

A note on shortlisted reform measures, hypothesis to be tested, analytical approach, data requirement-availability-gap and proposed approach to fill the data gaps

The structure of the note is as follows:

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2.2.2 Producer Welfare related

2.3 Staple Food - Wheat

2.3.1 Consumer Welfare related

2.3.2 Producer Welfare related

1. Shortlisted reforms, contrasts across states/cities and issues for investigation

- This section provides a snapshot of the shortlisted reforms as well contrasts across selected states/cities in terms of both reforms as well some relevant issues for investigation concerning producer and consumer welfare.
- A survey of secondary literature, analyzing secondary data sources plus a pilot survey of shortlisted states were conducted in September, 2013, helped to finalise the list of issues and reform activities to be covered in the two sectors under study.
- In selecting reform measures, the focus was on only those reforms which have implications on nature or level of competition at some node of the value chain.
- The following table (Table 1) highlights the shortlisted reforms to be analysed for their impact on competitive forces in the wheat value chain as well as some additional important aspects required to be investigated based on the project focus on producer and consumer welfare. It also highlights the important contrasts across selected states.
- Similarly, Table 2 below summarises the short listed reforms in the intra-city bus passenger transport sector, how the states contrast against each other in the selected reform measures and broad issues for investigation. Table 3 summarises the same for the inter-city bus transport sector.

Table 1: Shortlisted reforms, contrasts across states/cities and issues for investigation - wheat sector

Reform Area	Reform/issues in question	Issue(s) for investigation	States under Study	
			Rajasthan	Bihar
Inputs Markets	<ul style="list-style-type: none"> • Various administrative measures with impact on input availability, quality, etc. 	<ul style="list-style-type: none"> • Usage of inputs (seeds, fertilisers, credit, electricity, mechanisation, etc.) • Participation of the public and private sector in providing such services • Schemes available to low budget producers 	<ul style="list-style-type: none"> • Rajasthan is ahead compared to Bihar in terms of yield and usage of most of yield enhancing inputs <ul style="list-style-type: none"> ▪ Yield (3175 kg/ha in Rajasthan vs 2206 kg/ha in Bihar in 2011-12¹) while recording a lower consumption of fertilizer (64 kg/ha vs. 184 kg/ha in 2011-12²), ▪ Seed Replacement Rate (19% vs. 11% in 2006³), ▪ Consumption of electricity for agricultural purposes (12073GWh vs. 794 GWh in 2009-10⁴), ▪ Level of mechanisation (18.9 vs. 13.1 tractors per 1000 hectare of sown area in the 2005-08 period with 9.8% vs. 5.5% share in total sales of tractors⁵), ▪ Area insured under National Agriculture Insurance Scheme (31 vs. 7 million hectare⁶) • Both states are implementing a number of central/state sponsored schemes to ensure better inputs for farmers. Data on actual outreach of such programmes not available from secondary sources. An inter-state comparison data can give important insights on relative merits of different schemes, implementation mechanism, etc. 	
Government procurement	<ul style="list-style-type: none"> • Establishment of State Government monopoly in procurement of wheat in Bihar vide notification dated 15.04.2013 	<ul style="list-style-type: none"> • Implementation of the government procurement process (effectiveness of institutions and actors involved) • Availability of private and public options to producers, and their relative strengths 	<ul style="list-style-type: none"> • Multiple agencies at both central and state levels are active in Government procurement (Food Corporation of India (FCI), National Agricultural Cooperative Marketing Federation of India (NAFED), Rajasthan State Co-operative Marketing Federation 	<ul style="list-style-type: none"> • Bihar State Food Corporation directly procures wheat through its purchase centres or through Primary Agricultural Credit Societies (PACS). • It thereafter delivers it to Food Corporation of India. This imposes a de facto monopoly of state agency

¹ http://cacp.dacnet.nic.in/RPP/Rabi_Report_2013-14_English.pdf

² [http://164.100.47.132/paperlaidfiles/AGRICULTURE/State%20of%20Indian%20Agriculture%202012-13%20\(English\)%20with%20cover.pdf](http://164.100.47.132/paperlaidfiles/AGRICULTURE/State%20of%20Indian%20Agriculture%202012-13%20(English)%20with%20cover.pdf)

³ <http://seednet.gov.in/Material/National%20Seed%20Plan.pdf>

⁴ [http://164.100.47.132/paperlaidfiles/AGRICULTURE/State%20of%20Indian%20Agriculture%202012-13%20\(English\)%20with%20cover.pdf](http://164.100.47.132/paperlaidfiles/AGRICULTURE/State%20of%20Indian%20Agriculture%202012-13%20(English)%20with%20cover.pdf)

⁵ http://www.ras.org.in/tractor_production_and_sales_in_india_1989_2009

⁶ http://www.aicofindia.com/AICEng/Pages/Business_Profiles_Tenders/BusinessProfile.aspx

Reform Area	Reform/issues in question	Issue(s) for investigation	States under Study	
			Rajasthan	Bihar
			(RajFed), Tilam Sangh, etc. <ul style="list-style-type: none"> Decentralised Procurement System (DPS) in pilot phase across six districts – all of which are top producers of wheat. 	in wheat procurement in the state.
Agricultural Marketing	<ul style="list-style-type: none"> Repealing the Agricultural Produce Marketing Committee (APMC) Act by Bihar in 2006; Amendment of APMC Act by Rajasthan in 2005 to bring it in line with Model APMC Act 	<ul style="list-style-type: none"> Comparative analysis of agricultural marketing system followed in a state following the provision of model APMC Act with another outside the APMC system Impact on the wheat value chain as a result of the contrasting reforms 	<ul style="list-style-type: none"> Has reformed the state APMCs as per the model Central APMC Act. Has provisions for (a) Direct marketing of agricultural produce, (b) contract farming and (c) private markets. 	<ul style="list-style-type: none"> Has abolished the APMC Act altogether. This brought freedom of organizing own market by interested private players, freedom for farmers in taking sales decision based solely on price on offer, engage into innovative farming practices, etc. In short, it opened the door for private investment in agriculture.
Warehousing	<ul style="list-style-type: none"> Warehouse Development and Regulatory Act 2007; Private Entrepreneurship Guarantee Scheme 2008; Rural Godown Scheme 2001 	<ul style="list-style-type: none"> Need vs. availability of warehouses; gap analysis Issues of accessibility Schemes announced, implemented to expand capacity Actual new capacity creation, extent of success of such schemes The nature of road blocks, systemic inefficiencies, etc. 	<p>Need for increasing procurement (especially in the light of Food Security Bill), and reducing storage under cover and plinth, warehousing facility needs special attention. Plus there's a need to extend storage facility in the rural hinterlands to meet local requirements, reduce distress sales, promote quality control, strengthen agricultural marketing infrastructure, etc.</p> <ul style="list-style-type: none"> Rajasthan had been allotted 2,50,000 tonne of new storage development under Private Entrepreneurship Guarantee Scheme run by FCI, and as on 15th May, 2012 had approved private tenders for 2,05,000 tonne of capacity. Rajasthan, though not a front running state in terms of capacity 	<ul style="list-style-type: none"> Though Bihar has been allotted a higher 3,00,000 tonne capacity of new storage development under PEG scheme, capacity for which tenders have been sanctioned to private investors totalled only 90,000 tonne as on 15th May, 2012. Bihar is also laggard in implementing the Rural Godown Scheme. Cumulative capacity

