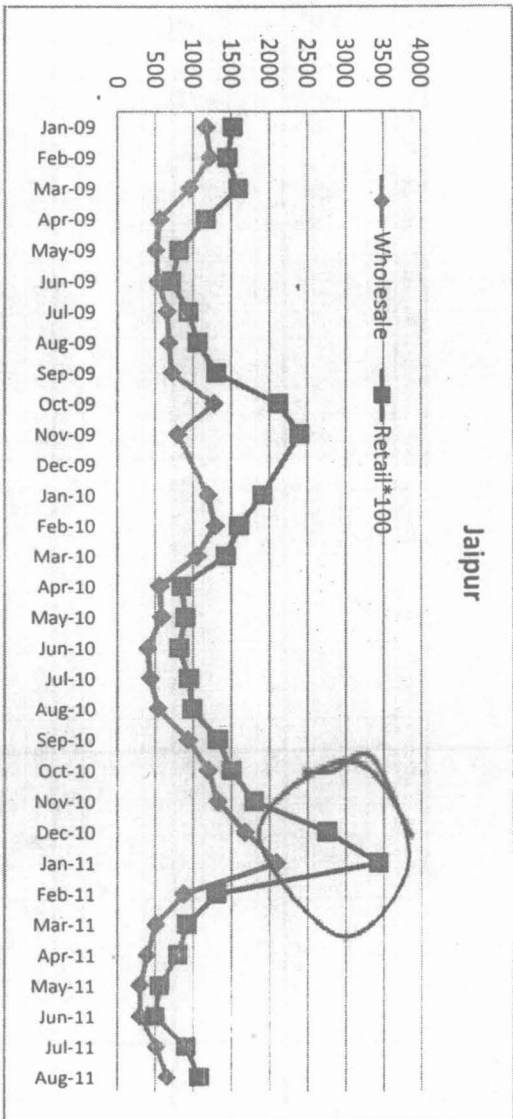
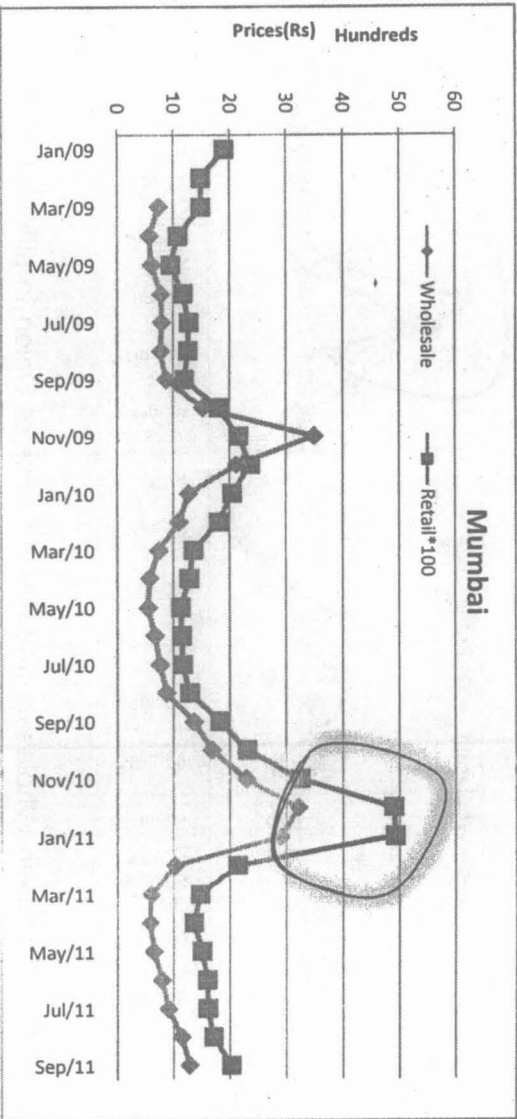
However the high inflation of food commodities cannot always be attributed to risks, exogenous shocks and mismatch of demand and supply –it can also be caused by market inefficiencies, weak supply chains and monopolies in the market. The recent price spikes of onion in many ways cannot be explained fully by the fundamentals of demand-supply and underscores the need to delve into the agro-market structures and identify the real causes of price volatility in agricultural commodities.

Table 3.14 and Figures 3.7 and 3.8 presents the wholesale and retail prices of onion in major markets in India. The analysis shows that the margins earn by the traders and retailers were highest during the period of November –December 2010, and clearly was a major reason behind such a high prices of onion. If minus the markup of retailers - the price of onion probably would not have gone even to 40 Rs/Kg. It is interesting to note that retailers' and traders' markup over the wholesale markets price was more than 150 per cent in almost all major markets in the crucial weeks of December 2010. In other words, the retailer sold the onions at double the wholesale price and earn about 40 per cent margin over wholesale prices after meeting about 10 per cent mandi and other charges born by them. It therefore wasn't just 'demand and supply' problem but the 'market structure and competitiveness issue as well.

The argument given by the Traders' association is that the crop was damaged by the rain. Hence after wholesaler bought at, a large part was wastage and hence supply constraints causing prices to increase.

Fig. 3.7: Wholesale and Retail Prices of Onion in Major Markets in India





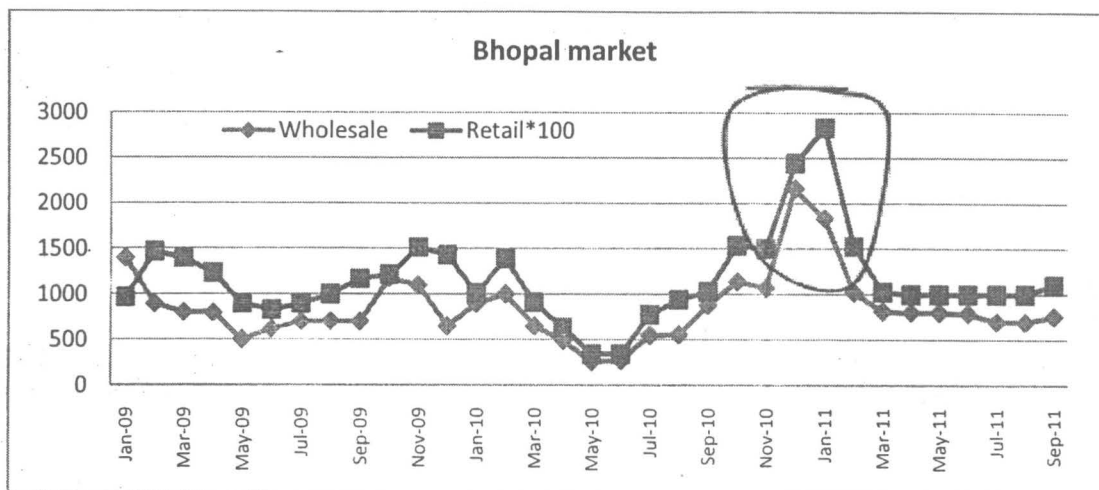
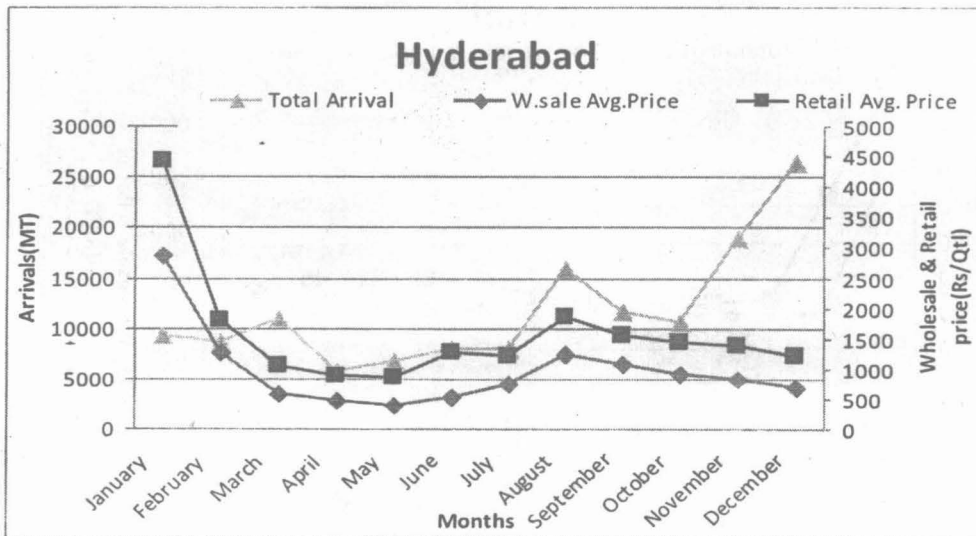
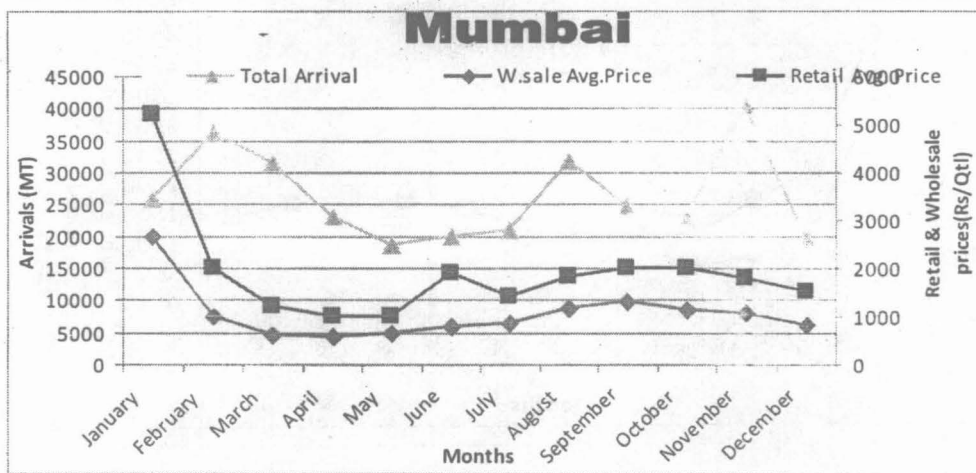
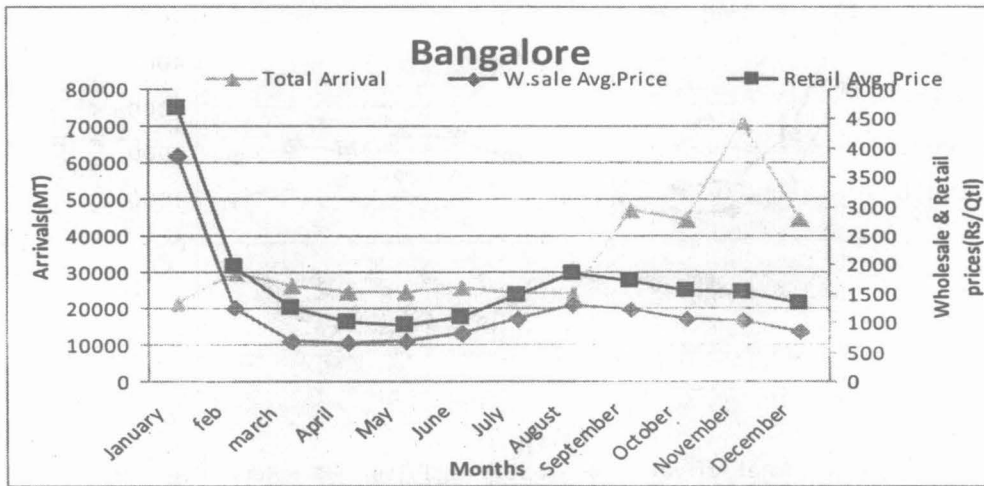
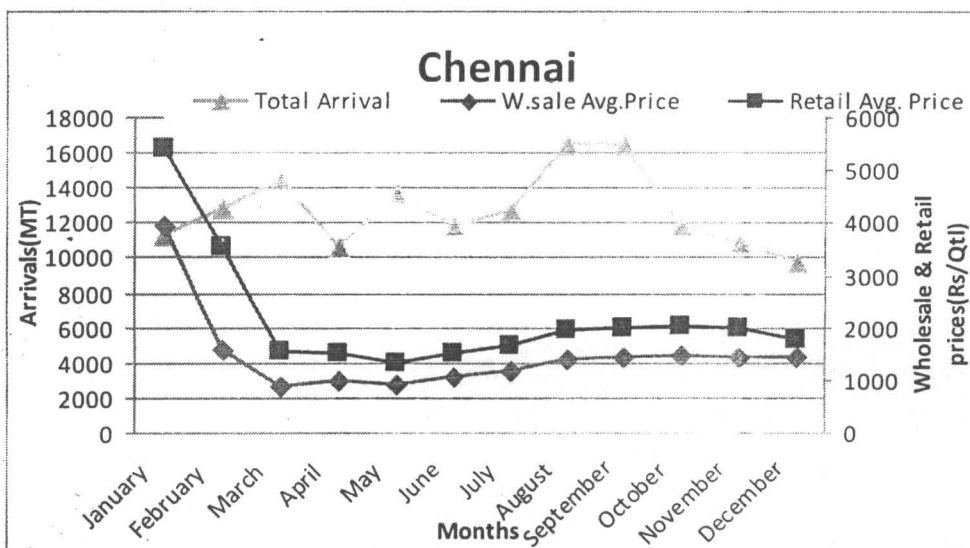
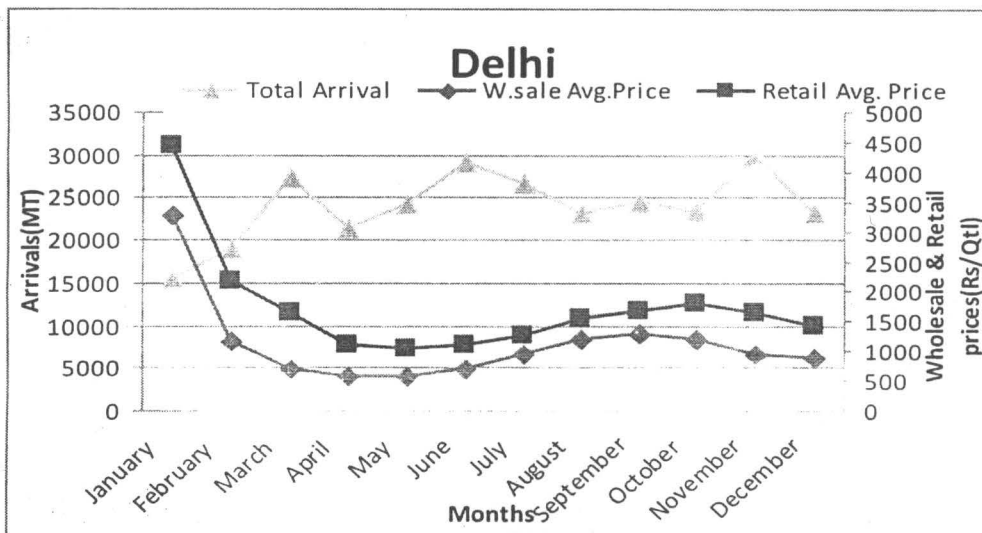
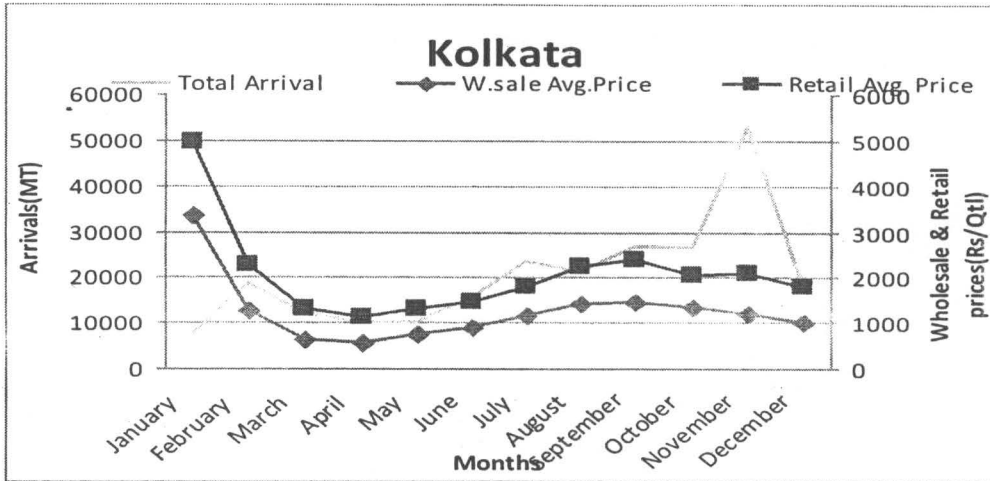


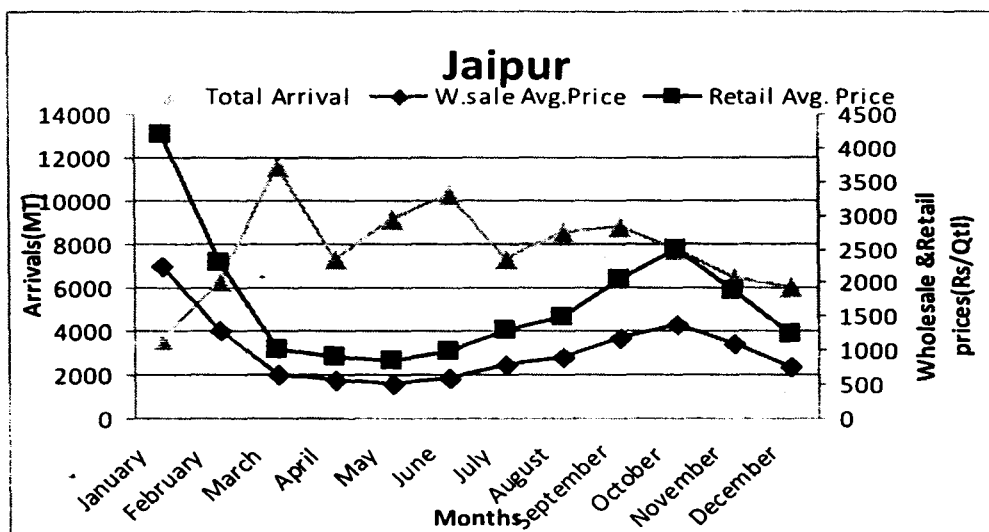
Table 3.14: Trends in Wholesale and Retail Prices of Onion in different markets of India

Markets		January	February	March	April	May	June	July	August	September	October	November	December
Bangalore	Wholesale price	2226	1288	629	550	499	589	780	905	1168	1372	1089	742
	Retail price	4683	1967	1242	995	939	1097	1461	1858	1724	1561	1530	1344
	Arrivals	↓ 47.53	⇒ 65.48	↓ 50.64	↓ 55.28	↓ 53.14	↓ 53.69	↓ 53.39	↓ 48.71	⇒ 67.75	↑ 87.89	⇒ 71.18	↓ 55.21
Mumbai	Wholesale price	2660	994	614	596	663	802	874	1178	1305	1137	1078	823
	Retail price	5196	2009	1211	1010	1000	1887	1400	1825	2000	2000	1783	1520
	Arrivals	⇒ 51.19	↓ 49.48	⇒ 50.70	↑ 59.01	↑ 66.30	↓ 42.50	↑ 62.43	↑ 64.55	↑ 65.25	⇒ 56.85	↑ 60.46	⇒ 54.14
Hyderabad	Wholesale price	2875	1267	586	461	400	515	752	1243	1066	924	842	678
	Retail price	4417	1805	1052	879	848	1258	1208	1847	1556	1446	1391	1204
	Arrivals	↑ 65.09	↑ 70.19	⇒ 55.70	⇒ 52.45	↓ 47.17	↓ 40.94	↑ 62.25	↑ 67.30	↑ 68.51	↑ 63.90	⇒ 60.53	⇒ 56.31
Kolkata	Wholesale price	3353	1255	649	568	751	889	1166	1418	1468	1332	1203	1017
	Retail price	4952	2279	1308	1134	1320	1442	1787	2248	2400	2063	2080	1781
	Arrivals	↑ 67.71	↓ 55.07	↓ 49.62	↓ 50.09	⇒ 56.89	⇒ 61.65	↑ 65.25	↑ 63.08	⇒ 61.17	↑ 64.57	⇒ 57.84	⇒ 57.10
Delhi	Wholesale price	3255	1162	693	570	553	681	935	1182	1285	1196	945	866
	Retail price	4422	2157	1638	1109	1040	1100	1265	1531	1664	1796	1635	1427
	Arrivals	↑ 73.61	⇒ 53.87	↓ 42.31	↓ 51.40	↓ 53.75	⇒ 61.91	↑ 73.91	↑ 77.20	↑ 77.22	↑ 66.59	⇒ 57.80	⇒ 60.69
Chennai	Wholesale price	3924	1589	880	1010	926	1056	1165	1388	1441	1476	1422	1433
	Retail price	5408	3530	1556	1500	1320	1504	1663	1945	2002	2039	1978	1750
	Arrivals	↑ 72.56	↓ 45.01	↓ 56.56	⇒ 67.33	↑ 70.15	↑ 70.21	↑ 70.05	↑ 71.36	↑ 71.98	↑ 72.39	↑ 71.89	↑ 81.89
Jaipur	Wholesale price	2226	1288	629	550	499	589	780	905	1168	1372	1089	742
	Retail price	4192	2291	1014	905	828	965	1290	1483	2031	2487	1883	1235
	Arrivals	↓ 53.10	⇒ 56.22	↑ 62.03	↑ 60.77	↑ 60.27	↑ 61.04	↑ 60.47	↑ 61.02	⇒ 57.51	↓ 55.17	⇒ 57.83	↑ 60.08

Fig. 3.8: Arrivals, Wholesale Prices and Retail Prices of Onion in Major Markets







3.7 Maharashtra Scenario:

Maharashtra is the largest producer of onion in the country, contributing to about 34 percent of area and about 32 percent of onion production of the country (2011-12). The onion varieties grown in Maharashtra are presented in Table 3.15. The cultivars grown during the kharif season has poor storage quality, however, rabi onion can be store for some time⁶.

Table 3.15: Onion varieties grown in Maharashtra

No	Variety	Season	Colour	Remarks
1	N-53	Kharif	Red	Poor Storage
2	Baswant-780	Kharif	Red	Poor Storage
3	N2-4-1	Rabi	Brick-Red	Good Storage
4	N-257-9-1	Rabi	White	Good Storage
5	Phule Safed	All year	White	Good for Dehydration
6	Phule Suvarna	Late Kharif /Rabi	Yellow Red	Good for export to Europe
7	AFDR	Late Kharif /Rabi	Dark Red	Fairly Good for Storage
8	AFLR	Rabi	Light Red	Good Storage

Source: www.msamb.com

⁶ Generally onion produced in kharif and late kharif season is not suitable for storage while onion produced in summer season can be stored upto 5-6 months and it can be brought in the market during rainy season i.e. from June to October. There are certain problem which arises during conventional storage of onion viz. loss in weight, sprouting and rotting of bulb. To overcome these losses onion must be stored in scientific manner and its prices. MSAMB with the help of NABARD and National Research Centre for Onion and Garlic, Rajgurunagar has developed revised plan for scientific onion storage (*Kanda chawl*) to promote onion producers for scientific onion storage. The onion storage as per this plan will minimize the storage losses and quality deterioration of the onion which will in turn help the farmers to fetch better prices for their produce. The construction cost of the onion storage structure is assumed at Rs. 6000/- per MT for this scheme (see, Annexure II). Source: MSEMB (<http://www.msamb.com/english/schemes/onionstorage.htm>).

As mentioned earlier, onion is produced during all the three seasons in Maharashtra. In Kharif season, it is planted in the month of June-August, September- November for Rabi and December –February for Winter season. Storage quality of rabi/winter onion is about 4-6 months. Onion produced in summer -(Rabi season) is suitable for export. About 50 percent to 60 percent of onion produced in the State is of export quality (Table 3.16).

Table 3.16: Onion Production Seasons in Maharashtra.

No	Season	Growing Months	Harvest months	Storage Quality	Remarks
1	Kharif /Rainy	June-August	August-September	Poor (1 month)	10%
2	Late Kharif (Rangda)	September-November	November-December	Poor (1 month)	30-40 %
3	Rabi /Winter (Pol /Unhali)	December-February	February-March	Good (4-6 month)	50-60 %

Source: www.msamb.com

There is significant increase in area under onion during the period 1974-75 to 2011-12 (Fig. 3.9). Nashik district of Maharashtra is the largest onion producing district in the State followed by Ahmednagar and Pune (Almost half of area under onion is in Nashik district which produced about 58 percent of total onion in the State during 2010-11 (Table 3.17) Lasalgaon and Pimpalgaon Basant onion markets are considered to be the biggest markets in the State as well as in India.

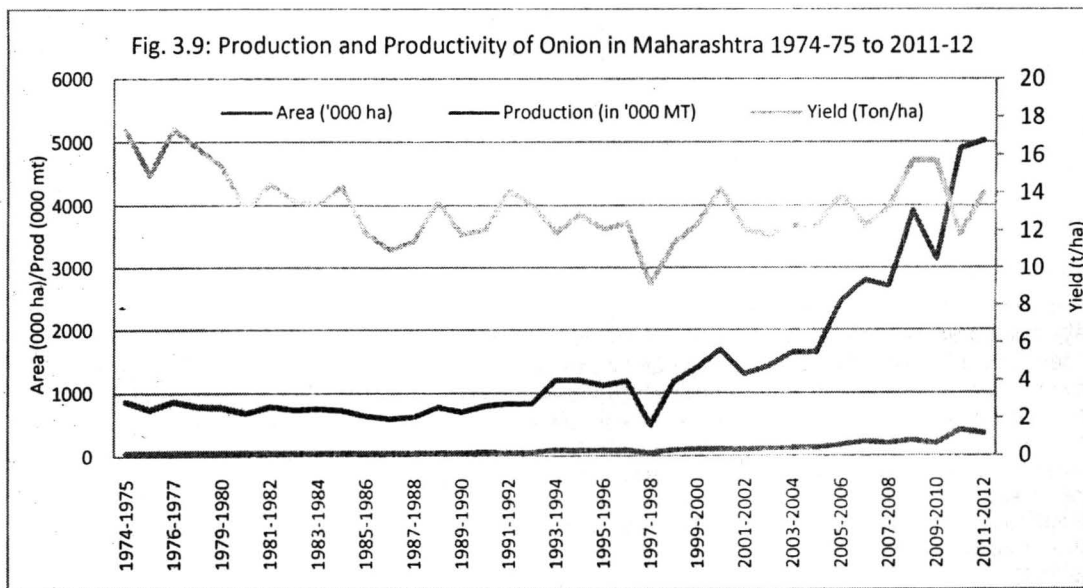


Table 3.17: District-wise Production and Productivity of Onion in Maharashtra (2010-11)

Sr. No.	Division/District	Area in ha	Production in MT	Productivity (MT/ha)	Area (%)	Prod. (%)
1	Thane	0	0	0	0.0	0.0
2	Raigad	0	0	0	0.0	0.0
3	Ratnagiri	0	0	0	0.0	0.0
4	Sindhudurg	0	0	0	0.0	0.0
	Konkan Division	0	0	0	0.0	0.0
5	Nashik	205732	2825414	13.73	49.7	57.6
6	Dhule	23954	193516	8.08	5.8	3.9
7	Jalgaon	8311	83168	10.01	2.0	1.7
8	Nandurbar	1614	10240	6.34	0.4	0.2
	Nashik Division	239611	3112338	12.99	57.9	63.5
9	Ahmednagar	56415	560353	9.93	13.6	11.4
10	Pune	49893	530569	10.63	12.0	10.8
11	Solapur	18528	154440	8.34	4.5	3.1
	Pune Division	124836	1245362	9.98	30.1	25.4
12	Satara	11007	71146	6.46	2.7	1.5
13	Sangali	1174	25181	21.45	0.3	0.5
14	Kolhapur	191	2621	13.72	0.0	0.1
	Kolhapur Division	12372	98948	8.00	3.0	2.0
15	Aurangabad	4063	60951	15.00	1.0	1.2
16	Jalna	430	4895	11.38	0.1	0.1
17	Beed	8403	135619	16.14	2.0	2.8
	Aurangabad Division	12896	201465	15.62	3.1	4.1
18	Latur	1700	19247	11.32	0.4	0.4
19	Osmanabad	15254	136389	8.94	3.7	2.8
20	Nanded	65	297	4.57	0.0	0.0
21	Parbhani	830	6640	8.00	0.2	0.1
22	Hingoli	114	81	0.71	0.0	0.0
	Latur Division	17963	162654	9.05	4.3	3.3
23	Buldhana	1219	14616	11.99	0.3	0.3
24	Washim	138	3864	28.00	0.0	0.1
25	Akola	3220	38640	12.00	0.8	0.8
26	Amravati	1459	20995	14.39	0.4	0.4
27	Yavatmal	121	4223	34.90	0.0	0.1
	Amravati Division	6157	82338	13.37	1.5	1.7
28	Wardha	0	0		0.0	0.0
29	Nagpur	278	1614	5.81	0.1	0.0
30	Bhandara	0	0		0.0	0.0
31	Gondiya	0	0		0.0	0.0
32	Chandrapur	0	0		0.0	0.0
33	Gadchiroli	0	0		0.0	0.0
	Nagpur Division	278	1614	5.81	0.1	0.0
	Maharashtra State	414113	4904719	11.84	100.0	100.0

Source: Office of Director (Horticulture), Commissionerate of Agriculture, Government of Maharashtra, Pune.

3.7.1 Onion Export from Maharashtra

Earlier the onion export was restricted by the Govt. of India (GOI) and controlled through single canalizing agency & therefore the export was not reached to its potential. Due to increase in production of onion in the country, there was continuous demand by major onion producing states in the country led by Maharashtra for decontrol of exports. Considering this demand, the Govt. of India has removed all the quantity restrictions on onion export from 09/05/2003. However the 'No Objection Certificate' is made continuous for onion export shipments. This resulted into increase in annual export of onions from the country almost two fold that is from 5.00 lakh MT to 9.00 lakh MT. Presently the major markets for Indian onion are limited to SAARC region, and few countries from Far East and Middle East. Onion exports to Europe, America and Africa are almost non-existent, though many countries in these regions have large requirements.

Canalization:

Until 1998 onion exports from the country was canalized through the National Agricultural Co-operative Marketing Federation of India (NAFED). In the year 1998 the Govt. of India felt that only Nafed was not sufficient to work as a canalizing agency & then the Govt. of India has appointed other 12 canalizing agencies (except NAFED) for onion export which are as follows –

1. Maharashtra State Agricultural Marketing Board, Pune (MSAMB)
2. Gujarat Agro Industries Corporation, Ahmedabad (GAIC)
3. Karnataka State Co-operative Marketing Federation Ltd., Bangalore (KSCMF)
4. Andhra Pradesh State Trading Corporation Ltd., Hyderabad (APSTCL)
5. National Co-operative Consumers Federation Of India Ltd., New Delhi (NCCF)
6. Spices Trading Corporation Ltd., Bangalore (STCL)
7. North Karnataka Onion Growers Co-operative Society Ltd., Hubli (NKOOGCS)
8. Madhya Pradesh Agro Industries Development Corporation Ltd., Bhopal (MPAIDC)
9. Andhra Pradesh State Co-op Marketing Federation Ltd., Hyderabad (APfed)

10. Madhya Pradesh State Co-op Oilseed Growers Federation Ltd., Bhopal (MPOGF)
11. Karnataka Agricultural Produce Processing And Export Corporation Ltd., Bangalore
12. West Bengal State Essential Commodities Supplies Corporation Ltd., Kolkata (WBSECS)

The onion export from India is through the above canalizing agencies directly or through their registered associate shippers. The quality parameters require for export of onion are presented in Table 3.18.

Table 3.18: Quality requirements for Export of Onion

No	Country	Colour	Size	Remarks
1	Middle East and Gulf(Dubai, Sharjah, Doha, Muscat, Bahrain, Dammam, Saudi Arabia, Kuwait)	Light red to dark red	40 – 60 mm	Globular /Pungent
2	Malaysia, Singapore, Port Kelang & African Ports	Dark red to violet	25 – 30 mm	Globular /Pungent
3	Sri Lanka	Dark red to light red	25 – 30 mm	Globular or Oval
4	Bangladesh, Pakistan & Nepal	Light red to dark red	25 – 30 mm	Globular Pungent
5	Europe	Yellowish brown /	60 – 70 mm	Globular /Less Pungent
6	Japan	Yellowish brown /	60 – 70 mm	Globular /Less Pungent

Source: www.msamb.com

MSAMB as a Canalizing Agency –

The Govt. of India vide its notification no.41 dated 17/02/1999 authorized the Govt. of Maharashtra (GOM) to designate a canalizing agency for onion export from Maharashtra state. As per this notification the Govt. of Maharashtra has designated MSAMB, Pune as 'Canalizing Agency' for export of onion. The MSAMB is issuing No Objection Certificates to the registered onion exporters as per the guidelines of GOI from its Pune and Mumbai offices. Now while issuing the NOCs, the MSAMB is entitled to collect service charges from exporters @ 1% of Invoice value.

