

Enabling a NAM: Components of a national market and related legal issues

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What we do here

- ▶ Secondary evidence that market integration in agriculture is highly beneficial - perhaps even more than agricultural productivity growth following the literature
- ▶ Agricultural markets in India not integrated
 - ▶ Integration varies across commodities
 - ▶ Homogenous cereals, soybean selected few where core periphery markets integrated
 - ▶ Host of commodities markets even geographically near by not integrated
 - ▶ Also evidence of threshold co-integration
- ▶ NAM is a step towards greater integration but it is lot more dealing in the way agricultural markets are structured
- ▶ NAM can have first order effects
- ▶ But needs lot of changes particularly on the backend
- ▶ It is a long way to go even to common market farther to single market

Background for National Agricultural Market (NAM)

Levels in the market	
District-State	National- International
Integration within state	Integration across states

- The proposed NAM in India conceived as a nationwide electronic trading portal that would create a network of wholesale markets (mandis) and market yards.
- Structured as a virtual market place, to a large extent like existing models of ecommerce, identically it requires the backend support that takes the form of both infrastructure (for example warehousing, grading, packaging and standards) as well as institutions (formal changes in laws and its implementation protocols).
- In the conceptualized model, the nodal point in the backend comprises existing mandis which currently are under state government regulations.

Background for NAM: continued

- ▶ A common market for agricultural products means market within which -no institutional or legal barriers to the circulation of products
- ▶ producers or traders can sell with the same freedom across state borders as they can within their own state.
- ▶ Analogous concept in EU -a single market (because the EU used the term “common market” for stage in development when there were no longer any customs duties or quantities restrictions in internal trade but there were still fiscal charges and non-tariff barriers) -FAO (2004).

Background

- ▶ Dramatic decline in ability to trade goods-across and **within national borders**
- ▶ **Examples (Donaldson 2015)**
- ▶ Container ships replaced steamships
- ▶ Trucks on expressways replacing railroads in many places
- ▶ Donaldson argues that **technological innovations of the past 200 years have likely affected intra national trade more than international trade**
- ▶ **What about policy innovations?**

In the literature: take the case of gravity models (Donaldson 2015)

- ▶ In the models, the only distinction between intra and international trade in this literature is whether other drivers of trade (factors of production, tastes and technology) are mobile
- ▶ In the context of agriculture more so with climate change production reallocation is an important part of adjustment
- ▶ Generally in neo classical models reductions in trade barriers are guaranteed to raise the welfare at least in one region

Costinot and Donaldson 2014- Focus on agriculture (structural estimation)

- ▶ How large are the gains from economic integration
- ▶ Evidence from US Agriculture 1880-1997
- ▶ Large run gains from economic integration among US agricultural markets estimated of the same order of magnitude as productivity gains over that period
- ▶ In Costinot and Donaldson -treat 1500 US counties as separate local markets that may be segmented by barriers to trade
- ▶ What could be the counterpart in India?
- ▶ Where is the data?

How the benefits of economic integration are measured?

- ▶ For any pair of periods t and t' , how much higher or lower would the total value of agricultural output across US counties in period t have been if trade costs were those of period t' than t
- ▶ Clearly answer this question requires estimates of trade costs at different points in time
- ▶ Approach is to find the vector of crop specific productivity shocks such that the predictions of the perfectly competitive model match the total output per crop and land allocated to each crops
- ▶ Back out prices that would have supported the allocation as a competitive equilibrium

Measure of trade costs and the impacts of reduction in trade costs

- ▶ Difference between local crop prices estimated from the model and actual prices measure of trade costs
- ▶ Is the model based on perfect competition ok?
- ▶ when the railroad network was extended to the average district, real agricultural income in that district rose by approximately 16 percent.

Railroads and the Raj (Donaldson 2014)

- ▶ Information on trade flows within a country is rarely available to researchers
- ▶ Donaldson uses the British India data where interregional trade was recorded
- ▶ What is the state of data now?

India- Study of market integration

- ▶ Railroad and the Raj (Donaldson 2015)
- ▶ Railroads reduced the cost of trading, reduced inter-regional price gaps, and increased trade volumes.
- ▶ When the railroad network was extended to the average district, real agricultural income in that district rose by approximately 16 percent.
- ▶ It seems that agricultural market integration in India probably declined after independence?
- ▶ Did data recording on interregional movement give up?

During the Raj (Donaldson 2015)

- ▶ Data on agricultural output were recorded for 17 principal crops (which comprised 93 percent of the cropped area of India in 1900)
- ▶ These were bajra, barley, bengal gram, cotton, indigo, jowar, kangni, linseed, maize, opium, ragi, rape and mustard seed, rice, sesum, sugarcane, tur and wheat.
- ▶ Retail prices for these 17 crops were also recorded at the district-level.
- ▶ Donaldson (2015) argues that railroads caused an increase in the level of real incomes in India, a component of economic welfare about which this paper has been silent concerns the volatility of real incomes over time.
- ▶ Even today India's precarious monsoon rains and its rain-fed agricultural technologies lead to real income volatility being extremely high.
- ▶ Research on NAM should assess the extent to which the reduction in trade barriers via NAM can help regions smooth away the effects of weather.

Why the need for National Agricultural Market?

- ▶ Agricultural markets regulated under APMC which is under the jurisdiction of the state governments.
- ▶ APMC is an old act that was formulated in 1952. Conditions such as majority of small and marginal farmers with individually small marketable surplus, inadequate infrastructure for storage and marketing perhaps necessitated development of government markets leading to the adoption of APMC acts.
- ▶ Further, information asymmetry that can cause severe inefficiencies in the system are also typical in the context of Indian agricultural markets.
- ▶ State is divided into several market areas; each administered by the a separate APMC
- ▶ About 2477 principal markets and 4843 sub-market yards regulated by the APMCs
- ▶ Fragmentation of markets hinders free flow of agricultural commodities
- ▶ Multiple handling of agri-products and multiple levels of mandi charges escalate the prices

Contours of APMC Act

- ▶ A State that is geographically divided and Market (Mandis) are established at different places within the state.
- ▶ Farmers have to sell their produce through the auction @mandi.
- ▶ To operate in Mandi, a trader has to get license.
- ▶ Wholesale, retail traders (e.g. shopping mall owner) or food processors cannot buy directly from farmer. They've to get it through the Mandi.

Main research questions addressed

- ▶ How far do indicators suggest a basis for NAM?
- ▶ Does the current state of market exhibit lack of effective integration and in which commodities?
- ▶ What are the elements of the NAM on the backend?
- ▶ To what extent are the attributes of the existing marketing infrastructure such as backend support suited for the NAM?
- ▶ What changes in the backend (infrastructure and institutions) would be needed to make the NAM effective?
- ▶ These questions are pertinent for NAM since the existing network of wholesale markets is supposed to provide the backend support for the electronic platform at the state or country wide scale.
- ▶ Also, there exist rules and regulations that can militate against working of NAM.

Problems in agri-marketing (NIAM study)

- ▶ Heavy sale of agricultural commodities at village level immediately after the harvest,
- ▶ absence of on-farm grading of produce,
- ▶ poor packaging,
- ▶ insufficient marketing infrastructure,
- ▶ long marketing channels,
- ▶ existence of various malpractices in the marketing of agri-produce,
- ▶ nontransparent price discovery mechanism,
- ▶ lack of market information system,
- ▶ low marketable surplus,

Shortcomings of the mandi system (NIAM study)

- ▶ Prohibits direct sale outside the market yard,
- ▶ lesser number of markets leading to considerable higher area to be served by each market,
- ▶ long distance to be covered by farmers to take their produce to the market,
- ▶ poor availability of infrastructure in the markets,
- ▶ no regular election of the members of the APMC
- ▶ inefficient disposal of farmers produce.
- ▶ Deployment of resources more on collection of market fees and construction work rather than market development and a considerable part of the amount collected as fee for providing various services is not plowed back.
- ▶ Cartelization by market functionaries like traders, commission agents and labor and complete control of government on establishment, development and supply of market services
- ▶ Several malpractices like late payment, deduction for spot payment, and non-issue of sale slips

Market: functionally

- ▶ In regulated markets, each farmer contracts with a commission agent, known as *katcha arhtia*, who arranges to display the produce in lots, store it overnight if it is unsold on a particular day weigh the grain in return for a commission of 2% of the sale price of the grain.
- ▶ In some markets and some commodities no auction takes place, government agencies sometimes buy up virtually the entire market at the MSP.