Reform Area	Reform/issues in question	Issue(s) for investigation	States under Study	
			Rajasthan	Bihar
			created under Rural Godown Scheme (~ 7 lakh tonne as on March 2012), is significantly ahead of Bihar.	created in Bihar as on March 2012 was only ~2.75 lakh tonne (even less than 1% of national capacity).
Distribution	<ul style="list-style-type: none"> Provisions of Essential Commodities Act, Movement control orders from time to time, Open market control 	<ul style="list-style-type: none"> Supply of wheat – in open market, through PDS Quality-price interaction Control over hoarding, black marketing 	A comparison of the consumer welfare issues across the states.	

Table 2: Shortlisted reforms and issues for investigation and contrasts across cities – intra-city bus transport

Reform measure	Reform/ issues in question	Issue(s) under investigation	Cities under study	
			Bhopal	Ahmedabad
Public vs Private operators	<ul style="list-style-type: none"> Madhya Pradesh State Road Transport Corporation abolished in 2005. 	<ul style="list-style-type: none"> Nature of the market (prevalence of public and private players) Level of participation of private players in intra-city bus transport Entry and exit barriers, and concerns of operators Availability and reliability of buses for the average consumer 	Intra city transport needs are primarily catered by private transport operators, which provides minibuses, small transport vehicles like Tata Magic, etc.	Mass bus transport in Ahmedabad is largely in public hands. Ahmedabad Municipal Transport Services is the sole city bus services provider (outside the BRTS system).
Bus Rapid Transport System	<ul style="list-style-type: none"> Introduction of Bus Rapid Transport System 	<ul style="list-style-type: none"> Nature of public-private interactions in providing bus services Price setting (fare), route 	Have operational Bus Rapid Transport System. This is run under Public Private Partnership (PPP) mode, where the Public Authority is	Ahmedabad also has an operational BRTS system under the PPP mode, running for a longer period compared to Bhopal. The corridor

Reform measure	Reform/ issues in question	Issue(s) under investigation	Cities under study	
			Bhopal	Ahmedabad
	(BRTS) in Ahmedabad in 2009 and in Bhopal in 2010.	determination, bus schedule preparation mechanism; role of operator and Government; <ul style="list-style-type: none"> • Market power of private operators • Regulatory aspects – limitations imposed on private operators; licensing/permit terms • Consumer concerns 	responsible for route determination, infrastructure development, and fare determination. The Private operators are responsible only for operation and maintenance of service. <ul style="list-style-type: none"> • As of now two private operators are plying buses under BRTS, with one starting service only in September 2013. However, both the operators serve on separate routes. • The private operators run on Net Cost model – fares are collected by the Private operators and a monthly royalty is paid to the Public Authority. 	length and route coverage is also much longer compared to Bhopal – around 70 km in Ahmedabad compared to less than 30 km in Bhopal. <ul style="list-style-type: none"> • Infrastructure development, route determination, fare determination again are with Public Authorities. • Only one private operator is running the buses, compared to two in case of Bhopal. • The private operator runs on Gross Cost basis – fares are collected by the Public Authority and a pre-decided share of it accrues to the private operator.

Table 3: Shortlisted reforms and issues for investigation and contrasts across states/cities – inter-city bus transport

Reform measure	Reform under question	Issue under investigation	States under study	
			M.P.	Gujarat
Private-Public players	<ul style="list-style-type: none"> • Madhya Pradesh State Road Transport Corporation (MPSRTC) abolished in 2005. 	<ul style="list-style-type: none"> • Nature of the market (prevalence of public and private players) • Level of participation of private players in inter-city bus transport • Entry and exit barriers; permitted services • Operational freedom of operators • Availability and reliability of buses for the average consumer 	<ul style="list-style-type: none"> • Since the abolishment of MPSRTC in 2005, only private players operate in the inter-city routes. 	<ul style="list-style-type: none"> • Both private and public players are operational in the inter-city bus transport sector. • The public player, GSRTC, has a wide presence in various inter-city routes, sometimes overwhelmingly dominating the private players. E.g. the Ahmedabad-Baroda route.

Reform measure	Reform under question	Issue under investigation	States under study	
			M.P.	Gujarat
Stage vs Contract carriage status	<ul style="list-style-type: none"> Monopoly given to Gujarat State Transport Corporation (GSRTC) to operate as sole stage carriage operator in 1994. MPSRTC abolished in 2005 and private operators allowed to operate as stage carriages. 	<ul style="list-style-type: none"> Nature of public private interactions in providing bus services Price setting (fare) mechanism and its regulation Consumer concerns 	<ul style="list-style-type: none"> Private players on inter-city routes are operating as stage carriage. The route, schedule and fare are determined by state authority. 	<ul style="list-style-type: none"> GSRTC has been declared the sole stage carriage operator in the inter-city routes in the state. As a result, Private players are “licensed” to operate as Contract carriages. But in practice this restriction is rampantly violated, and private operators offers similar services as stage carriages. Since license is given to private operators for contract carriage, there is no regulatory control over the route, schedule and fare of private carriages operating in the inter-city routes. These are determined by competitive forces – among the private players plus from the public service run by GSRTC.

2. Approach towards testing the hypothesis, data availability, gaps and possible approaches to fill the gap

2.1 A three pronged approach to analysis:

Analysis will follow both quantitative and qualitative approach based on nature of information and extent of availability. Wherever required data will be standardised for comparison purposes (e.g. fare across states/routes/time may be converted into fare/km). There will be three parallel approaches of analysis as discussed below:

1. **Analysis of impact of reform** – A comparison of pre and post reform scenario. The depth of comparison though will vary from case to case depending on the length and frequency of time series data availability.
2. **Analysis of general welfare issues** – This shall be applied whenever a time series data spread across point of reform is not available, or data need to be collected through primary survey.
3. **Inter state/city comparison** – A comparison of differential experiences across states/cities.