3.7.2 Onion Marketing in Maharashtra

3.7.2.1 Seasonal Index:

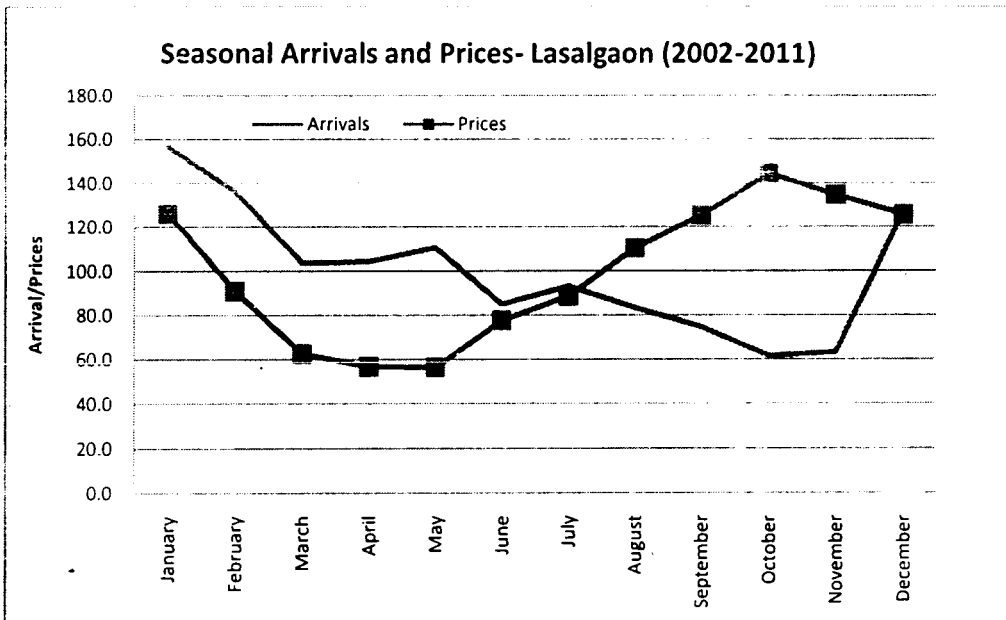
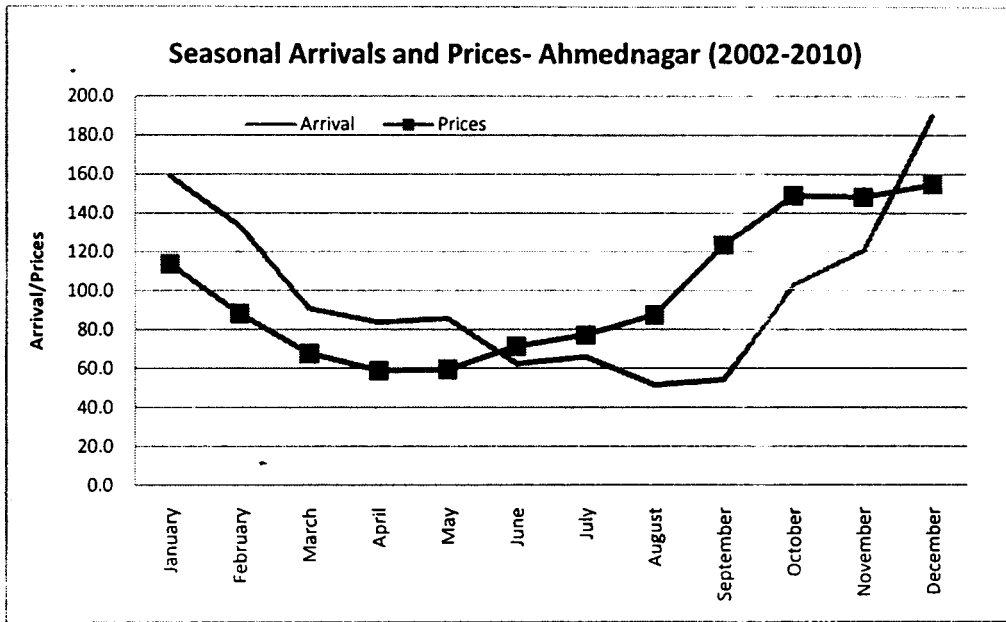
The seasonal index is calculated for arrival and prices of onion in selected sample APMC markets in Maharashtra and the results are presented in Table 3.19 and Fig. 3.8.

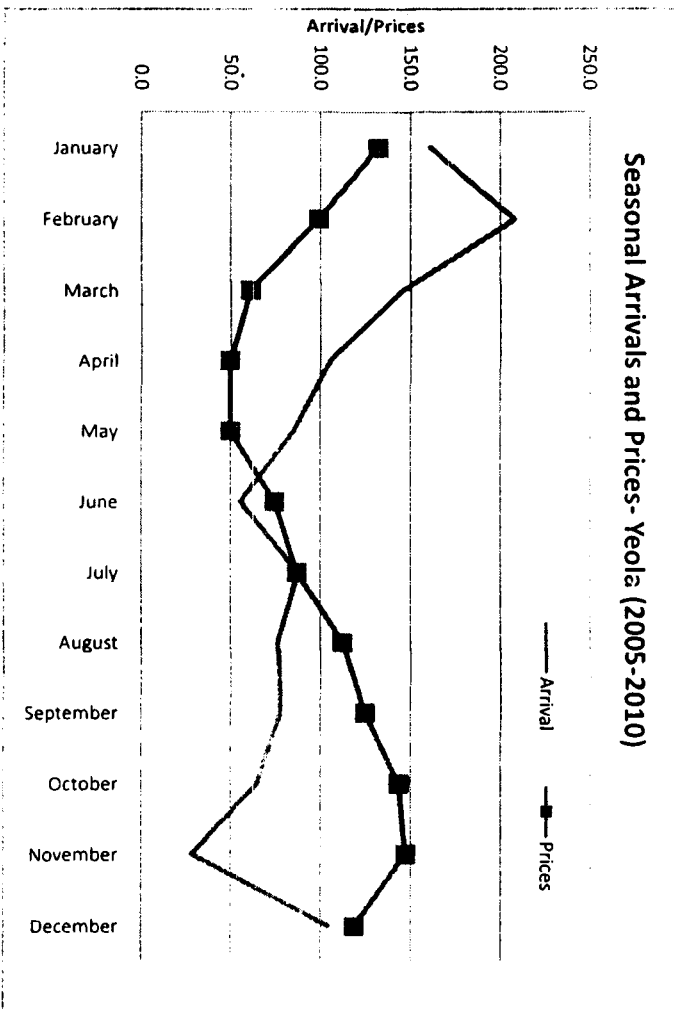
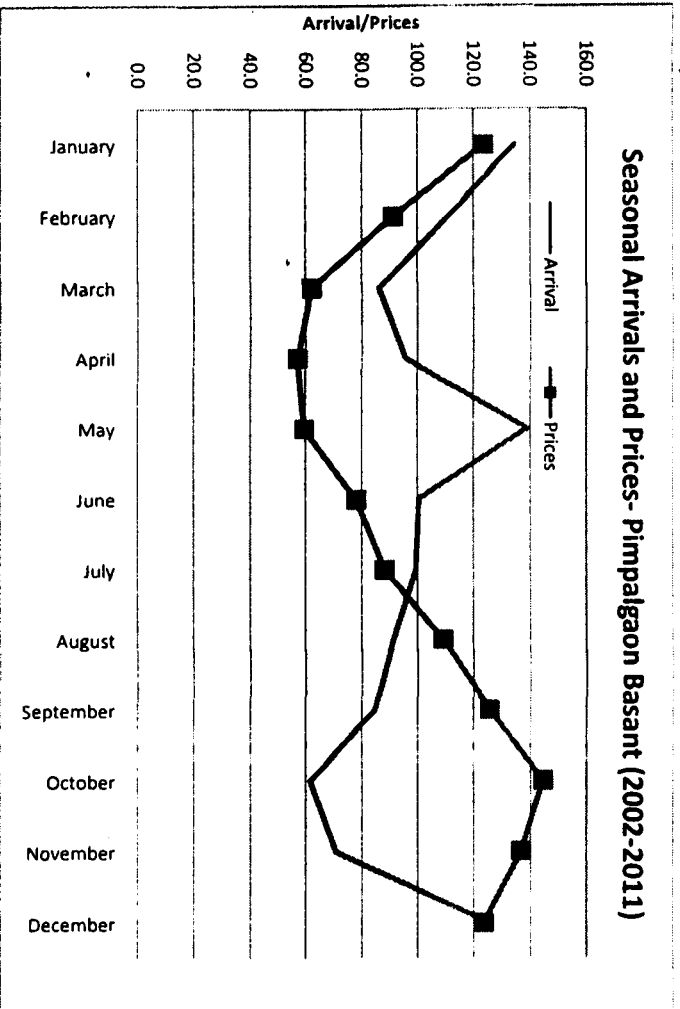
Table 3.19: Selected Marketwise Seasonal Particulars of Arrivals and Prices in Maharashtra

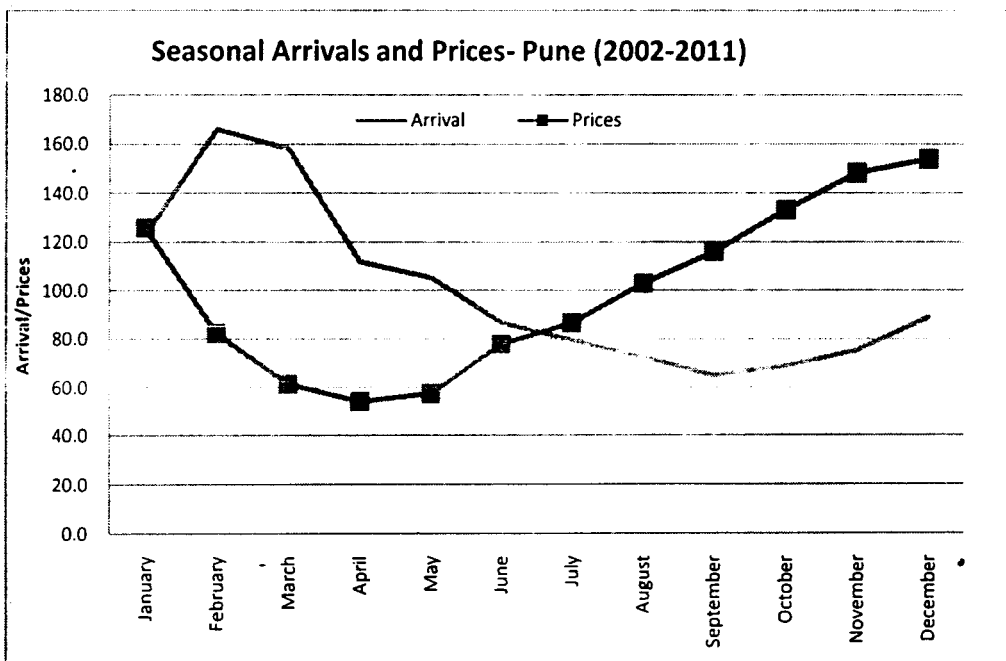
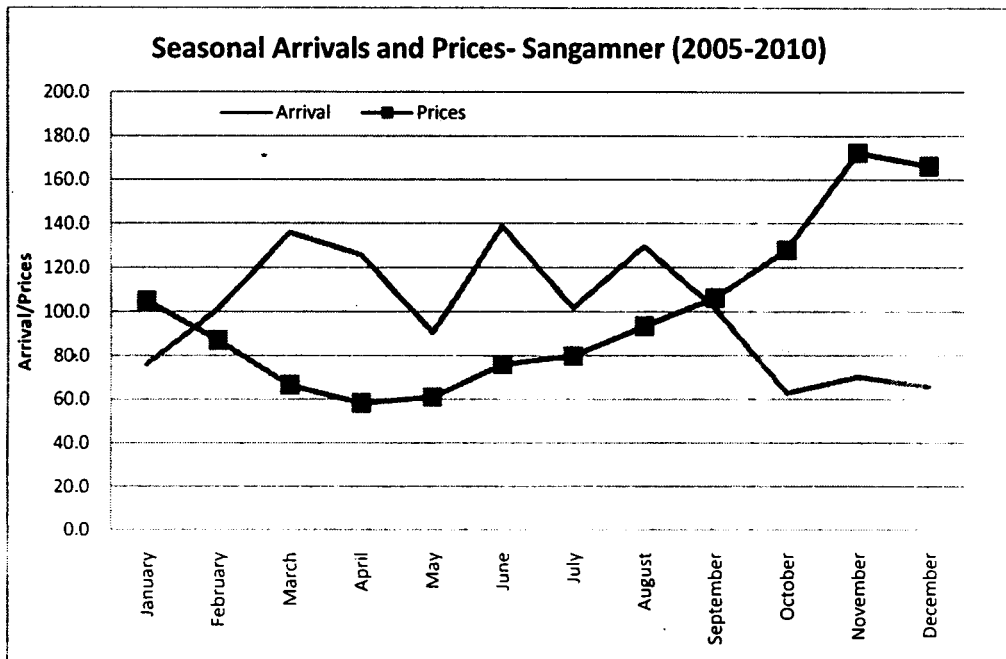
Market	Seasonal particulars of arrivals and prices
Ahmednagar (2002-2010)	<p>The seasonal index of arrivals and prices in APMC, Ahmednagar shows that, the arrival of onion is highest in the period of four months starts from November to the month of January and thereafter start declining. The arrivals in Ahmednagar markets start rising in late October and significantly increase in following months. On the other hand, the prices of onion are highest in the months of October and November. The prices starts rising from the month of September and record high level in November and December months.</p> <p>Highest arrivals months- November, December, January, February Lowest arrival months- June, July, August, September Highest Prices months- September, October, November, December Lowest Prices months- March, April, May, June</p>
Lasalgaon (2002-2011)	<p>The seasonal index of arrivals and prices in Lasalgaon shows that, the December, January, February and May are the highest onion arrivals months. The onion arrivals go down steadily from its peak in June to almost bottom in month of October. The arrivals starts going up slightly in the late month of November. In the case of onion prices- the September, October, November, December and January are the months with highest onion prices. Interestingly- in the month of December and January- both the arrivals of the onion and the prices of the onion are above average- indicating that the supply and prices instead of behaving oppositely are moving up together.</p> <p>Highest arrivals months- December, January, February, May Lowest arrival months- August, September, October, November Highest Prices months- October, November, December and January Lowest Prices months- March, April, May and June</p>
Pimpalgaon (2002-2011)	<p>The seasonal index of arrivals and prices in Pimpalgaon basant shows that May, December, January and February are the highest onion arrivals months in the Pimpalgaon Market. The onion arrivals go down steadily from its peak in June to almost bottom in month of October. The arrivals go up a bit in November and then start rising steadily December onward till February. During March and April, the arrival slower down. In the case of onion prices, September, October and November are the months with highest onion prices. Interestingly- in the months of December and January- both the arrivals of the onion and the prices of the onion are above average- indicating that the supply and prices instead of behaving oppositely are moving up</p>

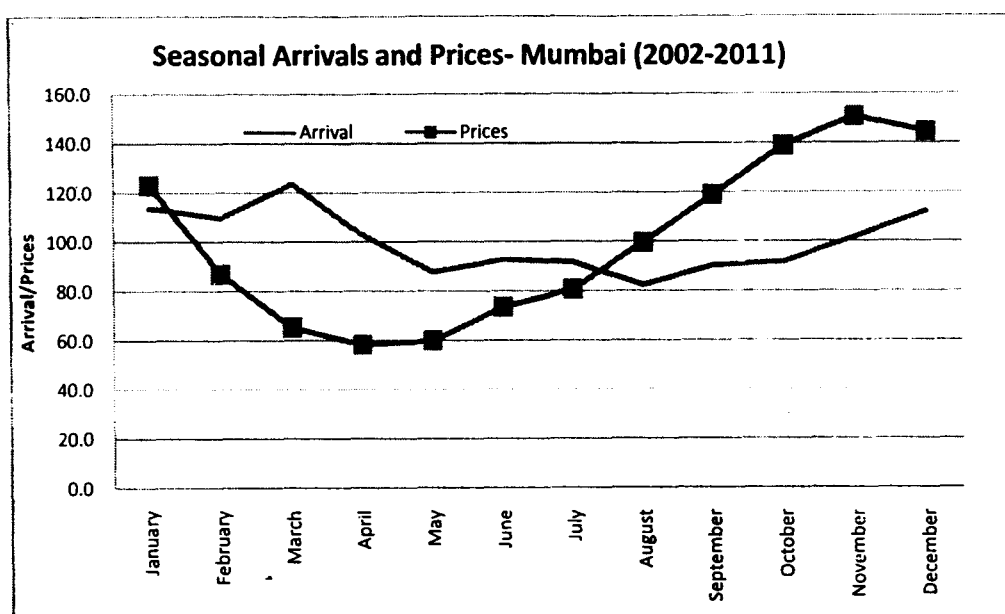
	<p>together.</p> <p>Highest arrivals months- May, December, January and February</p> <p>Lowest arrival months- July, August, September, October</p> <p>Highest Prices months- October , November, December and January</p> <p>Lowest Prices months- March, April, May, June</p>
Yeola (2005-2010)	<p>The seasonal index of arrivals and prices in APMC Yeola indicates that shows that January, February and March are the highest onion arrivals months in the Yeolan Market. From the lowest arrival in the month of November, the onion arrivals start increasing from the month of December onward and reaches to the highest level in the month of February. The highest onion prices are in the month of October, November and January. The lowest prices are in the month of May. The onion arrival and prices moves mostly in the month of January.</p> <p>Highest arrivals months- January, February and March</p> <p>Lowest arrival months- November, June and October</p> <p>Highest Prices months- October , November, December and January</p> <p>Lowest Prices months- September, October and November</p>
Sangamner (2005-2010)	<p>In Sangamner APMC market, the arrival of onion shows mix tread. The highest level of arrival is in the months of March and Jun and lowest in October and December. However, prices are generally higher during the months of October, November and December.</p> <p>Highest arrivals months- March, June, August</p> <p>Lowest arrival months- October and December</p> <p>Highest Prices months- October, November and December</p> <p>Lowest Prices months- April, May, March and June</p>
Pune (2002-2011)	<p>The seasonal index of arrivais and prices in APMC Pune shows that shows that January, February, March and April are the highest onion arrivals months in the Pune Market. From the lowest arrival in the month of September, the onion arrivals start increasing from the month of November onward and reaches to the highest level in the month of March. The highest onion prices are in the month of October, November and December. The lowest prices are in the month of April, May and March.</p> <p>Highest arrivals months- January, February, March and April</p> <p>Lowest arrival months- November, June and October</p> <p>Highest Prices months- October, November and December</p> <p>Lowest Prices months- April, May and March.</p>
Mumbai (2002-2011)	<p>The seasonal index of arrival and prices of onion in Mumbai market shows that the arrival of onion start increasing from the month of November and reaches to the highest level in the month of March. August and May are the two months when arrival reaches to lowest level. The onion prices are generally higher during the month of October, November and December and lowest in the month of April. May and August.</p> <p>Highest arrivals months- December, January and March</p> <p>Lowest arrival months- August, may and September</p> <p>Highest Prices months- October, November and December</p> <p>Lowest Prices months- April, May, March</p>

Fig. 3.10: Seasonal Arrivals and Prices of Onion in Selected Markets in Maharashtra









3.7.2.2 Correlation between Arrival and Prices of Onion in Selected Markets of Maharashtra:

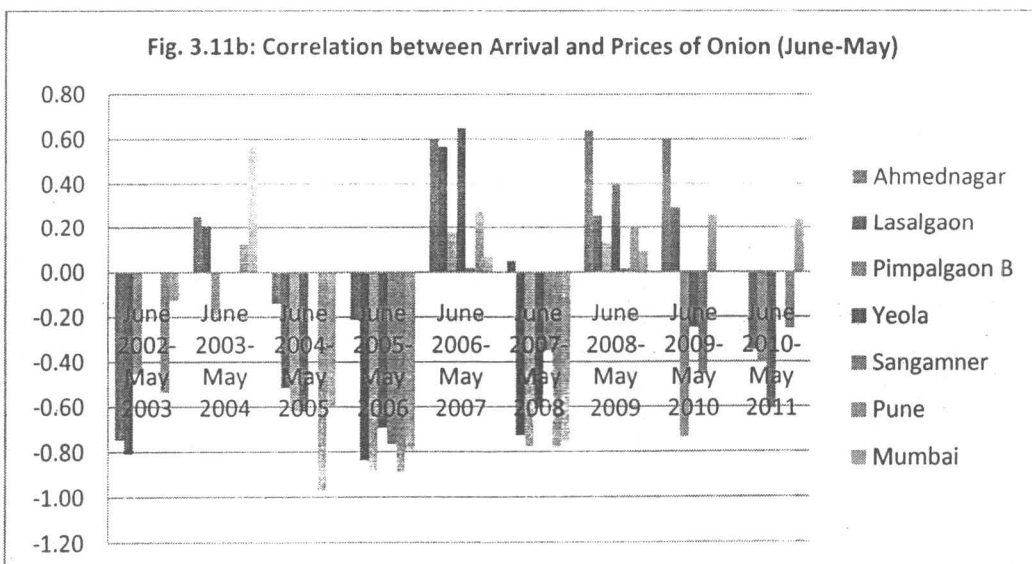
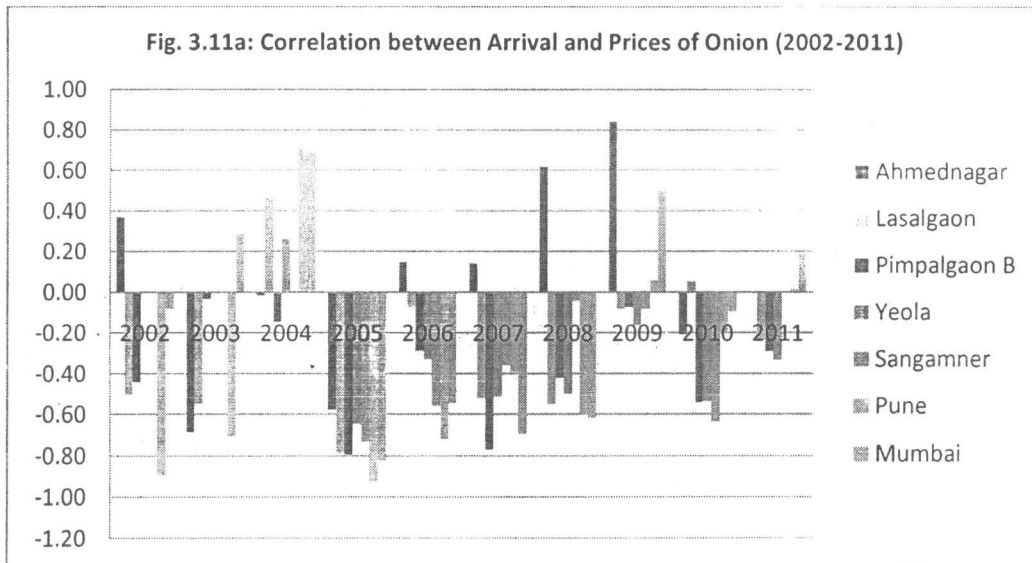
In order to know the movement of arrivals and onion prices, the correlation was worked out and results are presented in Table 3.20 and Fig 3.11a and 3.11b. It can be seen from that table and figures that by and large correlation coefficient between arrival and prices of onion in selected markets of Maharashtra is negative. However, in certain years and for certain markets, both moves in the same directions. Although arrivals are showing increasing trend, prices moves in same direction due to demand pressure and the converse also proves.

Table 3.20: Correlation between Arrival and Prices of Onion in selected market in Maharashtra

Year	Ahmednagar	Lasalgaon	Pimpalgaon Basant	Yeola	Sangamner	Pune	Mumbai
2002	0.37	-0.50	-0.44			-0.89	-0.08
2003	-0.69	-0.55	-0.03			-0.71	0.29
2004	-0.02	0.47	-0.15	0.26		0.70	0.69
2005	-0.58	-0.79	-0.79	-0.65	-0.73	-0.93	-0.82
2006	0.15	-0.07	-0.29	-0.33	-0.56	-0.72	-0.54
2007	0.14	-0.52	-0.77	-0.51	-0.36	-0.39	-0.69
2008	0.62	-0.55	-0.42	-0.50	-0.04	-0.60	-0.62
2009	0.84	-0.08	-0.07	-0.16	-0.08	0.06	0.50
2010	-0.21	0.05	-0.54	-0.54	-0.64	-0.21	-0.09
2011	-	-0.24	-0.29	-0.33		0.01	0.19

Correlation: June to May

Year	Ahmednagar	Lasalgaon	Pimpalgaon B	Yeola	Sangamner	Pune	Mumbai
June 2002- May 2003	-0.75	-0.81	-0.46	-	-	-0.53	-0.13
June 2003- May 2004	0.26	0.21	-0.19	-	-	0.12	0.57
June 2004- May 2005	-0.14	-0.52	-0.62	-0.62	-	-0.97	-0.60
June 2005- May 2006	-0.21	-0.84	-0.89	-0.69	-0.77	-0.89	-0.79
June 2006- May 2007	0.60	0.57	0.18	0.65	0.02	0.28	0.07
June 2007- May 2008	0.05	-0.73	-0.78	-0.61	-0.35	-0.78	-0.76
June 2008- May 2009	0.64	0.26	0.13	0.40	0.01	0.20	0.09
June 2009- May 2010	0.60	0.29	-0.73	-0.25	-0.46	0.26	0.00
June 2010- May 2011	-	-0.35	-0.40	-0.61	-	-0.25	0.24
June 2011- May 2012	-	-	-	-	-	-	-



Thus, it can be observed from the above table and figures that most of the time, arrival and prices moves towards same directions and does not follow the economic laws of demand and supply. Thus, besides demand and supply, there may be some other factors plays important role in price fixation of onion.

Socio-Economic Characteristics of Selected Area, Farmers and Market Intermediaries

4.1: Introduction:

Maharashtra is the second largest State in India both in terms of population and geographical area, accounts for 9.29 percent and 9.4 percent in 2011 respectively. The State is highly urbanised with 45 per cent people residing in urban areas. The State contributes about 15 per cent of the national income and per capita State income is 1.59 times higher than the national income (GOM, 2011). In 2009-10, the *per capita* national income at current prices was Rs. 46,492 as against *per capita* State income of Rs. 74,027. The higher *per capita* State income is mainly the result of the prominence of the industry and services sector in the State. Maharashtra produces country's 19 percent of industrial output, 15 percent of service sector output (Planning Commission, 2005). Though it is one of the industrialized states in the country, agriculture and allied activities are still predominant. Agriculture continues to be the major source of income for most people. As per the census 2001, 55.41 per cent population is dependent on agriculture for livelihood. Thus, Maharashtra's economy continues to be predominantly agrarian.

4.1.1 Profile of Selected District:

The APMCs selected for the study are Lasalgaon, Pimpalgaon Basant, Yeola, Sangamner, Ahmednagar, Pune and Mumbai (Washi). These six selected APMCs fall in western part of Maharashtra and comes under Nashik (Lasalgaon, Pimpalgaon Basant, Yeola), Ahmednagar (Sangamner, Ahmednagar), Pune and Mumbai (Washi market) district.

Nashik District is located between 18.33 degrees and 20.53 degrees North latitude and between 73.16 degrees and 75.16 degrees East Longitude at Northwest part of Maharashtra state, at 565 meters above mean sea level. Nashik is also known as Mini Maharashtra, because the climate and soil conditions of Surgana, Peth, Igatpuri resemble with Konkan region. Niphad, Sinnar, Dindori and Baglan

blocks are like Western Maharashtra (comprises of Nashik, Ahmadnagar, Pune, Satara, Solapur, Sangli and Kolhapur districts) and Yeola, Nandgaon and Chandwad blocks are like Vidarbha region (comprises of Amravati, Akola, Washim, Yavatmal, Buldhana, Nagpur, Wardha, Bhandara, Gadchiroli, Gondiya and Chandrapur districts). Nashik, Malegaon, Manmad, Igatpuri are some of the big cities situated in Nashik District. Out of 15 blocks in the district, as many as 8 blocks viz Surgana, Peth, Igatpuri, Kalwan, Baglan/Satana, Dindori, Trimbakeshwar & Nashik are tribal blocks. The district is also identified as tribal district by the State Government. Many important rivers of Maharashtra originate in the district. Godavari which is popularly known as Ganga of South India originates at the holy place of Trimbakeshwar. Another major river is Girna. Other rivers are Darna, Mosam, Aram, Vaitarna, Manyad and Kadwa. Though average rainfall of the district is between 2600 and 3000 mm, there is wide variation in the rainfall received at various blocks. Most of the rainfall is received from June to September. The maximum temperature in summer is 42.5 degree centigrade and minimum temperature in winter is less than 5.0 degree centigrade. Relative humidity ranges from 43 per cent to 62 per cent. The climate of the Nashik generally compares with that of Bangalore and Pune because of its pleasant nature. However in recent years the district is witnessing rise in temperature and rainfall is decreasing due to industrialization and fast deforestation.

Bajra is an important crop in the district. However other crops like wheat, paddy and other cereals are also grown in various parts of the district. Paddy is mainly grown in Tribal belt i.e. Igatpuri, Peth, and Surgana blocks. Vegetables and Onion were the main cash crops since last 30 years. Because of large variety of vegetables and its supply to Mumbai, the district was known as the Backyard of Mumbai. After establishment of sugar factories, sugarcane has acquired an important position in the agricultural economy of the district. Since last 20 years grape cultivation has acquired dominance on the agricultural economy of the district. Due to water shortage in Kalwan, Deola, Satana and Malegaon blocks, the farmers have shifted to pomegranate from sugar cane and grape crops. Some progressive farmers are cultivating flowers in green houses. These developments also indicate that the farmers in the district very quickly adopt to new technology and methods of cultivation. The district has been identified for the purpose of establishment of Wine

Park and Food Park. Infact all allied activities have great potential, as the gigantic urban market of Mumbai is at the doorstep of the district.

Ahmednagar district is the largest district in the state of Maharashtra. The total geographical area of the district is 17.02 lakh hectares, constituting 5.66 per cent of the state's geographical area. Ahmednagar district lies between 18.2 to 19.9 degree North latitude and 73.9 to 75.5 degree eastern longitude. The district comprises of 14 talukas namely Ahmednagar, Parner, Pathardi, Shewgaon, Karjat, Shreegonda, Jamkhed, Shrirampur, Nevasa, Akole, Sangamner, Kopergaon, Rahuri, Rahta. Being a drought prone area in the state of Maharashtra, the district gets an annual rainfall of over 500 mm. Sugarcane, bajra, jawar and wheat are the main crops. Ahmednagar is Maharashtra's most advanced district in many ways. It has the maximum number of sugar factories, perhaps to spread the message of "Rural Prosperity through Cooperation" it gave the country half a century ago. The climate of the district is hot and dry on whole extremely genial and is characterised by a hot summer and general dryness during major part of the year except during south-west monsoon season. The maximum area of Ahmednagar district is categorized as scarcity zone and agriculture is dependent mainly on monsoons. Hence rabi crops dominate the cropping pattern. The area under rabi crops was more than 60 per cent, while that under kharif crops is more than 39 percent. The area under summer crops is negligible. Rabi jowar is the main cereal crop followed by kharif bajra. Area under horticulture is increasing in the district. The vegetable crops which are having large area under cultivation in the district are onions, tomato, brinjal and cabbage.

Pune district lies between 17.54 to 19.24 degree North latitude and 73.19 to 75.10 degree eastern longitude. The district comprises of 14 tehsils namely Pune city, Haveli, Mulshi, Bhior, Maval, Velhe, Junnar, Khed, Ambegaon, Shirur, Baramati, Indapur, Daund, Purandar. Pune district, located in the western part of Maharashtra, is geographically the second largest district in the state. The total geographical area of the district is 15.62 lakh hectares, constituting 5 per cent of the state's geographical area. Pune district is triangle in shape and lies in the Bhima and Nira basins. It is triangle in shape with its base in Sahyadri mountains on the west and its apex in the extreme South-east corner near Nira river. The climate of the district is characterized by dry atmosphere except during monsoon. The summer is moderately high and temperature varies from 36^o c to 46^o c. The average annual

rainfall is 905 mm. The rainfall pattern varies between 5080 mm on the western hilly region to 457 mm in eastern plateau progressively declining eastwards. Pune district forms a part of the tropical monsoon land and therefore shows a significant seasonal variation in temperature as well as rainfall conditions. Rabi jowar and Kharif Bajra together account for about 60 percent of gross cropped area. Pune district has horticulture as a major allied activity. About 7 percent GCA area is under fruits and vegetable crops, which has been increasing significantly every year. The major vegetables grown are Onion, tomato, potato, brinjal, cole veg., bhendi, beans, peas, chilli, guard and major fruits crops grown are Grapes, Guava, custard apple, banana, mango and pòmogrante. Pune district is well known for remarkable poultry production also.

Mumbai Suburban District, the second smallest district of Maharashtra , administratively comes under Konkan Division. This district declared as Independent District w.e.f. 1st October, 1990, as a consequent of the bifurcation of the Greater Mumbai into two revenue districts namely, Mumbai City & Mumbai Suburban. Prior to this , Mumbai Suburban was the part of Mumbai City District. The jurisdiction of Mumbai Suburban District is from Bandra to Dahisar, from Kurla (Chuna Bhatti) to Mulund and from Kurla and upto Trombay Creek. The Headquarters of this district is located in Bandra(E). Mumbai Suburban District, population wise, is one of the largest district in the country. The current population is 85.87 Lakhs. It's geographical area is 369 Sq Kms. Mumbai Suburban District is divided into 3 Talukas/Tahsils namely, Andheri, Borivali and Kurla. The Mumbai suburban district is entirely an urban district of the state of Maharashtra.

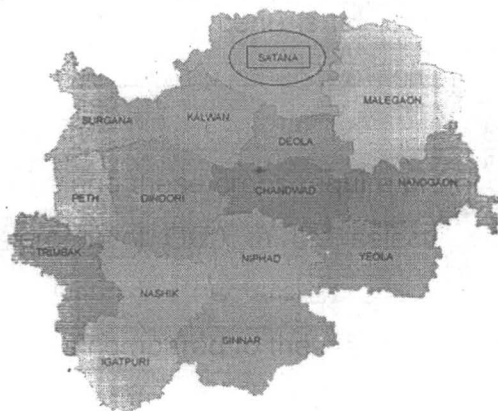
4.1.2 Socio-Economic Indicators:

In Table 4.1, selected socio-economic indicators of selected districts vis-à-vis Maharashtra are presented. It can be seen from the table that Pune and Mumbai suburban accounts for about 8.4 percent each of total state population, while Nashi and Ahmednagar accounts for 5.4 and 4.0 percent share of state population respectively. Literarily rate is relatively higher in urban districts (Pune and Mumbai), while rate of literary is close to state average in Nashik and Agmednagar. With respect to agriculture, it can be observed that while Maharashtra has 17.91 percent of gross cropped area (GCA) under irrigation, the same is highest for Nashik (45.04

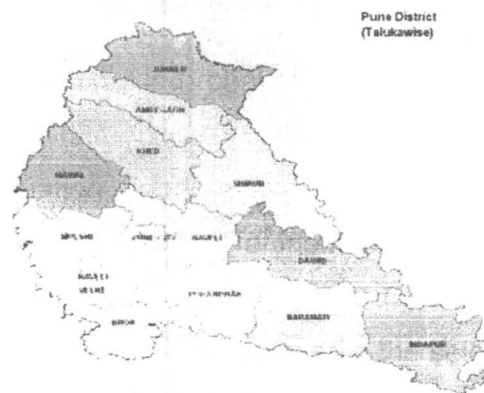
percent) followed by Ahmednagar (32.44 percent) and Pune (27.28 percent). However, despite the district having nearly half its GCA under irrigation, the cropping intensity (112.9 percent) is far lower in the district as compared to the state (129.9 percent) as well as other two selected districts. This is probably because a major part of the area is under horticultural crops where double cropping may not be possible and these crops require protective irrigation. Foodgrains occupy around 57-65 percent of GCA in the selected district. With respect to input use, fertilizer consumption per hectare as well as HYV coverage is much higher in the selected district as compared to the state. The foodgrains productivity is lower in the selected district as compared to state average.