System of commission agent: continued

- ▶ Once the grain brought by the farmer is displayed in lots in the market yard, the *katcha arhtia* starts the process of auctioning. Several players compete for the lot, and each makes independent assessments of quality by examining the grain. The auction starts at the MSP, bidding proceeds as the seller then begins to raise the price; as the price rises, bidders indicate that they have dropped out of the race by throwing down the fistful of grain that they drew out to examine.
- ▶ This process continues until all but one bidder have dropped out; this bidder wins the lot at the price last announced. The auction then proceeds to another lot and the process begins again.
- ▶ Since the *katcha arhtia* receives a commission on the sale price value of the lot sold, he has an incentive to raise the price.
- ▶ Open ascending auction is the method

Banerji and Meenakshi (2004)

- ▶ In the auction in wheat markets near Delhi three main buyers 1. large miller 2. trader buying for mills in south India 3. trader buying for mills near Delhi - market characterized by collusion between the two traders and the miller.
- ▶ Casual observation suggested that when one of them bid, the other two did not.
- ▶ These players bought wheat of approximately similar quality.
- ▶ A market committee official records the following details of each sale: the name of the farmer and of the commission agent representing him, the winning bid (in rupees/quintal), the name of the winner, and the approximate quantity of the lot.
- ▶ The records do not record any explicit quality variables.

Auction process

- ▶ For each lot auctioned, a market committee official records the identities of the farmer whose lot is being auctioned, the buyer, and the sale price
- ▶ Auctions are conducted at a rapid rate; typically, there is a crowd of farmers and commission agents watching each auction.

Getting down to the logistics of NAM

- A portal once created can bring up offers and bids from different parts of the country.
- However, to work, NAM would also need actual transaction to take place.
- With buyers and sellers anonymous and not proximate, NAM will need commensurate development at the backend (infrastructure and institutions) for the actual transaction to take place in a reasonably frictionless way.
- In the backend wholesale markets at the first level need to be ready for it
- Based on a simple analysis of the marketing infrastructure and institutions, we believe that a lot needs to be done in order to make an arrangement like NAM work.

What is the state of the backend?

- Barring few first mover states in the development of local markets, we find market density strikingly small.
- According to the economic survey 2014, there are nearly 2500 regulated markets and over 4800 sub-market yards regulated by the respective APMCs. This number by itself might seem large but normalizing by number of farmers or geographical area, the density of government regulated whole sale markets i.e. mandi turns out to be quite small.
- According to the Economic Survey 2014, even the model APMC Act treats the APMC as an arm of the State, and, the market fee, as the tax levied by the State, rather than fee charged for providing services.
- This is a crucial provision which acts as a major impediment to creating national common market in agricultural commodities.

Backend: continued

- 2 important points regarding APMC with possible bearing on the proposed NAM.
- First, agriculture is a state subject and
- second the APMC act covers a wide array of commodities including cereals, oilseeds and high value items such as fruits and vegetables and meat products.
- Commodities have diverse marketing requirements but are more or less treated in the same manner.
- Hence, even with market liberalization, allowing private trade and removing marketing parastatals necessary but not sufficient for efficient markets to evolve.
- In the absence of proper infrastructure and institutions, spatially dispersed markets may continue to lack integration.

Integration in Indian markets

- ▶ Are existing markets integrated?
- ▶ In case of markets, de jure versus de facto can be quite different
- ▶ we first look at the extent of integration across markets by taking a core periphery approach where the principal market is defined based on comparatively high market arrivals.
- ▶ We use prices data from the wholesale markets at high frequency and use time series techniques to assess spatial integration.
- ▶ We find that there are several commodities characterized by a lack of spatial integration.

Lack of integration in the market

- The lack of integration implies frictions in markets. NAM is expected to reduce frictions leading to spatial integration. With spatial integration, prices will tend to equalize and there will be a co-movement of prices across markets.
- Minimizing friction in transactions characterized by disaffiliate buyers and sellers would require changes that go beyond merely creating the online platform.
- To analyze this issue, we employ a sparsely available data to map out the state of the wholesale markets that exist in the country and try to assess their readiness for NAM.
- Several physical and institutional infrastructure necessitated by design such as weighing, grading and transport infrastructure, food safety certification systems, cold storage, quality standards among others.
- **Mapping out the wholesale markets we find that markets are severely lacking in terms of their credentials to support an initiative like NAM.**

Market integration: continued

- ▶ **NAM expected to facilitate the emergence of integrated value chains across the country and promote scientific storage/movement of agricultural goods.**
- ▶ **Emergence of integrated value chains & development of facilities - scientific storage conceived as an effect rather than prerequisite of NAM.**
- ▶ **We consider that to a large extent, scientific storage, transportation and similar amenities as precursor to NAM rather than just an expected result from it.**
- ▶ **In organizational structure, all that NAM envisions is conforming to the regulations of the each state's Mandi act.**
- ▶ **Moreover, all transactions that actually take place would be considered a throughput of the local mandi which would continue to earn the transaction fee (SFAC 2015).**
- ▶ **Hence, the transformation could be revenue neutral for the states and may even be revenue expanding depending on the elasticity of the transactions with respect to the base expansion that would likely follow from NAM.**

Integration in the market: Continued

- Within a state NAM requires a single license for trading and a single point levy of transaction fee, apart from revenue implications, political economy would play a role in the adoption of NAM by state.
- The idea of integrating APMC markets with a common e-platform follows from Karnataka. We **might** see the model later
- The state established Rashtriya e Market Services Private Limited, a 50:50 joint venture with NCDEX Spot Exchange, to offer an automated auction platform for connecting all state mandis. Already, 55 of the 155 main market yards have been integrated into a single licensing system through this platform.

Agricultural markets in India: common or single? NAM from a market integration perspective

- Technically, NAM implies spatial market integration-can have significant implications on price discovery, overall income of producers, market liberalization and other policy reforms.
- Theoretically, according to the law of one price (LOP), prices of homogeneous goods at different locations should differ only by the transaction cost of those goods between different locations. Else traders can engage in spatial arbitrage, which increases the price of good in low price location and reduces the price in high price location until the LOP is restored.
- Lack of common market generates possibilities for arbitrage for the traders over time as well. In the end both farmers and consumers can be better off if markets are integrated.

Spatial integration in the market: Continued

- In economics, spatial integration examined by analysing the price transmission between markets (Fackler and Goodwin; 2001).
- The manner in which the price shocks gets transmitted between two locations depends on the magnitude of price difference between them (Goodwin and Piggott 2001; Stephens et al. 2011) but also the extent to which markets are integrated based on costs of transacting across the markets.
- Shocks that increase the price difference so that it exceeds the costs of trade between the two locations leads to arbitrage and price transmission.
- When the difference is less than the transaction cost, there is generally no arbitrage and hence no price transmission. .