2.2 Bus passenger transport

2.2.1 Consumer Welfare related

Hypothesis 1: The bus services are easily accessible

- **Approach to testing:** The accessibility issues pertaining to bus passenger transport can be gauged by estimations of average distance travelled to reach nearest bus-stop, need to avail of alternate modes of transportation in order to access bus transport, availability of bus transport at different times of the day/week, passenger carrying capacity of the bus transport fleet and route details in terms of area coverage (e.g. total route length).
- **Data requirements:**
 - Route details like origin-destination, length, buses operating, passenger carrying capacity.
 - Availability of bus transport at different times during the day, and at different days of the week
 - Distance travelled to reach nearest bus-stops
 - Need to avail of other forms of transport (Auto/Rickshaw/Mini bus/etc.) to reach the bus stop
- **Secondary Data availability:**
 - **Inter-city:** Secondary data availability limited to Public service operator in Gujarat – GSRTC. No comprehensive secondary data on private operators either in Gujarat or MP. Available data: Intercity route details; Population to bus ratio (GSRTC); Divisions, Depots, and Schedules (GSRTC);
 - **Intra-city:**
 - Ahmedabad: Details of routes operated by BRTS and AMTS.
 - Bhopal: Details of Route Operated by BCLL; Details of Trunk Corridors (BRT Routes), Standards Routes (BCCL), Complimentary Routes (mini-bus), IPT Feeder Service (Tata Magic Routes)

- **Secondary Data gaps:** Data from secondary sources are for a short time period or limited to just the current scenario – e.g. details of routes. Plus, the last three points mentioned in data requirements can only be addressed through primary survey of passengers.
- **Tentative approach to fill data gaps:** Survey of bus passengers on their perception and experience; interview of and/or data sourcing directly from operators and Government transport officials.

Hypothesis 2: Private services are better and more efficient relative to public services –

- *lower cost,*
- *better facilities,*
- *more options to choose from,*
- *more frequent service,*
- *adheres to time table,*
- *takes lesser time*
- **Approach to testing:**
 - Intercity: The relative comparison of routes being operated by private operators vis-à-vis public operators will be undertaken for inter-city bus travel in Gujarat. Analysis across two inter-city routes.
 - Intracity: A comparison of BRTS service under PPP mode with public operator AMTS in Ahmedabad. Analysis across two routes each from BRTS and AMTS.
- **Data requirements:**
 - Fare, distance travelled
 - Frequency of service
 - Timeliness of service, time taken to reach destination
 - Number of operators
 - Types of services
 - Amenities/facilities available
- **Secondary Data availability:**
 - Intercity: Latest fare, schedule, route details, types of services of GSRTC, Gujarat Cancellation of Scheduled trips (1996-97 to 2005-06)
 - Intracity: Latest fare, schedule, route details of BRTS; latest fare and route details of AMTS.
- **Secondary Data gaps:**
 - **Intercity:** Secondary data availability limited to Public service operator in Gujarat – GSRTC. Even in case of GSRTC, time series data not available from secondary sources, data mostly limited to latest scenario. Data on timeliness of service, travel time, amenities also not available.
 - **Intracity:** Time series data not available. Service frequency/bus time table not available for AMTS. Data on timeliness of service, travel time, amenities also not available.
- **Tentative approach to fill data gaps:** Survey of bus passengers on their perception and experience; interview of and/or data sourcing directly from operators and Government transport officials.

Hypothesis 3: Increase in options in terms of number of operators, range of services, etc. enhances welfare

- **Approach to testing:**
 - **Inter-city:**
 - Whether presence of large number of operators have any impact on cost of travel, accessibility, quality of service, and time efficiency.
 - How does the consumer perceive the impact of increase in choices
 - **Intra-city:**
 - Impact of introduction of BRTS on cost of travel, accessibility, quality of service, and time efficiency.
- **Data requirements:**
 - Fare, distance travelled
 - Frequency of service
 - Timeliness of service, time taken to reach destination
 - Number of operators
 - Types of services
 - Amenities/facilities available
- **Secondary Data availability:**
 - Intercity: Latest fare, schedule, route details, types of services of GSRTC, Gujarat Cancellation of Scheduled trips (1996-97 to 2005-06)
 - Intracity: Latest fare, schedule, route details of BRTS-Ahmedabad; route details of BRTS-Bhopal; latest fare and route details of AMTS
- **Secondary Data gaps:**
 - **Intercity:** Secondary data availability limited to Public service operator in Gujarat – GSRTC. Even in case of GSRTC, time series data not available from secondary sources, data mostly limited to latest scenario. Data on timeliness of service, travel time, amenities also not available.
 - **Intracity:** Time series data not available. Service frequency/bus time table not available for AMTS. Limited data on Bhopal. Data on timeliness of service, travel time, amenities also not available.
- **Tentative approach to fill data gaps:** Survey of bus passengers on their perception and experience; interview of and/or data sourcing directly from operators and Government transport officials.

Hypothesis 4: Bus service is preferable relative to alternate modes of public transport –

- *lower cost,*
- *more easily accessible,*
- *better reach,*
- *time efficient, etc.*
- **Approach to testing:** Analyses how does the bus transport service compare against alternate modes of travel available (railways). Analysis limited to inter-city sector as no significant alternate public transport mode available in either of the two cities.
- **Data requirements:**
 - Fare
 - Frequency
 - Timeliness and travel time
 - Amenities/facilities
- **Secondary Data availability:**

- **Intercity:** Latest fare, schedule, route details, types of services of GSRTC; Latest rail fare, schedule, travel time from Indian Railways.
- **Secondary Data gaps:**
 - **Intercity:** Secondary data availability limited to Public service operator in Gujarat – GSRTC. Even in case of GSRTC, time series data not available from secondary sources, data mostly limited to latest scenario. Data on timeliness of service, travel time, amenities also not available.
- **Tentative approach to fill data gaps:** Survey of bus passengers on their perception and experience; interview of and/or data sourcing directly from operators and Government transport officials.