Fig. 4.1: District Map of Selected APMCs

Nashik

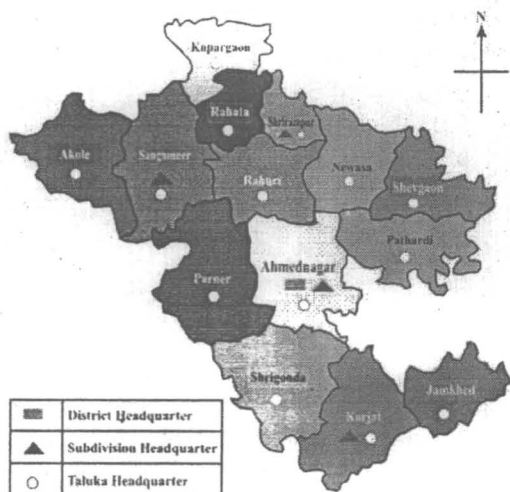


Pune



Ahmednagar

Ahmednagar District Map



Mumbai

MUMBAI SUBURBAN DISTRICT

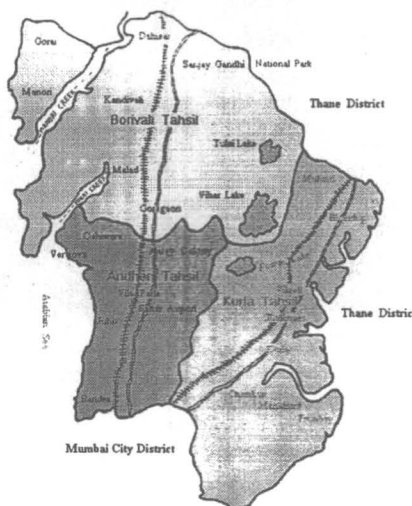


Table 4.1: Selected Socio-Economic Indicators: Nashik, Ahmednagar, Pune, Mumbai (suburban) districts and Maharashtra State.

Particulars	Nashik	A' nagar	Pune	Mumbai	M.S.
Geographical Area (000 sq km) 2011	15.63	17.02	15.62	0.38	307.58
Total Population (2011) in lakh	61.09	45.43	94.27	93.32	1123.73
Urban Population (%)					54.8
Population Density (per sq km.)	393	266	603	20925	365
Female per thousand males	931	934	910	857	925
Percentage of SC Population to total 2001	8.54	12	10.53	4.65	10.2
Percentage of ST Population to total 2001	23.92	7.51	3.62	0.82	8.85
Rural Literacy rate (percent) 2011	80.96	80.22	87.19	90.9	82.91
Human Development Index 2000 (rank)	0.51 (13)	0.57 (11)	0.76 (4)	1.00 (1)	0.58
% Rural Households under Poverty line (2002-2007)	40.58	23.84	24.9	-	35.0
Per capita NDDP (current prices 2010-11)	84982	71054	127176	141138	87686
Share of GDDP in GSDP (%) (2007-08 at current prices)	5.43	3.34	11.12	-	-
Share of agriculture sector in GDDP/GSDP (2007-08 at current prices)	19.59	27.88	8.72	-	9.45
Normal rainfall (in mm) July to Oct 2010	1268.90	584.66	1171.0	-	1218.16
Average size of holdings (2005-06) in ha	1.67	1.46	1.56	-	1.66
% of NSA to total geographical area 2001-02	56.52	65.59	59.93	-	56.81
% age of irrigated area to GCA (in 2001-02)	45.04	32.44	27.28	-	17.91
% of groundwater to NIA (2001-02)	75.18	77.79	53.92	-	65.01
Electricity use in Agri (% to total) 2008-09	25.88	30.26	10.72	-	17.44
Cropping intensity (%) 2007-08	112.9	133.9	127.7	-	129.9
No. of Primary Agril. Coop. Soc. (2008-09)	1027	1285	1322		21285
No. of fair price/ration shops/ lakh population (30.09.2009)	42	38	28	-	45
No. of Regulated markets/lakh ha NSA (2005-06)	15	14	11	-	271
Railway Route length/100 sq km of area (km) 2007-08	287	197.55	311		5982.89
Total Road Length/lakh Population (2007-08)	399.72	318.66	193.72		245.32
Input use: Fertiliser (kg/ha) (2007-08)	164.5	12.3.3	138.7	-	109.7
HYVs coverage %(2001)	89	95.8	94.1	-	93.7
Wheeled Tractors (per 00 ha of NSA) 2003	1.76	1.35	1.28	-	0.61
Area under major crops 2009-10 (% to GCA 2007-08):					
Total Cereals	48.85	56.09	49.18	-	37.41
Total Pulses	8.78	9.64	5.24	-	15.17
Total Foodgrains	57.63	65.73	54.42	-	52.58
Total Oilseeds	9.72	6.20	4.50	-	17.20
Sugarcane	2.98	5.03	7.95	-	3.25
Cotton	4.88	5.54	0.00	-	15.46
Fruits and Vegetables*	8.93	3.41	6.83	-	3.82
Productivity (kg/ha): 2009-10					
Total Cereals	1009	1009	956	-	1222
Total Pulses	497	680	650	-	714
Total Foodgrains	931	961	926	-	1075
Total Oilseeds	845	879	979	-	746
Sugarcane	70	80	97	-	83
Cotton	293	330	-	-	285

Notes: * Mumbai City and Mumbai Suburban: Productivity of sugarcane in tons/ha; M.S.-Maharashtra.

Sources: Economic Survey of Maharashtra, 2009-10; District Socio Economic Review of Nashik and Pune 2009; GOM (2001, Agricultural Census), GOM (2007, Livestock Census 2003); GOM (2008, Season and Crop Report of Maharashtra 2001-02).

4.2.3 Classification of Workers:

It can be observed from Table 4.2 that overall, majority of the rural workforce is engaged in agriculture and while this share is 80.1 percent at state level, while it is as high as 84.4 percent in Nashik, 79.1 percent in Ahmednagar and 74.4 percent in Pune district. Agriculture is therefore the dominant activity in Ahmednagar and taking into consideration main and marginal workers, about 70.0 percent of workers are employed in this sector, followed by 62.8 percent in Nashik and as low as 40.7 percent in Pune with state average of 55.4 percent .

Table 4.2: Population and Agricultural Workers in the Selected Districts-2001

Sr. No.	Particulars	Nashik	Ahmednagar	Pune	Mumbai Sub	MS
1	Total Workers (in lakh)					
	Total	22.2	19.3	30.5	32.0	420.5
	Rural	16.0	16.5	16.1	0.0	281.1
	Urban	6.2	2.7	14.4	32.0	139.5
2	% of Total workers to Total Population					
	Total	44.6	47.1	42.2	37.3	43.5
	Rural	52.4	50.4	53.1	0.0	50.4
	Urban	32.2	33.8	34.4	37.3	34.0
3	% of Cultivators to Total workers					
	Total	37.5	44.0	27.5	0.04	28.6
	Rural	50.6	50.1	50.7	0.0	41.7
	Urban	3.8	7.0	1.7	0.04	2.6
4	% of Agricultural labours to Total workers					
	Total	25.3	26.0	13.1	0.04	26.8
	Rural	33.7	29.0	23.7	0.0	38.4
	Urban	3.7	7.6	1.3	0.04	3.6
5	% of Cultivators + Agricultural labours in Total workers					
	Total	62.8	70.0	40.7	0.1	55.4
	Rural	84.4	79.1	74.4	0.0	80.1
	Urban	7.5	14.6	3.0	0.1	6.2
6	% of Non Agri Workers to Total workers					
	Total	37.2	30.0	59.3	99.9	44.6
	Rural	15.6	20.9	25.6	0.0	19.9
	Urban	92.5	85.4	97.0	99.9	93.8

Source: www.censusindia.net

4.2.4 Land Use Pattern:

It can be observed from Table 4.3 that out of the total geographical area in selected districts, about 66 percent is net sown area in Ahmednagar, while corresponding figure is 57 percent for Nashik and about 60 percent for Pune. Forest land occupy significant land in Nashik district (19.88 per cent), while lowest in Mumbai (3.95 per cent). Area sown more than once is recoded very high in Ahmednagar (22.20 per cent) followed by Pune (16.61 per cent) and Nashik (7.29 per cent).

Table 4.3: Land Use Pattern of selected districts

Particulars	Nasik	Ahmadnagar	Mumbai Sub	Pune	MS
Geographical Area (00 ha)	15634	17020	380	15620	307583
Forest	19.88	9.64	3.95	10.38	16.95
Barren and un-culturable land	11.00	7.54	19.21	9.39	5.59
Land put to non-agricultural uses	2.60	0.89	75.26	8.33	4.64
Culturable waste	1.29	1.18	0.00	2.44	2.98
Permanent pastures & other grazing land	1.46	2.36	1.58	4.67	4.06
Land under misc. tree crops and groves	0.12	0.22	0.00	0.83	0.81
Current fallows	5.27	7.30	0.00	2.16	4.31
Other fallow	1.85	5.29	0.00	1.87	3.86
Net area sown	56.52	65.59	0.00	59.93	56.81
Area sown more than once	7.29	22.20	0.00	16.61	16.85
Gross Cropped Area	63.82	87.79	0.00	76.54	73.66

Source: Office of the Chief Statistician, Commissionerate of Agriculture, Govt of Maharashtra, Pune.

4.2.5 Land Holdings:

The land holding pattern of selected district can be observed from Table 4.4. The land holding pattern has similarities with the state average. The average size of land holding is ranges between 1.46 ha to 1.67 ha in selected districts. About 74 percent of small and marginal farmers together hold about 40 percent of area.

Table 4.4: Number and Area of Operational Holdings selected districts (2000-01)

Sr. No		Nasik		Ahmednagar		Pune		Maharashtra	
		No./ha	%	No./ha	%	No./ha	%	No./ha	%
Marginal (below 1.0 ha.)	Number	246619	41.7	433652	47.3	346615	51.9	5305743	43.7
	Area	130248.6	13.2	230054	17.2	170787.9	16.4	2648659	13.2
Small 1.0-2.0 ha.)	Number	187607	31.7	283449	30.9	160370	24.0	3605606	29.7
	Area	270677.6	27.4	403204.3	30.2	236005.1	22.7	5127056	25.5
Semi-Medium (2-4 ha.)	Number	114268	19.3	154953	16.9	112490	16.9	2273970	18.7
	Area	305504.8	30.9	414583.1	31.0	304051.8	29.2	6109009	30.4
Medium (4-10 ha.)	Number	39319	6.6	41193	4.5	42270	6.3	865313	7.1
	Area	221330.2	22.4	225975.4	16.9	239565.2	23.0	4880109	24.3
Large (10 and above)	Number	3950	0.7	3477	0.4	5620	0.8	86995	0.7
	Area	59528.28	6.0	63430.92	4.7	90968.85	8.7	1337972	6.7
Grand Total All Classes	Number	591763	100.0	916724	100.0	667365	100.0	12137627	100.0
	Area	987289.4	100.0	1337248	100.0	1041379	100.0	20102804	100.0
Av land holdings	ha	1.67		1.46		1.56		1.66	

Source: GOM (2001), Report on Agricultural Census 2000-01, Maharashtra State.

4.2.6 Irrigation:

In Table 4.5, the selected districtwise irrigated area is indicated. It can be observed that the percentage of net irrigated area (NIA) is as low as 24.32 percent in Nashik district while it as high as 36.40 percents in Ahmednagar district., while state average is 19.09 percent. However, percentage of gross cropped area to gross irrigated area is highest in Nashik district (45.04 per cent) and the lowest is in Pune district (27.28 per cent).

Table 4.5: Sourcewise Area Irrigated selected districts (2004-05)

Sr. No.		Irrigated Area by source		Net Area Irrigated (NIA)	% area under ground (net)	Net Cropped Area (NCA)	% NIA to NCA	% GIA to GCA	Net Dry land (%)
		Surface	Well						
1	Nashik (2004-05)	51314	155427	206741	75.18	850111	24.32	45.04	75.68
2	Ahmednagar (2004-05)	95878	335748	431626	77.79	1185846	36.40	32.44	63.60
3	Pune (2001-02)	124358	145543	269901	53.92	991787	27.21	27.28	72.79
	Maharashtra (2009-10)	1162000	2159000	3321000	65.01	1.7E+07	19.09	17.91	80.91

Source: District Socio-Economic Review of Selected Districts.

4.2.7 Cropping Pattern:

In Table 4.6, the cropping pattern of selected district as well as for state as a whole is indicated. It can be observed that the cropping pattern is dominated by foodgrains, mainly cereals. Besides cereals, horticulture is also gaining importance in Nashik district followed by Pune.

Table 4.6: Cropping Pattern of Selected district

(Percentage to total GCA)

Crop/Crop Group	Nasik	Ahmednagar	Pune	MS
Rice	4.81	0.50	4.12	6.40
Jowar	1.17	31.25	32.22	17.41
Maize	15.48	3.53	1.39	3.46
Ragi	2.44	0.24	0.78	0.51
Wheat	6.73	7.60	4.69	4.77
Total Cereals	48.85	56.09	49.18	37.41
Tur	1.22	0.82	0.21	4.92
Mung	0.84	1.10	0.20	1.82
Udid	1.27	0.85	0.09	1.61
Gram	3.87	6.44	3.50	5.88
Total Pulses	8.78	9.64	5.24	15.17
Total Foodgrains	57.63	65.73	54.42	52.58
Nigerseed	1.39	0.15	0.10	0.14
Soyabean	5.64	3.85	0.19	13.57
Safflower	0.01	0.81	0.13	0.75
Groundnut (K+S)	2.53	0.66	3.62	1.40
Total Oilseeds	9.72	6.20	4.50	17.20
Sugarcane	2.98	5.03	7.95	3.25
Cotton	4.88	5.54	0.00	15.46
Fruits	4.29	1.38	1.52	2.43
Vegetables	4.64	2.03	5.30	1.39
Other	15.85	14.09	26.30	7.69
GCA (000 HA)	100.00	100.00	100.00	100.00

Source: GOM (2009), District Socio-Economic Review of Nashik 2009.

4.2.8 Infrastructure:

The infrastructure in selected district can be observed from Table 4.7 to 4.9. It can be observed that almost more than 97 percent of villages are electrified. From Table 4.8, it can be observed that electric consumption for agriculture is highest in Ahmednagar district and lowest in Pune. The road length by type of road is indicated in Table 4.9. Village roads are the main roads in the district.

Table 4.7: Number of Towns and Villages Electrified in selected districts

Sr. No	Agency	Total (No.)		Electrified Villages		Electrified Towns		Electrified Towns and Villages	
		Villages	Towns	No.	% to total	No.	% to total	No.	% to total
1	Nashik (MEEB)	1931	18	1921	99.48	18	100.00	1939	99.49
2	Ahmednagar	1578	18	1578	100.00	18	100.00	1596	100.00
3	Pune	1844	25	1792	97.18	25	100.00	1817	97.22
4	Mumbai	-	1	-	0.00	1	100.00	1	100.00

Source: GOM (2009), District Socio-Economic Review of selected districts.

Table 4.8: Sector-wise Use of Electricity in Selected Districts (% to total)

	Sector	Ahmednagar (2010-11)	Nashik (2010-11)	Pune (2009-10)	Mumbai	Maharashtra (2010-11)
1	Domestic	16.94	63.61	24.04	-	22.37
2	Commercial	18.04	7.76	19.43	-	13.24
3	Industrial	17.41	2.03	40.80	-	39.38
4	Public Lighting	1.24	0.17	1.09	-	2.64
5	Agriculture	46.36	25.88	10.72	-	18.60
6	Other	0.00	0.55	3.92	-	3.77
7	Total	100.00	100.00	100.00	-	100.00

Source: GOM (2012), District Socio-Economic Review of Selected Districts.

Table 4.9: Road Length by Type of Road in Selected districts

Road		National Highway	State Highway	Major District Roads	Other District Roads	Village Roads	All Roads
Nashik district	Length (kms)	182.24	1568.72	2227.52	3458.17	12525	19961.65
	% to total	0.91	7.86	11.16	17.32	62.75	100
Ahmednagar	Length (kms)	202	1661	2727	3346	4941	12877
	% to total	1.57	12.90	21.18	25.98	38.37	100
Pune	Length (kms)	456	1325	2950	2583	6698	14012
	% to total	3.25	9.46	21.05	18.43	47.80	100.00
Mumbai	Length (kms)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
	% to total	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Maharashtra	Length (Kms)	4367	33933	49621	46143	103604	237668
	% to total	1.84	14.28	20.88	19.41	43.59	100

Source: GOM (2012), District Socio-Economic Review of Selected Districts.

4.2.9 District Income:

The sector-wise net district/state domestic income of sample district is indicated in Table 4.10. It can be observed that in 2009-10 (at current prices), the share of agricultural sector in NDDP/NSDP was highest in Ahmednagar district (21 percent) followed Nashik (11.5 percent) and lowest was in Pune (6.0 per cent). The highest per capita income was recorded in Pune (Rs. 130896/-) followed by Nashik (Rs. 71519/-) and lowest was in Ahmednagar (Rs. 51257). The per capita income of Pune and Nashik was higher than the State average. Also Pune contributed significantly in State income, may be due to industrial nature.

Table 4.10: Sector-wise Total and Per capita District Income (2009-10)

Sector	Net District/State Domestic Income (Rs in lakh) 2009-10			
	Nashik	Ahmednagar	Pune	MS
<i>(Amount in Lakhs)</i>				
Current Prices				
Agriculture	385280	387020	461417	6866400
Forestry	80200	93307	105169	1601600
Fishery	1704	972	2404	166700
Mining and Quarrying	492	179	67	341600
Primary Sector	467676	481477	569057	8976300
% to total	11.5	21.0	6.0	11.4
Secondary Sector	1667066	452826	3908788	22098500
Territory Sector	1921952	1356287	4989281	47701300
Total District/state Income	4056694	2290590	9467127	78776100
Per capita District/State Income (Rs.)	71579	51257	130896	71300
% share of District in State Income	4.96	2.8	11.58	-
Constant Prices 2004-05				
Agriculture	270979	253949	280026	3988600
Forestry	50094	55994	63080	949500
Fishery	1473	841	2078	126200
Mining and Quarrying	411	149	56	283200
Primary Sector	322957	310933	345240	5347500
% to total	10.3	17.7	4.7	8.9
Secondary Sector	1235466	334354	2958946	16478800
Territory Sector	1565163	1106565	3968521	38019200
Total District/state Income	3123586	1751852	7272706	59845500
Per capita District/State Income(Rs.)	-	-	57458	54166
% share of District in State Income	4.92	2.76	11.64	-

Note: Figures are bracket are percentage of sector to district total.

Source: GOM (2009), District Socio-Economic Review of Nashik, March 2009.

4.3 Profile of APMC:

The details of APMC selected for the study are presented in Table 4.11. It can be seen from the table that as expected Mumbai market has largest market yard while number of villages served is highest for Ahmednagar market. Lasalgaon is the oldest APMC established in 1947 while Pimpalgaon Basant APMC is recently established in 1996. Among the selected APMC, market Committee doesn't exist in APMC Pune since 2003. Shri B.G. Deshmukh is working as a Administrator of APMC.

Table 4.11: Details of Sample APMC

APMC	Place of the Market	Total Market Area/Yard (Ha R)	Market jurisdiction (Taluk)	Number of villages
Ahmednagar	Ahmednagar	11.31	Ahmednagar	115
Sangamner	Sangamner	6.27	Sangamner	147
Yeola	Yeola	10.0	Yeola	123
Lasalgaon	Lasalgaon	6.78	Nifad	62
Pimplagaon Basant	Pimpalgaon Basant	4.20	Nifad	69
Washi	Mumbai	69.0	Greater Mumbai, Thane taluka and Urban taluka of Raigad dsitric	30
Pune	Pune	72.94	Pune and Haveli	101

APMC	Year of market committee established	Last election held for APMC (Year)	Total No. of members in the market committee	No. of registered intermediaries in market ¹ (all crops)	
				Commission Agents	Wholesaler/ Traders ('A'+b+c)
Ahmednagar	01.10.1954	2011	20	409+923	397
Sangamner	19.11.1959	2008	24	51	335
Yeola	12.03.1955	2008	23	100	147
Lasalgaon	01.05.1947	2010	21	209	206
Pimplagaon Basant	01.01.1996	1996	20	207	227
Washi	15.01.1977	2008	27	317	
Pune	01.05.1957	2003	Administrator	890	5889

¹ Commission Agent: Trade of Agricultural Commodities (excluding Animal, Sheep and Goat, Eggs, Poultry and lokar)

Traders: 'A' Grade – Annual Trade more than Rs. 50000/- ; 'B' Grade – Annual Trade more than Rs. 25000/- to Rs. 50000/-; 'C' Grade – Annual Trade up to Rs. 25000/-

The market fees, commission charges and other charges prevailing at selected APMC markets are presented in Table 4.12. It can be seen from the table that the commission charges are ranging between 4 to 6 percent which are paid by the farmers. The buyer has to pay only market fee and supervision charges

Table 4.12: Market Fee, Commission Charges and other charges at APMCs

APMC	Buyer/Purchaser		Farmer/Commodity Seller			
	Market fee (on total value of commodity) Rs. 1 per Rs.100 value	Development Cess/Supervision charges	Commission (on total value of commodity) Rs. per Rs.100 value	Weighing charges (Rs per qtls)	Hamali	Warai
Ahmednagar	1.00	0.05	6.00	2.58	2.11	-
Sangamner	1.00	0.05	6.00	2.35	3.22	-
Yeola	1.00	0.05	6.00	2.12	2.68	0.9
Lasalgaon	1.00	0.05	4.00	2.12	2.68	0.87
Pimplagaon Basant	1.00	0.05		2.12	2.68	0.9
Washi	1.00	0.05	6.50	1.51	3.95	-
Pune	1.00	0.05	6	2.4	3.6	2.04

4.4 Farmers' Land Holdings

The land details of selected farmers is presented in table 4.13. It can be seen from the table that on an average 2.49 ha is net operated land. There are very few cases of land leased in and leased out in selected farmers. The highest net operated area is recorded in Lasalgaon and lowest in Pune area.

4.5 Commission Agents and Wholesaler:

The basic information about the commission agents and wholesaler are presented in table 4.14 and 4.15. It can be seen from the table that the commission agents of Yeola APMC has highest experience of 35 years and the lowest was in Sangamner APMC. Except urban markets i.e. Mumbai and Pune, in all other APMC markets commission agents followed open auction method of sale of onion. While in case of Mumbai and Pune, Negotiation in onion sale prevails. In case of wholesaler, the highest experience was recorded in Ahmednaar and Washi market. Also about the onion tractions, same pattern is followed as recorded in case of commission agents

It was observed that the average experience of commission agents and wholesalers in onion trade in selected markets is found to be around 20 years. It indicates the existence of the same commission agent and wholesalers in the market, who normally have huge turnovers. This probably gives them a more or less monopoly position in the market, and perhaps restricting others from entry.

Table 4.13: Land holdings and Irrigated Area of Selected farmers

(Area in ha)

Sr. No.	Place	Dry Land	Irrigated Land			Total Land (3+6)
			Surface	Ground	Total	
1	2	3	4	5	6	7
A	Total owned land					
1	Ahmednagar	0.39	0.00	1.82	1.82	2.21
2	Sangamner	0.65	0.11	1.29	1.40	2.05
3	Yeola	0.26	0.00	2.67	2.67	2.92
4	Lasalgaon/Pimpalgaon	0.56	0.03	2.54	2.57	3.13
5	Washi (Mumbai)	0.69	0.05	1.47	1.52	2.21
6	Pune	0.43	0.05	1.03	1.08	1.52
	AV	0.49	0.04	1.89	1.93	2.41
B	Leased in land					
1	Ahmednagar	0.00	0.00	0.13	0.13	0.13
2	Sangamner	0.14	0.00	0.16	0.16	0.31
3	Yeola	0.00	0.00	0.06	0.06	0.06
4	Lasalgaon/Pimpalgaon	0.05	0.00	0.06	0.06	0.11
5	Washi (Mumbai)	0.13	0.00	0.00	0.00	0.13
6	Pune	0.00	0.00	0.00	0.00	0.00
	AV	0.05	0.00	0.08	0.08	0.13
C	Leased out land					
1	Ahmednagar	0.00	0.00	0.00	0.00	0.00
2	Sangamner	0.00	0.00	0.00	0.00	0.00
3	Yeola	0.09	0.00	0.00	0.00	0.09
4	Lasalgaon/Pimpalgaon	0.15	0.00	0.00	0.00	0.15
5	Washi (Mumbai)	0.09	0.00	0.00	0.00	0.09
6	Pune	0.00	0.00	0.00	0.00	0.00
	AV	0.06	0.00	0.00	0.00	0.06
D	Net operated land					
1	Ahmednagar	0.39	0.00	1.95	1.95	2.34
2	Sangamner	0.79	0.11	1.45	1.56	2.36
3	Yeola	0.17	0.00	2.73	2.73	2.90
4	Lasalgaon/Pimpalgaon	0.46	0.03	2.60	2.63	3.09
5	Washi (Mumbai)	0.73	0.05	1.47	1.52	2.25
6	Pune	0.43	0.05	1.03	1.08	1.52
	AV	0.48	0.04	1.97	2.01	2.49

Source: Field Survey Data.

Table 4.14: Basic Information about Commission Agents

Sr. No	Place	No. of Commission agents	Year of Exp (years)	Methods of Onion Purchase					Category of shop owned		
				0	1	2	3	4*	A	B	C
1	Ahmednagar	17	12.8	17	0	0	0	0	16	1	0
2	Sangamner	4	9.2	4	0	0	0	0	2	2	0
3	Yeola	4	35.0	4	0	0	0	0	3	1	0
4	Lasalgaon/ Pimpalgaon	9	23.6	9	0	0	0	0	8	1	0
5	Washi (Mumbai)	18	21.4	2	2	0	14	0	17	1	0
6	Pune	15	23.3	6	0	0	6	3	15	0	0
	Total/Av	67	19.9	42	2	0	20	3	61	6	0

Notes: 0=in open auction, 1=Secret Bidding 2= E-Auction, 3= Negotiation 4=other mode, specify; (0=A category², 1=B Category³, 2=C category⁴); * refers to both 0 and 3.

Source: Field Survey data

Table 4.15: Basic Information about Wholesaler

Sr. No	APMC	No. of Whole saler	Year of Exp (years)	Methods of Onion Purchase					Category of shop owned		
				0	1	2	3	4*	A	B	C
1	Ahmednagar	3	34.0	3	0	0	0	0	3	0	0
2	Sangamner	6	14.5	6	0	0	0	0	5	1	0
3	Yeola	6	26.7	6	0	0	0	0	6	0	0
4	Lasalgaon/ Pimpalgaon	11	19.2	11	0	0	0	0	10	1	0
5	Washi (Mumbai)	2	34.0	1	0	0	1	0	2	0	0
6	Pune	5	23.2	2	0	0	3	0	5	0	0
	Total/Av	33	22.5	29	0	0	4	0	31	2	0

Notes: 0=in open auction, 1=Secret Bidding 2= E-Auction, 3= Negotiation 4=other mode, specify; (0=A category, 1=B Category, 2=C category); * refers to both 0 and 3.

Source: Field Survey data

4.6 Retailer

The details about the type of retail establishment of selected retailer is presented in table 4.16. It can be seen from the table that all of the retailer have wet market retail establishment. This may be because of purposive selection of sample retailer.

² A category shops have an extended trading and storage area in addition to a separate space for a small office.

³ B category shops have much smaller trading areas and a much smaller sitting area, instead of a separate office

⁴ C category shops have even smaller trading areas and no designated sitting area.

Table 4.16: Details about the type of retail establishment (Retailer)

Sr. No.	Place	Type of Retail establishment						Area of retail outlet Sq.ft
		0	1	2	3	4	5	
1	Ahmednagar	0	0	10	0	0	0	69.8
2	Sangamner	1	1	08	0	0	0	58.2
3	Yeola	1	0	09	0	0	0	37.5
4	Lasalgaon/Pimpalgaon	2	0	08	0	0	0	51.0
5	Washi (Mumbai)	0	0	10	0	0	0	70.8
6	Pune	0	0	10	0	0	0	27.8
	Total/Av	4	1	55	0	0	0	52.5

Notes: 0=Kirana shop 1=Pushcart, 2=Wet market Retailer 3=Cooperative Modern Retailer (ex: SAFAL) 4= Private Modern Retailer (ex: Food World, Reliance Fresh) 5 = others specify
Source: Field Survey Data.

4.7 Consumer:

The details about the consumer are presented in Table 4.17. It can be seen from the table that average age of contacted consumer was around 38 years and most of them are male consumer. The average annual income of the selected consumer ranges between Rs. 26600/- in Yeola to Rs. 127000/- in Mumbai.

Table 4.17: Details about the consumer

Place	Av. Age (years)	Respondent Sex (%)		Av. Annual family income (Rs/year)	Av. Family Composition (No.)		
		Male	Female		Male	Female	Total
Ahmednagar	44.4	100.0	0.0	49200.0	3.4	2.0	5.4
Sangamner	35.5	90.0	10.00	58300.0	2.7	1.7	4.4
Yeola	40.1	100.0	0.0	26600.0	2.5	2.4	4.9
Lasalgaon/Pimpalgaon	32.6	80.00	20.00	57900.0	2.3	2.3	4.6
Washi (Mumbai)	30.0	80.00	20.00	127000.0	3.4	1.4	4.8
Pune	44.9	100.0	0.0	92600.0	1.8	2.3	4.1
Average	37.9	91.7	8.3	68600.0	2.7	2.0	4.7

Source: Field Survey Data.

After having discussed the socio economic characteristics of selected area, farmer and market intermediaries, next chapter presents the results of primary data.

Market Functionaries in Onion Marketing

An Analysis based on Field Data

5.1 Introduction:

It was noted earlier that Maharashtra had the third highest number of regulated markets, though the area covered by each market and population fed by each market is very less as compared to other states in India. Though, Maharashtra has relatively more number of regulated markets and level of spread of regulated markets is relatively better in the state, still farmers continue to face several difficulties while selling their produce. Exploitation from the farmers by middlemen has been continuing due to inadequate marketing facilities. The process of computerization and connectivity of the APMCs is in progress. The Maharashtra State Agricultural Marketing Board (MSAMB) undertook several projects on infrastructure development in the state. Amendments in APMC act have also been made in order to dismantle the monopoly of APMC in agricultural marketing and promote competition by bringing more players. In view of the above, an attempt is made in this chapter to analyse the supply chain of onion and observe the benefits as well as constraints with the help of field level data collected from sample APMCs, farmers and market functionaries.

5.2 Farmer:

Onion is a major horticultural crop in Maharashtra and therefore along with production, marketing of the crop also assumes importance. Farmers' should have proper facilities in the regulated markets so that marketing takes place in an orderly manner and they also receive their due price. Keeping this in mind, a questionnaire was addressed to 130 farmers in Ahmednagar (25), Sangamner (25), Yeola (25), Lasalgaon and Pimpalgaon Basant (25), Mumbai (15) and Pune (15) to observe their perception on marketing infrastructure and other issues related to marketing of onions.

The cropping pattern of sample farmers is indicated in Table 5.1. It can be observed that onion was the major crop, followed by food grains.

Table 5.1: Major Crops grown by the selected sample households (2009-10)

(Percentage to GCA)

	Crop	Ahmednagar	Sangamner	Yeola	Lasalgaon/ Pimpalgaon	Washi (Mumbai)	Pune	Total
A	Kharif							
1	Onion	36.3	22.0	21.9	22.5	11.8	19.6	23.7
2	Bajari	12.9	28.9	10.4	10.6	27.4	28.3	17.2
3	Jowar	0.3	0.0	0.0	0.0	2.6	0.0	0.3
4	Mung	7.3	0.0	0.5	1.5	0.0	2.6	2.0
5	Cotton	0.0	0.0	15.8	0.0	0.0	0.0	3.6
6	Maize	0.0	1.1	15.0	21.6	0.0	0.0	8.9
7	Soybean	1.7	11.4	3.7	7.5	0.0	0.0	5.0
8	Tur	0.7	0.0	0.0	0.0	0.0	0.5	0.0
9	Tomato	0.7	1.5	0.0	2.6	0.0	0.0	1.0
10	Maize	0.3	0.0	0.0	0.0	0.0	0.0	0.0
11	Other Veg.	0.3	0.8	0.0	0.0	1.1	0.5	0.3
12	Wheat	0.0	1.1	0.0	0.0	0.0	0.0	0.3
13	Sugarcane	0.0	1.1	0.0	0.0	1.1	6.8	0.7
14	Chana/Gram	0.0	0.8	0.0	0.0	0.0	0.0	0.0
15	Groundnut	0.0	0.0	0.5	3.3	3.0	2.6	1.3
16	Grapes	0.0	0.0	0.0	1.3	0.0	0.0	0.3
17	Rice	0.0	0.0	0.0	0.0	4.4	0.0	0.3
18	Others	4.5	10.0	1.6	4.7	2.0	1.4	4.4
	K. Total	65.2	78.8	69.5	75.6	53.4	62.4	69.5
B	Rabi	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	Onion	15.7	10.2	12.1	8.7	26.3	22.4	14.0
2	Jowar	5.6	1.5	0.8	0.0	3.0	5.2	2.0
3	Wheat	6.6	6.8	10.4	7.7	5.5	8.4	7.9
4	Gram	3.5	1.5	2.4	1.5	2.6	1.6	2.0
5	Chana/Gram	3.1	1.1	1.1	4.1	0.0	0.0	2.0
6	Maize	0.3	0.0	1.6	0.8	0.0	0.0	0.7
7	Groundnut	0.0	0.0	0.0	0.5	1.1	0.0	0.3
8	Tomato	0.0	0.0	0.5	0.0	0.0	0.0	0.0
9	Other	0.0	0.0	0.0	1.0	0.0	0.0	0.3
	R. Total	34.8	21.2	29.0	24.4	38.5	37.6	29.2
C	Summer	0.0	0.0	0.0	0.0	0.0	0.0	0.0
1	Onion	0.0	0.0	1.5	0.0	0.0	0.0	0.4
2	Groundnut	0.0	0.0	0.0	0.0	4.8	0.0	0.7
3	Bajara	0.0	0.0	0.0	0.0	3.3	0.0	0.3
	Summer	0.0	0.0	1.5	0.0	8.1	0.0	1.3
D	Gross Cropped Area (GCA)	100.0	100.0	100.0	100.0	100.0	100.0	100.0
E	Cropping Intensity (CP)	116.7	97.1	123.7	114.2	112.8	124.9	114.2

Source: Field Survey Data.