State of affairs before NAM

- ▶ Fragmentation of state into multiple market areas, each administered by separate APMC
 - ▶ multiple levy of mandi fees,
 - ▶ requirement for multiple license for trading in different APMCs,
 - ▶ licensing barriers leading to conditions of monopoly,
 - ▶ poor quality of infrastructure
 - ▶ low use of technology,
 - ▶ information asymmetry, opaque process for price discovery,
 - ▶ high level of market charges, movement controls, etc.
- ▶ The Scheme envisages implementation of NAM by the Department of Agriculture & Cooperation through SFAC by creation of a common electronic platform deployable in selected regulated markets across the country.
- ▶ A budgetary provision of Rs.200 crores has been made to be spent over the next three years (2015-16 to 2017-18).

The set up deal

- ▶ An appropriate and common e-market platform will be set up, that would be deployable in selected 585 regulated wholesale markets in States/UTs desirous of joining the e-platform.
- ▶ SFAC will implement the national e-platform in 3 phases covering 250, 200 and 135 mandis during 2015-16, 2016-17 and 2017-18 respectively.
- ▶ The DAC will meet expenses on software and its customization for the States & UTs and provide it free of cost to them. DAC will also give grant as one time fixed cost subject to the ceiling of Rs.30.00 lakhs per Mandi (other than for the private mandis) for related equipment / infrastructure in 585 regulated mandis, for installation of the e-market platform.
- ▶ Provisions are also being made for establishing soil testing laboratories in the Mandis.
- ▶ Big private mandis will also be allowed access to the e-platform for purposes of price discovery. However they will not be supported with any funds for equipment / infrastructure.
- ▶ For integration with the e-platform the States/UTs will need to undertake prior reforms in respect of (i) a single license to be valid across the State, (ii) single point levy of market fee and (iii) provision for electronic auction as a mode for price discovery.
- ▶ Only States/UTs completing the three pre-requisites will be eligible for assistance under the scheme.

Nuts and bolts of NAM: continued

- ▶ Farmer should have improved access to market related information and better price discovery through a more efficient, transparent and competitive marketing platform which gives access to greater number of buyers within State and from outside, through transparent auction processes.
- ▶ It would also increase his access to markets through warehouse based sales and thus obviate the need to transport his produce to the mandi.
- ▶ Realising the complexity of the issue, the department has set up an Expert Group under the chairmanship of Ashok Gulati.
- ▶ The 21 mandis where NAM is being formally launched would offer trading in selected commodities.
- ▶ But fruits and vegetables, where there often are prices fluctuations, are yet to be included in the NAM platform.

Stumbling blocks in NAM

- ▶ Perishables out of the frame, volatility in prices would continue, thus depriving farmers from getting better prices.
- ▶ Barriers hampering interstate transfer of agricultural commodities also have to be removed. High taxes and levies imposed by states such as Punjab, Haryana and Andhra Pradesh on agricultural commodities trade have to be brought down; this would boost interstate trade and farmers' income.
- ▶ With very few big buyers likely to be interested in buying the small lots that farmers will have to offer, aggregators will be needed.
- ▶ Cartelization have to be protected against
- ▶ Considerable effort will also be needed for the clearance mechanism to work.

Changes in APMC required as part of NAM

- ▶ APMC Act needs amendment to
 - ▶ ensure a single license for trading to be valid across the state,
 - ▶ single-point levy of market fee and
 - ▶ for electronic auction as a mode for price discovery.
- ▶ States such as Kerala and Bihar where there is no APMC law, new laws might still be needed for online trading

NAM and inputs

- ▶ In principle NAM should ensure greater competition for both farm inputs and farm produce.
- ▶ Farmers should be able to access inputs at minimum cost while making it possible to secure the best prices for their produce.
- ▶ The reach of NAM is to be further extended by allowing private markets also to access the e-platform.
- ▶ In principle the increased competition in agriculture markets will also ensure faster movement of products across the nation and help check on prices of agriculture products.
- ▶ The software that local markets require to access NAM to be provided by the ministry of agriculture free of cost after ensuring customization of the software to confirm with the different regulations on agriculture trade in each state.
- ▶ NAM will have SFAC as its lead promoter, will have a strategic partner to develop, operate and maintain the NAM platform.

The idea of competition and NAM

- ▶ Pre NAM for farmers, trading options largely restricted to the local markets.
- ▶ Because current state level regulations often prohibit the farmers from selling their produce not only outside their state but often even outside a district.
- ▶ This leaves farmers at the mercy of a few local traders who form cartels to hold down prices of farm produce and maximise their own gains.
- ▶ NAM in principle should save the farmers from the clutches of the local traders and the state regulations which require them to secure multiple licenses to trade in different areas of even the same state.
- ▶ Such an integration of the local markets with the national market will also reduce the number of intermediaries between the farmers and the final consumers, reduce wastage and keep down prices.
- ▶ Large buyers like food processors, exporters and other bulk buyers will gain by reducing intermediation costs and securing quality product at best prices.

Other elements of NAM

- ▶ Launch of the digital platform for NAM does not ensure an automatic national access to the local markets.
- ▶ This can happen only when the state governments ensure legal provisions to allow for electronic trading of farm produce and issue one single state wide license from across the country who are interested to trade in the local mandis using the NAM.
- ▶ Likely to meet resistance from traders in the local mandis who have been so far sheltered from the national competition which allowed them to secure the local produce at minimum prices.
- ▶ But may not be a zero sum game for local traders as they will also have a new opportunity to access the national market for secondary trading.
- ▶ Countervailing special interest of the farmers

What happens to the erstwhile proceeds from mandi tax

- ▶ NAM can in fact give a boost to the local markets as the mandi fees are still applicable on all transactions including those by buyers across the country
- ▶ The proceeds will continue going to local mandi.
- ▶ Local mandis might end up earning higher transaction fees from the greater transaction in the markets.

Spatial integration in the Indian market: Core periphery approach

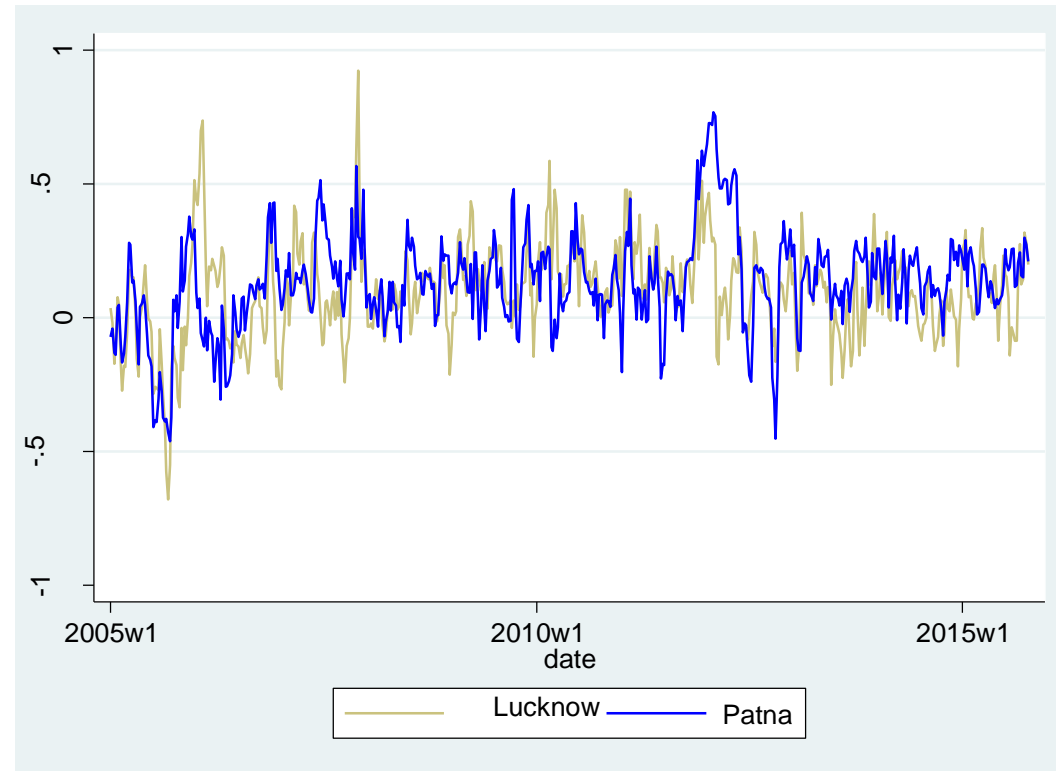
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Spatial integration in the Indian market:

Core periphery approach

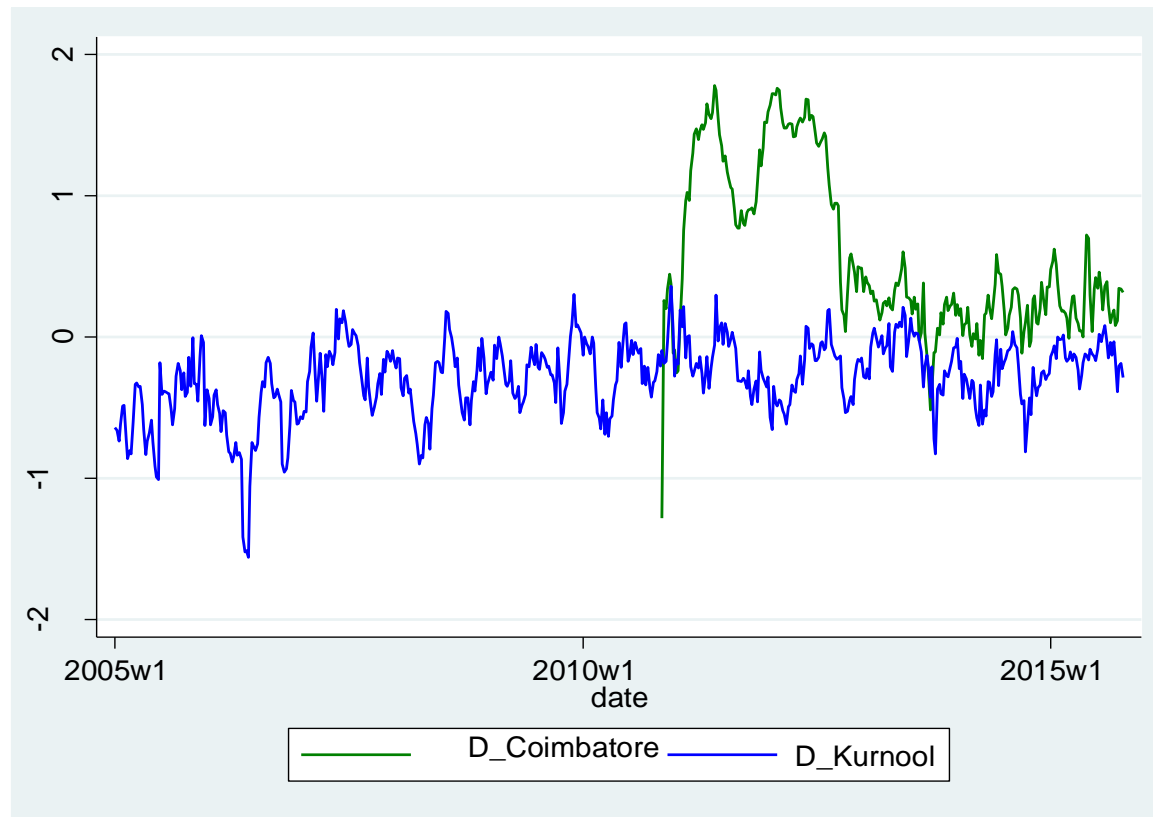
Agricultural Commodity	Central Market	Local Market	Time Period Considered
Wheat	Ludhiana	Lawrence road, Kota, Kanpur, Indore, Vishakapatnam, Vadodra	2007-2015
Maize	Nizamabad	Naugachia, Ahmedabad, Gulabbagh, Karimnagar	2007-2015
Potato	Agra	Burdman	2010-2015
Onion	Delhi, Bhavnagar, Pune	Kurnool, Ludhiana, Lucknow, Nasik, Patna & Pune	2005-2015
Soybean	Nagpur	Indore, Kota	2006-2015
Rice	Vadodra	Vishakapatnam	2011-2012

Wholesale price difference- Delhi with Lucknow and Patna



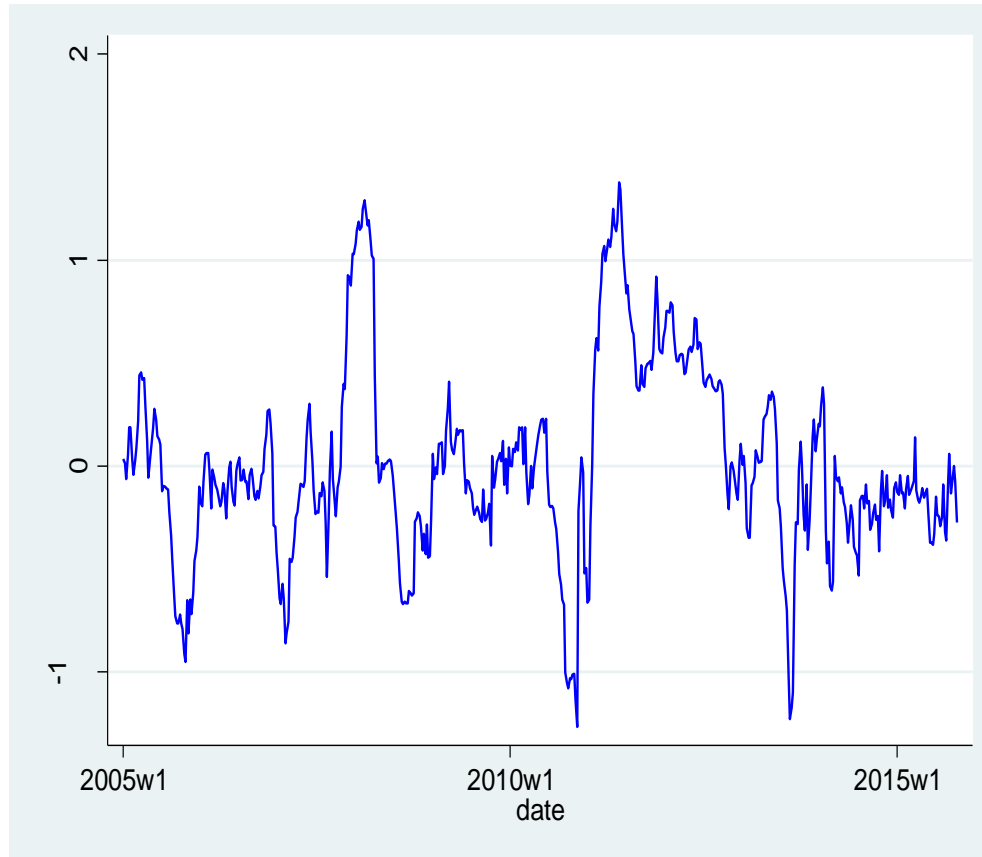
Price differences

Figure.1: Price difference between Delhi and southern India markets



Price difference (non-monotonic)

Figure.1: Price differences between Ludhiana and Delhi markets



Market integration: Johansen cointegration approach

- ▶ In cereals only wheat markets integrated, rice not
- ▶ Soybean evidence of integration across some markets
- ▶ Maize limited evidence of integration
- ▶ Vegetables- Onions strong evidence of lack of integration
- ▶ The tests for market integration above bring out a stark reality about Indian agricultural markets.
- ▶ Barring cereals particularly of comparatively low value and homogenous wheat and to some extent soybean, there is robust evidence of lack of spatial integration in most commodities. Even among cereals, rice markets lack integration. Perishable product like onion does not have market integration leading to localized shortages aggravating price spikes.
- ▶ With the evidence of lack of spatial integration--limited price transmission, there certainly is a case for trying NAM.