Hypothesis 5: Increase in fare is in line with general inflationary trend

- **Approach to testing:** The increase in fares can be mapped with increase of the Consumer Price Index for Industrial Workers (CPI-IW) to see the match/mismatch in trends.
- **Data requirements:**
 - Time series data on average bus fares for intra-city and inter-city bus travel.
 - Time series data on CPI-IW
- **Secondary Data availability:** Time series data on CPI-IW
- **Secondary Data gaps:** Time series data on average bus fares for intra-city and inter-city bus travel.
- **Tentative approach to fill data gaps:**
 - Survey of bus passengers on their perception and experience. This will be subject to the obvious issue of recall period and accuracy.
 - Interview of and/or data sourcing directly from operators and Government transport officials.

Hypothesis 6: Increase in fare is adding to financial burden of a household

- **Approach to testing:** The increase in fares can be mapped with increase in household income level.
- **Data requirements:**
 - Time series data on average bus fares for intra-city and inter-city bus travel.
 - Time series data on household income
- **Secondary Data availability:** Time series data on household income
- **Secondary Data gaps:** Time series data on average bus fares for intra-city and inter-city bus travel.
- **Tentative approach to fill data gaps:**
 - Survey of bus passengers on their perception and experience. This will be subject to the obvious issue of recall period and accuracy.
 - Interview of and/or data sourcing directly from operators and Government transport officials.

Hypothesis 7: The fare determination process is transparent and known to all passengers

- **Approach to testing:** Passenger knowledge will be tested on parameters pertinent to the fare determination process. If their perception is in line with the actual fare determination process, then the hypothesis will be confirmed, else it will be rejected.
- **Data requirements:**

- Consumer knowledge of the fare determination authority
- Consumer perception of the fare determination process
- Consumer perception of the degree of transparency in the fare determination process
- **Secondary Data availability/gaps:** Secondary data is very unsuited for the testing of this hypothesis.
- **Tentative approach to fill data gaps:** Perception survey of bus passengers.

Hypothesis 8: The quality of bus transport service is satisfactory and has improved since reform

- **Approach to testing:** Passenger perception will be tested on parameters pertinent to the quality of bus service. Whether the passengers perceive any positive impact of reform shall also be assessed.
- **Data requirements:**
 - Consumer perception of the change in the quality of bus service
- **Secondary Data availability/gaps:** Secondary data is very unsuited for the testing of this hypothesis.
- **Tentative approach to collect data:** Perception survey of bus passengers will be used to obtain this information. The problem of recall accuracy is once again a concern.

Hypothesis 9: Flexi fare determined by market forces is better than one determined by regulator

- **Approach to testing:** In inter-city bus transport in Gujarat, the private operators are licensed to operate as contract carriage and their fares are not regulated. The fare charged is determined by competition among the private operators as well as between private operators and GSRTC in routes where it is present. In case of MP, the private operators are operating as stage carriage and fares are regulated by public authority. A comparison of consumer perception and experience across the two states shall highlight the differential experience.
- **Data requirements:**
 - Fare charts of inter-city routes
 - Consumer perception and experience
- **Secondary Data availability:** Fare chart of GSRTC.
- **Secondary Data gaps:** Fare chart of private operators not available in both Gujarat and MP.
- **Tentative approach to fill data gaps:**
 - Survey of bus passengers on their perception and experience.
 - Interview of and/or data sourcing directly from operators and Government transport officials.

2.2.2 Producer Welfare related

Hypothesis 10: A higher charge for permit reduces competition.

- **Approach to testing:**

- Requirement of permit and licenses, and charges for such acts as an entry barrier. As such, the hypothesis attempts to analyse the impact of such barrier on competition.
- Analysis limited to inter-city transport sector only. In Ahmedabad, there are no private operators in the intra-city segment, whereas no public operator is there in Bhopal. Moreover, the mini-bus/Tata Magic types of private intra-city service operators in Bhopal do not have a parallel in Ahmedabad.
- It shall examine changes in charges over time, if any, and impact on application/issue of new permits.
- An inter-state comparison of entry cost and the extent of impact on producer welfare shall also be presented.
- Market structure analysis to assess for presence of dominant players, market power, etc.
- **Data requirements:**
 - Charges for permit/license – across states, different time points
 - No. of operators, buses plying - at different time points
 - Fare details – across routes, operators, states, licensing regimes, time points
 - Longevity, performance of new entrants
- **Secondary Data availability:** Latest GSRTC type of service wise route, fare details
- **Secondary Data gaps:** Charges for permit/license; details on permits issued – operator wise, route wise; Fare details – no consolidated information on private operators, no time series data even for GSRTC; performance of new entrants
- **Tentative approach to fill data gaps:**
 - Data sourcing directly from operators and Government transport officials.
 - In-depth interviews with stakeholders like private and public bus transport operators covering performance, feedback on impact of different operational regimes on entry barriers, etc. and qualitative comparison of such information.

Hypothesis 11: Separate permit for each route increases cost and restricts competition.

Hypothesis 12: Restriction on maximum number of vehicles per route reduces welfare.

Hypothesis 13: Restriction on number of buses an operator is allowed to ply on a single route reduces welfare

- **Approach to testing:**
 - Requirement of separate permit for each route restricts entry and thus has the potential to restrict competition.
 - Similar entry barriers are also erected by restriction on vehicles per route or size of single operator presence on a particular route.
 - The analysis shall examine the differences in permit terms and conditions across states and time points, and their operational implication.
 - For the same reasons as in Hypothesis 10, analysis focuses on inter-city transport sector only.
- **Data requirements:**
 - Terms and condition of permit – across states, time points
 - No. of operators, buses plying - at different time points, across states
 - Fare details – across routes, operators, states, licensing regimes
 - Longevity, performance of new entrants

- **Secondary Data availability:** GSRTC type of service wise route, fare details
- **Secondary Data gaps:** Permit terms; details on permits issued – operator wise, route wise; No. of buses – operator wise, route wise; Fare details of private operators; performance of new entrants
- **Tentative approach to fill data gaps:**
 - Data sourcing directly from operators and Government transport officials.
 - In-depth interviews with stakeholders like private and public bus transport operators covering performance, feedback on impact of different operational regimes on entry barriers, etc. and qualitative comparison of such information.

Hypothesis 14: State intervention in route/fare determination reduces welfare.