5.2.1 Average Season-wise Area under Onion in 2010-11:

From the sample farmers, it was observed that the average area under onion was 1.15 hectares, with 0.72 hectares under kharif, 0.42 hectares under rabi and only 0.01 hectare under summer, which means that 62.6 percent area was under kharif onions (Table 5.1 and 5.2). It was also observed that 38.04 percent of the gross cropped area (GCA) was under onions and out of total production 91 percent of kharif and summer crop was sold, while 95 percent of rabi onion was sold in 2010-11. The marketed surplus in preceding years was also observed to be very high.

Table 5.2: Average Season-wise Area under Onion during the year 2010-11

Sr. No.	Market	Av. Area under Onion during the year 2010-11 (ha)				% to GCA
		Kharif	Rabi	Summer	Total	
1	Ahmednagar	1.04	0.45	0.00	1.50	52.01
2	Sangamner	0.58	0.27	0.00	0.85	32.22
3	Yeola	0.82	0.45	0.06	1.32	35.48
4	Lasalgaon/Pimpalgaon	0.87	0.34	0.00	1.21	31.15
5	Washi (Mumbai)	0.32	0.71	0.00	1.03	38.10
6	Pune	0.37	0.43	0.00	0.80	41.96
	Av.	0.72	0.42	0.01	1.15	38.04

Source: Field Survey Data.

The main factor (Table 5.3) which determined the allocation of area under onion was weather and also short duration of the cash crop. Infact in four out of the six districts considered for the sample (Sangamner, Yeola, Lasalgaon and Vashi), 100 percent of farmers indicated that weather, short duration of the crop and also onion being a cash crop, were the main factors for cultivation of onion..

Table 5.3: Factors determining the decision about Cultivating of Onion

(% to total)

Sr. No.	Market	How do they take decision about cultivating onion (in percentage to total)				
		Weather is suitable for this Crop, Cash Crop, Short Period Crop	Depends on Demand and Supply	Depends on rainfall	No Comments	Seasonal Crop, Cash Crop, Short Period Crop
1	Ahmednagar	28.00	4.00	64.00	4.00	0.00
2	Sangamner	100.00	0.00	0.00	0.00	0.00
3	Yeola	100.00	0.00	0.00	0.00	0.00
4	Lasalgaon	100.00	0.00	0.00	0.00	0.00
5	Washi (Mumbai)	100.00	0.00	0.00	0.00	0.00
6	Pune	0.00	6.67	40.00	13.33	40.00
	Av.	74.62	1.54	16.92	2.31	4.62

Note: Figures are in percentage to total sample size.

Source: Field Survey Data.

5.2.2 Cost of Production of onions:

It can be observed from Table 5.4 that on an average across the six districts, the operational cost of production was Rs 72190/- per hectare. The highest cost of production was observed in Pune and lowest in Ahmednagar. Out of total cost, (Table 5.4), 16.34 percent of the cost was on fertilizers, 15.19 percent on transplanting, 12.59 percent on preparation of land and 11.19 percent on seed on an average across all districts.

The details about the average per ha productivity and per quintal cost of production of onion is indicated in Table 5.5. It can be seen from the table that on an average, per quintal cost of production of onion is Rs. 505. As mentioned by the farmers, the productivity of onion during 2010-11 was very low as compared to other normal years, and hence the cost of production is estimated to be on the higher side. Thus, due to fall in productivity, the production cost increased drastically.

Table 5.4: Cost of Cultivation of Onion 2010-11 (% to total cost)

Sr. No.	Operations	Ahmednagar	Sangamner	Yeola	Lasalgaon/ Pimpalgaon	Washi (Mumbai)	Pune	Total
	Cost of Prod (% to Total)							
1	Preparation of land	14.16	13.93	12.59	13.90	14.16	13.93	12.59
2	Seed	11.30	10.47	11.19	13.57	11.30	10.47	11.19
3	Transplanting	14.30	13.66	15.19	14.18	14.30	13.66	15.19
4	Fertilizers/Manure	16.19	18.49	16.34	14.97	16.19	18.49	16.34
5	Pesticides	7.29	8.91	7.50	7.30	7.29	8.91	7.50
6	Weeding	8.12	8.03	8.43	9.71	8.12	8.03	8.43
7	Irrigation	6.03	4.36	8.80	5.96	6.03	4.36	8.80
8	Harvesting	10.99	8.17	7.93	11.58	10.99	8.17	7.93
9	Cutting of shoots/cleaning	4.23	4.93	8.55	4.27	4.23	4.93	8.55
10	Grading, Storage and transportation	5.02	5.39	2.15	2.17	5.02	5.39	2.15
11	Others (Specify)	2.36	3.68	1.32	2.40	2.36	3.68	1.32
12	Total	100.00 (59977)	100.00 (79500)	100.00 (78873)	100.00 (67149)	100.00 (77896)	100.00 (80603)	100.00 (72190)

Note: Figures in parenthesis are total cost of cultivation (Rs./ha).

Source: Field Survey Data.

Table 5.5: Per quintal cost of Production during the year 2010-11

Sr. No.	Market	Yield (qtis/ha)	Per quintal cost of Production (Rs)
1	Ahmednagar	141.93	423
2	Sangamner	123.44	644
3	Yeola	144.33	546
4	Lasalgaon/Pimpalgaon	143.73	467
5	Washi (Mumbai)	139.74	557
6	Pune	178.33	452
	Av.	142.90	505

Source: Field Survey Data.

The onion crop often suffers huge losses and hence this issue was addressed by sample farmers (Table 5.6 and 5.6a). Almost half the farmers in the sample indicated that the crop was affected by unfavorable weather events and it was mainly rainfall at the time of harvesting which badly affected the crop.

Table 5.6: Rainfall Situation during the Crop Growth Period

Sr. No.	Market		Rainfall		
			Above Normal	Below Normal	Normal
1	Ahmednagar	Number	4	4	17
		%	16.00	16.00	68.00
2	Sangamner	Number	6	14	5
		%	24.00	56.00	20.00
3	Yeola	Number	4	6	15
		%	16.00	24.00	60.00
4	Lasal	Number	5	10	10
		%	20.00	40.00	40.00
5	Mumbai	Number	1	2	12
		%	6.67	13.33	80.00
5	Pune	Number	4	4	7
		%	26.67	26.67	46.67
	Total	Number	24	40	66
		%	18.46	30.77	50.77

Source: Field Survey Data.

Table 5.6a: Any Other unfavourable weather event affecting onion production during 2010-11

Sr. No	Market		Unfavorable Weather events		If yes, unfavorable events (% to yes responses)			
			Yes	No	Damage to onion by unseasoned rain	Climate was Not good for onion	Pest (Mawa/aphids) Problem	Shortage of Rainfall
1	Ahmednagar	Number	15	10	11	3	0	1
		%	60.00	40.00	73.33	20.00	0.00	6.67
2	Sangamner	Number	7	18	7	0	0	0
		%	28.00	72.00	100.00	0.00	0.00	0.00
3	Yeola	Number	11	14	4	3	4	0
		%	44.00	56.00	40.00	30.00	40.00	0.00
4	Lasal	Number	13	12	10	3	0	0
		%	52.00	48.00	83.33	25.00	0.00	0.00
5	Mumbai	Number	8	7	1	5	2	0
		%	53.33	46.67	12.50	62.50	25.00	0.00
6	Pune	Number	10	5	8	0	2	0
		%	66.67	33.33	80.00	0.00	20.00	0.00
7	Total	Number	64	66	41	14	8	1
		%	49.23	50.77	66.13	22.58	12.90	1.61

Source: Field Survey Data.

5.2.3 Method of sale of onion of sample farmers:

It is important to know the method of sale of produce of sample farmers and accordingly the farmers were addressed with this question. In four of the selected six districts, i.e Ahmednagar, Sangamner, Yeola and Lasalgaon, it was observed that the entire sales were made in regulated markets through open auctions. However, the system of sale in Vashi and Pune APMCs was different. Almost entire sale was through negotiation in Vashi and Pune APMC. In Pune and Vashi markets, the farmers bring their produce and the commission agent negotiates the rate with wholesalers and the produce is sold. It was also reported to us in the AMPC of Vashi that a commission agent/wholesaler in the upcountry market purchased the produce from the farmer who then sold it to buyer in Vashi market after negotiations. In some cases farmers also found out the rate in Vashi market through mobile telephone and then arranged to transport his produce to Vashi if the rate was acceptable to him. His produce was received by a commission agent who then sold it to a buyer on behalf of the farmer. It may also be noted, that not a single farmer in the sample made village sales which could indicate that farmers preferred regulated markets due to better prices and other supporting infrastructure. (Table 5.7)

Table 5.7: Method of Sale of Onion in Selected Markets (farmer)

Sr. Ni.	Market		Village Sale	APMC Sale			
				Open Auction	Secret Bidding	E-Auction	Negotiations
1	Ahmednagar	%	0.00	100.00	0.00	0.00	0.00
2	Sangamner	%	0.00	100.00	0.00	0.00	0.00
3	Yeola	%	0.00	100.00	0.00	0.00	0.00
4	Lasal	%	0.00	100.00	0.00	0.00	0.00
5	Mumbai	%	0.00	0.0	6.67	0.00	93.33
6	Pune	%	0.00	20.00	0.00	0.00	80.00
7	Av	%	0.00	70.0	1.1	0.0	28.9

Note: Sale in APMC- Through Commission Agents
Source: Field Survey Data.

The discussion with farmers revealed that farmers realized average prices much lower than what they expected. It may be noted that the data was collected for the year 2010-11 when farmers suffered crop failure due to unseasonal rains and there was a huge rise in onion prices. Farmers therefore may have expected very high prices which were not up to their expectations.

About 63 percent of farmers in the sample received payment within 12 hours of sale while 30 percent stated that payment was received within 24 hours. This clearly indicates that farmers received timely payments in case of sales to APMC and this is an important reason why farmers prefer to sell in regulated markets rather than any other channel (Table 5.8). In fact there were a number of other reasons also why farmers preferred to sell to APMC which is indicated in Table 5.9.

Table 5.8: Details about the Time taken for payment to farmers

Sr. No.			Within 12 hours	Within 24 hours	Within 7 days	More than 7 days
1	Ahmednagar	Number	18	5	0	2
		%	72.00	20.00	0.00	8.00
2	Sangamner	Number	10	13	2	0
		%	40.00	52.00	8.00	0.00
3	Yeola	Number	16	9	0	0
		%	64.00	36.00	0.00	0.00
4	Lasal	Number	16	9	0	0
		%	64.00	36.00	0.00	0.00
5	Mumbai	Number	14	1	0	0
		%	56.00	4.00	0.00	0.00
6	Pune	Number	8	2	0	5
		%	53.33	13.33	0.00	33.33
7	Total	Number	82	39	2	7
		%	63.08	30.00	1.54	5.38

Source: Field Survey Data.

Table 5.9: Reason for Preferring the APMC by sample farmers

APMC		Reasons for Selling in APMC											
		Higher price			Proximity/ quick disposal			Transportation facility			Credit from trader / commission agent		
		0	1	Total	0	1	Total	0	1	Total	0	1	Total
Ahmednagar	Number	6	19	25	5	20	25	11	14	25	25	0	25
	%	24.0	76.0	100.0	20.0	80.0	100.0	44.0	56.0	100.0	100.0	0.0	100.0
Sangamner	Number	7	18	25	4	21	25	12	13	25	24	1	25
	%	28.0	72.0	100.0	16.0	84.0	100.0	48.0	52.0	100.0	96.0	4.0	100.0
Yeola	Number	3	22	25	5	20	25	10	15	25	22	3	25
	%	12.0	88.0	100.0	20.0	80.0	100.0	40.0	60.0	100.0	88.0	12.0	100.0
Lasal	Number	4	21	25	4	21	25	9	16	25	20	5	25
	%	16.0	84.0	100.0	16.0	84.0	100.0	36.0	64.0	100.0	80.0	20.0	100.0
Mumbai	Number	0	15	15	8	7	15	5	10	15	14	1	15
	%	0.0	100.0	100.0	53.3	46.7	100.0	33.3	66.7	100.0	93.3	6.7	100.0
Pune	Number	2	13	15	3	12	15	3	12	15	14	1	15
	%	13.3	86.7	100.0	20.0	80.0	100.0	20.0	80.0	100.0	93.3	6.7	100.0
Total	Number	22	108	130	29	101	130	50	80	130	119	11	130
	%	16.9	83.1	100.0	22.3	77.7	100.0	38.5	61.5	100.0	91.5	8.5	100.0

Notes: 0- No Comment/Answer; 1- Yes (reason).

Source: Field Survey Data.

APMC		Reliable market information			Other		Other Reasons									
		No Comment/Answer	Yes	Total	No Comment/Answer	Yes	Cash Payment, Perfect Weighing	Easy Process	Exporter are there	No Need of Bags	No Other Option	No Other Substitute	Parking Arrangement	Payment Security	Purchaser cheat in onion selling so we sell onion in APMC	
Ahmednagar	Number	12	13	25	20	5	5	0	0	0	0	0	0	0	0	
	%	48.0	52.0	100.0	80.0	20.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Sangamner	Number	15	10	25	20	5	1	0	1	1	0	1	0	0	1	
	%	60.0	40.0	100.0	80.0	20.0	20.0	0.0	20.0	20.0	0.0	20.0	0.0	0.0	20.0	
Yeola	Number	14	11	25	9	6	6	0	0	0	0	0	0	0	0	
	%	56.0	44.0	100.0	60.0	40.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Lasal	Number	3	22	25	11	4	4	0	0	0	0	0	0	0	0	
	%	12.0	88.0	100.0	73.3	26.7	100.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	
Mumbai	Number	8	7	15	17	8	7	0	0	0	0	0	0	1	0	
	%	53.3	46.7	100.0	68.0	32.0	87.5	0.0	0.0	0.0	0.0	0.0	0.0	12.5	0.0	
Pune	Number	7	8	15	15	10	0	1	0	0	1	0	1	7	0	
	%	46.7	53.3	100.0	60.0	40.0	0.0	10.0	0.0	0.0	10.0	0.0	10.0	70.0	0.0	
Total	Number	59	71	130	92	38	23	1	1	1	1	1	1	8	1	
	%	45.4	54.6	100.0	70.8	29.2	60.5	2.6	2.6	2.6	2.6	2.6	2.6	21.1	2.6	

Source: Field Survey Data.

On an average across the entire sample of six districts, 83 percent preferred APMC due to higher price, 77 percent that there was quick disposal of their produce and also proximity, and 61.5 percent stated that transport was available. However, credit from trader/commission agent did not influence sales to APMC which means that farmers were normally not indebted to commission agents. It is possible that farmers could easily access loans from cooperative credit societies and hence minimized their demand for credit from private sources.

5.2.4 Cost of Marketing of APMC and Village Sales and reasons for Preference of this channel:

In case of sales to APMC or even in village markets, farmers do have to incur marketing costs. While selling in regulated markets, there are certain marketing costs which have to be borne by farmers. The same are indicated in Table 5.10. On an average bagging and loading costs were Rs 7.2 per quintal in APMC while it was Rs 6.6 per quintal in village sales. Transport cost was obviously higher in case of Vashi market in Mumbai due to market being located far away from point of production. The transport cost in case of village sales was also obviously negligible. Unloading/Hamali costs on an average were Rs 3.04 per quintal in APMCs while commission charges were Rs 64.3 per quintal. Overall, the cost of marketing to APMC was Rs 102.2 per quintal. Although marketing cost in case of village sales was negligible, farmers still preferred to sell in APMC, which obviously indicates that they may be receiving much higher prices in APMC as compared to village sales.

Table 5.10: Details about the Marketing Cost of APMC (Rs/qlt)

Market	Bagging and loading	Transportation	Hamali	Commission	Others	Total
Ahmednagar	9.5	22.7	2.1	74.4	0.5	109.2
Sangamner	6.2	18.9	3.2	58.7	0.6	87.6
Yeola	1.7	17.3	2.7	50.2	1.7	73.5
Lasal	7.0	23.8	2.7	32.0	8.3	73.8
Mumbai	10.4	50.1	4.0	73.8	0.4	138.6
Pune	11.0	28.7	3.6	72.2	0.5	116.0
Av.	7.2	25.5	3.0	64.3	2.2	102.2

Source: Field Survey Data.

The most important reason why farmers preferred to sell to APMC (Table 5.11) was because they were familiar with the system which was practiced over years. Many of them had personal relations with commission agents who ensured them timely payments. In case of any grievance, the APMC committee could look into the matter to the satisfaction of the farmer. The APMC also had the license of all commission agents and hence this served as a check on them in case of they tried to exploit farmers.

Table 5.11: Reasons for Preferring Marketing Channel by Sample Farmers

Market		Being practiced over years		Influence of friends, relatives, neighbours		Higher/Fair price		Low cost of Marketing		Less physical losses		Proximity	
		0	1	0	1	0	1	0	1	0	1	0	1
Ahmednagar	Number	7	18	13	12	10	15	6	19	6	19	12	13
	%	28.0	72.0	52.0	48.0	40.0	60.0	24.0	76.0	24.0	76.0	48.0	52.0
Sangamner	Number	3	22	11	14	14	11	11	14	3	22	13	12
	%	12.0	88.0	44.0	56.0	56.0	44.0	44.0	56.0	12.0	88.0	52.0	48.0
Yeola	Number	3	22	13	12	10	15	9	16	9	16	15	10
	%	12.0	88.0	52.0	48.0	40.0	60.0	36.0	64.0	36.0	64.0	60.0	40.0
Lasal	Number	5	20	14	11	10	15	4	21	11	14	14	11
	%	20.0	80.0	56.0	44.0	40.0	60.0	16.0	84.0	44.0	56.0	56.0	44.0
Mumbai	Number	5	10	5	10	8	7	12	3	10	5	15	0
	%	33.3	66.7	33.3	66.7	53.3	46.7	80.0	20.0	66.7	33.3	100.0	0.0
Pune	Number	4	11	8	7	6	9	7	8	7	8	5	10
	%	26.7	73.3	53.3	46.7	40.0	60.0	46.7	53.3	46.7	53.3	33.3	66.7
Total	Number	27	103	64	66	58	72	49	81	46	84	74	56
	%	20.8	79.2	49.2	50.8	44.6	55.4	37.7	62.3	35.4	64.6	56.9	43.1

Notes: 0- No response for particular attribute, 1- response for particular attribute.

Source: Field Survey Data.

		Logistical support		Access to inputs		Hidden costs in alternative channel		Longer waiting time and formalities in alternative channel		Commitment to repay loan		Superior infrastructure	
		0	1	0	1	0	1	0	1	0	1	0	1
A.nagar	Number	18	7	24	1	25	0	18	7	24	1	15	10
	%	72.0	28.0	96.0	4.0	100.0	0.0	72.0	28.0	96.0	4.0	60.0	40.0
Sangamner	Number	14	11	25	0	24	1	18	7	23	2	14	10
	%	56.0	44.0	100.0	0.0	96.0	4.0	72.0	28.0	92.0	8.0	58.3	41.7
Yeola	Number	23	2	23	2	24	1	24	1	21	4	16	9
	%	92.0	8.0	92.0	8.0	96.0	4.0	96.0	4.0	84.0	16.0	64.0	36.0
Lasal	Number	22	3	25	0	19	6	21	4	23	2	11	14
	%	88.0	12.0	100.0	0.0	76.0	24.0	84.0	16.0	92.0	8.0	44.0	56.0
Mumbai	Number	11	4	15	0	12	3	10	5	12	3	10	5
	%	73.3	26.7	100.0	0.0	80.0	20.0	66.7	33.3	80.0	20.0	66.7	33.3
Pune	Number	9	6	14	1	12	3	8	7	14	1	8	7
	%	60.0	40.0	93.3	6.7	80.0	20.0	53.3	46.7	93.3	6.7	53.3	46.7
Total	Number	97	33	126	4	116	14	99	31	117	13	74	55
	%	74.6	25.4	96.9	3.1	89.2	10.8	76.2	23.8	90.0	10.0	57.4	42.6

Notes: 0- No response for particular attribute, 1- response for particular attribute.

Source: Field Survey Data.

With respect to details about the sources of price information, (Table 5.12) it was observed that personal information was an important source. However, this source was most important in Sangamner market, followed by Yeola and Lasalgaon. Most farmers have mobile phones and APMCs provide facility to inform day to day prices to farmers through telephone. This method therefore serves as a very convenient and inexpensive method of price dissemination to farmers. In Pune and Mumbai markets personal information was not a very important method of price information. Farmers obtained this information from their peer group or the commission agents informed them about the price prevailing in urban markets. Farmers by and large stated that the price realized was lower than that expected.

Table 5.12: Details about the Sources and Time of Price Information to the Farmer

		Source from which the price information was obtained				Time of receipt of price information	
		Personal Information	Speaking with others	Speaking with commission agent	Speaking with officials	At the time of sale	Some days before sale
Ahmednagar	Number	10	10	5	0	21	4
	%	40.0	40.0	20.0	0.0	84.0	16.0
Sangamner	Number	20	4	0	1	25	0
	%	80.0	16.0	0.0	4.0	100.0	0.0
Yeola	Number	15	10	0	0	23	2
	%	60.0	40.0	0.0	0.0	92.0	8.0
Lasal	Number	13	9	3	0	21	4
	%	52.0	36.0	12.0	0.0	84.0	16.0
Mumbai	Number	2	6	7	0	12	3
	%	13.3	40.0	46.7	0.0	80.0	20.0
Pune	Number	7	5	3	0	15	0
	%	46.7	33.3	20.0	0.0	100.0	0.0
Total	Number	67	44	18	1	117	13
	%	51.5	33.8	13.8	0.8	90.0	10.0

		Did you received the price you expected				Time of price agreement	
		No comments	Lower than expected	Similar to what expected	Higher than expected	At the time of sale	By Previous agreement
Ahmednagar	Number	0	21	1	3	25	0
	%	0.0	84.0	4.0	12.0	100.0	0.0
Sangamner	Number	1	22	2	0	25	0
	%	4.0	88.0	8.0	0.0	100.0	0.0
Yeola	Number	0	22	3	0	25	0
	%	0.0	88.0	12.0	0.0	100.0	0.0
Lasal	Number	2	22	1	0	25	0
	%	8.0	88.0	4.0	0.0	100.0	0.0
Mumbai	Number	0	13	2	0	15	0
	%	0.0	86.7	13.3	0.0	100.0	0.0
Pune	Number	0	14	1	0	15	0
	%	0.0	93.3	6.7	0.0	100.0	0.0
Total	Number	3	114	10	3	130	0
	%	2.3	87.7	7.7	2.3	100.0	0.0

Source: Field Survey Data.

5.2.5 Farmers' Perception about Marketing Infrastructure and Experience about sale of Onion in APMC:

Regulated markets are expected to have proper infrastructure so that auctions take place in an orderly manner and farmers are not put into any inconvenience when they bring their produce for sale. Table 5.13 reveals the opinion of farmers on marketing infrastructure in the regulated markets. By and large, the farmers felt that the road condition was either average or good and the market was at proximity of 10 to 25 kms from the village. Obviously urban markets such as Pune and Vashi were located far away from the village. Almost all farmers felt that storage/godown facilities were not available, but other facilities such as auction arrangement, loading facilities, weighing facilities and banking and payment facilities were average or good. More than half the farmers in the sample felt that rest houses were not available.

Table 5.14 present the farmers' experience about the sale of onion in APMC. It can be observed from the table that as mentioned in above, good facilities are provided in the selected APMC markets. However 7 percent farmers felt that there is understanding between the commission agent and buyer and 2.3 percent reported that commission agents are not cooperating with them. Some of the farmers have demanded for open auction sale in Mumbai market. Some farmers have also reported about the management of APMC in Lasalgaon.

Table 5.13: Perception of Farmer about the Market Infrastructure

Infrastructure and Perception	Ahmednagar		Lasalgaon		Mumbai		Pune		Sangamner		Yeola		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
1. Condition of road to the Market														
i) Bad	0	0.0	1	4.0	2	13.3	0	0.0	1	4.0	1	4.0	5	3.9
ii) Average	13	52.0	13	52.0	1	6.7	7	46.7	15	60.0	16	64.0	65	50.0
iii) Good	12	48.0	11	44.0	12	80.0	8	53.3	9	36.0	8	32.0	60	46.2
2. Proximity of the market														
i) Within the village	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.77
ii) within 10 kms	0	0.0	4	16.0	0	0.0	0	0.0	3	12.0	6	24.0	13	10.00
iii) between 10 -25 kms	21	84.0	14	56.0	0	0.0	2	13.3	18	72.0	17	68.0	72	55.4
iv) Above 25 and below 50	1	4.0	7	28.0	0	0.0	4	26.7	4	16.0	1	4.0	17	13.1
v) more than 50	2	8.0	0	0.0	15	100.0	9	60.0	0	0.0	1	4.0	27	20.8
3. Godown facilities														
i) Bad	0	0.0	3	12.0	0	0.0	0	0.0	0	0.0	0	0.0	3	2.3
ii) Good	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	1	0.8
iii) Not available	25	100.0	22	88.0	15	100.0	15	100.0	25	100.0	24	96.0	126	96.9
4. Auction Arrangement														
i) Bad	0	0.0	3	12.0	3	20.0	9	60.0	1	4.0	4	16.0	19	14.6
ii) Average	14	56.0	8	32.0	7	46.7	5	33.3	17	68.0	10	40.0	61	46.9
iii) Good	10	40.0	14	56.0	5	33.3	1	6.7	7	28.0	11	44.0	48	36.9
iv) NA	1	4.0	0	0.0	0	0.0	0	0.0	0	0.00	0	0.0	1	0.8
5. Arrangement of sale														
i) Bad	0	0.0	2	8.0	0	0.0	0	0.0	1	4.00	1	4.0	4	3.1
ii) Average	11	44.0	11	44.0	6	40.0	8	53.3	12	48.0	15	60.0	63	48.5
iii) Good	14	56.0	12	48.0	9	60.0	7	46.7	12	48.0	9	36.0	63	48.5
6. Loading facilities														
i) Bad	0	0.0	3	12.0	0	0.0	3	20.0	1	4.0	2	8.0	9	6.9
ii) Average	15	60.0	10	40.0	2	13.3	5	33.3	16	64.0	13	52.0	61	46.9
iii) Good	10	40.0	12	48.0	12	80.0	7	46.7	8	32.0	10	40.0	59	45.4

Note: NA – Not Available/ No Answer.

Source: Field Survey Data.

Table 5.13 continues.....

Infrastructure and Perception	Ahmednagar		Lasaigaon		Mumbai		Pune		Sangamner		Yeola		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
7. Sorting/Grading Facilities														
i) Bad	1	4.0	6	24.0	0	0.0	0	0.0	0	0.0	1	4.0	8	6.2
ii) Average	0	0.0	7	28.0	0	0.0	2	13.3	0	0.0	8	32.0	16	12.3
iii) Good	6	24.0	4	16.0	1	6.7	1	6.7	1	4.0	6	24.0	19	14.6
iv) Don't Know	18	72.0	8	32.0	14	93.3	12	80.0	24	96.0	10	40.0	86	66.2
8. Weighing Facilities														
i) Bad	0	0.0	2	8.0	0	0.0	1	6.7	0	0.00	1	4.0	4	3.1
ii) Average	8	32.0	6	24.0	3	20.0	3	20.0	15	60.0	9	36.0	44	33.9
iii) Good	17	68.0	17	68.0	12	80.0	11	73.3	10	40.0	15	60.0	82	63.1
9. Packing Facilities														
i) Bad	0	0.0	8	32.0	0	0.0	0	0.0	0	0.0	0	0.0	8	6.15
ii) Average	2	8.0	4	16.0	4	26.7	2	13.3	0	0.0	3	12.0	15	11.5
iii) Good	5	20.0	7	28.0	3	20.0	4	26.7	3	12.0	7	28.0	24	18.5
iv) NA	18	72.0	6	24.0	8	53.3	9	60.0	22	88.0	15	60.0	78	60.0
10. Banking Facilities														
i) Bad	0	0.0	11	44.0	0	0.0	1	6.7	1	4.0	2	8.0	15	11.5
ii) Average	11	44.0	6	24.0	2	13.3	3	20.0	13	52.0	10	40.0	45	34.6
iii) Good	12	48.0	7	28.0	13	86.7	11	73.3	3	12.0	8	32.0	54	41.5
iv) Don't Know	0	0.0	0	0.0	0	0.0	0	0.0	2	8.0	0	0.0	2	1.5
v) NA	2	8.0	1	4.0	0	0.0	0	0.0	6	24.0	5	20.0	14	10.8
11. Rest rooms/rest houses														
i) Bad	0	0.0	1	4.0	0	0.0	0	0.0	6	24.0	0	0.0	7	5.4
ii) Average	7	28.0	2	8.0	5	33.3	7	46.7	0	0.0	1	4.0	22	16.9
iii) Good	10	40.0	0	0.0	1	6.7	8	53.3	0	0.0	0	0.0	19	14.6
iv) NA	8	32.0	22	88.0	9	60.0	0	0.0	19	76.0	24	96.0	82	63.1
12. Payment														
i) Bad	0	0.0	1	4.0	0	0.0	3	20.0	1	4.0	0	0.0	5	3.9
ii) Average	13	52.0	7	28.0	4	26.7	6	40.0	13	52.0	10	40.0	53	40.8
iii) Good	12	48.0	17	68.0	11	73.3	6	40.0	10	40.0	15	60.0	71	54.6

Source: Field Survey Data.

Table 5.14: Experience of Farmer about sale of onion in APMC

Experience about sale of onion in APMC Comments	Ahmednagar		Lasalgaon		Mumbai		Pune		Sangamner		Yeola		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Commission Agent are not Co-operating with Farmer	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	2	8.0	3	2.3
APMCs Management is not good	0	0.0	3	12.0	0	0.0	0	0.0	0	0.0	1	4.0	4	3.1
Facilities- Bad Condition	0	0.0	1	4.0	2	13.3	0	0.0	4	16.0	2	8.0	9	6.9
Fluctuation in Onion Prices	1	4.0	3	12.0	0	0.0	0	0.0	0	0.0	2	8.0	6	4.6
Good Facilities available	11	44.0	10	40.0	7	46.7	11	73.3	9	36.0	7	28.0	55	42.3
If Supply Increase, delay in payment and rates also decrease	1	4.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.5
Labour Not Available Easily	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	1	0.8
Marketing Process is good in APMC	2	8.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	1.5
No Comments	1	4.0	4	16.0	2	13.3	2	13.3	4	16.0	5	20.0	18	13.8
No Problem	3	12.0	1	4.0	0	0.0	0	0.0	3	12.0	1	4.0	8	6.2
Open Auction is Required	0	0.0	0	0.0	3	20.0	0	0.0	0	0.0	0	0.0	3	2.3
Quick Sale of onion in APMC	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	1	0.8
Rate is depend on the CA	0	0.0	0	0.0	1	6.7	0	0.0	0	0.0	0	0.0	1	0.8
Rate is low as compared to other market	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
Rates depend on Demand and Supply	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
Receive Payment in cash	0	0.0	0	0.0	0	0.0	0	0.0	2	8.0	0	0.0	2	1.5
Satisfactory	0	0.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
Sometimes there is need to stay for 2 days & at that time rent of tractor increases	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	1	0.8
Some time Weighing Problem	0	0.0	0	0.0	0	0.0	1	6.7	0	0.0	0	0.0	1	0.8
Fast process of Auction is not good for farmers welfare	0	0.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
Understanding between Commission Agents	4	16.0	0	0.0	0	0.0	1	6.7	2	8.0	2	8.0	9	7.0
Total	25	100.0	25	100.0	15	100.0	15	100.0	25	100.0	25	100.0	130	100.0

Source: Field Survey Data.

5.2.6 Other Issues Related to marketing of produce:

As observed farmers sold their produce in APMCs and about 94.6 percent of them in the sample were not aware about other marketing channels and were also not aware of other options to sell their produce. However, 12.31 percent of farmers revealed that onions should be exported (Table 5.15 and 5.16).

Table 5.15: Farmers Awareness about Marketing Channels

Markets		Idea about the agents and market channels that exists between you and retail market/consumer					Total
		Do not know	Commission Agent	Commission agent and Wholesaler	Commission Agent, Wholesaler and retailer	Wholesaler, Retailer and Consumer	
Ahmednagar	Number	23	0	1	1	0	25
	%	92.00	0.00	4.00	4.00	0.00	100.00
Sangamner	Number	23	1	0	0	1	25
	%	92.00	4.00	0.00	0.00	4.00	100.00
Yeola	Number	25	0	0	0	0	25
	%	100.00	0.00	0.00	0.00	0.00	100.00
Lasalgaon	Number	22	2	1	0	0	25
	%	88.00	8.00	4.00	0.00	0.00	100.00
Mumbai	Number	15	0	0	0	0	15
	%	100.00	0.00	0.00	0.00	0.00	100.00
Pune	Number	15	0	0	0	0	15
	%	100.00	0.00	0.00	0.00	0.00	100.00
Total	Number	123	3	2	1	1	130
	%	94.62	2.31	1.54	0.77	0.77	100.00

Source: Field Survey Data.

Table 5.16: Details about the Other options to the farmer for selling produce wherein higher price for the produce

Market	Response	Do not know	Export Onion	Govt. must fix MSP for onion. when commission agent does not purchase onion, then govt must enter the market	If farmer will independently send onion to other state then they will get good profit	Total
Ahmednagar	Number	20	3	0	2	25
	%	80.00	12.00	0.00	8.00	100.00
Sangamner	Number	22	1	2	0	25
	%	88.00	4.00	8.00	0.00	100.00
Yeola	Number	15	7	1	2	25
	%	60.00	28.00	4.00	8.00	100.00
Lasalgaon	Number	19	3	1	2	25
	%	76.00	12.00	4.00	8.00	100.00
Mumbai	Number	14	1	0	0	15
	%	93.33	6.67	0.00	0.00	100.00
Pune	Number	14	1	0	0	15
	%	93.33	6.67	0.00	0.00	100.00
Total	Number	104	16	4	6	130
	%	80.00	12.31	3.08	4.62	100.00

Source: Field Survey Data.