State of backend for NAM to work

- ▶ Take the most basic indicators
- ▶ Data analyzed for multiple indicators.
- ▶ Taxes are very different (0.8 percent of MSP in Gujarat versus 16.71 percent in UP)
- ▶ Basic ones presented

Taxation issues

	Name of the State	Sales Tax	Taxes as percent of MSP	Remarks
	Andhra Pradesh	All Commodities (except Maize, Jowar, Ragi, Bajra, Coarse grains)- 4%		
	Bihar		3	
	Assam	All commodities (except rice, wheat, pulm, f&v, fish, gur, atta, maida etc.)- 4-8 %		*Not collected as markets are not in operation
	Chattisgarh		2.2	
	Delhi	F & V- nil Oilseeds 3% Methi		

Taxes: continued

	Gujarat	1.Spices --3%, 2.Aniseed-- 2%, 3.Cotton --4%, 4. Isabgol—2 %, 5. Cummin-2%, 6. Ajwain—2%	0.8	Other agricultural commodities exempted from Sales tax Octroi - 0.2 to 4%
	Goa	1.Betelnut -2% 2.Cashewnut - 2% Coconut, F&V, Cattle & Milk exempted from Sales Tax		Entry Fee Cattle - Rs.10/head Vehicle- Rs.10/truck
	Jharkhand		1	
	Haryana	F&V - nil, Food grains—4% Pulses—4%, Oilseeds—4%	11.5	

Taxes: continued

	Himachal Pradesh		5	
	Karnataka	1.Foodgrains-nil 2.Pulses -2% 3.Oilseeds-4%		Market fee exempted for Industrial & Export Purchases.
	Kerala	Rs 4 to 8%		There is no market regulation and hence no prescribed charges.
	Madhya Pradesh	NA	9.2	Development cess from traders only - 1 to 5%.

Taxes: continued

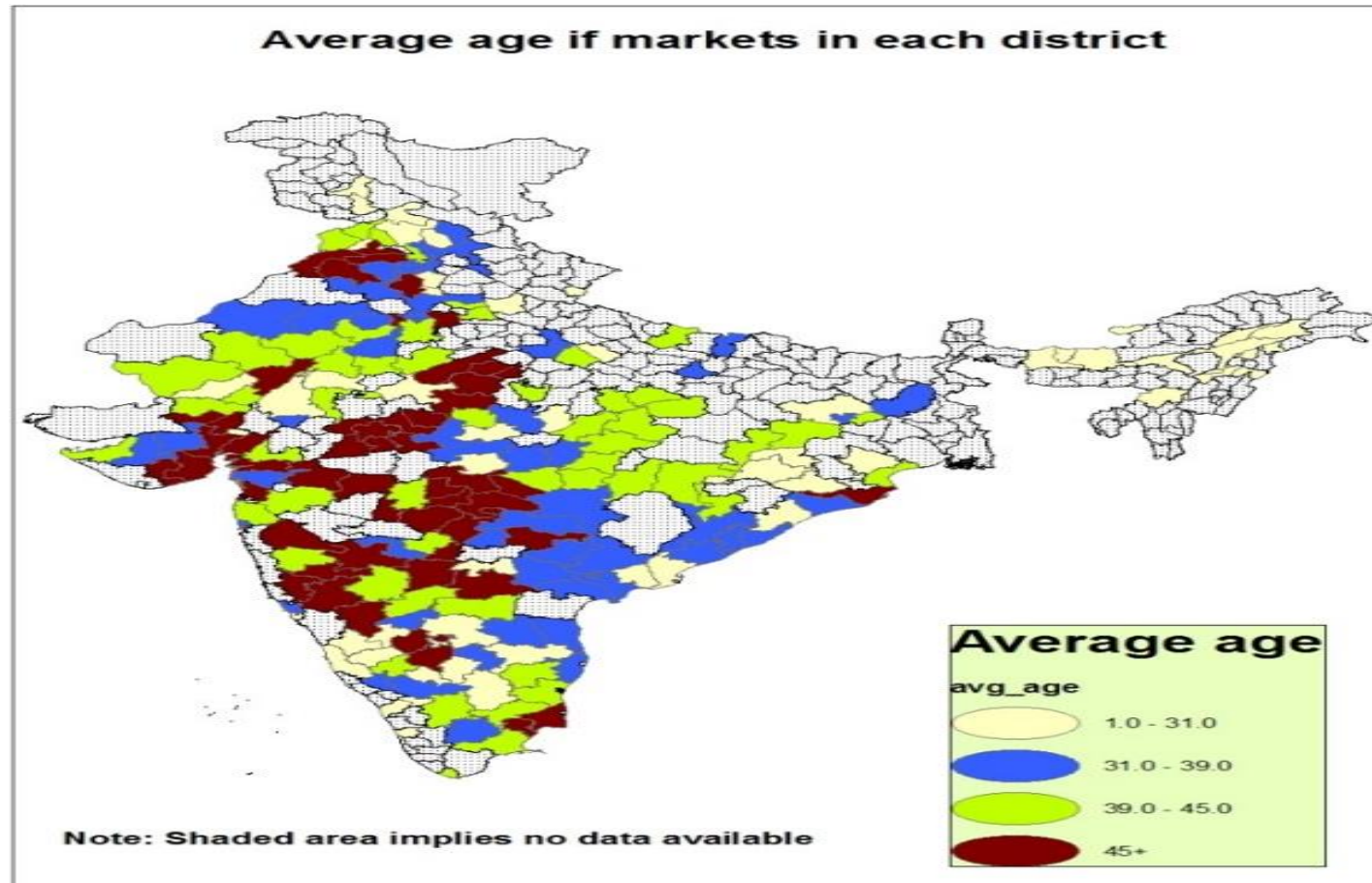
Maharashtra	All agricultural commodities are exempted from Sales Tax	3.8	Entry fee - Rs.10/truck.
Punjab		14.5	
Rajasthan	F & V—nil, Foodgrains—4% Pulses & Oilseeds—2% Coarse grains--nil	3.6	Surcharge on Sales Tax -15%
Tripura	Nil (for all agricultural commodities)		Entry fee Rs1 /head
Uttar Pradesh	Foodgrains-4% Pulses-2% Oilseeds & Others- 4%	16.71	
Uttarakhand		7.5	
West Bengal	NA	2.5	Purchase Tax Jute -4 %