- **Approach to testing:**
 - Impact of state intervention on market size in terms of number of operators, buses plying, passengers, etc.
 - Impact of state intervention on financial performance of operators, routes.
 - Intra-city: A comparison of route and fare determination process, actual fare charged across the BRTS systems in two cities. These processes in both these cities are controlled by designated public authority, and a comparison thus can offer on differential impact of alternate approaches by public authorities.
 - Inter-city: In Gujarat, legally speaking private players operate as contract carriages and their routes/fare are not determined by any public authority. In comparison, GSRTC route/fare in Gujarat and all operators' route/fare in MP are fixed by public authority. A comparison of the process of route/fare determination across different types of players and states shall highlight the differential impact of this aspect on operational performance.
- **Data requirements:**
 - Route determination process, Total routes, No. of profitable routes
 - Fare determination process, fare across operators-routes-time
 - Route details - length
 - No. of operators, buses plying, passengers travelling – across routes-time point-states/cities
 - Longevity, performance of new entrants
- **Secondary Data availability:** Limited information on route-fare for GSRTC, BRTS systems across cities – limited primarily to latest situation.
- **Secondary Data gaps:** The exact process of route, fare determination; no. of operators, buses, passengers across routes-time point-states/cities; financial aspects; longevity in business
- **Tentative approach to fill data gaps:**
 - Data sourcing directly from operators and Government transport officials.
 - In-depth interviews with stakeholders like private and public bus transport operators covering performance, feedback on impact of state intervention on operational aspects. and qualitative comparison of such information.

Hypothesis 15: Presence of multiple alternate bus transport operators raises competitive pressure and reduces market power.

Hypothesis 16: Presence of efficient public services reduces private operators' market power

Hypothesis 17: Presence of alternate mode of mass public transport reduces market power

• **Approach to testing:**

- The extent of market power enjoyed by private operators depends on extent of competition as embodied in number, size and type of alternate operators. It is also affected by alternate transport modes available.
- Analysis here shall primarily focus on inter-city transport as role of private players in intra-city transport is largely regulated in both the cities. Also, alternate public transport mode is virtually non-existent in both the cities.
- In Gujarat, private players operate as contract carriages, and fare charged by them are not directly regulated. They are primarily determined by market forces. A comparison fares across routes with contrasting features (in terms of number of players, their size, etc.) can highlight the competitive impact of presence of multiple players. Even when fares are regulated (as in MP), there is still scope to compete in terms of quantity and/or quality of service.
- In Gujarat, the Ahmedabad-Baroda route is particularly characterised by significant presence of public service operator – GSRTC. The frequency of GSRTC buses on this route is very high. In contrast, the Ahmedabad-Jamnagar route is characterised by limited public presence. A comparison of fare, number of operators, buses plying shall highlight the influence of presence of efficient public service on operational behaviour of private player.
- The Ahmedabad-Baroda route in Gujarat is also served by a decent rail transport facility. The presence of such on operational aspects (fare, schedule, quality, etc.) of both private and public players shall be analysed.

• **Data requirements:**

- No of operators, no. of buses plying, frequency, schedule, fare, distance, travel time – route wise, time points, type wise (private-public)
- No. of trains, fare, schedule, frequency, travel time
- Quality of service, amenities

• **Secondary Data availability:**

- Limited current data for public operator GSRTC in Gujarat.
- Data on rail schedule, fare, travel time

• **Secondary Data gaps:**

- No secondary data on private operators.
- Time series data not available.
- Quality Of service information not available.

• **Tentative approach to fill data gaps:**

- Data sourcing directly from operators and Government transport officials.
- In-depth interviews with stakeholders like private and public bus transport operators covering performance, feedback on impact of state intervention on operational aspects. and qualitative comparison of such information.

Hypothesis 18: Net cost model of revenue sharing in BRTS under PPP mode raises producer welfare.

• **Approach to testing:**

- Gross cost model of revenue sharing under PPP means that the fares are collected by the Public Authority and a pre-decided share of it accrues to the private operator. In contrast, in net cost model of revenue sharing fares are collected by the Private operators and a monthly royalty is paid to the Public Authority. In the later, the private operators incur both the demand and supply side risks, and hence shall expect better return as trade off for bearing higher risk.
- Producer welfare in this regard shall refer to better profitability of private operators.
- A comparison of BRTS-Bhopal (follows Net Cost model) and Ahmedabad (gross cost model) shall shed light on the differences between these two systems.
- **Data requirements:**
 - Detail terms and conditions under different regimes.
 - Route length, fare, no. of buses
 - Revenue – total generated, received by private operator
 - Cost of operation
 - Profit, investment, return
- **Secondary data availability:** Route length, fare, no. of buses
- **Secondary data gap:** The rest of the items mentioned above are not available from secondary sources.
- **Tentative approach to fill data gaps:**
 - Data sourcing directly from operators and Government transport officials.
 - In-depth interviews with stakeholders like private operators and public controlling authority covering feedback on impact of different PPP regimes on operational aspects and qualitative comparison of such information.

Hypothesis 19: Stage carriage status for private players raises producer welfare.

- **Approach to testing:**
 - Financial terms vary across stage and contract carriage permits as fees to be paid differs.
 - In Gujarat, where as GSRTC operates under stage carriage permit, the private operators in inter-city routes operate under contract carriage permit. However, in all purposes the private operators act as stage carriages in violation of permit terms and condition.
 - Here the focus of analysis shall be the differing operational implication of these two permit regimes and how does it affect the competitiveness of private and public players in Gujarat inter-city transport sector.
 - This shall also highlight whether the private operators shall be better off if their permit status was changed to stage carriage.
 - A comparison of financial model of private operators across Gujarat and MP (where the private operators operate legally as stage carriages) shall also be attempted.
- **Data requirements:**
 - Fees paid – different permit regime, states
 - Route length, fare, no. of buses, trips per bus
 - Revenue, cost, profit
 - Investment, return

- **Secondary data availability:** Partial data of the above mentioned parameters for GSRTC for discrete time points.
- **Secondary data gap:** No consolidated data on private players. No time series data on fees paid across permit regimes and states.
- **Tentative approach to fill data gaps:**
 - Data sourcing directly from operators and Government transport officials.
 - In-depth interviews with stakeholders like private and public bus transport operators covering feedback on impact of different permit regimes on operational aspects and qualitative comparison of such information.

2.3 Staple Food - Wheat

2.3.1 Consumer Welfare related

Hypothesis 1: Access to wheat/atta through PDS at Govt declared prices is ensured.