Onion prices as is well known are subject to severe fluctuations. Sometimes, there is a glut in the market leading to highly unremunerative prices while in certain years there is crop failure causing prices to skyrocket. Income of farmers therefore fluctuates and is not stable. Farmers were therefore asked about suggestions through which the government could help them to obtain competitive prices for their produce (Table 5.17 and 5.18). A number of farmers, especially in upcountry markets felt that the government should help to export onions. Overall about one fourth of farmers felt that government support is required to facilitate exports which would increase prices in domestic prices and they would also benefit from higher international prices. Another suggestion made by 31.54 percent of sample farmers is that Minimum Support Prices (MSP) should be fixed for onions so that if prices fall to unreasonably low levels, the government agencies could enter the markets and mop up the extra supplies. A number of farmers revealed that MSP should be fixed at Rs 1000/- per quintal and if fixed at this level, they could cover their cost of production as well as earn a reasonable return from cultivation of onion.

Table 5.17: Enabling conditions and the Government support require to Farmer in order get a competitive price for the produce

Market		Support by the Government								Total
		Do not Know	Govt. should Help to export onion	Increase Onion Auction	MSP must be declared by govt	need to reduce the number of agents from market	No Comment	Require more subsidies for Fertiliser/ regulate fertiliser supply	Process onion to powder	
Ahmednagar	Number	0	9	0	4	0	11	0	1	25
	%	0.00	36.00	0.00	16.00	0.00	44.00	0.00	4.00	100.0
Sangamner	Number	0	7	0	12	0	6	0	0	25
	%	0.00	28.00	0.00	48.00	0.00	24.00	0.00	0.00	100.0
Yeola	Number	1	5	0	9	1	9	0	0	25
	%	4.00	20.00	0.00	36.00	4.00	36.00	0.00	0.00	100.0
Lasalgaon	Number	0	9	0	6	1	8	1	0	25
	%	0.00	36.00	0.00	24.00	4.00	32.00	4.00	0.00	100.0
Mumbai	Number	1	1	1	5	0	4	3	0	15
	%	6.67	6.67	6.67	33.33	0.00	26.67	20.00	0.00	100.0
Pune	Number	0	3	0	5	0	7	0	0	15
	%	0.00	20.00	0.00	33.33	0.00	46.67	0.00	0.00	100.0
Total	Number	2	34	1	41	2	45	4	1	130
	%	1.54	26.15	0.77	31.54	1.54	34.62	3.08	0.77	100.0

Source: Field Survey Data.

Table 5.18: Farmers' suggestions to get a higher price for produce and to reduce margin of the intermediaries

Suggestions Particular	Ahmednagar		Lasalgaon		Mumbai		Pune		Sangamner		Yeola		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Export Promotion Policies and Govt support	3	12.0	6	24.0	1	6.8	2	13.3	7	28.0	5	20.0	24	18.5
Fertiliser Prices Should be reduced	0	0.0	0	0.0	3	20.0	0	0.0	0	0.00	0	0.0	3	2.3
Govt. should purchase, sell and export the onion	5	20.0	4	16.0	0	0.0	0	0.0	3	12.0	4	16.0	16	12.3
If farmer sell to Consumer directly	1	4.0	0	0.0	1	6.8	0	0.0	0	0.0	0	0.0	2	1.5
Increased Export of Onion	0	0.0	0	0.0	0	0.0	1	6.8	0	0.0	0	0.0	1	0.8
Keep Prices Constant	0	0.0	0	0.0	0	0.0	0	0.0	1	4.0	0	0.0	1	0.8
MSP Needed/ Min Rs.1000/- or above	5	20.0	5	20.0	3	20.0	5	33.3	7	28.0	7	28.0	32	24.6
No Comments	10	40.0	8	32.0	4	26.8	7	46.7	7	28.0	9	36.0	45	34.6
No Government Control	0	0.0	1	4.0	0	0.0	0	0.0	0	0.0	0	0.0	1	0.8
Reduce the Current Marketing Chain	1	4.00	1	4.00	1	6.67	0	0.00	0	0.00	0	0.00	3	2.31
Reduce the Prices of Fertilisers and Pesticides	0	0.00	0	0.00	1	6.67	0	0.00	0	0.00	0	0.00	1	0.77
Subsidy should give to Farmer	0	0.00	0	0.00	1	6.67	0	0.00	0	0.00	0	0.00	1	0.77
Total	25	100.0	25	100.0	15	100.0	15	100.0	25	100.0	25	100.0	130	100.0

Source: Field Survey Data.

The market imperfections observed/experienced by the farmers is presented in Table 5.19. It can be seen from the table that very few farmers have reported about the interlocking of market. They have not experienced any problem related unreasonable grading, weightment problems or any special preference by buyers in the market. About 8 percent farmers have reported about the anomalies in price fixations. However, as our selected markets are big and well developed,

market imperfections have not been prominent. Perhaps, APMCs which are not well developed may be suffered from market imperfections.

Table 5.19: Market imperfections observed/experienced by farmers

Market		Interlocking of Market		Unreasonable Grading		Weighment Problems		Special Preferences by the buyers		
		Yes	No	Yes	No	Yes	No	No Comments	Yes	No
Ahmednagar	Number	1	24	0	25	0	25	0	0	25
	%	4.00	96.00	0.00	100.00	0.00	100.00	0.00	0.00	100.00
Sangamner	Number	1	24	1	24	0	25	1	0	24
	%	4.00	96.00	4.00	96.00	0.00	100.00	4.00	0.00	96.00
Yeola	Number	1	24	0	25	1	24	0	0	25
	%	4.00	96.00	0.00	100.00	4.00	96.00	0.00	0.00	100.00
Lasalgaon	Number	0	25	0	25	0	25	0	1	24
	%	0.00	100.00	0.00	100.00	0.00	100.00	0.00	4.00	96.00
Mumbai	Number	4	11	0	15	0	15	0	2	13
	%	26.67	73.33	0.00	100.00	0.00	100.00	0.00	13.33	86.67
Pune	Number	0	15	0	15	0	15	0	0	15
	%	0.00	100.00	0.00	100.00	0.00	100.00	0.00	0.00	100.00
Total	Number	7	123	1	129	1	129	1	3	126
	%	5.38	94.62	0.77	99.23	0.77	99.23	0.77	2.31	96.92

Market		Market entry restrictions			Anomalies in price fixation		
		Yes	No	Rs. 2/- Market entry Charge/ tractor	No Comments	Yes	No
Ahmednagar	Number	4	21	0	0	2	23
	%	16.00	84.00	0.00	0.00	8.00	92.00
Sangamner	Number	9	16	0	1	1	23
	%	36.00	64.00	0.00	4.00	4.00	92.00
Yeola	Number	1	24	0	0	0	25
	%	4.00	96.00	0.00	0.00	0.00	100.00
Lasalgaon	Number	1	23	1	0	1	24
	%	4.00	92.00	4.00	0.00	4.00	96.00
Mumbai	Number	3	12	0	0	2	13
	%	20.00	80.00	0.00	0.00	13.33	86.67
Pune	Number	0	15	0	0	4	11
	%	0.00	100.00	0.00	0.00	26.67	73.33
Total	Number	18	111	1	1	10	119
	%	13.85	85.38	0.77	0.77	7.69	91.54

Source: Field Survey Data.

Although farmers preferred selling to APMC through auction method, it was observed in Ahmednagar APMC that the commission agent may not have taken the auction to a higher bid. A visit to Ahmednagar APMC revealed that there was indirect evidence of collusion amongst traders. While bidding on certain lots was taking place, traders started with about Rs 300/- per quintal and kept bidding higher prices till one trader quoted Rs 400/- per quintal and another bid at Rs 405/- per quintal. The commission agent stopped the auction and said that the two bidders should equally share the produce that was being auctioned. Perhaps the commission agent could have waited for a slightly higher bid (i.e above Rs 405/- per quintal) and then sold the produce. But bidding was immediately stopped at Rs 405/- per quintal and produce was shared between two wholesalers.

It can overall be observed from the perception of farmers about marketing of onions that they were more or less satisfied with most of the marketing infrastructure and auction method of sale in regulated markets. Village sales did not take place in the sample group. However farmers received prices lower than expected. In order to ensure reasonable prices government should promote exports and also fix MSP so that farmers do not have to make distress sales.

5.3 Commission Agent:

The main purpose of regulated markets is to create conditions for sale which are conducive for farmers and buyers as well as all market functionaries involved in marketing. When farmers bring their produce for sale, they do not directly sell to buyers who are normally wholesalers. A commission agent facilitates the sale of the farmer's produce and is basically an intermediary between the farmer and wholesaler/buyer. The commission agent holds a license to conduct marketing operations and an important function performed by him is to ensure that the farmers receive payment soon after sale of their produce. Since commission agents have an important role to play in regulated markets, a questionnaire was addressed to them regarding marketing practices and marketing infrastructure. Their responses are revealed in this chapter. In six APMCs considered, 67 commission agents have been interviewed, to observe if

any insights can be revealed regarding marketing of agricultural produce with special reference to onions.

5.3.1 Average Monthly Transactions of the Commission Agent:

The monthly transactions of the commission agents and the average price at which these transactions were made are indicated in Table 5.20 and 5.21 and Fig. 5.1.

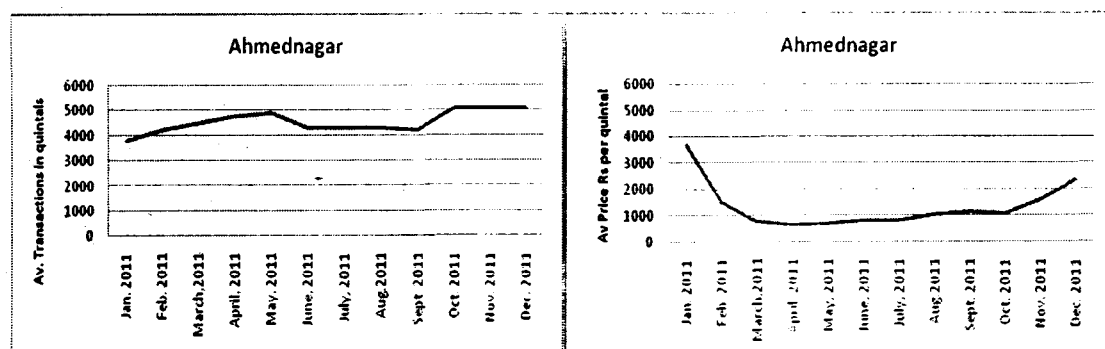
Table 5.20: Details about the Monthly Onion Transactions pattern of the Commission agents - January to December 2011

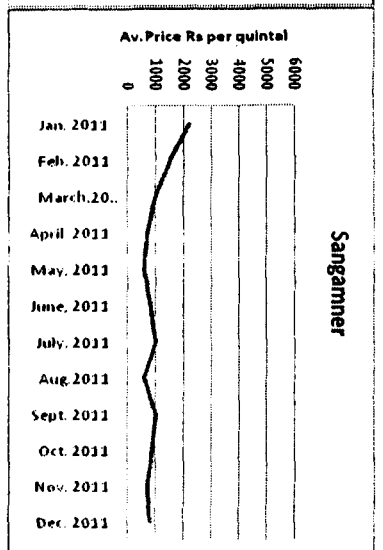
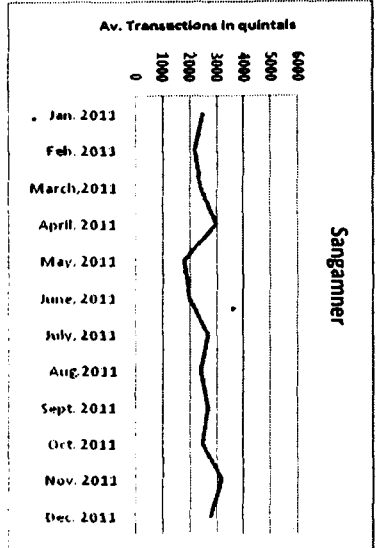
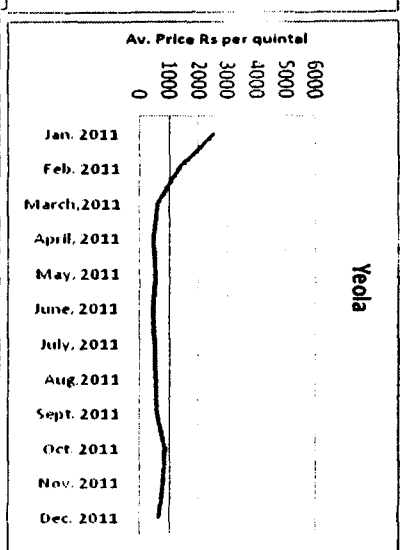
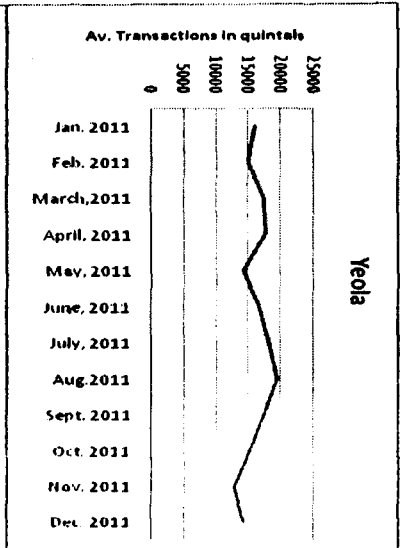
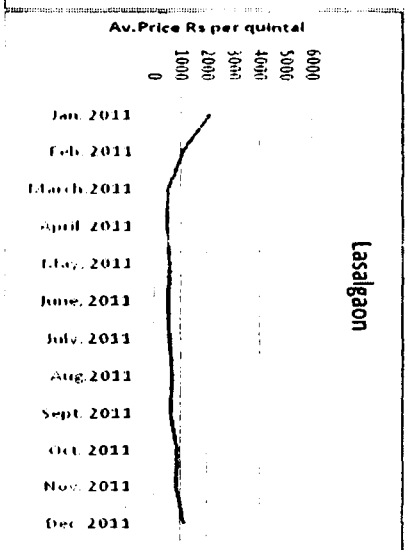
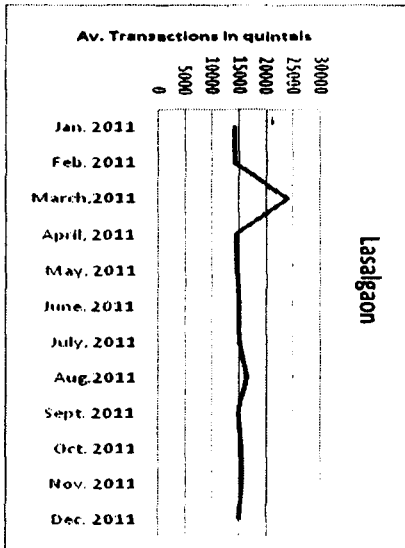
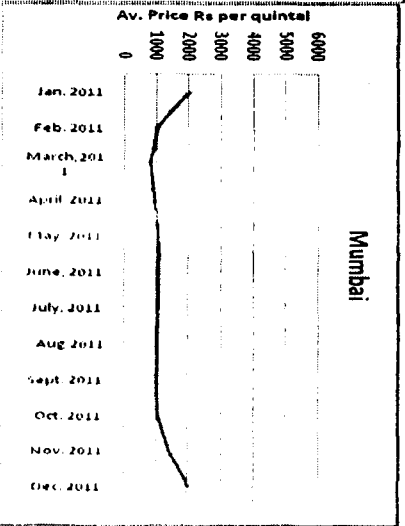
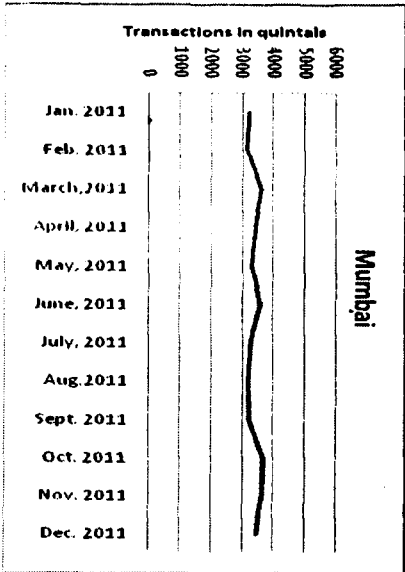
Sr. No.	Place	Place	Transaction Pattern (quintal per buyer/Commission Agent)					
			Jan	Feb	March	April	May	June
1	Ahmednagar	APMC	3758	4204	4462	4754	4873	4265
2	Sangamner	APMC	2500	2200	2400	3000	1800	2000
3	Yeola	APMC	16050	14950	17500	17633	14228	16870
4	Lasalgaon/Pimpalgaon	APMC	14256	14250	23963	14425	14713	15188
5	Washi (Mumbai)	APMC	3239	3143	3658	3450	3333	3608
6	Pune	APMC	4882	5245	5027	4682	4827	4764
	Av	-	6348	6445	8326	6809	6631	6807

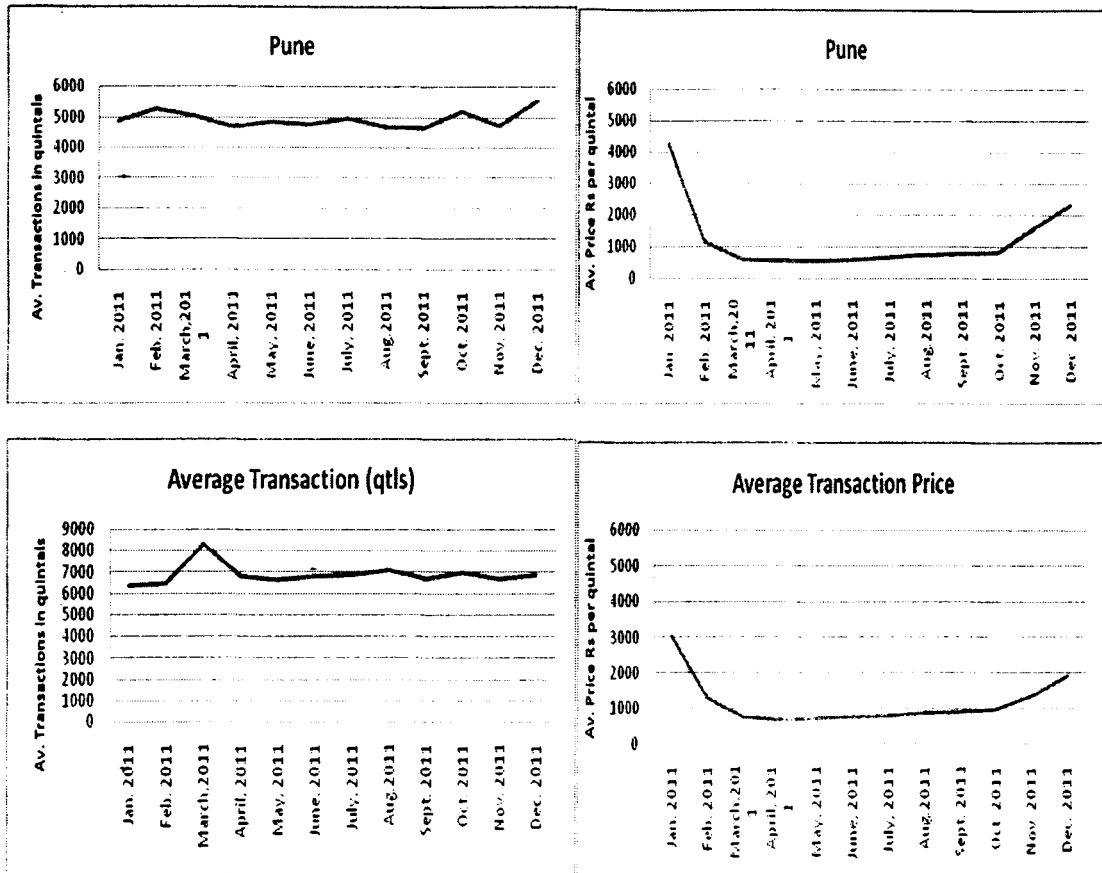
Sr. No.	Place	Transaction Pattern (quintal per buyer/Commission Agent)						
		July	Aug	Sept	Oct	Nov	Dec	Total
1	Ahmednagar	4285	4262	4208	5050	5062	5046	54227
2	Sangamner	2700	2400	2700	2500	3200	2800	30200
3	Yeola	18321	19514	17449	15305	12823	14274	194916
4	Lasalgaon/Pimpalgaon	15188	16500	15038	15494	15688	15188	189888
5	Washi (Mumbai)	3292	3204	3242	3669	3625	3496	40959
6	Pune	4945	4673	4627	5182	4718	5518	59091
	Av	6877	7080	6679	7002	6722	6893	82619

Note: Place of purchase: APMC.
Source: Field Survey data

Fig. 5.1: Quantity and Price of Onions- Transacted by Commission Agents in 2011







It can be observed that the weighted average price (weighted by transactions) for the season 2011 (January to December) across all APMCs is Rs 1118/- per quintal. It can also be observed that in most of the months the price was lower than the weighted average price for the entire season. Prices of onions reached very high levels in January 2011 due to crop failure and crop being spoilt due to unseasonal rains in the harvesting season. However, from March 2011 onwards, with the rabi harvest prices reduced sharply. Prices are observed to be higher in urban markets such as Pune and Vashi, while they were lowest in Lasalgaon, followed by Yeola market. This is expected as demand is more in urban markets and transport cost is also more. Lasalgaon and Yeola are saddled with huge arrivals and heavy supplies which put a downward pressure on prices and in these markets, onions arrive loose and are not sorted and graded. While in other markets, onion arrival is in gunny bags after sorting and grading is done. Hence prices are higher in Ahmednagar, Pune and Mumbai market.

Table 5.21: Details about the Average Transaction Price of Onion – Commission Agents- January to December 2011

Sr. No	Place	Place	Transaction/ Purchase Price (Rs./ Quintal)					
			Jan	Feb	March	April	May	June
1	Ahmednagar	APMC	3662	1508	767	636	675	791
2	Sangamner	APMC	2200	1500	1000	700	600	800
3	Yeola	APMC	2549	1344	644	500	554	494
4	Lasalgaon/Pimpalgaon	APMC	2121	1054	536	482	589	525
5	Washi (Mumbai)	APMC	2042	1023	844	936	1063	1076
6	Pune	APMC	4300	1173	589	558	564	598
	Av	-	3029	1297	763	709	751	754

Source: Field Survey data

Sr. No	Place	Transaction/ Purchase Price (Rs./ Quintal)						
		July	Aug	Sept	Oct	Nov	Dec	WT. aV
1	Ahmednagar	804	1040	1141	1073	1585	2362	1240
2	Sangamner	1000	600	1000	900	700	800	978
3	Yeola	538	559	610	875	778	699	836
4	Lasalgaon/Pimpalgaon	575	686	611	869	825	1154	800
5	Washi (Mumbai)	1068	1043	1042	1073	1398	2060	1135
6	Pune	654	744	786	828	1602	2334	1204
	Av	790	881	910	980	1352	1917	1118

Note: Place of purchase: APMC.

Source: Field Survey data

5.3.2 Price Information:

A questionnaire was addressed to commission agents on price information in regulated markets as price is an important factor in onion trade (Table 5.22). About 55 percent of commission agents indicated that price of onion is determined by market forces and 79 percent of them said that farmers were well aware of prices. Due to cheap telecommunication facilities, farmers have easy access to information on ruling market prices in the APMC. The APMCs also have facilities to provide information on the price in the market to farmers throughout the day. Further, farmers also contact commission agents in order to know the prices prevailing in the APMC.

Table 5.22: Knowledge of the Commission Agent about the price of the onion

(% to sample size)

Sr. No.	Particulars	Ahmednagar	Sangamner	Yeola	Lasalgaon/ Pimpalgaon	Washi (Mumbai)	Pune	Av.
A	<i>On what basis do you decide the purchase price to be paid to the farmer?</i>							
1	No Answer	29.4	25.0	0.0	11.1	27.8	13.3	20.9
2	Depend on Demand and Supply	23.5	75.0	75.0	88.9	61.1	53.3	55.2
3	Outside market rate	47.1	0.0	25.0	0.0	11.1	0.0	16.4
4	Buyer is easily available and grade of onion	0.0	0.0	0.0	0.0	0.0	20.0	4.5
5	Rate prevailing on previous days	0.0	0.0	0.0	22.2	0.0	0.0	3.0
B	<i>Are the farmers aware of the price at which the produce is likely to be sold in the market?</i>							
1	Yes	82.4	100.0	75.0	55.6	72.2	93.3	79.1
2	No	17.6	0.0	25.0	44.4	27.8	6.7	20.9
C	<i>What is the source of information about the price to Farmers?</i>							
1	Not Contact	0.0	25.0	0.0	33.3	16.7	0.0	10.4
2	Direct Contact with CA/Wholesaler through mobile	76.5	75.0	75.0	55.6	72.2	86.7	74.6
3	Enquiry over phone- APMC	0.0	0.0	0.0	11.1	0.0	0.0	1.5
4	Fellow Farmer	0.0	0.0	25.0	0.0	0.0	0.0	1.5
5	Newspaper/Radio	23.5	0.0	0.0	0.0	11.1	13.3	11.9
D	<i>Do they contact you for the price before bringing the product to the Market?</i>							
1	Yes	64.7	100.0	75.0	88.9	88.9	93.3	83.6
2	No	35.3	0.0	25.0	11.1	11.1	6.7	16.4

Source: Field Survey data

5.3.2 Source of Information to farmers about price as per the perception of Commission Agent

According to the commission agent, most of the farmers get information about the price of onion prevailing in various markets by contacting the commission agents of that market. Also the onion rates prevailing in other markets are collected by the farmers through other sources (Table 5.23). However, in case

of commission agents, half of the commission agents agree that they get information about the prevailing onion prices in other market before they go for transaction (Table 5.24)

Table 5.23: Source of Information to the farmers on the price of the onion that Commission Agent intend to sell

Sr. No.			How do you get the information on the price of the onion that you intend to transact					Total
			By contact with other Commission agent	Depends on demand from buyers	No answer	Other Market Rates	Through Exporter	
1	Ahemadnagar	Number	4	0	7	6	0	17
		%	23.5	0.0	41.2	35.3	0.0	100.0
2	Sangamner	Number	4	0	0	0	0	4
		%	100.0	0.0	0.0	0.0	0.0	100.0
3	Yeola	Number	4	0	0	0	0	4
		%	100.0	0.0	0.0	0.0	0.0	100.0
4	Lasalgaon	Number	6	0	1	1	1	9
		%	66.7	0.0	11.1	11.1	11.1	100.0
5	Mumbai	Number	6	2	7	3	0	18
		%	33.3	11.1	38.9	16.7	0.0	100.0
6	Pune	Number	6	2	6	1	0	15
		%	40.0	13.3	40.0	6.7	0.0	100.0
	Total	Number	30	4	21	11	1	67
		%	44.8	6.0	31.3	16.4	1.5	100.0

Source: Field Survey data

Table 5.24: Data on the price of the produce from various markets by Commission Agent

Sr. No.			Do you get the data on the price of the produce from various markets		
			No	Yes	Total
1	Ahemadnagar	Number	11	6	17
		%	64.7	35.3	100.0
2	Sangamner	Number	3	1	4
		%	75.0	25.0	100.0
3	Yeola	Number	4	0	4
		%	100.0	0.0	100.0
4	Lasalgaon	Number	7	2	9
		%	77.8	22.2	100.0
5	Mumbai	Number	6	12	18
		%	33.3	66.7	100.0
6	Pune	Number	7	8	15
		%	46.7	53.3	100.0
	Total	Number	38	29	67
		%	56.7	43.3	100.0

Source: Field Survey data

5.3.3 Change in Transaction Pattern of Commission Agent in the times of very high or very low prices of onion:

With respect to changes in transaction pattern, 55 out of 67, i.e. 82 percent of commission agents stated that there was no change in transaction pattern even when prices were very high or very low and only 16 percent indicated that extreme prices did impact their transactions pattern (Table 5.25 and Table 5.26). Out of the 16 commission agents who experienced changes in transaction pattern, 45.5 percent felt that transaction decrease when rates are low, 27.3 percent stated that they do not purchase during extreme prices and 27.3 percent indicated that their transaction increased when prices were high. Almost all (97 percent) commission agents felt that they did not face any problem when prices were extreme.

Table 5.25: Changes in transaction Pattern of Commission Agents in times of very high or very low prices of onion

Sr. No.			Do your transaction pattern change in times of very high or very low prices of onion			
			No Comment	Yes	No	Total
1	Ahmednagar	Number	0	3	14	17
		%	0.0	17.6	82.4	100.0
2	Sangamner	Number	0	1	3	4
		%	0.0	25.0	75.0	100.0
3	Yeola	Number	0	1	3	4
		%	0.0	25.0	75.0	100.0
4	Lasalgaon	Number	1	3	5	9
		%	11.1	33.3	55.6	100.0
5	Mumbai	Number	0	2	16	18
		%	0.0	11.1	88.9	100.0
6	Pune	Number	0	1	14	15
		%	0.0	6.7	93.3	100.0
	Total	Number	1	11	55	67
		%	1.5	16.4	82.1	100.0

Source: Field Survey data

Table 5.26: Strategies of Commission Agents in in the times of very high or very low prices of onion

Markets		Does your purchase or sale pattern change in the times of very high or very low prices of onion (If yes how)			Total
		If Rates are low then Purchase reduce	Do not purchase	When Rates are High, Purchase more	
Ahmednagar	Number	2	1	0	3
	%	66.7	33.3	0.0	100.0
Lasalgaon	Number	0	1	2	3
	%	0.0	33.3	66.7	100.0
Sangamner	Number	0	1	0	1
	%	0.0	100.0	0.0	100.0
Yeola	Number	1	0	0	1
	%	100.0	0.0	0.0	100.0
Mumbai	Number	2	0	0	2
	%	100.0	0.0	0.0	100.0
Pune	Number	0	0	1	1
	%	0.0	0.0	100.0	100.0
Total	Number	5	3	3	11
	%	45.5	27.3	27.3	100.0

Source: Field Survey data

5.3.4 Information on intermediaries in the supply chain of onions:

An attempt was made to gauge from the commission agents whether they had any idea about the number of intermediaries after he has facilitated the sale of the farmer till the produce reaches the final consumer. About 45 commission agents (i.e. 67.2 percent) responded that they were aware of the intermediaries involved in the supply chain and it normally went through the wholesaler to the retailer (Table 5.27 and 5.28).

Table 5.27: Awareness of Commission Agent about the Number of agents exist before the produce finally reaches the consumer

Sr. No.			Do you know the number of agents that exist between you and retail market before the produce finally reaches the consumer			
			Yes	No	Don't Know	Total
1	Ahmednagar	Number	11	6	0	17
		%	64.7	35.3	0.0	100.0
2	Sangamner	Number	1	3	0	4
		%	25.0	75.0	0.0	100.0
3	Yeola	Number	3	1	0	4
		%	75.0	25.0	0.0	100.0
4	Lasalgaon	Number	6	3	0	9
		%	66.7	33.3	0.0	100.0
5	Mumbai	Number	14	3	1	18
		%	77.8	16.7	5.6	100.0
6	Pune	Number	10	5	0	15
		%	66.7	33.3	0.0	100.0
	Total	Number	45	21	1	67
		%	67.2	31.3	1.5	100.0

Source: Field Survey data

Table 5.28: Commission Agent's awareness about the agents that exists before the produce finally reaches the consumer

Sr. No.			Agents exists before the produce finally reaches the consumer		
			Retailer	Wholesaler-Retailer	Total
1	Ahmednagar	Number	0	11	11
		%	0.0	100.0	100.0
2	Sangamner	Number	0	1	1
		%	0.0	100.0	100.0
3	Yeola	Number	0	3	3
		%	0.0	100.0	100.0
4	Lasalgaon	Number	1	5	6
		%	16.7	83.3	100.0
5	Mumbai	Number	6	8	14
		%	42.9	57.1	100.0
6	Pune	Number	0	10	10
		%	0.0	100.0	100.0
	Total	Number	7	38	45
		%	15.6	84.4	100.0

Source: Field Survey data

5.3.5 Perception of the infrastructure:

The very purpose of regulated markets is to ensure suitable infrastructure for marketing of agricultural commodities to take place. Only if infrastructure is suitable, it will be possible for farmers to find it convenient to market their produce and also get the best possible prices. Accordingly, the view of the commission agents was obtained on various aspects of the prevailing marketing infrastructure in the APMCs.

About 45 percent of the commission agents felt that the location of the market was good. Also commission agents were satisfied with certain facilities such as auction arrangement, supervision of sale, loading facilities, weighing facilities, price display and banking facilities. However, they were dissatisfied with certain features. In Pune market, some commission agents felt that godown facilities, sorting facilities, parking facilities, cold storage, waste disposal facility were not satisfactory or not available (see, Annexure III).

5.3.6 Constraints faced by the Buyer /Commission Agents in procuring and marketing of the produce:

About 92.5 percent of commission agents felt that there was no difficulty while procuring onions from farmers and they were comfortable with rules of APMC. With respect to storing of produce, 41.8 percent of commission agents did not face any problem while 56.72 percent did not at all store the produce but disposed it off immediately. Again 76 percent of commission agents did not face transport problems, while 9 percent felt that at times the transport vehicle was not available. The main role played by the market committee was to control the process of auction, followed by collection of market fee and solving problems when required (Tables 5.29A to 5.29H).