Market density

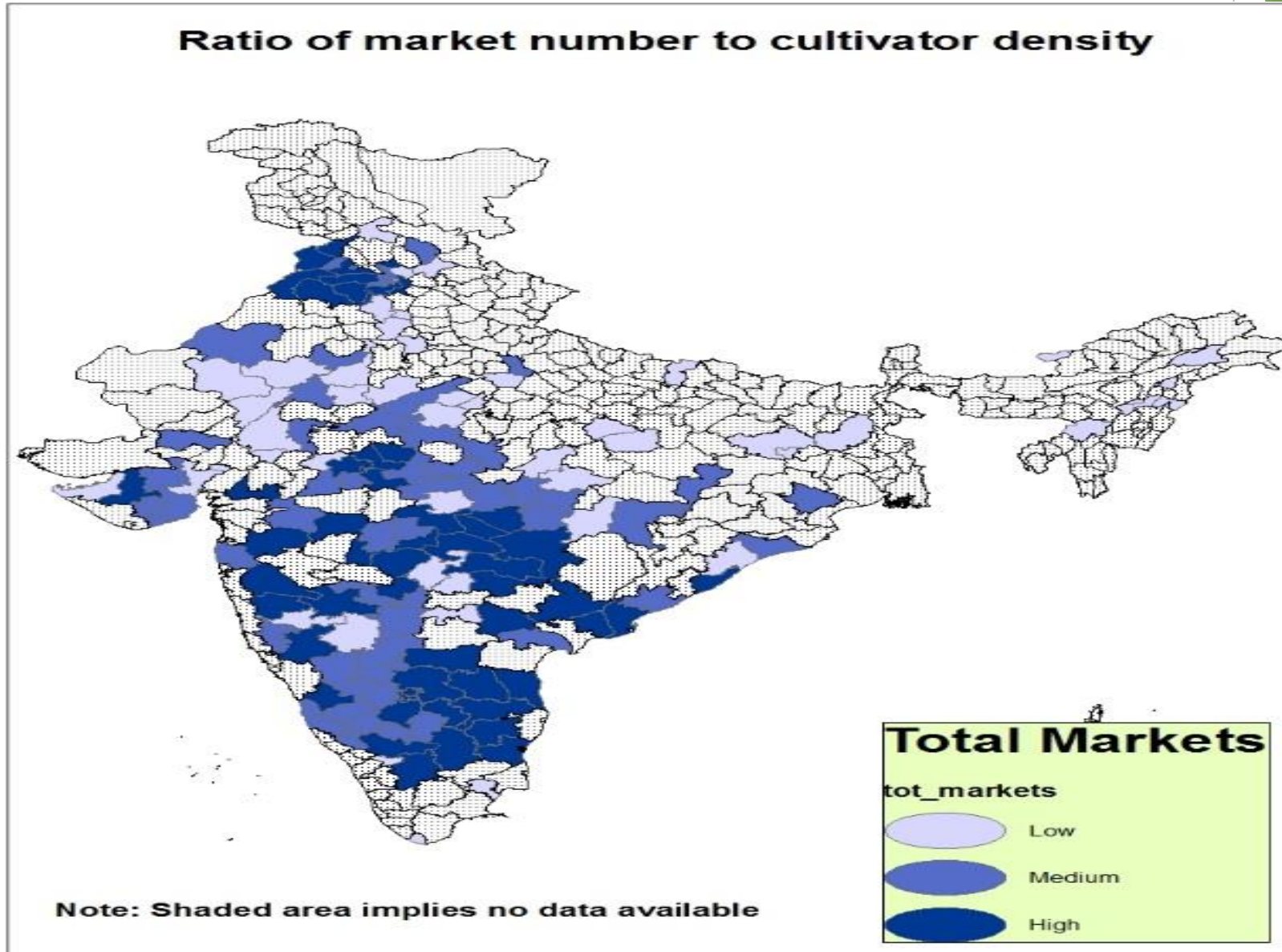
▶ States	Regulated Market	Area Served by Each Market (SqKm)	Population Served
▶ Andhra Pradesh	905(1)	304(4)	84210 (4)
▶ Maharashtra	880 (2)	350 (6)	110089 (6)
▶ West Bengal	684 (3)	130 (2)	117282 (10)
▶ Uttar Pradesh	605 (4)	398 (9)	274707 (17)
▶ Madhya Pradesh	517 (5)	596 (13)	116799 (8)
▶ Karnataka	504 (6)	381 (7)	104862 (5)
▶ Punjab	488 (7)	103 (1)	49916 (2)
▶ Rajasthan	431 (8)	794 (16)	131107 (13)
▶ Gujarat	414 (9)	473 (11)	122394 (12)
▶ Orissa	314 (10)	496 (12)	117212 (9)
▶ Tamil Nadu	292 (11)	445 (10)	213718 (16)
▶ Haryana	284 (12)	156 (3)	74453 (3)
▶ Assam	226 (13)	347 (5)	117945 (11)
▶ Jharkhand	201 (14)	397(8)	134059(14)
▶ Chhattisgarh	185 (15)	731 (15)	112615 (7)
▶ Arunachal Pr.	129 (16)	649 (14)	8511 (1)
▶ Uttarakhand	58(17)	963 (17)	146368 (15)

Readiness of the backend for NAM- new markets lacking

- Few new markets have come up- map shows the old markets that were concentrated in few areas - blank shows no data

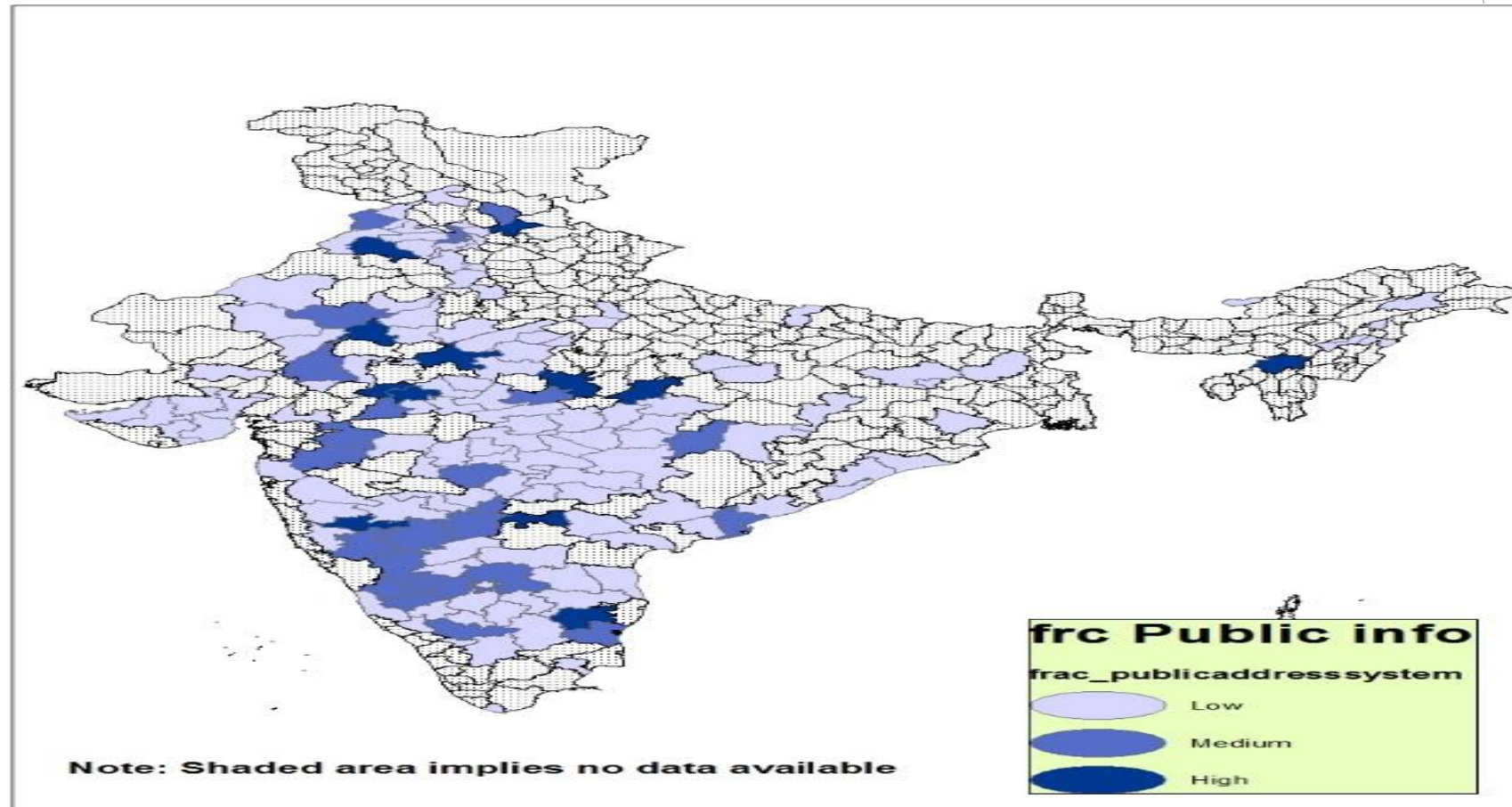


Different normalizations for density- markets that would make up back end are thin