- **Approach to testing:**
 - The price paid by consumers from fair price shops (FPSs) will be compared to the PDS price declared by the State to check for parity. Prices paid by consumers at FPSs will be classified according to the type of ration card, namely APL, BPL, and Antyodaya.
 - Quantity of wheat(Bihar)/atta(Rajasthan) made available from FPSs for each Ration card at different points of time throughout the year will be compared to the PDS quantity declared by the State.
- **Data requirements:**
 - Prices paid by consumers at fair price shops in Rajasthan and Bihar throughout the year (3,6,9,12 months prior to date of interview)
 - PDS price declared by State governments of Rajasthan and Bihar
 - Quantities available to consumers at fair price shops in Rajasthan and Bihar throughout the year (3,6,9,12 months prior to date of interview)
 - PDS quantity declared by State governments of Rajasthan and Bihar
- **Secondary Data availability:** Department of Food and Public Distribution monthly foodgrains bulletin provides Central Issue Prices for States and UTs under APL, BPL, and AAY categories; Central Vigilance Committee report on Bihar and Rajasthan provides prices at which State governments are giving wheat/atta through PDS and stipulated wheat/atta quantity per month for each ration card
- **Secondary Data gaps:** Actual prices paid by consumers of PDS wheat; Actual quantities made available to consumers of PDS wheat
- **Tentative approach to fill data gaps:** Perception survey of wheat/atta consumers who buy from FPSs.

Hypothesis 2: The quality of wheat supply through PDS is good.

- **Approach to testing:** Consumer perception on the general quality of wheat through PDS at different points of time during the year. The recall period which will be called upon will be 3, 6, 9, and 12 months prior to the date of interview.

- **Data requirements:**
 - Consumer perception on quality of PDS wheat/atta
- **Tentative approach to collect data:** Perception survey of PDS wheat/atta consumers

Hypothesis 3: Increase in food subsidy raises consumer welfare.

- **Approach to testing:** A direct survey of consumers of wheat/atta on whether increase in wheat availability through PDS and/or a reduction in unit price leads to higher consumption of wheat/atta as well their perception on how they benefit from such enhanced subsidisation.

Hypothesis 4: There is sufficient supply of wheat in the open market round the year.

- **Approach to testing:** Even if there is a perceived shortage of wheat, this will not be reflected in per capita wheat consumption or per capita wheat availability, as these numbers do not speak of whether the quantities of wheat are deemed to be sufficient by the consumer herself. A diversified and ever-changing diet will also lead to complexities if we attempt to conduct this analysis on a nutritional basis using per capita consumption data. The obvious alternative would be testing the consumer perception on the general availability of wheat through open market purchases at different points of time during the year. The recall period which will be called upon will be 3, 6, 9, and 12 months prior to the date of interview.
- **Data requirements:**
 - Consumer perception on availability of wheat in the open market wheat
 - Wheat price in the market
- **Secondary data availability:** Wholesale, retail wheat price
- **Tentative approach to collect data:** Perception survey of wheat consumers who purchase from the open market.

Hypothesis 5: Increase in price of wheat is in line with general inflationary trend.

- **Approach to testing:** The increase in the price of wheat in the open market will be compared to the general inflationary trend which will be reflected in the Wholesale Price Index of Food grains
- **Data requirements:**
 - Month wise price of wheat in the open market
 - Month wise Wholesale Price Index of Food grains
- **Secondary Data availability:** Month-end Wholesale Prices of Wheat(2008-09 to 2012-13); Trends in Wholesale Price Index of Food grains (BASE:2004-05=100) from 2005-06 to 2011-12; Growth rates of wholesale price index of food grains (2006-07 to 2011-12); Month wise Wholesale Price Index of Food grains (Base: 2004-05=100) from 2010 to 2013; Variety-wise Daily Market Prices Data of Wheat for 2001-2013 available at the District level (Bihar sample districts not included, will have to use proxy)
- **Supplementary Data:** Consumer survey where price of wheat in the open market can asked (3,6,9,12 months prior to date of interview), and compared with WPI (food grains).

Hypothesis 6: Increase in price of wheat is adding to financial burden of a household.

- **Approach to testing:** The increase in the price of wheat in the open market will be compared to the increase in household income to assess whether the price rise is adding any burden on household resources.

- **Data requirements:**
 - Wheat (open market) price
 - Time series data on household income
- **Secondary Data availability:** Time series data on market price as well as household income.

Hypothesis 7: Price volatility is low in open market.

- **Approach to testing:** District wise daily market prices are available at the AGMARKNET portal which will allow us to test for volatility. Out of the sample districts, Alwar has data for 3 markets, Hanumangarh has 8 market places, whereas in Bihar data is available only for 2 markets in two districts which can be used as proxies for state level price variation.
- **Secondary Data availability:** Month-end Wholesale Prices of Wheat(2008-09 to 2012-13); Trends in Wholesale Price Index of Food grains (BASE:2004-05=100) from 2005-06 to 2011-12; Growth rates of wholesale price index of food grains (2006-07 to 2011-12); Month wise Wholesale Price Index of Food grains (Base: 2004-05=100) from 2010 to 2013; Variety-wise Daily Market Prices Data of Wheat for 2001-2013 available at the District level (Bihar sample districts not included, will have to use proxy)
- **Secondary Data gaps:** Data for wheat prices in the open market in Bihar. The data is available for select mandis or market places, and intra-state price volatility could be significantly different from that observed in the two mandis in the State which are covered in the dataset of the AGMARKNET portal
- **Tentative approach to fill data gaps:** In-depth interview with Traders and Mandi officials in the sample blocks

Hypothesis 8: Higher price always signifies better quality of product.

- **Approach to testing:** Consumer perception of the price-quality movements over the past one year (3, 6, 9, and 12 months prior to the date of the interview) will be used to confirm or reject the above hypothesis.

Hypothesis 9: Restricted movement of wheat raises local open market supply and reduces price.

- **Approach to testing:** It shall analyse the open market price response to any instance of imposition of movement restriction (intra/inter state). A comparison of price behaviour across states around the time point of imposition of such restriction by either of the states shall reflect the differences in market dynamics in presence/absence of such restrictive measures. A decline in the market prices here can be considered as a positive outcome for the consumers.
- **Data requirement:**
 - Market price of wheat
 - Nature, extent, periods of restriction
- **Secondary Data availability:** Wheat open market prices – daily/monthly for wholesale, monthly for retail.
- **Secondary Data gaps:**
 - No comprehensive secondary source of information on nature, extent, periods of restriction.

- Data from Bihar available from only 2 mandis in the AGMARNET portal. Representativeness of data may be an issue.
- **Tentative approach to fill data gaps:** In-depth interview with Traders, Mandi officials, State Food/Agriculture ministry officials.