Table 5.29A: Difficulties that Commission agent face in procuring the onions from the farmers

		What are the difficulties that you face in procuring the onions from the farmers					
		No Comments	No Problem	Farmer is not Satisfied with the Rate	Payment has to be made in time to farmer, otherwise no arrival next time	Sometimes farmers mix poor onion with good quality onion, commission agent incur loss	Traffic Problem
Ahmednagar	Number	0	15	1	1	0	0
	%	0.0	88.	5.9	5.9	0.0	0.0
Sangamner	Number	0	4	0	0	0	0
	%	0.0	100.0	0.0	0.0	0.0	0.0
Yeola	Number	0	4	0	0	0	0
	%	0.0	100.0	0.0	0.0	0.0	0.0
Lasalgaon	Number	1	7	0	0	1	0
	%	11.1	77.8	0.0	0.0	11.1	0.0
Mumbai	Number	0	17	0	0	0	1
	%	0.0	94.4	0.0	0.0	0.0	5.6
Pune	Number	0	15	0	0	0	0
	%	0.0	100.0	0.0	0.0	0.0	0.0
Total	Number	1	62	1	1	1	1
	%	1.5	92.5	1.5	1.5	1.5	1.5

Source: Field Survey data

Table 5.29B: Constraints that Commission Agents face in the market yard

		Constraints that Commission Agent face in the market yard				
		No Problem	Need to Increase Space	High labour charges in APMC & Shortage of Hamal	Packing Problem	Long Distance From the City Place
Ahmadnagar	Number	16	0	0	0	1
	%	94.1	0.0	0.0	0.0	5.9
Sangamner	Number	3	0	1	0	0
	%	75.0	0.0	25.0	0.0	0.0
Yeola	Number	4	0	0	0	0
	%	100.0	0.0	0.0	0.0	0.0
Lasalgaon	Number	8	0	1	0	0
	%	88.9	0.0	11.1	0.0	0.0
Mumbai	Number	15	2	0	1	0
	%	83.3	11.1	0.0	5.6	0.0
Pune	Number	13	2	0	0	0
	%	86.7	13.3	0.0	0.0	0.0
Total	Number	59	4	2	1	1
	%	88.1	6.0	3.0	1.5	1.5

Source: Field Survey data

Table 5.29C: Whether Commission Agents is comfortable with the rules and various fees and charges levied ?

		Are you comfortable with the rules and various fees and charges levied for you to undertake transactions (1- YES, 2- NO)		
		Yes	No	Total
Ahmednagar	Number	13	4	17
	%	76.5	23.5	100.0
Sangamner	Number	4	0	4
	%	100.0	0.0	100.0
Yeola	Number	3	1	4
	%	75.0	25.0	100.0
Lasalgaon	Number	5	4	9
	%	55.6	44.4	100.0
Mumbai	Number	10	8	18
	%	55.6	44.4	100.0
Pune	Number	12	3	15
	%	80.0	20.0	100.0
Total	Number	47	20	67
	%	70.1	29.9	100.0

Source: Field Survey data

Table 5.29 D: Constraints faced by Commission Agent in storing the produce

		constraints faced in storing the produce		
		No Problem	Do Not store	Shortage of Storing Facility
Ahmednagar	Number	6	11	0
	%	35.3	64.71	0.0
Sangamner	Number	6	9	0
	%	40.0	60.00	0.0
Yeola	Number	1	3	0
	%	25.0	75.00	0.0
Lasalgaon	Number	2	7	0
	%	22.2	77.78	0.0
Mumbai	Number	13	5	0
	%	72.2	27.78	0.0
Pune	Number	0	3	1
	%	0.0	75.00	25.0
Total	Number	28	38	1
	%	41.8	56.72	1.5

Table 5.29 E: Constrains and hurdles faced by Commission Agent in transporting the produce

	Ahmednagar		Sangamner		Yeola		Lasalgaon		Mumbai		Pune		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
High transport Cost	0	0.0	0	0.0	1	25.0	0	0.0	1	5.6	0	0.0	2	3.0
No Comment	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	1	1.5
No Problem	13	76.5	3	75.0	1	25.0	4	44.4	15	83.3	15	100.0	51	76.1
No Transport	0	0.0	0	0.0	0	0.0	0	0.0	1	5.6	0	0.0	1	1.5
Not Transporting	1	5.9	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	1.5
Rack Loading	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	1	1.5
Railway Rack Not Available in Time	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	1	1.5
Railway Wagons are not available	0	0.0	1	25.0	1	25.0	0	0.0	0	0.0	0	0.0	2	3.0
Some time Railway Not Available	0	0.0	0	0.0	0	0.0	1	11.1	0	0.0	0	0.0	1	1.5
Some time Transport vehicle not available	3	17.6	0	0.0	1	25.0	1	11.1	1	5.6	0	0.0	6	9.0

Table 5.29 F: Role played by Market Committee in market (as per Commission Agent)

	Ahmadnagar		Sangamner		Yeola		Lasalgaon		Mumbai		Pune		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
All Type of Help	0	0.0	0	0.0	0	0.0	4	26.7	0	0.0	0	0.0	4	6.0
Auction Supervision	0	0.0	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	1	1.5
Campus Cleaning and Weighment Facility	0	0.0	0	0.0	0	0.0	1	6.7	0	0.0	0	0.0	1	1.5
Collection of Market Fee	0	0.0	1	11.1	0	0.0	0	0.0	0	0.0	0	0.0	1	1.5
Controlling the process of Auction	4	23.5	4	44.4	7	38.9	4	26.7	1	25.0	3	75.0	23	34.3
Market fee collection	3	17.6	3	33.3	5	27.8	5	33.3	1	25.0	0	0.0	17	25.4
No Comments	0	0.0	0	0.0	0	0.0	0	0.0	1	25.0	0	0.0	1	1.5
Record Keeping	1	5.9	0	0.0	1	5.6	0	0.0	0	0.0	0	0.0	2	3.0
Solving Problems	9	52.9	1	11.1	5	27.8	1	6.7	0	0.0	1	25.0	17	25.4

Table 5.29G: Opinion of Commission Agent on the Market Committee in helping Buyers to conduct their business

		Market Committee in helping Buyers to conduct their business					
		Help in Business	Help to provide place for go-down	Licence to the CA and Wholesaler	No Comments	No Control on Buyer	Provide facilities
Ahmadnagar	Number	2	0	0	14	0	1
	%	11.8	0.0	0.0	82.4	0.0	5.9
Sangamner	Number	0	0	0	4	0	0
	%	0.0	0.0	0.0	100.0	0.0	0.0
Yeola	Number	0	1	1	2	0	0
	%	0.0	25.0	25.0	50.0	0.0	0.0
Lasalgaon	Number	0	0	0	7	0	2
	%	0.0	0.0	0.0	77.8	0.0	22.2
Mumbai	Number	0	0	1	16	1	0
	%	0.0	0.0	5.6	88.9	5.6	0.0
Pune	Number	0	0	0	13	0	2
	%	0.0	0.0	0.0	86.7	0.0	13.3
Total	Number	2	1	2	56	1	5
	%	3.0	1.5	3.0	83.6	1.5	7.5

Table 5.29 H: Constraints faced by Commission Agents in undertaking various transactions as a buyer of the produce

		constraints that you face in undertaking various transactions as a buyer of the produce		
		No Comment	No problem	Total
Ahmadnagar	Number	13	4	17
	%	76.5	23.5	100.0
Sangamner	Number	2	2	4
	%	50.0	50.0	100.0
Yeola	Number	4	0	4
	%	100.0	0.0	100.0
Lasalgaon	Number	6	3	9
	%	66.7	33.3	100.0
Mumbai	Number	17	1	18
	%	94.4	5.6%	100.0
Pune	Number	15	0	15
	%	100.0	75.00	25.0
Total	Number	57	38	1
	%	85.1	56.72	1.5

By and large, commission agents did not make major suggestions for improving market facilities or with respect to rules of APMC. However about 12 percent (Table 5.30) of them felt that export of onion should be promoted by the government.

Table 5.30I: Suggestions by Commission Agents to the Government with respect to the market facilities, various rules laid down for traders?

		Suggestions to the Government with respect to the market facilities, various rules laid down for traders							
		Need to Supervise Transactions of APMC by Govt.	No Comments	No Control on APMC	Provide Godown facility	Provide Rest Room	Provide Subsidies for Transporting of Onion	Provide subsidy for cold Storage	Allow export
Ahmadnagar	Number	1	12	1	0	0	0	0	3
	%	5.9	70.6	5.9	0.0	0.0	0.0	0.0	17.6
Sangamner	Number	0	4	0	0	0	0	0	0
	%	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
Yeola	Number	0	1	1	0	1	0	0	1
	%	0.0	25.0	25.0	0.0	25.0	0.0	0.0	25.0
Lasalgaon	Number	0	5	0	0	0	1	0	3
	%	0.0	55.6	0.0	0.0	0.0	11.1	0.0	33.3
Mumbai	Number	0	16	0	1	0	0	1	0
	%	0.0	88.9	0.0	5.6	0.0	0.0	5.6	0.0
Pune	Number	0	13	0	1	0	0	0	1
	%	0.0	86.7	0.0	6.7	0.0	0.0	0.0	6.7
Total	Number	1	51	2	2	1	1	1	8
	%	1.5	76.1	3.0	3.0	1.5	1.5	1.5	11.9

It was also observed that the commission agents were not really involved in supplying inputs to farmers which means that there was no interlocking between marketing and input marketing. Farmers may be having their own access to inputs and therefore did not depend upon commission agents for purchasing their inputs.

5.4: Wholesaler:

In regulated markets wholesalers are the main buyers of the produce. Wholesalers are required to have a license in order to purchase in APMCs. The commission agent acts as a facilitator between farmer and wholesaler and ensures that the farmer receives the price at which his produce is sold, although he may receive payment from wholesaler much later, even after a couple of months.

5.4.1: Transaction Pattern of Wholesaler:

The detail about the monthly transaction pattern of Wholesaler is presented in Table 5.31 and 5.32. It can be observed that across all six markets, the weighted average price at which the produce was transacted by wholesalers was Rs 1147/- per quintal. The price was highest in all six markets in January, 2011 as the crop was affected by unseasonal rains. Highest prices were observed in Ahmednagar and Sangamner market. A number of factors are responsible for higher prices prevailing in Ahmednagar. The onions which arrive in the APMC in Ahmednagar are of good quality and farmers bring them in gunny bags. The onions are already sorted and graded by the farmers and hence command higher prices. Wholesalers from different parts of the country such as Kerala, Tamil Nadu and West Bengal regularly participate in auctions in Ahmednagar APMC. In Lasalgaon, Pimplegaon and Yeola markets, the produce arrives without packing in gunny bags and no grading is done by farmers. Hence the produce commands a lower price.

The main marketing costs borne by wholesaler are loading produce in truck, and market and supervision fees (1.05 per cent). Besides the wholesaler has to also bear transport costs and taxes, and other incidental and establishment costs.

Table 5.31: Details about the Monthly Onion Transaction pattern of the Wholesaler – January to December 2011

Sr. No.	Place	Purchase from	Purchase Pattern (quintal per Wholesaler)					
			Jan	Feb	march	April	May	June
1	Ahmednagar	APMC	2833	2650	2783	3433	3583	3750
2	Sangamner	APMC	4148	3863	4230	3920	4075	3267
3	Yeola	APMC	21750	23333	26167	26333	27000	17550
4	Lasalgaon/ Pimpalgaon	APMC	14593	15782	15286	15255	15611	16074
5	Washi (Mumbai)	APMC	1038	1163	1313	1675	1925	2225
6	Pune	APMC	4100	4640	5220	4660	4300	3620
	Av.	-	10515	11220	11746	11705	11948	10167

Sr. No.	Place	Purchase Pattern (quintal per Wholesaler)						
		July	Aug	Sept	Oct	Nov	Dec	Total
1	Ahmednagar	3933	3583	3250	2983	2867	2667	38317
2	Sangamner	3650	3413	3120	3017	3127	3377	43207
3	Yeola	23500	24333	21833	20000	20167	19667	271633
4	Lasalgaon/ Pimpalgaon	16523	15695	16207	15380	17295	15652	189354
5	Washi (Mumbai)	2550	2450	2075	1725	1275	1213	20625
6	Pune	3940	4200	3940	4980	4460	4940	53000
	Av.	11553	11387	10957	10442	11014	10472	133125

Note: Place of purchase: APMC.

Source: Field Survey data

Table 5.32: Details about the Average Transaction Price of Onion -January to December 2011 (Wholesaler)

Sr. No.	Place	Purchase from	Transaction Price (Rs./ Quintal) (Wholesaler)					
			Jan	Feb	march	April	May	June
1	Ahmednagar	APMC	3750	1567	650	550	675	838
2	Sangamner	APMC	3033	2750	1383	1150	917	1000
3	Yeola	APMC	2417	3675	763	538	561	597
4	Lasalgaon/ Pimpalgaon	APMC	2641	1477	724	526	569	590
5	Washi (Mumbai)	APMC	3350	1150	550	650	653	575
6	Pune	APMC	3280	1360	790	550	560	460
	Av	-	2912	2079	844	655	644	668

Sr. No.	Place	Transaction Price (Rs./ Quintal) (Wholesaler)						
		July	Aug	Sept	Oct	Nov	Dec	WT. aV
1	Ahmednagar	992	1233	1567	1650	2067	2533	1431
2	Sangamner	1082	983	904	1300	1538	1617	1413
3	Yeola	638	611	629	893	811	726	1065
4	Lasalgaon/ Pimpalgaon	576	637	648	840	761	898	904
5	Washi (Mumbai)	750	850	1125	1225	1950	3250	1150
6	Pune	480	510	603	610	1260	2120	1291
	Av	713	743	797	995	1178	1474	1147

Note: Place of purchase: APMC.

Source: Field Survey data

A visit was made to all six selected APMCs and discussions were held with concerned market functionaries. It was quite clear from the discussions that traders also stored onions in anticipation of higher prices. After making purchases from farmers, they sometimes stored the onions instead of immediate sales. Further, the commission agents who facilitated the transactions between farmers and wholesalers by taking a commission of about 6 percent from farmers on the value of sales, also often had the license to purchase onions. They were normally the A class commission agents and they played a dual role of purchasers as well as facilitators in transactions. These commission agents also indicated that they stored onions. However, when an attempt was made to find out the quantity stored by them, they were very reluctant to disclose the quantity stored and only complained of transport bottlenecks because of which they were forced to store.

5.4.2 Factors on which Transaction price is determined:

The wholesalers felt that the price realized by farmers was normally determined by demand and supply conditions (Table 5.33). The international prices of onions and also the price prevailing in other domestic markets were responsible for determining the price received by farmers.

Table 5.33: Basis for purchase price to be paid to the farmer by Wholesaler

Sr. No.	Market		On what basis do you decide the purchase price to be paid to the farmer							
			Depends on Import Export Prices of Onion	Depends On Market Demand and Supply	Depends on Quantity Produce	Export Rate and Other State Market Rates	Open Auction	Other Side Traders Market	Outside Markets Rate	No Comments
1	Ahmadnagar	Number	0	2	0	0	0	1	0	0
		%	0.0	66.7	0.0	0.0	0.0	33.3	0.0	0.0
2	Sangamner	Number	0	3	0	0	1	0	2	0
		%	0.0	50.0	0.0	0.0	16.7	0.0	33.3	0.0
3	Yeola	Number	0	3	0	0	0	0	3	0
		%	0.0	50.0	0.0	0.0	0.0	0.0	50.0	0.0
4	Lasalgaon	Number	1	4	1	1	0	0	3	1
		%	9.1	36.4	9.1	9.1	0.0	0.0	27.3	9.1
5	Mumbai	Number	0	2	0	0	0	0	0	0
		%	0.0	100.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Pune	Number	0	2	0	0	0	0	0	3
		%	0.0	40.0	0.0	0.0	0.0	0.0	0.0	60.0
	Total	Number	1	16	1	1	1	1	8	4
		%	3.0	48.5	3.0	3.0	3.0	3.0	24.2	12.1

Source: Field Survey data

By and large the wholesaler felt that farmers were aware of the prices ruling in the market and the main source of information was newspapers, television and telecommunications (Table 5.34 and 5.35).

Table 5.34: Awareness of farmers aware about price at which the produce is likely to be sold in the market as per perception of wholesaler

Sr. No.	Market		Are the farmers aware of the price at which the produce is likely to be sold in the market		
			Yes	No	Total
1	Ahemadnagar	Number	3	0	3
		%	100.0	0.0	100.0
2	Sangamner	Number	1	5	6
		%	16.7	83.3	100.0
3	Yeola	Number	3	3	6
		%	50.0	50.0	100.0
4	Lasalgaon	Number	8	3	11
		%	72.7	27.3	100.0
5	Mumbai	Number	2	0	2
		%	100.0	0.0	100.0
6	Pune	Number	2	3	5
		%	40.0	60.0	100.0
	Total	Number	19	14	33
		%	57.6	42.4	100.0

Source: Field Survey data.

Table 5.35: Source of information about the price to Farmers (wholesaler)

Sr. No.	Market		Source of Information								
			APMC	APMC and CA	APMC Notice Board	APMC, TV, News Paper	Newspaper, TV, Mobile	Other Markets	Neighbour Farmer	No Comments	Relatives, others
1	Ahemadnagar	Number	0	0	1	0	2	0	0	0	0
		%	0.0	0.0	33.3	0.0	66.7	0.0	0.0	0.0	0.0
2	Sangamner	Number	0	0	0	0	5	0	0	1	0
		%	0.0	0.0	0.0	0.0	83.3	0.0	0.0	16.7	0.0
3	Yeola	Number	1	1	0	0	2	0	1	1	0
		%	16.7	16.7	0.0	0.0	33.3	0.0	16.7	16.7	0.0
4	Lasalgaon	Number	0	0	0	2	4	1	0	2	1
		%	0.0	0.0	0.0	18.2	36.4	9.1	0.0	18.2	9.1
5	Mumbai	Number	0	0	0	0	2	0	0	0	0
		%	0.0	0.0	0.0	0.0	100.0	0.0	0.0	0.0	0.0
6	Pune	Number	0	0	0	0	2	0	0	3	0
		%	0.0	0.0	0.0	0.0	40.0	0.0	0.0	60.0	0.0
	Total	Number	1	1	1	2	17	1	1	7	1
		%	3.0	3.0	3.0	6.1	51.5	3.0	3.0	21.2	3.0

Source: Field Survey data

5.4.3 Wastage of Onion in transaction:

Wastage as a percentage of purchases was observed to be 5 percent on an average across all markets (Table 5.36). It was highest in Lasalgaon market, followed by Yeola, perhaps because the crop is not of very good quality and farmers do not do grading. Also from Lasalgaon, the produce is transported to distant markets and hence wastage is likely to be more. As the produce in Ahmednagar is of good quality and farmers already do grading and sorting, the wastage is likely to be low. In Mumbai market, no wastage was observed, perhaps because the produce is sold immediately to the retail outlets.

Table 5.36: Details about the Wastage of Onion at Wholesaler level-January to December 2011 (% to total transaction quantity)

Sr. No.	Place	Wastage (%)					
		Jan	Feb	March	April	May	June
1	Ahmednagar	2.0	2.0	2.0	2.1	2.1	2.1
2	Sangamner	2.7	2.9	2.8	3.1	3.2	3.6
3	Yeola	5.3	5.0	5.0	5.1	5.1	5.0
4	Lasalgaon/ Pimpalgaon	6.9	6.7	7.3	6.5	6.3	6.8
5	Washi (Mumbai)	0.0	0.0	0.0	0.0	0.0	0.0
6	Pune	1.3	1.2	1.1	1.1	1.2	1.2
	Total	5.7	5.5	5.7	5.3	5.3	5.7

Sr. No.	Place	Wastage (%)						
		July	Aug	Sept	Oct	Nov	Dec	Avg.
1	Ahmednagar	2.1	2.1	2.1	2.1	2.1	2.2	1.4
2	Sangamner	3.7	3.7	3.8	3.3	3.0	2.9	3.2
3	Yeola	5.0	4.8	4.9	5.0	4.8	4.8	5.0
4	Lasalgaon/ Pimpalgaon	6.3	5.9	6.5	5.9	6.7	5.6	6.4
5	Washi (Mumbai)	0.0	0.0	0.0	0.0	0.0	0.0	0.0
6	Pune	1.3	1.5	1.2	1.0	1.2	1.1	1.2
	Av	5.3	5.1	5.5	5.1	5.5	4.9	5.2

Note: Place of purchase: APMC.

Source: Field Survey data

5.4.4 Knowledge of the Prices and Change in Transaction Pattern:

Most of the wholesalers get the information on the price of the onion that they intend to transact from other markets and also by contacting other commission agents (Table 5.37). About 30 percent of wholesalers said that there was change in purchase or sale pattern in times of very high or low prices and if

prices are unstable, some wholesalers (30 percent) stated that they do not enter the market to trade, while 40 percent felt that purchase and sale depends upon orders (Table 5.38 and 5.39).

Table 5.37: Knowledge of the Prices of onion which are going to be sold as per perception of Wholesaler

Sr. No.	Market		How do you get the information on the price of the onion that you intend to sell		Total
			By contacting other commission agent	Rates prevailing on other markets	
1	Ahemadnagar	Number	2	1	3
		%	66.7	33.3	100.0
2	Sangamner	Number	2	4	6
		%	33.3	66.7	100.0
3	Yeola	Number	2	4	6
		%	33.3	66.7	100.0
4	Lasalgaon	Number	2	9	11
		%	18.2	81.8	100.0
5	Mumbai	Number	0	2	2
		%	0.0	100.0	100.0
6	Pune	Number	0	5	5
		%	0.0	100.0	100.0
	Total	Number	8	25	33
		%	24.2	75.8	100.0

Source: Field Survey data

Table 5.38: Details about the change in purchase or sale pattern in the times of very high or very low prices of onion (Wholesaler)

Sr. No.			Does your purchase or sale pattern change in the times of very high or very low prices of onion			Total
			No Comment	Yes	No	
1	Ahemadnagar	Number	0	2	1	3
		%	0.0	66.7	33.3	100.0
2	Sangamner	Number	0	3	3	6
		%	0.0	50.0	50.0	100.0
3	Yeola	Number	0	0	6	6
		%	0.0	0.0	100.0	100.0
4	Lasalgaon	Number	1	4	6	11
		%	9.1	36.4	54.5	100.0
5	Mumbai	Number	0	0	2	2
		%	0.0	0.0	100.0	100.0
6	Pune	Number	0	1	4	5
		%	0.0	20.0	80.0	100.0
	Total	Number	1	10	22	33
		%	3.0	30.3	66.7	100.0

Source: Field Survey data

Table 5.39: Changes in purchase or sale pattern of Wholesaler

Markets		Does your purchase or sale pattern change in the times of very high or very low prices of onion, If yes how			
		Depends on Order	If Prices are unstable, We Stop Trading	Depends on working Capital	Less Purchase when prices fluctuate
Ahmednagar	Number	2	0	0	0
	%	100.0	0.0	0.0	0.0
Lasalgaon	Number	0	2	1	0
	%	0.0	66.7	33.3	0.0
Sangamner	Number	0	0	0	0
	%	0.0	0.0	0.0	0.0
Yeola	Number	1	1	0	2
	%	25.0	25.0	0.0	50.0
Mumbai	Number	0	0	0	0
	%	0.0	0.0	0.0	0.0
Pune	Number	1	0	0	0
	%	100.0	0.0	0.0	0.0
Total	Number	4	3	1	2
	%	40.0	30.0	10.0	20.0

Source: Field Survey data

5.4.5 Awareness of Wholesaler about the Number of agents that exists before the produce reaches to final consumer:

Most wholesalers were aware about the number of intermediaries that exist between him and retailers. In some cases, the produce was sold to a wholesaler in another state and then reached the retailer (Table 5.40 and 5.41).

Table 5.40: Wholesaler's Awareness about the Number of agents that exists before the product finally reaches the consumer

Sr. No.			Do you know the number of agents exists between you and retail market before the product finally reaches the consumer (Wholesaler)		
			Yes	Don't Know	No Comment
1	Ahmednagar	Number	3	0	0
		%	100.0	0.0	0.0
2	Sangamner	Number	4	0	2
		%	66.7	0.0	33.3
3	Yeola	Number	5	0	1
		%	83.3	0.0	16.7
4	Lasalgaon	Number	5	1	4
		%	50.0	10.0	40.0
5	Mumbai	Number	1	0	1
		%	50.0	0.0	50.0
6	Pune	Number	4	0	1
		%	80.0	0.0	20.0
Total		Number	22	1	9
		%	68.8	3.1	28.1

Source: Field Survey data

Table 5.41: Wholesaler's view on the agents that exists before the product finally reaches the consumer

Sr. No.			Agents that exists before the product finally reaches the consumer				
			Commission Agent, Retailer, Customer	Commission Agent, Wholesaler, Retailer, Consumer	other State Wholesaler, Retailer, Consumer	Retailer	Wholesaler, Retailer and Consumer
1	Ahmadnagar	Number	1	2	0	0	0
		%	33.3	66.7	0.0	0.0	0.0
2	Sangamner	Number	0	3	0	0	1
		%	0.0	75.0	0.0	0.0	25.0
3	Yeola	Number	0	1	2	0	2
		%	0.0	20.0	40.0	0.0	40.0
4	Lasalgaon	Number	1	0	2	0	2
		%	20.0	0.0	40.0	0.0	40.0
5	Mumbai	Number	0	0	0	1	0
		%	0.0	0.0	0.0	100.0	0.0
6	Pune	Number	1	2	0	1	0
		%	25.0	50.0	0.0	25.0	0.0
	Total	Number	3	8	4	2	5
		%	13.6	36.4	18.2	9.1	22.7

Source: Field Survey data

5.4.6 Perception of the Infrastructure (Wholesaler)

With respect to infrastructure, wholesalers also noted that grading, packing and sorting facilities were not available. Cold storage facilities were also poor (Annexure IV).

5.4.7 Constraints faced by the Wholesaler:

By and large, it appears that the wholesalers did not face major difficulties while purchasing onions from the farmers, nor did they face any constraints in the market yard. However, some wholesalers, especially in Lasalgaon felt that transport was not easily available and there is need for railway wagons (Table 5.42A to 5.42I).

Table 5.42A: Difficulties that Wholesaler face in procuring the onions from the farmers

		What are the difficulties that Wholesaler face in procuring the onions from the farmers				
		Difficult to handle the farmer during fluctuation in prices	No Comment	No Problem	Sometimes the Farmer Mix the onion	Total
Ahemadnagar	Number	1	1	1	0	3
	%	33.3	33.3	33.3	0.0	100.0
Sangamner	Number	1	4	1	0	6
	%	16.7	66.7	16.7	0.0	100.0
Yeola	Number	0	0	6	0	6
	%	0.0	0.0	100.0	0.0	100.0
Lasalgaon	Number	0	3	7	1	11
	%	0.0	27.3	63.6	9.1	100.0
Mumbai	Number	0	2	0	0	2
	%	0.0	100.0	0.0	0.0	100.0
Pune	Number	0	5	0	0	5
	%	0.0	100.0	0.0	0.0	100.0
Total	Number	2	15	15	1	33
	%	6.1	45.5	45.5	3.0	100.0

Source: Field Survey data

Table 5.42B: Constraints that Wholesaler face in the market yard

		Constraints that Wholesaler face in the market yard					
		Electricity and Labour Shortage	No Comments	No Place Available during Large Arrival	No Problem	Transport	Very poor Rest houses
Ahmadnagar	Number	0	1	0	2	0	0
	%	0.0	33.3	0.0	66.7	0.0	0.0
Sangamner	Number	1	4	0	0	1	0
	%	16.7	66.7	0.0	0.0	16.7	0.0
Yeola	Number	0	0	0	5	0	1
	%	0.0	0.0	0.0	83.3	0.0	16.7
Lasalgaon	Number	0	3	0	8	0	0
	%	0.0	27.3	0.0	72.7	0.0	0.0
Mumbai	Number	0	1	1	0	0	0
	%	0.0	50.0	50.0	0.0	0.0	0.0
Pune	Number	0	5	0	0	0	0
	%	0.0	100.0	0.0	0.0	0.0	0.0
Total	Number	1	14	1	15	1	1
	%	3.0	42.4	3.0	45.5	3.0	3.0

Source: Field Survey data

Table 5.42C: Whether Wholesaler is comfortable with the rules and various fees and charges levied to undertake transactions?

		Whether Wholesaler is comfortable with the rules and various fees and charges levied to undertake transactions?		
		Yes	No	Total
Ahmadnagar	Number	3	0	3
	%	100.0	0.0	100.0
Sangamner	Number	5	1	6
	%	83.3	16.7	100.0
Yeola	Number	5	1	6
	%	83.3	16.7	100.0
Lasalgaon	Number	8	3	11
	%	72.7	27.3	100.0
Mumbai	Number	2	0	2
	%	100.0	0.0	100.0
Pune	Number	4	1	5
	%	80.0	20.0	100.0
Total	Number	27	6	33
	%	81.8	18.2	100.0

Source: Field Survey data

Table 5.42D: Constraints faced in storing the produce by Wholesaler

		Constraints faced in storing the produce by Wholesaler				
		Godown not Available	No Comments	No Problem	Do Not store	Onion Damage due to adverse Climate
Ahmadnagar	Number	0	1	0	2	0
	%	0.0	33.3	0.0	66.7	0.0
Sangamner	Number	0	2	1	2	1
	%	0.0	33.3	16.7	33.3	16.7
Yeola	Number	0	3	1	1	1
	%	0.0	50.0	16.7	16.7	16.7
Lasalgaon	Number	1	4	1	5	0
	%	9.1	36.4	9.1	45.5	0.0
Mumbai	Number	0	1	0	1	0
	%	0.0	50.0	0.0	50.0	0.0
Pune	Number	0	3	0	2	0
	%	0.0	60.0	0.0	40.0	0.0
Total	Number	1	14	3	13	2
	%	3.0	42.4	9.1	39.4	6.1

Source: Field Survey data

Table 5.42E: Constrains and hurdles faced by Wholesaler in transporting the produce

	Ahmadnagar		Sangamner		Yeola		Lasalgaon		Mumbai		Pune		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
High Transport Cost	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	1	3.0
If onion transport is delayed then the Weight of onion will reduce	0	0.0	0	0.0	1	16.7	1	9.1	0	0.0	0	0.0	2	6.1
No easy availability of railway Transport	2	66.7	1	16.7	0	0.0	4	36.4	0	0.0	0	0.0	7	21.2
No Security during transport	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
Shortage of Trucks	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	1	3.0
Transport facilities not available easily	0	0.0%	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
No Comments	0	0.0	2	33.3	2	33.3	3	27.3	2	100.0	4	80.0	13	39.4
No Problem	1	33.3	1	16.7	1	16.7	3	27.3	0	0.0	1	20.0	7	21.2

Source: Field Survey data

Table 5.42F: Role of the Market Committee play in your market (Wholesaler)

	Ahmadnagar		Sangamner		Yeola		Lasalgaon		Mumbai		Pune		Total	
	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
No Comment	0	0.0	1	16.7	0	0.0	2	18.2	0	0.0	0	0.0	3	9.1
Collection of Market Fee	1	33.3	1	16.7	1	16.7	3	27.3	2	100.0	2	40.0	10	30.3
Controlling Market Process	0	0.0	0	0.0	2	33.3	0	0.0	0	0.0	0	0.0	2	6.1
APMC Management	0	0.0	0	0.0	0	0.0	2	18.2	0	0.0	2	40.0	4	12.1
Middleman	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	1	3.0
Problems Solving	1	33.3	4	66.7	1	16.7	1	9.1	0	0.0	0	0.0	7	21.3
Record keeping	1	33.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
Supervision	0	0.0	0	0.0	0	0.0	3	27.3	0	0.0	1	20.0	4	12.1
Supervision and Auction	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	1	3.0

Source: Field Survey data

Table 5.42G: Wholesaler's opinion of the Market Committee in helping Wholesaler to conduct their business

		Market Committee in helping Wholesaler to conduct their business				
		Help to the buyer	No Comments	Provide Basic Infrastructure like toilets and rest houses.	Solve the Problems Regarding the Management	To Control the auction Process and Commission Agent
Ahmadnagar	Number	0	2	0	0	1
	%	0.0	66.7	0.0	0.0	33.3
Sangamner	Number	0	4	1	0	1
	%	0.0	66.7	16.7	0.0	16.7
Yeola	Number	1	5	0	0	0
	%	16.7	83.3	0.0	0.0	0.0
Lasalgaon	Number	1	9	0	0	1
	%	9.1	81.8	0.0	0.0	9.1
Mumbai	Number	0	2	0	0	0
	%	0.0	100.0	0.0	0.0	0.0
Pune	Number	0	3	0	1	1
	%	0.0	60.0	0.0	20.0	20.0
Total	Number	2	25	1	1	4
	%	6.1	75.8	3.0	3.0	12.1

Source: Field Survey data

Table 5.42H: Constraints that Wholesaler face in undertaking various transactions as a buyer of the produce.

		constraints that Wholesaler face in undertaking various transactions as a buyer of the produce		
		Govt. ban on Export due to which Farmers make loss	No Comment	No problem
Ahmadnagar	Number	0	2	1
	%	0.0	66.7	33.3
Sangamner	Number	1	2	2
	%	16.7	33.3	33.3
Yeola	Number	0	4	2
	%	0.0	66.7	33.3
Lasalgaon	Number	2	9	0
	%	18.2	81.8	0.0
Mumbai	Number	0	2	0
	%	0.0	100.0	0.0
Pune	Number	0	4	0
	%	0.0	80.0	0.0
Total	Number	3	23	5
	%	9.1	69.7	15.2

Source: Field Survey data

Table 5.42i: Wholesaler's suggestions to the Government with respect to the market facilities

		Wholesaler's Suggestions to the Government with respect to the market facilities							
		Export Support	MSP Required	No Comment	Provide a Shed	Provide Large Space	Provide Store House	Provide Transport Facility	Total
Ahmadnagar	Number	0	0	2	0	0	0	1	3
	%	0.0	0.0	66.7	0.0	0.0	0.0	33.3	100.0
Sangamner	Number	0	1	5	0	0	0	0	6
	%	0.0	16.7	83.3	0.0	0.0	0.0	0.0	100.0
Yeola	Number	0	0	3	1	2	0	0	6
	%	0.0	0.0	50.0	16.7	33.3	0.0	0.0	100.0
Lasalgaon	Number	1	0	9	0	0	1	0	11
	%	9.1	0.0	81.8	0.0	0.0	9.1	0.0	100.0
Mumbai	Number	0	0	2	0	0	0	0	2
	%	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Pune	Number	0	0	5	0	0	0	0	5
	%	0.0	0.0	100.0	0.0	0.0	0.0	0.0	100.0
Total	Number	1	1	26	1	2	1	1	33
	%	3.0	3.0	78.8	3.0	6.1	3.0	3.0	100.0

Source: Field Survey data

5.4.8 Support Provided by the Wholesaler to the Producer:

Sometimes commission agents also have licensee as wholesaler and purchase farmers' produce. Therefore a questionnaire address to wholesale if they provided any help to the farmers (see, Annexure V). It can be seen from the table that wholesaler did not play any significant role as far as facilities are concern to the producer. In few cases, cleaning, grading and packing facilities are provided by the wholesaler, however, it is on very small scale.