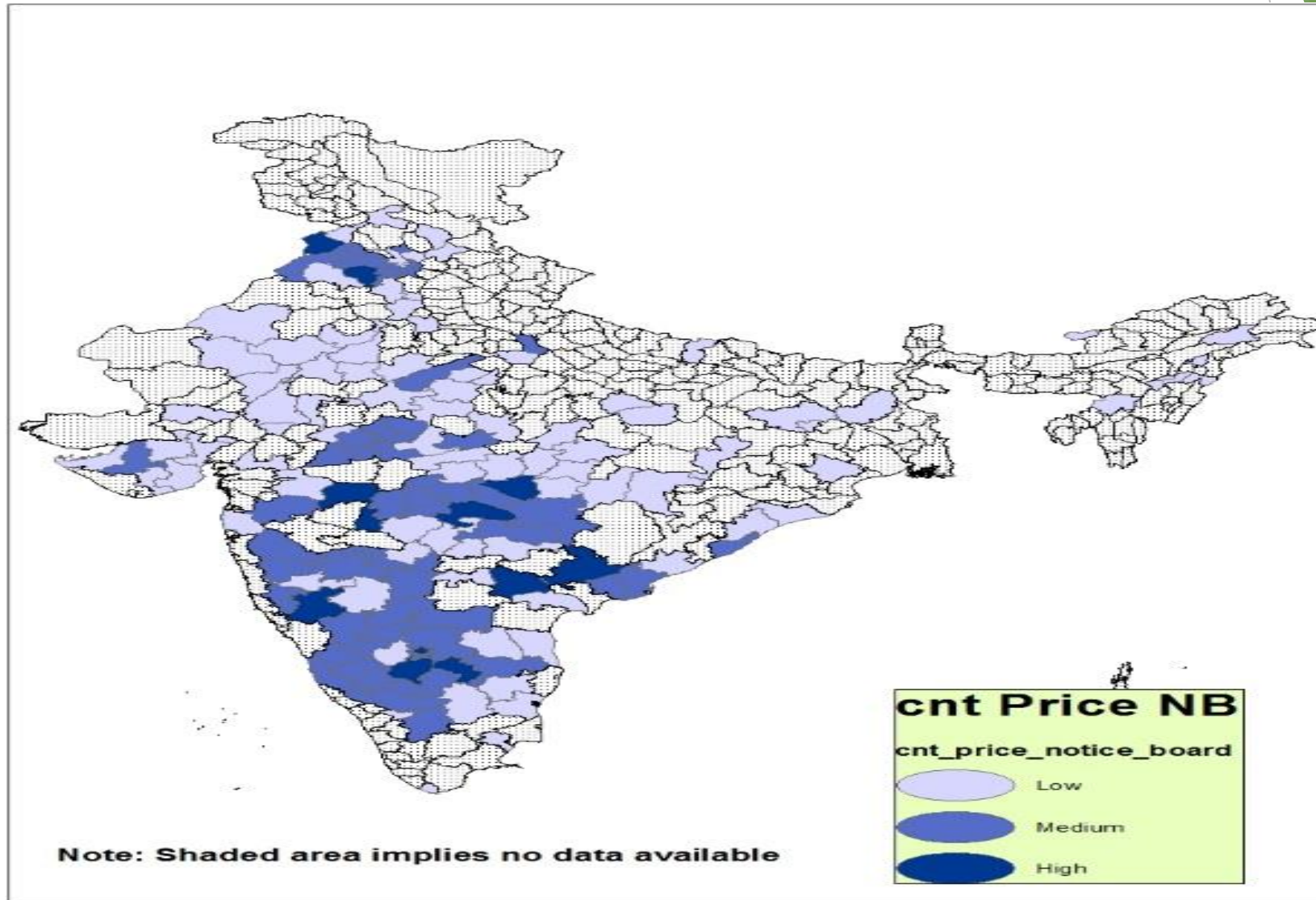


Looking at different infrastructure- presenting some for illustration

- Simple as a public information system



Price notice board



The story on infrastructure

- ▶ Level of infrastructure quite low - we have mapped across many indicators of infrastructure, presented the state on simplest ones
- ▶ grading units are available in less than 1/3rd of the markets and only 9% of markets have cold storage units.
- ▶ Less than half of these markets have covered market yards for auction and only a few of those have electronic weighbridges.
- ▶ An e-trading system cannot function properly without other necessary mandi specific infrastructure
- ▶ NAM funds won't cover anything apart from the hardware needed for the e-platform.
- ▶ NAM would require lot of up gradation around here
- ▶ There is sheer shortage of storage and information systems
- ▶ No robust method of quality maintenance and certification
- ▶ Food would certainly require grading and certification if traded across far distance
- ▶ Who will do it if mandis have to they are far from it

Upgrading infrastructure

- ▶ FDI in wholesale has been quite liberal
- ▶ Yet not much has happened
- ▶ We believe that the public good side of it is lagging behind (power, roads, certification systems) that can foster private investment
- ▶ Preliminary results show that market volumes not a significant correlate of infrastructure
- ▶ State fixed effects are quite important in preliminary regressions

Research gaps

- ▶ India is unique large country where there is no data on intra country movement of goods and services
- ▶ Need trade patterns analysis like gravity model
- ▶ Also market development and its impact on agriculture under-researched
- ▶ We need research else gut feeling kind of discourse as in GST
- ▶ GST and NAM interface has to be studied rigorously some research has started on it

Policy moves on agri market reform

- ▶ Amendments were suggested by an Expert Committee on Market Reforms (MoA, 2001).
- ▶ The finalized rules were circulated to all the states in 2003, which then became the Agricultural Produce Marketing Model Act for implementation by the states, as the agricultural marketing is a state subject.
- ▶ suggested amendments include the establishment of private markets and public private- partnerships, encouragement of contract farming, permitting commodity exchanges, etc.
- ▶ Specifically, Section 79 of the model Act 2003 envisages the development of media, cyber and long distance infrastructure relevant to marketing and e-trading of agricultural and allied commodities.

Revisiting NAM

- ▶ Under e-NAM, farmers will initially be able to sell their produce through 'mandis' within the state. It will then be extended as a pan-India operation by 2017, allowing farmers to sell their produce to any wholesale market across the country.
- ▶ The facility will eventually link as many as 585 mandis in India by March 2018
- ▶ Liberal licensing of traders / buyers and commission agents by State authorities without any pre-condition of physical presence or possession of shop / premises in the market yard.
- ▶ One license for a trader valid across all markets in the State.
- ▶ Harmonisation of quality standards of agricultural produce and provision for assaying (quality testing) infrastructure in every market to enable informed bidding by buyers. Common tradable parameters have so far been developed for 25 commodities.
- ▶ Single point levy of market fees, i.e on the first wholesale purchase from the farmer.
- ▶ Provision of Soil Testing Laboratories in/ or near the selected mandi to facilitate visiting farmers to access this facility in the mandi itself. M/s. Nagarjuna Fertilizers and Chemicals Ltd. is the Strategic Partner (SP) who is responsible for development, operation and maintenance of the platform.
- ▶ The broad role of the Strategic Partner is comprehensive and includes writing of the software, customizing it to meet the specific requirements of the mandis in the States willing to integrate with NAM and running the platform.