Hypothesis 10: A liberalized export regime reduces consumer welfare.

- **Approach to testing:**
 - Comparison of pre 2010-11 price (when the export regime was liberalized) to the period right after to see if consumers have been adversely affected, in terms of higher prices.
 - A comparison of prices between 2011-12 to 2012-13, the latter being the year in which the exports significantly increased as a result of the relaxing of the trade policy, can also help assess export impact on domestic prices.
 - An across state comparison shall compare the similarity/difference in price response to export news.
- **Secondary Data availability:** Variety-wise Daily Market Prices Data of Wheat for 2001-2013 available at the District level; Month-end Wholesale Prices of Wheat(2008-09 to 2012-13); Trends in Wholesale Price Index of Food grains (BASE:2004-05=100) from 2005-06 to 2011-12; Growth rates of wholesale price index of food grains (2006-07 to 2011-12); Month wise Wholesale Price Index of Food grains (Base: 2004-05=100) from 2010 to 2013; Department of Food and Public Distribution monthly foodgrains bulletin for details of exports of wheat; India's Imports and Exports of Rice and Wheat (2002-03 to 2011-12)
- **Hypothesis 11:** *Standardisation, Grading, Quality certification have raised welfare.*
- **Approach to testing:** A survey of wheat/atta consumers on
 - Knowledge about such initiatives, level of confidence on such measures
 - **Whether quality available at different price points remains consistent over time/across markets**
 - Whether willing to pay higher price for better quality

2.3.2 Producer Welfare related

Hypothesis 12: Availability of essential inputs (credit, fertiliser, insurance, electricity, irrigation, etc.) have increased post administrative/policy intervention, enhancing producer welfare.

- **Approach to testing:** The comparison between the performance of farmers (yield of wheat) in Rajasthan and Bihar will allow us to test the above hypothesis, as the two states have different climates with regard to administrative and policy interventions which work towards making inputs easily available. Rajasthan has a higher yield for wheat while recording a lower consumption of fertilizer per hectare. Even the seed replacement rate is higher in Rajasthan vis-à-vis Bihar, as is the consumption of electricity for agricultural purposes, level of mechanisation, and area insured under the National Agriculture Insurance Scheme.
- **Data requirements:**
 - Average Yield of wheat farmers in Bihar and Rajasthan

- Average quantities of fertilizer, insecticide/pesticide, seeds, electricity, water, fuel, and manure available to wheat farmers in Bihar and Rajasthan
- Availability of credit to wheat farmers,
- Coverage under crop insurance to wheat farmers
- **Secondary Data availability:** District wise area, production, and yield of wheat in Bihar & Rajasthan post 1986-1987; Year-wise availability of Certified/ Quality Seeds-wheat (1983-84 to 2011-12); State-wise Estimated Consumption of Fertiliser per Hectare (2009-10 to 2011-12); Seed replacement rate 2001 to 2006; No. of bank branches, credit disbursal; State level data on crop insurance coverage; cost of production data across states over time from CACP.
- **Secondary Data gaps:** Average quantities of fertilizer, insecticide/pesticide, seeds, electricity, water, fuel, and manure usage, credit availability, insurance coverage specifically by wheat farmers (rather than farming community in general)
- **Tentative approach to fill data gaps:** Perception survey of wheat farmers on the input usage and input cost and their variation over the last two Rabi seasons; In depth interviews with both public and private input suppliers; Approaching Govt officials for data

Hypothesis 13: Increased subsidies promote increased production and producer welfare.

- **Approach to testing:** Impact of increased input subsidisation on production cost.
- **Data requirements:**
 - Extent of subsidy provided at different time points to various agricultural inputs like fertiliser, pesticide, electricity, diesel, seed
 - Cost of production of wheat data at different time points
 - Area under cultivation, production of wheat
- **Secondary Data availability:**
 - Annual average state level cost of production of wheat for recent years
 - Area under cultivation, production, yield of wheat
- **Secondary Data gaps:** Subsidy related time series data .
- **Tentative approach to fill data gaps:** Approach state government officials for data related to agricultural subsidy.

Hypothesis 14: Increase in Government procurement increases producer welfare.

- **Approach to testing:**
 - A comparison of MSP for wheat with mandi prices over time. Government procurement generally increased as mandi prices fall significantly below the MSP, whereas open sales at mandi increases when mandi prices equals/exceeds MSP.
 - A comparison of farmers' sales behaviour under these different conditions shall highlight welfare implications of government procurement.
 - A parallel analysis shall be on the role of MSP/mandi price in setting prices offered by local middlemen
 - Impact of increased MSP/procurement on production, area under cultivation in next season(s)
- **Data requirements:**
 - Time series data on the procurement of wheat in Bihar and Rajasthan
 - Minimum Support Price at which wheat farmers sell their produce to procurement agencies over the years

- Time series data on price received by wheat farmers for open market sales to mandi
- Time series data on Area, Production of wheat in Bihar and Rajasthan
- **Secondary Data availability:** State-wise Procurement of Rice and Wheat in Major Rice and Wheat Producing States (2001-02 to 2012-13); Department of Food and Public Distribution monthly foodgrains bulletin provides stocks of wheat with FCI and State Agencies at the state level, and state wise procurement of wheat, ; Minimum Support Prices of various Agricultural Commodities (2008-09 to 2012-13); Month-end Wholesale Prices of Wheat(2008-09 to 2012-13); District wise area, production, and yield of wheat for Bihar & Rajasthan post 1999-2000
- **Secondary Data gaps:** Range of non-MSP prices received by farmers in a range of interactions with local middlemen, traders, etc. and how it behaves vis-a-vis declared MSP; District/Block wise procurement of wheat for our sample regions
- **Tentative approach to fill data gaps:** Survey of wheat farmers on the price realization from alternate modes of sales channels; Feedback on role of MSP/mandi price in setting such prices; Discussion with Block/District officials of the State Agriculture Department and procurement agencies

Hypothesis 15: Non-availability of credit from organized sources or procurement agencies pushes farmers towards favouring sales to private parties.

Hypothesis 16: Delay in payment pushes farmers towards favouring sales to private parties.