5.5 Retailer

In the supply chain, retailers normally purchase from wholesalers or in some cases they also buy directly from farmers through APMC. As is well known, there are different types of retailers through whom, the product finally reaches the consumer. A questionnaire was therefore addressed to 60 retailers, ten in each of the selected districts, in order to observe the most popular type of retail outlet and other related issues. The observations are noted below:

5.5.1 Type of Retail Establishment:

As discussed in the earlier chapter, out of the 50 retail establishments selected, it was observed that 91.7 percent of them were wet markets, while 6.7 percent were kirana shops (Table 4.15). Wet markets are normally located in several places and consumers find it convenient to make their purchases from such markets. Kirana shops, besides keeping groceries also tend to keep a stock of onions for the convenience of their customers. In some APMCs, such as Pune, many push carts are observed to purchase a bag of onions which they sell during the course of the day by moving around and thus earn their daily income. Push carts therefore create place and time utility for consumers and also minimize on their transport costs.

5.5.2 Purchase Pattern of Retailers:

In table 5.43, it can be observed that on an average across the six districts surveyed, a retailer normally sells 223.3 quintals annually and sells about 18.6 quintals per month. Highest sales are found to be in Pune, followed by Vashi, mainly due to entire population being urban and heavy concentration of hotels in these areas which create a huge demand for onion. Lowest sales were observed in Lasalgaon. This is expected because onion is probably the most important crop in Lasalgaon and most consumers may also be producers of onions and therefore retain for self consumption. Field survey indicated that, several wet markets for fruit and vegetables do not even keep onion or keep them in very limited quantities. However, wet markets in Pune and Mumbai have a huge onion section.

Across all six districts (Table 5.44), the retailers purchased the onions at an average price of Rs 9.5/- per kg, the highest price being in Vashi (Rs 14.9 per kg), followed by Pune (Rs 10.1/- per Kg). Higher prices may be due to higher demand and also higher prices in APMCs due to higher transport costs.

Table 5.43: Average Monthly Purchase Pattern of the Retailer

Sr	Place	Purchase (quintals)												
		Jan	Feb	mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Ahmednagar	6.5	7.8	9.3	8.4	9.0	7.1	7.3	6.6	8.4	9.0	8.8	9.1	97.2
2	Sangamner	9.0	9.2	9.6	8.6	8.8	8.9	8.7	8.8	8.6	9.5	8.6	9.1	107.4
3	Yeola	10.0	9.3	10.4	10.0	9.6	8.3	8.8	9.6	9.0	9.2	8.3	8.9	111.2
4	Lasalgaon/Pimpalgaon	5.3	4.8	6.4	6.1	5.2	5.3	5.4	6.1	6.0	5.8	5.4	5.4	66.9
5	Washi (Mumbai)	27.3	29.0	25.9	26.6	28.1	27.4	26.3	27.8	28.6	28.4	28.9	26.8	331.1
6	Pune	49.0	52.1	52.2	52.0	51.2	48.4	49.3	52.4	49.2	57.2	56.5	56.4	625.9
	Average	17.8	18.7	18.9	18.6	18.7	17.6	17.6	18.5	18.3	19.8	19.4	19.3	223.3

Source: Field Survey Data.

Table 5.44: Average Price paid towards Purchase of Onion by Retailer to Wholesaler

Sr. No.	Place	Wt Av. (Jan to December 2011)
1	Ahmednagar	1431
2	Sangamner	1413
3	Yeola	1065
4	Lasalgaon/Pimpalgaon	904
5	Washi (Mumbai)	1150
6	Pune	1291
	Av	1147

Source: Field Survey data

5.5.3 Wastage of onion:

Across all six districts, it was observed that about 4 percent of onions purchased by retailers was wasted, perhaps due to spoilage (Table 5.45). Retailers normally have a quick turnover and do not keep stocks for long. Infact, they regularly purchase from APMC according to their estimated demand. Hence wastage was also observed to be low.

Table 5.45: Average Wastage of Onion at Retailer level (% to purchase)

Sr	Place	Wastage (% to purchase quantity)												
		Jan	Feb	mar	April	May	June	July	Aug	Sept	Oct	Nov	Dec	Total
1	Ahmednagar	4.1	4.2	4.5	4.2	4.6	4.5	4.4	4.8	4.5	4.3	4.0	4.2	4.3
2	Sangamner	3.1	3.4	3.2	3.8	3.1	3.4	4.0	5.0	4.7	3.6	4.2	4.5	3.8
3	Yeola	2.9	3.6	3.0	3.3	3.7	3.7	3.7	3.6	3.4	3.6	3.2	3.2	3.4
4	Lasalgaon/Pimpalgaon	6.2	9.5	6.5	6.6	5.9	7.8	6.7	5.0	5.2	6.7	6.4	7.3	6.6
5	Washi (Mumbai)	6.5	6.6	6.3	6.5	6.5	6.2	6.3	6.5	6.4	6.1	6.2	6.2	6.4
6	Pune	2.8	2.7	2.7	2.7	2.5	2.7	2.9	2.7	2.6	2.1	2.1	2.3	2.6
	Average	4.0	4.2	3.9	4.1	4.0	4.1	4.2	4.2	4.1	3.7	3.7	3.8	4.0

Source: Field Survey Data.

5.5.4 Average Sale Price and Costs of Retailer:

It was earlier observed that the average purchase price across all districts was Rs 9.5 kg/- per hectare. The average sale price was observed to be Rs 14.8/- per kg,. (Table 5.46).

Table 5.46: Average Sale Price of Retailer (Rs/qtls)

Sr. No.	Place	Average (Jan to December 2011)
1	Ahmednagar	1831.7
2	Sangamner	1794.5
3	Yeola	1427.1
4	Lasalgaon/Pimpalgaon	1121.0
5	Washi (Mumbai)	1512.5
6	Pune	1910.7
	Av	1593.4

Source: Field Survey data

After purchases are made by retailers, they have to also incur costs such as transport, storage, etc. Further they also suffer on account of wastage of some part of the produce.

5.5.5 Problems faced by Retailers:

Retailers also face problems while marketing their produce. The problems faced by retailers are indicated in Table 5.47. About 78 percent of retailers in the sample did not face problem with purchase of onions, 57 percent did not face

problem with storage and 50 percent did not face problem with sales. However, 37 percent retailers felt that there were less customers and therefore their sale were low. This was observed in upcountry markets such as Ahmednagar, Sangamner and Lasalgaon, obviously because many consumers are also producers. About 17 percent retailers indicated that they had no storage facility, while 10 percent stated that sometimes their goods were stolen.

Table 5.47: Difficulties faced by retailer

Sr	Place	Purchasing Onion								Storage						Sale of Onion					
		0	1	2	3	4	5	6	Total	0	1	2	3	4	Total	0	1	2	3	4	Total
1	Ahmednagar	4	3	1	1	1	0	0	10	5	4	0	1	0	10	4	2	4	0	0	10
2	Sangamner	1	8	0	0	0	1	0	10	5	1	1	3	0	10	2	4	4	0	0	10
3	Yeola	0	8	2	0	0	0	0	10	2	6	0	2	0	10	1	6	1	2	0	10
4	Lasalgaon	0	10	0	0	0	0	0	10	1	6	2	1	0	10	0	1	8	0	1	10
5	Vashi	1	8	0	0	0	0	1	10	1	9	0	0	0	10	1	9	0	0	0	10
6	Pune	0	9	0	0	0	1	0	10	1	7	0	0	2	10	0	7	3	0	0	10
	Total *	6	47	5	4	5	7	7	60	15	34	5	10	6	60	8	30	22	5	5	60
	%	10	78	8	7	8	12	12	100	25	57	8	17	10	100	13	50	37	8	8	100

Note:

Code	Purchase of Onion	Storage	Sale of Onion
0	No Comments	No Comments	No Comments
1	No Problem	No Problem	No Problem
2	Capital Problem	Climate Impact / onion destroy	Less Customers/ Low Sale
3	Long Distance, transport Charges Increased	No Storage Facility	Demand Fall
4	Wholesaler takes more charges	Stealing Goods	Customer Demanded onion on low price
5	Lower quality goods		
6	Strike		

Sr	Place	Price Differences between APMC and Retail								Is organized retailers/super market pose threat to you			Strategies to Improve Margins							
		0	1	2	3	4	5	Total	0	1	Total	0	1	2	3	4	5	Total		
1	Ahmednagar	1	2	0	6	1	0	10	10	0	10	9	1	0	0	0	0	10		
2	Sangamner	2	3	0	4	0	1	10	10	0	10	7	2	1	0	0	0	10		
3	Yeola	0	4	2	2	2	0	10	10	0	10	8	1	0	1	0	0	10		
4	Lasalgaon/Pimpalgaon	4	1	1	2	2	0	10	9	1	10	4	1	4	0	1	0	10		
5	Washi (Mumbai)	2	2	0	4	0	2	10	10	0	10	5	0	3	0	1	1	10		
6	Pune	0	0	5	4	0	1	10	6	4	10	5	0	5	0	0	0	10		
	Total	9	13	10	25	9	9	60	55	6	60	38	6	15	4	6	6	60		
	%	15	22	17	42	15	15	100	92	10	100	63	10	25	7	10	10	100		

Note:

Code	Price Differences between APMC and Retail	Post treat retail/organized market	Strategies to Improve Margins
0	No Comments	No Comments	No Comments
1	Don't Know	Yes	No Strategies
2	High Expenditure		Good Qualities Produce
3	Wastage		Depends on Market Demand
4	High Wholesaler Margin		Sale on Reasonable Rate
5	Sale Profit		Need of Union

5.6 Supply Chain:

The onion supply chain by and large had a typical flow, i.e the farmer brought his produce to the APMC and sold it to the wholesaler by auction method. After selling to wholesaler, from the price received by him, certain marketing costs such as weighment, hāmali, etc. were borne by him and paid to the APMC. Also a commission of 6 percent on the value of sales was paid to the commission agent. The wholesaler who purchased the farmer's produce had to pay market cess and supervision fee which was the responsibility of the commission agent. The wholesaler then arranges to transport his produce, normally to retail outlets, from where it reaches the ultimate consumer.

5.7 Consumer

The supply chain ends when the product reaches the consumer who is the final user of the commodity. It was therefore thought necessary to address a questionnaire to consumers to gain insights on the marketing of onions. The sample covered 60 consumers (10 from each district) and the average age of the respondent was found to be 37.9 percent with an average family size of 4.7.

5.7.1 Choice of Place for Purchase of Onions:

With respect to purchase of onions, it was observed that 78.33 percent of respondents preferred wet market as their first choice of purchase (Table 5.48). The main reasons mentioned for preferring wet market as retail outlet was that it was nearby/on the way, cheap, good quality, and all vegetables were available at one source. Two consumers noted that they preferred push carts because they received service at their door step while 16.67 percent consumers purchased from Private modern Retailers because it was nearby and good quality.

Table 5.48: Choice of Place for Purchase of onions by Consumer

(% to responses)

Sr. No.	Particulars	Kirana shop	Pushcart	Wet market Retailer	Cooperativ Modern Retailer (ex: SAFAL)	Private Modern Retailer (ex: Reliance Fresh, Mafco)	others specify farmer
	Code	0	1	2	3	4	5
1	First Choice of the Retail Outlet	0.00	3.33	78.33	0.00	16.67	1.67
2	Reason						
	i) Nearby/On the way	0.00	0.00	67.86	0.00	28.57	3.57
	ii) Cheap	0.00	0.00	100.00	0.00	0.00	0.00
	iii) Good Quality	0.00	0.00	81.82	0.00	18.18	0.00
	iv) Service at door	0.00	100.00	0.00	0.00	0.00	0.00
	v) all vegetables	0.00	0.00	100.00	0.00	0.00	0.00
	vi) No Option/Source	0.00	0.00	100.00	0.00	0.00	0.00
3	Second choice of the retail outlet	0.00	29.41	70.59	0.00	0.00	0.00
4	Reason	0.00	0.00	0.00	0.00	0.00	100.00
	i) Urgency	0.00	100.00	0.00	0.00	0.00	0.00
	ii) Service to door	0.00	100.00	0.00	0.00	0.00	0.00
	iii) Good Quality	0.00	0.00	100.00	0.00	0.00	0.00
	iv) Nearer	0.00	0.00	100.00	0.00	0.00	0.00
	v) on the way	0.00	0.00	100.00	0.00	0.00	0.00
	vi) Cheaper	0.00	0.00	80.00	0.00	0.00	20.00

Source: Field Survey Data.

Those consumers, who did not prefer wet market as their first choice, normally preferred it as their second choice, because it was nearby, good quality and cheaper. Some consumers preferred push carts as their second choice because whenever they had urgent need for onions, it was available and also available at their doorstep.

About 91.7 percent of the respondents stated that they purchased onions once in two weeks while only 6.7 percent stated that they purchased it once in three weeks (Table 5.49). Except Mumbai where purchase was from Private modern retail outlet, wet market was preferred to purchase onion (Table 5.50).

Table 5.49: Number of times Onions Purchased by the Consumer

(% to responses/sample)

Sr. No.	Place	Once in two weeks	Once in three weeks	Once in four weeks	Once in five weeks
1	Ahmednagar	100.0	0.0	0.0	0.0
2	Sangamner	100.0	0.0	0.0	0.0
3	Yeola	100.0	0.0	0.0	0.0
4	Lasalgaon/Pimpalgaon	60.0	30.0	10.0	0.0
5	Washi (Mumbai)	100.0	0.0	0.0	0.0
6	Pune	90.0	10.0	0.0	0.0
	Average	91.7	6.7	1.7	0.0

Source: Field Survey Data.

Table 5.50: Details of Place of Onion Purchase by Consumer

(% to responses/sample)

Sr.	Place of purchase	Place of Purchase (%)			
		Pushcart	Wet market Retailer	Private Modern Retailer (MAFCO)	Farmer
1	Ahmednagar	0.0	100.0	0.0	0.0
2	Sangamner	0.0	100.0	0.0	0.0
3	Yeola	10.0	80.0	0.0	10.0
4	Lasalgaon/Pimpalgaon	0.0	100.0	0.0	0.0
5	Washi (Mumbai)	0.0	0.0	100.0	0.0
6	Pune	10.0	90.0	0.0	0.0
	Average	3.7	87.0	7.4	1.9

Source: Field Survey Data.

It was also observed that the average quantity purchased during the last five purchases was 2.1 kg at an average price of Rs 9.6 kg (Table 5.51). The main features which the consumers take into consideration while purchasing onions were the color (preference for red onions), size (preference for medium sized onions), price and freshness (Table 5.52).

Table 5.51: Details about the Onion purchased and Price paid in last 5 purchases by Consumer

Sr.	Place of purchase	Onion purchased and Price paid in last 5 purchases by Consumer											
		1		2		3		4		5		AV	
		AQP	AP	AQP	AP	AQP	AP	AQP	AP	AQP	AP	AQP	AP
1	Ahmednagar	1.7	13.9	1.7	13.3	1.7	14.8	1.7	12.5	1.7	12.4	1.7	13.4
2	Sangamner	2.3	9.1	2.3	9.2	2.2	9.1	2.1	9.6	2.2	9.7	2.2	9.3
3	Yeola	2.1	6.8	2.2	6.5	2.1	7.5	2.0	8.1	2.1	7.8	2.1	7.3
4	Lasalgaon	1.4	7.8	1.4	7.3	1.4	7.3	1.5	7.6	1.4	8.4	1.4	7.7
5	Washi (Mumbai)	2.8	9.9	3.0	10.3	2.9	11.0	2.8	10.1	3.0	11.3	2.9	10.5
6	Pune	2.4	9.9	2.4	9.0	2.5	8.9	2.4	8.8	2.2	8.8	2.4	9.1
	Average	2.1	9.6	2.2	9.3	2.1	9.8	2.1	9.4	2.1	9.7	2.1	9.6

Notes: AQP- Av. Quantity purchased (Kg/purchase); AP- Av. Price (Rs/Kg)

Source: Field Survey Data.

Table 5.52: Features/qualities of onion Consumer look while purchase

% to responses

Sr.	Place of purchase	Colour			Size			Price		Freshness
		Red	Pink	White	Big	Medium	Small	Low	high	
1	Ahmednagar	100.0	0.0	0.0	0.0	90.0	10.0	77.8	22.2	70.0
2	Sangamner	66.7	33.3	0.0	12.5	87.5	0.0	57.1	42.9	60.0
3	Yeola	100.0	0.0	0.0	44.4	55.6	0.0	66.7	33.3	60.0
4	Lasalgaon	100.0	0.0	0.0	22.2	77.8	0.0	100.0	0.0	100.0
5	Washi (Mumbai)	100.0	0.0	0.0	0.0	100.0	0.0	100.0	0.0	70.0
6	Pune	50.0	50.0	0.0	30.0	70.0	0.0	100.0	0.0	50.0
	Total	87.8	12.2	0.0	18.2	80.0	1.8	83.3	16.7	100.0

Source: Field Survey Data.

Some of the consumers suggested that in order to improve the supply chain of onions, there is need to reduce the number of intermediaries or there could be provision for direct sale by farmers to consumers (Table 5.57).

Table 5.53: Consumer opinion to improve supply chain of onion

(% to sample size)							
Sr.	Place of purchase	Govt. Purchase and Sell it to Retailer/Govt Control	Need to reduce Intermediaries	If Farmer Sell Directly to Consumer then Onion Will Cheap	No Need of Improve the supply chain	Cooperative Soc sell	No Comment/ Don't know
1	Ahmednagar	20.00	10.00	0.00	0.00	0.00	0.00
2	Sangamner	0.00	10.00	10.00	0.00	0.00	20.00
3	Yeola	20.00	20.00	10.00	0.00	0.00	20.00
4	Lasalgaon	10.00	20.00	20.00	10.00	10.00	10.00
5	Washi (Mumbai)	0.00	0.00	10.00	0.00	0.00	40.00
6	Pune	0.00	20.00	10.00	0.00	0.00	10.00
	Av.	8.33	13.33	10.00	1.67	1.67	16.67

Source: Field Survey Data.

5.8 Relationship between Farmer-Commission Agents and Traders/Wholesalers at Selected markets in Maharashtra:

A field visit to six selected markets revealed that as far as markets such as Lasalgaon, Pimplegaon and Yeola. were concerned, there were close personal relations between farmers and commission agents. The commission agents were also interested in getting higher auction prices for farmers. However, in urban markets such as Pune and Vashi, farmers did not seem to have close relations with commission agents. Infact the commission agents were more interested in selling the produce to wholesalers/traders at lower prices as they may be regular customers. This may result in farmers receiving lower prices.

Also the commission agent pays the farmer immediately after sale of his produce and charges a commission of 6 percent of the value of sales to the farmer. The wholesaler, who buys the farmer's produce, however pays him after a month or two. However, if the wholesaler pays him within fifteen days, he passes on 2 percent of his commission to the wholesaler. This indicates that he is keen to please the wholesaler, because he first of all allows the wholesaler to pick up the produce by giving him credit for a month or two and then in case of early payment, he is given a discount.

5.9 Trader's view on Market Imperfections leading to problems of plenty as well as scarcity of onions:

Maharashtra contributes 32 percent to the onion production of the country (2011-12) and in Maharashtra Nasik district is the main producer and Lasalgaon market in Nasik is probably one of the biggest onion markets in Asia. Onion is a highly politically sensitive crop, mainly because it is an important part of the diet of the poor. The recent past has witnessed sharp fluctuations in the prices of onions. While the prices skyrocketed in 2010-11, they came crashing down in 2011-12. Evening out these sharp fluctuations so as to be fair to the producer as well as consumer is obviously an important issue which policy framers are frantically trying to address.

A meeting with the Trader's Association threw several suggestions which can help to control the onion market and arrest the bottlenecks which cause market imperfections which in turn bring about instability in onion markets.

First of all, as mentioned above, Nasik is one of the biggest onion markets in the country and daily 3 to 5 lakh quintals of onions arrive in the district. However, the traders complained that the major problem which plagues onion trade is transport and storage bottlenecks which obviously leads to mismatch between demand and supply in the country. Nasik is accessible by rail throughout the country through six stations namely, Khedwadi, Niphad, Lasalgaon, Manmad, Nandgaon and Yeola. In order to transport the produce by railway, this district requires at least 6 to 8 racks daily. However, the racks provided are far less than requirement which leads to the produce being bottled up. The alternative mode of transport is trucks which are far more costlier than trains. While the cost of transporting the produce by road is Rs 3.70 per kg (to Kolkatta) the cost by railway is only Rs 1.50 per kg. Further, even if traders are willing to transport the produce by road at a much higher cost, trucks are not available which again leads to supply being accumulated in Nasik while demand is unmet in other parts of the country. Since traders are unable to transport their produce which is piled up, they do not participate in auctions as it will only add to their stocks which are already piled up. Kharif onion particularly has low keeping capacity and is highly

perishable and traders are reluctant to enter the markets. Therefore they withdraw from participating in auctions leading to less number of buyers in the market, which creates less competition and also demand constraint and therefore prices tend to fall. Thus if the demand for railway racks is met and produce can be cheaply and timely be transported to all consuming centres in the country, Nasik will not face the problem of plenty while distant consumers will not face shortage. For example, one trader narrated that there was shortage of onions in Guwahati market in Assam leading to rise in prices. The trader wanted to transport the produce to Guwahati, but was unable to do so due to inavailability of racks. However, if railway transport was available, he could easily supply to Assam markets at a price of Rs 7 per kg. However, due to lack of availability of wagons as well as inavailability of trucks, supplies in Nasik were mounting while Guwahati was facing severe shortage of onions and consequent rise in prices. Therefore transport bottlenecks turned out to be a major problem leading to imbalance between demand and supply in the production and consumption centres. Traders in Nasik declared that they were willing to supply onions anywhere in India with only a margin of Rs 3 per kg which should be added to the ruling market price in the APMCs in Nasik. There is a demand for 200 racks (one rack can hold 1600 tonnes of onions) from 6 stations of Nasik. If their demand for racks is met, it will benefit both the farmers as well as consumers. Since produce can be cheaply and regularly transported, there will be no piling of stocks and traders would therefore not withdraw from the market, while flow of produce would meet the requirements of consumers at reasonable prices. The chairman of APMC, Pimplegaon Basant has brought it to the notice of the government regarding the pressing need for railway racks.

A large number of exporters also meet their export requirements from APMCs in Nasik. Their produce is often not cleared in JNPT for 3 to 4 days. They therefore refrain from entering the local market till their export commitments are dispatched. Supply again is choked up creating downward movement on prices.

Another problem facing traders is the export ban issued by the government whenever prices begin to show an upward movement. Exporters lose their

credibility in the export markets as they are unable to supply regularly as foreign buyers prefer reliable suppliers who maintain their commitments and this causes a loss to exporters as they lose customers in international markets. Besides, exports also take a beating because of the practice by the government of fixing Minimum Export Price (MEP). Even if government lifts the ban on onion exports, the MEP is fixed quite high which proves to be a disincentive to exporters. At times the MEP is fixed as high as \$475 per tonne and on 19/11/2011 the government declared that MEP is fixed at \$250 per tonne. In view of the high MEP fixed by government, exporters restrict their entry in international markets. Further, in order to sell in international markets at competitive prices, exporters sometimes export at prices below MEP but the L/C and other documents were prepared on the basis of MEP. Therefore the profit realized by exporters indicates an inflated figure in their records because of which they have to pay higher tax. Farmers also lose because traders try to purchase at lowest prices to meet their expenses. Fixation of MEP discourages exports. Exporters also have to pay 1 percent of turnover based on MEP to NAFED which is the canalysing agency. Therefore traders feel that imposing export ban and MEP increases supply in domestic markets causing prices to crash. Overall, since the policies related to export for onion are always fluid, somewhat restrictive and also change from time to time, India is not considered to be a regular and reliable exporter of onion in international markets. There are market imperfections which restrict free trade which is against the interest of farmers as they end up receiving lower prices for their produce. One exporter revealed that as soon as India imposed an export ban on onions, some onion importing countries immediately placed their import orders from China which deprived Indian exporters from the opportunity to export. Also traders felt that imposing ban on exports of onions by the government was a closed decision and was imposed without proper assessment of the onion supply in the domestic markets. The APMC authorities have brought it to the notice of the government regarding hardship caused to those involved in onion trade because of fixation of MEP.

Traders also felt that in order to avoid post-harvest glut conditions in the market leading to crash in prices, farmers store their produce in the hope of realizing higher prices in the lean period. However, although stored produce does help farmers to cash on lean season rise in prices, farmers suffer on two counts. Firstly, there is shrinkage of the crop which leads to about 25 percent weight loss and secondly about 15 percent is spoilt due to damage. Therefore about 40 percent of the crop that is stored is lost due to shrinkage and damage. Traders felt that onion chawls are a very rudimentary method of storing onions as part of the produce gets spoilt. Therefore there is urgent need for technology such as specially designed cold storage that will enable the crop to remain in the same condition without any shrinkage or spoilage. This will also help to increase the supply of the produce in lean season so that consumers can buy the produce at lower prices and farmers can avoid losses due to wastage. Storage in appropriate conditions will enable the farmers to increase their net income as storage losses will be minimized due to use of better technology.

Finally traders felt that whenever there is crash in prices, government agencies should mop up atleast 30 percent of the produce so as to prevent downward pressure on prices. This produce can be used as manure and also farmers will be satisfied as they will get remunerative prices.

Traders were not well conversant with the new APMC act and felt it required more publicity. License for starting private markets was not easily available and there were restrictions on the location of such markets which served as a deterrent on taking any advantage on the new APMC act. Therefore the scope to create more markets which could function simultaneously with regulated markets and promote competition was limited.

5.10 Functioning of Selected major APMCs with respect to onion sales:

Pimplegaon Basant and Lasalgaon are major onion markets in Nasik district. A visit to the market and interview with the APMC officials revealed that by and large the markets had all major features of a regulated market. Sales took place by auction method, there were no signs of collusion among traders and

farmers received payment for their sales within a day. There were close personal relations between the farmer and the commission agent who also often extended loans to farmers. Weighing was done through electronic weighing machine which was checked once in 15 days. Market information is well disseminated through newspapers, weekly reports, Television, etc. There was arrangement for stay of farmers in case his produce could not be sold and just outside the market yard there were several nationalized banks. It was also reported that the entire onion produced in the district is sold in APMCs and the practice of commission agents deducting 2 kgs of onion for every quintal sold was discontinued. By and large the infrastructure was up to date and farmers were familiar and used the auction method of sale.

However, a major problem which plagued the APMCs is that market functionaries often resort to strikes which finally ends up in market closure. When the market is closed, stocks pile up which has a downward impact on prices and adversely affects farmers. APMC officials felt that there must be some provision in the Act to prevent the market from being closed. Another major problem that Pimpalgaon Basant market is plagued by is the number of court cases by market functionaries, depriving the APMC of huge revenue. Supervision fee is not paid by onion farmers who sell in Pimpalgaon Basant and Lasalgaon markets while it is paid by all farmers in other districts of Maharashtra. This is causing huge loss of revenue to these two APMCs which have filed a suit in the High Court in 2010 and matter is pending.

Another huge revenue loss to these APMCs is the non payment of levy which was imposed to take care for social security of members of Mathadi Board in APMC. This levy was initially charged to farmers who challenged it in the court (Aurangabad Bench) in 2008-09 and a verdict was made in their favor. Hence the Mathadi Board was prevented from charging levy (which is about 30 percent of labour cost) to the farmers. As levy could not be charged to farmers, a Committee was appointed under the chairmanship of Principal Secretary, Cooperation and Marketing, to make recommendations regarding the collection of levy. The Committee recommended that the levy should be collected from the buyer through

the Commission agent. As buyers in the APMC are mainly wholesalers, they in turn have challenged the imposition of levy on them in the Court and matter is pending. As a result, the APMC officials stated that about Rs 12000/- crores to Rs 15000/- crores is outstanding as levy charges to be collected.

Another issue in the APMC is that due to the usage of electronic weighing machine, there is no work for weighmen. But yet weighing charges are levied.

The APMC in **Ahmednagar** also had all features of a well regulated market with sales taking place through open auctions and payment is made to farmers on the same day. Officials in several APMCs maintained that farmers prefer to sell through auction system which is an old system and farmers have faith in it. Direct marketing has still not made any progress and was functioning on a very limited scale. Further, APMCs have Grievance Redressal Cells and in case the farmer does not receive his payment in time or he has any other grievance, he can address these issues in APMC. The APMCs have the license of all commission agents and hence farmer is assured of his payment. This may not be possible in case of sales through direct marketing or other systems.

Another major regulated market located in an urban area is **Mumbai Agricultural Produce Market Committee (MAPMC)** which was established in 1977 to promote orderly marketing as per provisions of market regulation act and create infrastructure facilities for the same. The Market Area of the Committee comprises of Greater Mumbai, Thane Taluka and 30 villages of Uran Taluka of Raigad district.

Mumbai APMC also has features of a well regulated market such as computerized accounting, electronic weighing system, payment within 24 hours, market information display on Display Board, availability of MCX facility and registration of vehicles which enter so as to prevent unauthorized trade. A Vigilance Section is set up to intercept the vehicles carrying unauthorized agricultural produce in the jurisdiction of Mumbai APMC. The MAPMC, also has necessary infrastructure such as Banks, Post office, Electronic Telephone Exchange, farmers Rest House, Weighing Machines, Weigh Bridges, Auction Halls, Warehouses. etc.

An important feature of MAPMC is that sales take place between two traders on sample basis. The officials at MAPMC revealed that arrivals in the market are unlimited and hence there is no scope for auction as there is time constraint. The recent advancement in telecommunication has helped farmers to obtain information on prices prevailing in various regulated markets and almost all farmers are aware of prevailing market rates. Accordingly, they are in a position to decide which market they want to sell so as to take advantage of higher prices. Commission agents who have close personal relations with farmers also send their personnel to the interiors to keep the farmers informed about conditions prevailing in the market and also arrange to sell the produce of farmers, if necessary. If the farmer decides to sell in MAPMC, the farmers can also transport their produce to the market which is received by the Commission agent who sells his produce and takes a Commission of 6.5 percent of the value of sales. Farmers by and large do not themselves come to sell their produce in MAPMC, as transport and other logistic costs such as boarding and lodging are very high. Therefore by and large, the Commission agent receives the produce of the farmer and sells it on his behalf to any purchaser in MAPMC. Mumbai is a huge consumption market and stocks of onions are mostly consumed locally while about 10 to 15 percent is exported. Mumbai has a very huge number of hotels which contribute greatly to the demand for onions. The produce normally comes to MAPMC in trucks as most of the supply of onions comes from within Maharashtra, and hence transport by railway has limitations. Traders noted that there is such a huge demand for onions that the produce is hardly stored but lifted immediately.

The Traders' Association noted that on every kg of onion sold the retailer has to incur a cost of Rs 6/- . Besides, he also maintains a margin of Rs 2 per kg. Accordingly, the retail price of onions varies between Rs 14/- to Rs 18/- per kg in different areas of Mumbai. If a retailer sells around 200 kg per day of onions, he is able to earn a net income of Rs 400/- which they feel is justified.

5.11 Vegetable and Fruit Cooperative Marketing Society (VEFCO), Lasalgaon, Niphad Taluka, Nasik

VEFCO is a cooperative society, operating in Nasik district of Maharashtra. The society was established and registered in 1986 and founded by Shri C.B. Holkar. The governing body of VEFCO consists of the chairman at the top position, followed by vice-chairman and eleven directors.

VEFCO operates over 40 villages from eastern part of Niphad taluka of Nasik district. A meeting with the officials of VEFCO revealed that 60 percent of the member farmers of VEFCO are small and marginal, 30 percent are medium and 10 percent are large farmers. VEFCO acts both as a buyer and seller and mainly deals in activities such as :

- Sale and purchase of onions
- Procurement of onions for central as well as state governments
- Acts as a commission agent to provide a better deal to farmers
- Provides pre cooling and cold storage facilities
- Distributes petrol and diesel to its members as well as fertilizers.

The main objective of the organization is to provide a competitive price to farmers and due to competition provided by VEFCO, farmers receive better prices while selling in regulated markets. The authorities of VEFCO revealed that the auction price received by farmers in case of sales to APMC is higher by 2 to 5 percent due to competition created by the cooperative. This prevents collusion by traders to bid lower prices on their collective strength. Thus the presence of VEFCO sets an unregistered benchmark price in APMCs in Nasik. Also, often when there are glut conditions in the market, VEFCO enters the market, lifts the produce and stores it till prices improve for further sales. The society also has appropriate infrastructure for grading and packaging of onion. The quantity of onion purchased by the society in 2008-09, 2009-10 and 2010-11 was 9387 metric tonnes, 9128 metric tonnes and 1573 metric tonnes respectively. The average price at which the onions were purchased was Rs 8.02/- per kg, Rs 6.96 /- per kg and Rs 16.25/- per kg in 2008-09, 2009-10 and 2010-11 respectively.

After purchase operations, the onions were sold with a very negligible margin maintained by the society or even at the purchase price. It may also be noted that purchases by VEFCO ranged around 2 percent in 2008-09 and 2009-10 while they were only 0.5 percent in 2010-11 of the arrivals in Lasalgaon APMC. The arrivals in Lasalgaon also dropped by nearly 25 percent in 2010-11 as compared to the earlier year as there was crop failure in 2010-11.

Besides entering the regulated markets as a buyer and therefore participating in auctions, VEFCO also acts as a commission agent in the APMC. The society therefore facilitates a healthy competition and helps the farmer to obtain the best possible price for his produce. As commission agent VEFCO facilitated the purchase of 22260 metric tonnes in 2008-09, 12332 tonnes in 2009-10 and 4046 metric tonnes in 2010-11 which was 4.7 percent, 3.1 percent and 7.6 percent of arrivals in Lasalgaon in 2008-09, 2009-10 and 2010-11 respectively. The society also earned a commission of 4 percent of the value of sales.

The purchases by VEFCO are also exported but officials revealed that since last two years their exports have come to a standstill as Minimum Export Price (MEP) is not acceptable to them. Also in 2011-12, VEFCO was reluctant to enter the market for purchase of onions as they often incur losses due to storage of their produce. The society is therefore diverting its purchase operations to maize.

From the above, it can be observed that the presence of a cooperative society is very necessary while auctions take place in regulated markets so as to check collusion among traders and also discipline prices. While VEFCO did make attempts to support farmers to obtain better prices, there were certain limitations. Their purchases were limited to 2 percent or less of the arrivals in Lasalgaon market and also their sales operations were not very profitable as they sold at almost the purchase price. However, the society earned income by acting as a commission agent. Unfortunately besides VEFCO there is no other cooperative in Nasik district although the need is felt as it can work in the interest of farmers by making auctions more transparent and competitive.