- **Approach to testing:** It will analyse the extent of availability of credit from organised sources and how it impacts the farmers' decision on sourcing credit. The secondary impact such a decision have on selling behaviour of farmers (to whom sold, terms of sales, etc.) shall also be assessed. The payment behaviour of different players and its impact on sales decisions shall also be addressed.
- **Data requirements:**
 - Proportion of farmer sales in a region to private parties like local moneylenders, traders, middlemen, mandis etc. vis-a-vis govt procurement agencies
 - Incidence of credit from organized sources, whether procurement agencies provide credit, alternate sources, terms and conditions
 - Receipt of payment – mode of payment, time taken to receive full payment
- **Approach to collect data:** Survey of wheat farmers to assess their response on reasons for their choices on credit source, selling decisions; in-depth interviews of government officials, organised as well as private credit providers.

Hypothesis 17: Increase in storage capacity, better accessibility raises producer welfare.

- **Approach to testing:** Here we shall analyse whether access to storage facility has improves and whether better storage facility enhances the producer welfare in terms of better price realisation.
- **Data requirements:**
 - District wise storage capacity of Central/State Warehousing Corporation
 - District wise storage capacity of operators under Private Entrepreneurship Guarantee Scheme and the Rural Godown Scheme
 - Terms and condition
 - Limitation on capacity

- Average transportation cost to warehouses
- Average storage cost incurred at warehouses
- Impact on price realisation
- **Approach to collect data:** Discussion with CWC/SWC/FCI/NABARD officials to ascertain the availability of storage capacity with public and private operators over time; Survey of wheat farmers to gauge accessibility issues like transportation cost to warehouses, storage costs incurred at the warehouses, benefits in terms of better price realisation.

Hypothesis 18: Unrestricted movement (intra + inter state) enhances producer welfare.

- **Approach to testing:** A corollary to hypothesis 9. An increase in price realisation due to unrestricted movement can be interpreted as enhancing producer welfare, whereas the impact on consumer welfare shall be exactly opposite.

Hypothesis 19: Liberalised export policy promotes producers' welfare.

- **Approach to testing:** A corollary to hypothesis 10. An increase in price realisation due to liberalised export policy can be interpreted as enhancing producer welfare, whereas the impact on consumer welfare shall be exactly opposite.

Hypothesis 20, 21, 22: Contract farming/ Direct marketing/ Establishment of private markets has improved producer welfare.

- **Approach to testing:**
 - The reform atmosphere in which the three hypotheses, which have been laid out above, can be tested is the Agricultural Produce Marketing Committee (APMC) act and the manner in which the respective States have chosen to respond to its amendment.
 - In Rajasthan, the APMCs have been reformed as per the model Central APMC Act in 2005 and provisions have been laid out for (a) direct marketing of agricultural produce, (b) contract farming and (c) private markets.
 - On the other hand, Bihar has abolished the APMC Act altogether. This brought freedom of organizing own market by interested private players, freedom for farmers in taking sales decision based solely on price on offer, engage into innovative farming practices, etc. In short, it opened the door for private investment in agriculture.
 - The two States, Rajasthan and Bihar, thus will provide an interesting backdrop to test our hypotheses due to the different agricultural marketing policies.
 - Impact of such reform initiatives on cost of production as well as price realisation of farmers shall be analysed.
- **Data requirement:**
 - Volume, value of contract; number of farmers involved; areas under contract cultivation
 - Volume of direct marketing, the players involved, value of transaction
 - Number of private markets, number of agents operating from private markets, volume-value of trade, price comparison with APMC mandis
- **Secondary data gap:**

- Little secondary information is available on extent of penetration of such institutions/practices in either of the states.

- **Tentative approach to collect data:**

- Approach state agricultural department, marketing boards, etc. for relevant information
- Survey and in-depth interviews with wheat farmers in order to ascertain the penetration of such institutions/practices; Feedback from farmers familiar with such institutions/practices on reasons behind their preferences towards selling their produce through contract farming/direct marketing channels/private wholesale markets and the reasons behind this preference, impact experienced on cost of production-price realisation by such farmers.

Hypothesis 23: Reducing entry barriers for private parties in the wheat value chain have increased welfare.

- **Approach to testing:** Shall analyse the overall welfare impact of the individual fading entry barriers investigated in hypotheses 17, 20, 21, and 22 in terms of overall impact on cost of production-price realisation by farmers.

Hypothesis 24: Standardisation, Grading, Quality certification have raised welfare.

- **Approach to testing:** Analyses the extent of implementation of standardisation/grading/quality certification initiatives and their acceptance by farmers. The impact on cost-price realisation, if any, due to such measures also to be analysed.
- **Data requirements:** Policy initiatives, infrastructure created, farmers' perception and acceptance, quality-price data
- **Tentative approach to collect data:** Secondary information not available. Tentative approaches to collect data include interaction with Govt officials; Survey of farmers on information availability, level of acceptance, general review and feedback, impact on cost-price realisation

Hypothesis 25: Reform measures have benefited the consumers and producers more than the "middle" layer.

- **Approach to testing:**
 - Compare (time series) farm gate price with mandi price & consumer price.
 - A. For a short recall period (2 seasons) farm gate price can be obtained from primary survey. MSP can be used as proxy for longer period.
 - B. Mandi price can be obtained from Agriculture Marketing Information Network (Agmark)
 - C. WPI/CPI can be used to construct consumer price series; PDS price can also be used. For a short recall period, can use survey data.
 - Comparison between A & B gives the benefits/losses accruing to the middle layer working between the farmer and the wholesale market.
 - Comparison between B & C gives the benefits/losses accruing to the other half of the middle layer between the wholesale market and the end consumer.
 - The sum of two above, or a comparison between A & C, shall give the overall benefits/losses of the "middle layer" due to "reform".
- **Data requirements:**

- Time series data on farm gate prices of wheat
- Time series data on Mandi prices of wheat
- Time series data on prices paid by consumers for wheat
- **Secondary Data availability:** Variety-wise Daily Market Prices Data of Wheat for 2001-2013 available at the District level; Month-end Wholesale Prices of Wheat(2008-09 to 2012-13); Trends in Wholesale Price Index of Food grains (BASE:2004-05=100) from 2005-06 to 2011-12; Growth rates of wholesale price index of food grains (2006-07 to 2011-12); Month wise Wholesale Price Index of Food grains (Base: 2004-05=100) from 2010 to 2013; Minimum Support Prices of various Agricultural Commodities (2008-09 to 2012-13), Monthly retail prices of wheat
- **Secondary data gap:** Farm gate price received by wheat producers
- **Tentative approach to collect data:** For a short recall period (2 seasons) farm gate price can be obtained from primary survey and MSPs can be used as proxy for longer period; WPI can be used to construct consumer price series and for a short recall period, can use consumer survey data.