Policy implications

In the present study on 'Competitive Assessment of Onion Markets in India: A Case of Maharashtra', an attempt has been made to observe the trends in production, arrivals, prices and export of onion, different role of various market intermediaries and transaction points in onion marketing by using secondary data as well as properly designed sample survey data collected from six APMCs of Maharashtra. The key objective of the study was to have a comprehensive view of the agricultural marketing in India and Maharashtra with specific focus on onion markets.

The study on marketing of onions clearly reveals that there are both intra seasonal as well as inter seasonal fluctuations in prices of onions. Onion is also a perishable commodity and while kharif onion has low keeping quality, rabi crop can be stored for four to six months. The share of Maharashtra in the country's area under onion is about 32 percent. A large part of the area in Maharashtra is cultivated in the kharif season and is rainfed. Hence production of the crop is subject to weather and rainfall conditions which also impact prices and cause fluctuations which are sometimes quite severe.

Onion marketing is mainly conducted in APMCs through auction method. However, in urban APMCs such as Pune and Mumbai (Vashi), sales often take place through negotiations between traders. The supply chain in onion trade includes a few intermediaries. Normally the farmer brings the produce to the APMC and sells it to a wholesaler through a commission agent, who in certain cases also has the license of a wholesaler. The wholesalers are either local or come from other districts or states. The wholesalers after purchase of onions, arrange for transport and either sell it directly to a retailer or sell it to another wholesaler, who then sells it to a retailer through whom it reaches the final consumer. In Mumbai (Vashi) markets, it was observed that one huge wholesaler purchases a bulk amount from the APMC and then supplies it to a large number of retailers in the local market.

The above mentioned study leads us to the following important observations and policy implications:

1. It was observed that the average experience of commission agents and wholesalers in onion trade in selected markets is found to be around 20 years. It indicates the existence of the same commission agent and wholesalers in the market, who normally have huge turnovers. This probably gives them a more or less monopoly position in the market, and perhaps restricting others from entry.
2. A field visit to six selected markets revealed that as far as markets such as Lasalgaon, Pimplegaon and Yeola, were concerned, there were close personal relations between farmers and commission agents. The commission agents were also interested in getting higher auction prices for farmers. However, in urban markets such as Pune and Vashi, farmers did not seem to have close relations with commission agents. Infact the commission agents were more interested in selling the produce to wholesalers/traders at lower prices as they may be regular customers. This may result in farmers receiving lower prices. Also the commission agent pays the farmer immediately after sale of his produce and charges a commission of 6 percent of the value of sales to the farmer. The wholesaler, who buys the farmer's produce, however pays him after a month or two. However, if the wholesaler pays him within fifteen days, he passes on 2 percent of his commission to the wholesaler. This indicates that he is keen to please the wholesaler, because he first of all allows the wholesaler to pick up the produce by giving him credit for a month or two and then in case of early payment, he is given a discount.
3. A visit was made to all six selected APMCs and discussions were held with concerned market functionaries. It was quite clear from the discussions that traders also stored onions in anticipation of higher prices. After making purchases from farmers, they sometimes stored the onions instead of immediate sales. Further, the commission agents who facilitated the transactions between farmers and wholesalers by taking a commission of

about 6 percent from farmers on the value of sales, also often had the license to purchase onions. They were normally the A class commission agents and they played a dual role of purchasers as well as facilitators in transactions. These commission agents also indicated that they stored onions. However, when an attempt was made to find out the quantity stored by them, they were very reluctant to disclose the quantity stored and only complained of transport bottlenecks because of which they were forced to store.

4. The very purpose of regulated markets is to ensure that sales take place through auction method and the produce is sold to the highest bidder. However, a visit to Ahmednagar APMC revealed that there was indirect evidence of collusion amongst traders. While bidding on certain lots was taking place, traders started with about Rs 300/- per quintal and kept bidding higher prices till one trader quoted Rs 400/- per quintal and another bid at Rs 405/- per quintal. The commission agent stopped the auction and said that the two bidders should equally share the produce that was being auctioned. Perhaps the commission agent could have waited for a slightly higher bid (i.e above Rs 405/- per quintal) and then sold the produce. But bidding was immediately stopped at Rs 405/- per quintal and produce was shared between two wholesalers.
5. Even the media plays a role in causing sudden rise or downfall in prices by publishing certain news for which they are paid. For example, there may be a sudden news of very high auction prices in upcountry markets which immediately lead to spiraling of prices in urban centres. In reality only one transaction may have been at very high price, but the media hypes it up, and wholesalers and retailers jack up the prices. Conversely, the media may talk about falling demand for onions and low prices prevailing in several markets. This acts as a downward pressure on prices and onion growers may have to make distress sales.
6. Meeting with traders revealed that it is mostly the retailers who charge higher prices than warranted to the consumers. There is no regulation on prices

charged by retailers and at times their rates are exorbitant, especially when the produce is in short supply.

7. The results of correlation between arrival and prices shows that by and large correlation coefficient between arrival and prices of onion in selected markets of Maharashtra is negative. However, in certain years and for certain markets, both moves in the same directions. Although arrivals are showing increasing trend, prices moves in same direction due to demand pressure and the converse also proves. Thus, arrival and prices moves towards same directions and does not follow the economic laws of demand and supply. Thus, besides demand and supply, there may be some other factors plays important role in price fixation of onion.
8. It was observed in the study that most of the onion crop is sold in APMCs and farmers preferred this channel because they were familiar with the system which was practiced over the years and they received timely payments. Marketing infrastructure in the six selected markets was also by and large satisfactory. It may however be pointed out that in Vashi market about 60 percent of farmers said that sales were undertaken through secret bidding. Since secret bidding is against the Regulated market Act, the government must look into the matter. However farmers suggested that in case price of onions fall to unduly levels, the government must step in and purchase to avoid distress sales. A large number of farmers indicated that a support price of Rs 1000/- per quintal would be an ideal support price.
9. Discussion with APMC officials especially in Nasik district revealed that a major problem which plagued APMCs was that market functionaries often resort to strikes which finally ends up in the markets being closed. As stocks pile up, there is an adverse impact on prices. Hence there must be some provision in the APMC act to prevent the market from being closed. Supervision fee is also not paid by onion farmers in Pimplegaon Basant and Lasalgaon markets causing huge revenue losses to APMCs, while farmers in other districts of Maharashtra pay the same. Further, these APMCs are also

plagued by several court cases causing huge revenue losses. APMC officials therefore felt that these issues must be resolved so that there is no revenue loss.

10. Discussion with commission agents revealed that they normally earn a commission of 6 percent on the value of sales from farmers for facilitating sales between farmer and wholesaler. Commission agents revealed that the farmers receive very timely payments/within a day, while they receive the amount from wholesalers after a month or two. There have been several instances when they have been duped by wholesalers, which has caused huge financial losses to them. A commission agent in Ahmednagar APMC revealed that sometimes wholesalers who do not have license purchase the produce. Since these wholesalers have been regular buyers in the market and also bid at very favourable prices, the produce is sold to them. However, after winning the faith of the commission agent, they sometimes disappear after making a huge purchase. As the license of the wholesaler is not with APMC, he cannot be traced. Hence commission agents stated that it is the responsibility of the APMC to ensure that all wholesalers who participate in the auction must have license. Probably the APMC claims the market cess and supervision fee from the commission agent (who recovers it from wholesaler) and hence is not particular about the license of the wholesaler. Another commission agent revealed that even if the wholesaler is traced, he becomes bankrupt as the money was misused and is unable to pay the commission agent. Therefore commission agents feel that they are taking a risk while facilitating sales between farmers and wholesalers besides incurring establishment expenses. APMC officials must therefore be more vigilant to ensure that unauthorized wholesalers do not enter the markets.

11. A meeting with Trader's Association in Nasik district revealed several bottlenecks in onion trade. Nasik is the biggest onion market in the country with bulk arrivals almost daily. Although the district is accessible by rail throughout the country through six stations, namely Khedwadi, Niphad, Lasalgaon, Manmad, Nandgaon and Yeola, the racks available for transport of

produce are far less than that required. The alternative mode of transport is trucks which are about two and half times more costly than rail transport. Further, there are several instances when trucks are not available even if trader is willing to pay the prevailing rate. This leads to huge transport bottlenecks, stocks being piled and leading to a downward pressure on prices. The traders therefore urged that there must be more availability of railway racks to transport produce and if available, they could transport onions anywhere in India at a price which is the ruling market price in APMCs in Nasik district to which is added a margin of Rs 3 per kg. The government must therefore look into the matter and try and increase availability of railway racks to Nasik district for transport of onions.

12. Another major problem facing traders is the export ban which is sometimes imposed when onion prices show an upward trend. Exporters lose their credibility in export markets as irregular suppliers in international markets. Added to this is the practice of fixing Minimum Export Prices (MEP) for onions. At times the MEP is fixed at very high levels and exporters actually sell at prices below MEP though the L/C is prepared at MEP. Therefore the profit realized by exporters shows an inflated figure leading to higher tax liability. Also fixation of MEP makes exporters reluctant to export which sometimes leads to excess supplies in domestic markets, leading to fall in prices. Farmers also lose when prices show downward trend. In view of these difficulties, export ban on onions coupled with fixation of MEP must be discouraged.

13. A large number of exporters meet their export requirements from APMCs in Nasik. However, their produce is often not cleared in JNPT for 3 to 4 days. They therefore refrain from entering the local markets till their export commitments are dispatched. Since supply is choked up, exporters do not enter the market till their consignments are dispatched leading to price fall. Hence, if export orders are timely dispatched, it is possible that volume of exports may increase which will benefit farmers.

14. Farmers normally store onions in onion chawls to benefit from lean season rise in prices. However, this method of storage leads to deterioration in quality,

spoilage and shrinkage. Often storing of onions leads to losses of 40 percent. Traders therefore stated that storing of onions in chawls is a very rudimentary method of storage and there is urgent need for technology such as well designed cold storage which will enable the crop to remain in the same condition without spoilage or shrinkage. This will help to even out supplies throughout the year and also lead to better production planning of the crop and more stability in prices.

15. Onion cooperatives have not made much progress and the presence of cooperatives would always help the farmers to receive better prices. Not only farmers who sell to cooperatives would receive better prices but the very presence of cooperatives as another buyer in the market would raise the auction price and hence even non-members would benefit. VEFCO, a cooperative marketing society operating in Nasik district has had only a very limited success in onion marketing. However, these societies must be encouraged so as to prevent collusion amongst traders not to bid beyond a certain price and also discipline prices.

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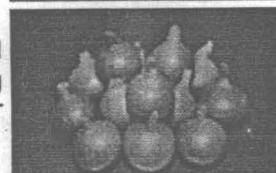
Annexure I

Onion (Big)

Agrifound Dark Red: Bulbs are dark red in colour, globular in shape with tight skin, moderately pungent. Mature in 95-110 days after transplanting. Recommended for growing in *Kharif* season to all over the country.



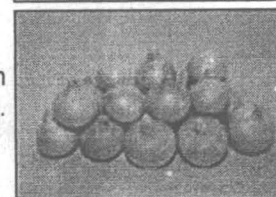
Agrifound Light Red: Bulbs are globular in shape with tight skin and light red colour. Mature in 110-120 days after transplanting and keeping quality good. Recommended for growing in *Rabi* season to all over country.



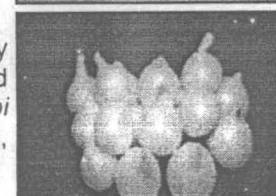
NHRDF-Red (LINE-28): Bulbs are attractive dark red in colour. Variety is very popular among farmers in North India because of its attractive dark red and better storage performance. Mature in 110-120 days after transplanting. Recommend for cultivation in Northern, Central and Western India in *Rabi* season.



NHRDF-Red-2 (L-355): Bulbs are attractive red in colour, globular in shape with tight skin. Mature in 100-120 days after transplanting. Recommended for growing in *Rabi* season.

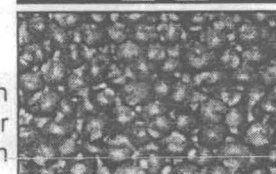


Agrifound White: Bulbs are globular in shape, tight skin and silvery attractive white colour. Mature in 110-130 days after transplanting and keeping quality good. Suitable for cultivation in *late Kharif* and *Rabi* seasons. Good variety for dehydration. Recommended for Maharashtra, Madhya Pradesh and Gujarat.



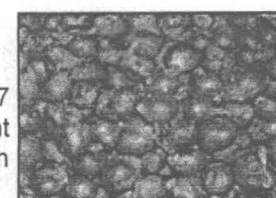
Onion (Small)

Agrifound Rose: Bulbs are flatish round in shape, deep scarlet red in colour. Mature in 95-110 days from sowing. Variety is suitable for growing in *Kharif* in Andhra Pradesh and in all three seasons in Karnataka.



Onion (Multiplier)

Agrifound Red: Average size of cluster is 7.15cm with weight of 65-67 g. Average numbers of bulblets per cluster 5-6. Colour of bulblets is light red. Mature in 65-67 days after planting. Recommended for cultivation in *Kharif* and *Rabi* in Tamil Nadu, Karnataka and Kerala.



Source: www.nhrdf.com

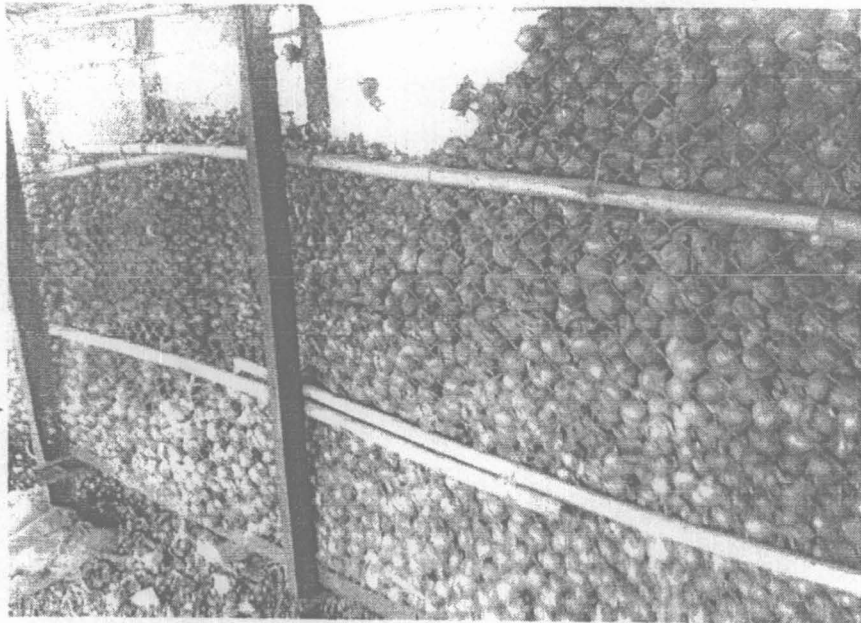
Appendix 1B: Agri Export Zones of India

Sr	Product	State	District/Area
12	Potatoes, Onion and Garlic	Madhya Pradesh	Malwa, Ujjain, Indore, Dewas, Dhar, Shajapur, Ratlam, Neemuch and Mandasaur
24	Rose Onion	Karnataka	Bangalore (Urban), Bangalore (Rural), Kolar
33	Onion	Maharashtra	Districts of Nasik, Ahmednagar, Pune, Satara and Solapur

Source: www.apeda.org.

Annexure II

Onion Storage Structure (*Kanda Chawl*)



Annexure III: Commission Agent's Perception about the Market Infrastructure

Particulars	Code	Ahmednagar	Sangamner	Yeola	Lasalgaon	Mumbai	Pune	Av
Location of market	0	0.0	0.0	0.0	11.1	0.0	0.0	1.5
	1	5.9	0.0	0.0	22.2	5.6	0.0	6.0
	2	0.0	0.0	25.0	0.0	0.0	20.0	6.0
	3	29.4	25.0	75.0	55.6	50.0	46.7	44.8
	4	41.2	25.0	0.0	11.1	11.1	33.3	23.9
	5	23.5	50.0	0.0	0.0	33.3	0.0	17.9
Godown facilities	0	17.6	0.0	25.0	22.2	16.7	13.3	16.4
	1	5.9	0.0	0.0	11.1	0.0	0.0	3.0
	2	0.0	25.0	50.0	11.1	0.0	0.0	6.0
	3	5.9	25.0	25.0	22.2	16.7	0.0	11.9
	4	23.5	50.0	0.0	0.0	11.1	6.7	13.4
	NA	47.1	0.0	0.0	33.3	55.6	80.0	49.3
Auction Charges	0	17.6	0.0	25.0	11.1	11.1	13.3	13.4
	2	29.4	0.0	25.0	44.4	16.7	6.7	20.9
	3	11.8	75.0	50.0	33.3	5.6	6.7	17.9
	4	41.2	0.0	0.0	0.0	22.2	26.7	22.4
	5	0.0	25.0	0.0	11.1	44.4	46.7	25.4
	NA	0.0	25.0	0.0	11.1	44.4	46.7	25.4
Supervision of Sale	0	11.8	0.0	0.0	11.1	0.0	20.0	9.0
	1	0.0	0.0	0.0	11.1	5.6	6.7	4.5
	2	11.8	50.0	0.0	11.1	22.2	6.7	14.9
	3	29.4	0.0	50.0	55.6	44.4	6.7	31.3
	4	29.4	50.0	25.0	11.1	22.2	33.3	26.9
	5	17.6	0.0	25.0	0.0	5.6	0.0	7.5
	NA	0.0	0.0	0.0	0.0	0.0	26.7	6.0
Loading facilities	0	0.0	0.0	0.0	11.1	0.0	0.0	1.5
	1	0.0	0.0	0.0	0.0	5.6	0.0	1.5
	2	11.8	25.0	25.0	0.0	11.1	20.0	13.4
	3	58.8	25.0	25.0	77.8	61.1	33.3	52.2
	4	29.4	50.0	25.0	11.1	22.2	46.7	29.9
	5	0.0	0.0	25.0	0.0	0.0	0.0	1.5
Sorting facilities	0	23.5	0.0	25.0	11.1	5.6	0.0	10.4
	1	0.0	0.0	0.0	11.1	0.0	0.0	1.5
	2	0.0	0.0	25.0	22.2	0.0	0.0	4.5
	3	23.5	0.0	0.0	22.2	11.1	6.7	13.4
	4	11.8	0.0	50.0	33.3	0.0	0.0	10.4
	NA	41.2	100.0	0.0	0.0	83.3	93.3	59.7

Notes: 0=Very Poor 1=Poor 2=Average 3=Good, 4=Very Good 5= Excellent.
Source: Field Survey data

Annexure III:

Particulars	Code	Ahmednagar	Sangamner	Yeola	Lasalgaon	Mumbai	Pune	Av
Weighing facilities	0	0.0	0.0	0.0	11.1	0.0	13.3	4.5
	1	0.0	0.0	0.0	0.0	5.6	0.0	1.5
	2	5.9	0.0	25.0	11.1	0.0	6.7	6.0
	3	52.9	25.0	25.0	44.4	55.6	53.3	49.3
	4	35.3	75.0	50.0	22.2	33.3	20.0	32.8
	5	5.9	0.0	0.0	11.1	5.6	6.7	6.0
Road	0	0.0	0.0	0.0	11.1	0.0	0.0	1.5
	1	0.0	0.0	0.0	11.1	5.6	6.7	4.5
	2	23.5	25.0	25.0	33.3	0.0	13.3	16.4
	3	35.3	25.0	50.0	33.3	33.3	46.7	37.3
	4	29.4	50.0	0.0	11.1	33.3	13.3	23.9
	5	11.8	0.0	25.0	0.0	27.8	20.0	16.4
Packing facilities	0	23.5	0.0	0.0	11.1	0.0	0.0	7.5
	1	0.0	0.0	0.0	11.1	0.0	0.0	1.5
	2	5.9	0.0	25.0	0.0	0.0	0.0	3.0
	3	29.4	0.0	25.0	66.7	27.8	40.0	34.3
	4	0.0	0.0	50.0	11.1	11.1	0.0	7.5
	NA	41.2	100.0	0.0	0.0	61.1	60.0	46.3
Cold storage	NA	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Auction platform	0	5.9	0.0	0.0	0.0	11.1	0.0	4.5
	1	0.0	0.0	0.0	11.1	5.6	0.0	3.0
	2	5.9	0.0	75.0	0.0	33.3	20.0	19.4
	3	17.6	25.0	0.0	44.4	5.6	53.3	25.4
	4	23.5	50.0	25.0	22.2	44.4	13.3	28.4
	5	47.1	25.0	0.0	22.2	0.0	13.3	19.4
Toilet	0	0.0	0.0	50.0	33.3	22.2	0.0	13.4
	1	0.0	75.0	25.0	22.2	5.6	13.3	13.4
	2	11.8	0.0	25.0	33.3	44.4	53.3	32.8
	3	23.5	25.0	0.0	11.1	11.1	26.7	17.9
	4	29.4	0.0	0.0	0.0	5.6	6.7	10.4
	5	35.3	0.0	0.0	0.0	11.1	0.0	11.9
Rest rooms/ rest houses	0	0.0	0.0	75.0	33.3	11.1	0.0	11.9
	1	0.0	50.0	25.0	0.0	11.1	0.0	7.5
	2	11.8	50.0	0.0	0.0	33.3	26.7	20.9
	3	17.6	0.0	0.0	22.2	11.1	26.7	16.4
	4	29.4	0.0	0.0	0.0	5.6	33.3	16.4
	5	41.2	0.0	0.0	11.1	0.0	13.3	14.9
	NA	0.0	0.0	0.0	33.3	27.8	0.0	11.9

Notes: 0=Very Poor 1=Poor 2=Average 3=Good, 4=Very Good 5= Excellent; NA- Not Available/No Answer

Source: Field Survey data

Annexure III:

Particulars	Code	Ahmednagar	Sangamner	Yeola	Lasalgaon	Mumbai	Pune	Av
Waste disposal facility	0	0.0	0.0	50.0	33.3	11.1	0.0	10.4
	1	5.9	25.0	0.0	0.0	16.7	0.0	7.5
	2	29.4	25.0	25.0	22.2	38.9	26.7	29.9
	3	11.8	25.0	25.0	22.2	27.8	26.7	22.4
	4	52.9	0.0	0.0	0.0	5.6	40.0	23.9
	5	0.0	0.0	0.0	11.1	0.0	0.0	1.5
	NA	0.0	25.0	0.0	11.1	0.0	6.7	4.5
Price Display	0	11.8	0.0	0.0	55.6	11.1	6.7	14.9
	1	0.0	0.0	25.0	0.0	5.6	0.0	3.0
	2	11.8	0.0	25.0	11.1	33.3	13.3	17.9
	3	29.4	25.0	25.0	11.1	27.8	33.3	26.9
	4	35.3	50.0	0.0	11.1	16.7	40.0	26.9
	5	11.8	25.0	25.0	11.1	5.6	6.7	10.4
Banking facilities	0	5.9	0.0	25.0	11.1	5.6	0.0	6.0
	1	0.0	0.0	0.0	0.0	5.6	0.0	1.5
	2	5.9	0.0	25.0	22.2	0.0	0.0	6.0
	3	35.3	25.0	25.0	22.2	55.6	46.7	40.3
	4	41.2	0.0	0.0	44.4	16.7	20.0	25.4
	5	11.8	75.0	25.0	0.0	16.7	33.3	20.9

Notes: 0=Very Poor 1=Poor 2=Average 3=Good, 4=Very Good 5= Excellent; NA- Not Available/No Answer
Source: Field Survey data

Annexure IV

Annexure IV: Perception of the Infrastructure in APMC as per Wholesaler

	CODE	Ahmadnagar		Sanganner		Yeola		Lasalgaon		Mumbai		Pune		AV	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Location of market	0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	20.0	1	3.0
	2	0	0.0	0	0.0	1	16.7	2	18.2	0	0.0	0	0.0	3	9.1
	3	1	33.3	3	50.0	5	83.3	6	54.5	0	0.0	1	20.0	16	48.5
	4	0	0.0	2	33.3	0	0.0	1	9.1	0	0.0	1	20.0	4	12.1
	5	2	66.7	1	16.7	0	0.0	2	18.2	2	100.0	2	40.0	9	27.3
Godown facilities	0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
	2	0	0.0	0	0.0	1	16.7	4	36.4	0	0.0	0	0.0	5	15.2
	3	0	0.0	3	50.0	4	66.7	3	27.3	0	0.0	0	0.0	10	30.3
	4	0	0.0	2	33.3	1	16.7	1	9.1	0	0.0	1	20.0	5	15.2
	5	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	NA	3	100.0	0	0.0	0	0.0	2	18.2	2	100.0	4	80.0	11	33.3
Auction Charges	0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
	1	0	0.0	0	0.0	0	0.0	2	18.2	0	0.0	0	0.0	2	6.1
	2	1	33.3	2	33.3	2	33.3	5	45.5	0	0.0	1	20.0	11	33.3
	3	0	0.0	1	16.7	4	66.7	3	27.3	0	0.0	0	0.0	8	24.2
	4	1	33.3	1	16.7	0	0.0	1	9.1	2	100.0	1	20.0	6	18.2
	5	1	33.3	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	2	6.1
	NA	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	60.0	3	9.1
Supervision of Sale	0	0	0.0	0	0.0	0	0.0	2	18.2	0	0.0	2	40.0	4	12.1
	2	1	33.3	3	50.0	2	33.3	2	18.2	0	0.0	1	20.0	9	27.3
	3	1	33.3	0	0.0	3	50.0	4	36.4	0	0.0	1	20.0	9	27.3
	4	1	33.3	3	50.0	1	16.7	1	9.1	2	100.0	1	20.0	9	27.3
	5	0	0.0	0	0.0	0	0.0	2	18.2	0	0.0	0	0.0	2	6.1
Loading facilities	1	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	2	0	0.0	1	16.7	0	0.0	2	18.2	0	0.0	0	0.0	3	9.1
	3	1	33.3	3	50.0	5	83.3	7	63.6	1	50.0	4	80.0	21	63.6
	4	1	33.3	1	16.7	1	16.7	1	9.1	0	0.0	0	0.0	4	12.1
	5	1	33.3	1	16.7	0	0.0	0	0.0	1	50.0	1	20.0	4	12.1
Sorting facilities	0	0	0.0	3	50.0	0	0.0	1	9.1	0	0.0	1	20.0	5	15.2
	2	1	33.3	0	0.0	0	0.0	2	18.2	0	0.0	0	0.0	3	9.1
	3	0	0.0	0	0.0	3	50.0	4	36.4	0	0.0	0	0.0	7	21.2
	4	0	0.0	0	0.0	1	16.7	3	27.3	0	0.0	0	0.0	4	12.1
	NA	2	66.7	3	50.0	2	33.3	1	9.1	2	100.0	4	80.0	14	42.4
Weighing facilities	0	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	2	0	0.0	0	0.0	1	16.7	2	18.2	0	0.0	1	20.0	4	12.1
	3	1	33.3	3	50.0	2	33.3	4	36.4	1	50.0	2	40.0	13	39.4
	4	2	66.7	2	33.3	3	50.0	4	36.4	1	50.0	2	40.0	14	42.4
	5	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0

Notes: 0=Very Poor 1=Poor 2=Average 3=Good, 4=Very Good 5= Excellent

Annexure IV continues

	CODE	Ahemadnagar		Sangamner		Yeola		Lasalgaon		Mumbai		Pune		AV	
		No.	%	No.	%	No.	%	No.	%	No.	%	No.	%	No.	%
Road	1	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	2	0	0.0	1	16.7	1	16.7	2	18.2	0	0.0	2	40.0	6	18.2
	3	1	33.3	2	33.3	3	50.0	3	27.3	0	0.0	1	20.0	10	30.3
	4	1	33.3	1	16.7	1	16.7	4	36.4	1	50.0	1	20.0	9	27.3
	5	1	33.3	2	33.3	1	16.7	1	9.1	1	50.0	1	20.0	7	21.2
Packing facilities	0	0	0.0	3	50.0	0	0.0	0	0.0	0	0.0	0	0.0	3	9.1
	1	0	0.0	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	1	3.0
	2	0	0.0	0	0.0	0	0.0	2	18.2	0	0.0	1	20.0	3	9.1
	3	1	33.3	0	0.0	2	33.3	6	54.5	0	0.0	0	0.0	9	27.3
	4	0	0.0	0	0.0	1	16.7	2	18.2	0	0.0	1	20.0	4	12.1
	NA	2	66.7	3	50.0	2	33.3	1	9.1	2	100.0	3	60.0	13	39.4
Cold storage	0	0	0.0	3	50.0	0	0.0	4	36.4	0	0.0	0	0.0	7	21.2
	4	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	NA	3	100.0	3	50.0	6	100.0	6	54.5	2	100.0	5	100.0	25	75.8
Auction platform	0	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	1	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	2	0	0.0	0	0.0	3	50.0	0	0.0	0	0.0	1	20.0	4	12.1
	3	1	33.3	2	33.3	2	33.3	7	63.6	0	0.0	2	40.0	14	42.4
	4	1	33.3	3	50.0	1	16.7	1	9.1	2	100.0	1	20.0	9	27.3
	5	1	33.3	1	16.7	0	0.0	1	9.1	0	0.0	1	20.0	4	12.1
Toilet	0	0	0.0	0	0.0	4	66.7	4	36.4	1	50.0	1	20.0	10	30.3
	1	0	0.0	3	50.0	0	0.0	1	9.1	0	0.0	0	0.0	4	12.1
	2	1	33.3	1	16.7	2	33.3	2	18.2	1	50.0	4	80.0	11	33.3
	3	0	0.0	2	33.3	0	0.0	3	27.3	0	0.0	0	0.0	5	15.2
	4	2	66.7	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	3	9.1
Rest rooms/ rest houses	0	0	0.0	3	50.0	6	100.0	8	72.7	1	50.0	0	0.0	18	54.5
	1	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
	2	1	33.3	1	16.7	0	0.0	2	18.2	1	50.0	1	20.0	6	18.2
	3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	2	40.0	2	6.1
	4	0	0.0	1	16.7	0	0.0	1	9.1	0	0.0	0	0.0	2	6.1
	5	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	2	40.0	4	12.1
Waste disposal facility	0	0	0.0	1	16.7	0	0.0	2	18.2	2	100.0	1	20.0	6	18.2
	1	0	0.0	1	16.7	0	0.0	1	9.1	0	0.0	0	0.0	2	6.1
	2	0	0.0	1	16.7	5	83.3	4	36.4	0	0.0	1	20.0	11	33.3
	3	1	33.3	2	33.3	0	0.0	1	9.1	0	0.0	2	40.0	6	18.2
	4	2	66.7	1	16.7	1	16.7	3	27.3	0	0.0	1	20.0	8	24.2

Notes: 0=Very Poor 1=Poor 2=Average 3=Good, 4=Very Good 5= Excellent

Annexure IV continues

	CODE	Ahemadnagar		Sangamner		Yeola		Lasalgaon		Mumbai		Pune		Av	
		No.	%	No	%	No	%	No.	%	No	%	No	%	No	%
Price Display	0	0	0.0	1	16.7	2	33.3	1	9.1	0	0.0	0	0.0	4	12.1
	1	0	0.0	0	0.0	1	16.7	1	9.1	0	0.0	0	0.0	2	6.1
	2	0	0.0	0	0.0	1	16.7	2	18.2	0	0.0	1	20.0	4	12.1
	3	1	33.3	2	33.3	1	16.7	4	36.4	0	0.0	0	0.0	8	24.2
	4	0	0.0	3	50.0	1	16.7	3	27.3	2	100.0	2	40.0	11	33.3
	5	2	66.7	0	0.0	0	0.0	0	0.0	0	0.0	2	40.0	4	12.1
Banking facilities	0	1	33.3	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
	2	0	0.0	0	0.0	0	0.0	3	27.3	0	0.0	0	0.0	3	9.1
	3	0	0.0	3	50.0	5	83.3	5	45.5	0	0.0	1	20.0	14	42.4
	4	1	33.3	1	16.7	1	16.7	2	18.2	0	0.0	1	20.0	6	18.2
	5	1	33.3	2	33.3	0	0.0	1	9.1	2	100.0	3	60.0	9	27.3

Notes: 0=Very Poor 1=Poor 2=Average 3=Good, 4=Very Good 5= Excellent

Source: Field Survey data

Annexure V

Annexure V: Facilities provided by the Wholesaler to the producers who bring their produce for sale

		Ahmadnagar		Sangamner		Yeola		Lasaigaon		Mumbai		Pune		AV	
		Number	%	Number	%	Number	%	Number	%	Number	%	Number	%	Number	%
Advisory Role	Yes	2	66.7	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	3	9.1
	No	1	33.3	6	100.0	6	100.0	10	90.9	2	100.0	5	100.0	30	90.9
Supplying pesticides	Yes	0	0.0	1	16.7	0	0.0	0	0.0	0	0.0	0	0.0	1	3.0
	No	3	100.0	5	83.3	6	100.0	11	100.0	2	100.0	5	100.0	32	97.0
Supplying the seeds	Yes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	No	3	100.0	6	100.0	6	100.0	11	100.0	2	100.0	5	100.0	33	100.0
Supplying fertilizers	Yes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	No	3	100.0	6	100.0	6	100.0	11	100.0	2	100.0	5	100.0	33	100.0
Supplying credit	Yes	1	33.3	0	0.0	0	0.0	0	0.0	1	50.0	0	0.0	2	6.1
	No	2	66.7	6	100.0	6	100.0	11	100.0	1	50.0	5	100.0	31	93.9
Procuring at the farmers; doorstep	Yes	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	No	3	100.0	6	100.0	6	100.0	10	90.9	2	100.0	5	100.0	32	97.0
Providing Transport Facility	Yes	0	0.0	0	0.0	0	0.0	1	9.1	0	0.0	0	0.0	1	3.0
	No	3	100.0	6	100.0	6	100.0	10	90.9	2	100.0	5	100.0	32	97.0
Cleaning/ Grading	Yes	0	0.0	0	0.0	2	33.3	4	36.4	0	0.0	0	0.0	6	18.2
	No	3	100.0	6	100.0	4	66.7	7	63.6	2	100.0	5	100.0	27	81.8
Packing	NC	3	100.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	3	9.1
	Yes	0	0.0	0	0.0	2	33.3	4	36.4	0	0.0	0	0.0	6	18.2
	No	0	0.0	6	100.0	4	66.7	7	63.6	2	100.0	5	100.0	24	72.7
Storage	Yes	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0	0	0.0
	No	3	100.0	6	100.0	6	100.0	11	100.0	2	100.0	5	100.0	33	100.0

Note: NC-No Comments.

Source: Field Survey Data.