Condition for implementation of NAM

- ▶ The concept though does not propose to change the basic state supported marketing structure but calls for their integration to the national marketing system.
- ▶ The speedy implementation of the scheme will require political will, availability of infrastructure, participation of private sector and willingness of stakeholders to participate.
- ▶ The implementation of the concept will be particularly challenged by a few legal restrictions.
- ▶ ***APMC Act***
- ▶ The agricultural produce markets in different states are regulated by APMC Acts of their respective states. Each state is having different provisions under its Act.
- ▶ The provisions defined under these Acts create legal barriers to the inter-state trade and physical movement of goods viz (a) Taxation Related Barriers (variation in rates, applicability of VAT, levy of market fee at multiple point, etc.); (b) Physical Barriers (Essential Commodities Act, Check Posts, APMC Regulations, etc.); and (c) Statutory Barriers relating to licensing and registration of traders, commission agents.

ECA

- ▶ List of commodities under the act has reduced from 54 to 7 at present
- ▶ Petroleum and its products, including petrol, diesel, kerosene, Naphtha, solvents etc
- ▶ Food stuff, including edible oil and seeds, vanaspati, pulses, sugarcane and its products like, khandsari and sugar, rice paddy
- ▶ Jute and textiles
- ▶ Drugs- prices of essential drugs are still controlled by the DPCO
- ▶ Fertilisers- the Fertiliser Control Order prescribes restrictions on transfer and stock of fertilizers apart from prices
- ▶ Essential Commodity Act is a much broader concept than the APMC
- ▶ Gives power to both center and state to control production, supply, distribution, pricing and stock
- ▶ APMC can control only the first sale of agricultural commodity

PROGRESS OF IMPLEMENTATION (as on April 2016)

- ▶ The Project Appraisal Committee (PAC) has so far given in-principle approval to DPRs from 12 States.
- ▶ Releases have been made to Gujarat, Telangana, Jharkhand, Chhattisgarh, Rajasthan and partially to Madhya Pradesh. So far, projects from the following States have been appraised

Status as in April 2016

Status of proposal from States which have been granted in principle approval as of April 2016

State /UT	No. of Mandis	Proposal Cost (Rs. in crore)	Maximum Admissible assistance (Rs. in crore)
Gujarat	40	27.86	12.00
Maharashtra	30	16.74	9.0
Telangana	44	13.264	12.165
Jharkhand	19	5.92	5.70
Chhattisgarh	05	2.58	01.50
Madhya Pradesh	50	35.21	15.00
Rajasthan	25	18.80	7.50
UT of Chandigarh	01	2.01	0.30
Haryana	54	38.62	16.20
Himachal Pradesh	19	5.70	5.70
Uttar Pradesh	66	32.94	19.80
Andhra Pradesh	12	3.88	3.60

Progress on NAM

- ▶ To facilitate assaying of commodities for trading on NAM, common tradable parameters have been developed for 25 commodities.
- ▶ NAM was launched for trading on 14th of April, 2016 in 21 markets in 8 States on Pilot basis in the following mandis

State and commodity in the pilot

State	APMC	District	Commodities proposed
Gujarat	Patan, Botad, Himmatnagar	Patan, Bhavnagar, Sabarkantha	Castor seed, Black gram and Wheat
Telangana	Tirumalagari Bhavnagar, Nizamabad, Badepally, Hyderabad, Warrangal	Nalgonda, Nizamabad, Mahboobnagar, Hyderabad, Warrangal	Paddy, Turmeric, Maize, Onion, Maize
Rajasthan	Ramganj Mandi	Kota	Black Gram
Madhya Pradesh	Karond, Bhopal	Bhopal	Black Gram
Uttar Pradesh	Sultanpur, Lakhimpur, Lalitpur, Bahraich, Saharanpur, Mathura	Sultanpur, Lakhimpur Kheri, Lalitpur, Bahraich, Shahrampur, Mathura	Wheat, Wheat, Wheat, Wheat, Wheat, Wheat
Haryana	Ellanabad, Karnal	Sirsa, Karnal	Mustard, Wheat
Jharkhand	Pandra, Ranchi	Ranchi	Flower
Himachal Pradesh	Solan, Dhalli, Shimla	Solan, Shimla	Shelling Peas, Shelling Peas

Constraints in NAM

- ▶ Setting up NAM faces constitutional, infrastructural, cultural and market hurdles.
- ▶ Constitutional-7th Schedule of Constitution puts Agriculture, Trade & commerce within state and Markets & fairs in State List (List-II), among 61 items that fall under the legislature of state governments.
- ▶ Implies that state governments legislate in matters concerning agricultural markets and central government is restricted from imposing any laws on this matter on the States under normal circumstances.
- ▶ Multi-layered tax regime in the form of commission charges, market fee, octroi/entry tax, sales tax, weighing charges and labour charges for handling, loading and unloading.
- ▶ These taxes vary from 3% to 18% from state to state and from commodity to commodity creating a highly fragmented market structure that imposes a number of restrictions in the free flow of agricultural goods.

Critical steps - regulation (Assocham 2012)

- ▶ Regulatory environment - consensus amongst states.
- ▶ State-wide licence of buyers. Simplifying licence conditions.
- ▶ Reciprocal recognition of licences - licence granted by a state recognised by others, leading to a national licence (similar to NPs in transport)
- ▶ Multiple individual regulation - morphing into a common regulatory mechanism

Price discovery (Assocham 2012)

- ▶ Manual auction system - time consuming, every lot does not get an equal chance to be bid
- ▶ Less competition - prone to cartelization.
- ▶ Farm gate prices never known - bilaterally negotiated
- ▶ Adjacent market prices not known on time for selling decisions

Issues on quality

- ▶ Quality of produce not determined scientifically
- ▶ Asymmetric information - farmer knows quality and buyer the prevailing price
- ▶ Farmers - incentive to bring without cleaning and sorting.

Payment uncertainty (Assocham 2012)

- ▶ No standard payment cycle - varies from same day to a fortnight or even more
- ▶ Payment in many markets - after secondary sale. Working capital of trader funded by the farmer
- ▶ Same day payment - at a discount
- ▶ Could be in instalments

Questions to ask

- ▶ What would it be for small and marginal farmers if not government markets?
- ▶ How to get market efficiency?
- ▶ Why is there no visible impact in states that diluted or got rid of APMC. Why did the private markets not come up?
- ▶ How can we address market structure issues?

Essential Commodity Act, APMC and Model APMC

Inadequacies of Model APMC-Still steps behind from forming a common market

- ▶ Provisions under model APMC are not sufficient enough to create a national or even a state level common market for agricultural commodities
- ▶ Mandatory requirement of buyers having to pay the APMC charges even if the produce is sold directly outside the APMC area is retained
- ▶ It does bar the APMCs and commission agent to deduct the commission charges/market fee from the seller
- ▶ The incidence of these fees falls on the farmers as buyers would discount their bid to the extent of fees charged by the commission agents
- ▶ Model APMC is not adequate enough to create competition among the APMCs even within the states

Constitutional Provision to set up the Common Market

- ▶ Constitution of India empowers states to enact APMC act under the List II of Seventh Schedule viz,
- ▶ Entry 14 'Agriculture', entry 26 Trade and Commerce within state & entry 28 'Markets and Fairs'
- ▶ Entries in list III of Seventh Schedule in the constitution can be used by the union to enact legislation to set up a national common market
- ▶ Entry 33 covering trade and commerce and production, supply and distribution of food stuffs & entry 42- Inter State Trade and Commerce allows a role for union

NAM through Agri-Tech Infrastructure Fund

- ▶ CCEA approved setting up of NAM through Agri-Tech Infrastructure fund on 1st July'2015
- ▶ Budget of Rs.200 crore to be implemented between 2015-16 to 2017-18
- ▶ SFAC will implement the national e-platform and will cover 200, 250 and 135 mandis during 2015-16, 2016-17 and 2017-18 respectively
- ▶ Department of Agriculture, Cooperation & Farmers welfare (DAC& FW) will meet expenses on software and its customization and provide it free of cost to the States & UTs
- ▶ DAC&FW will also provide grant as one time fixed cost subject to a ceiling of Rs. 30 lakhs per mandi for in 585 regulated mandis for installation of e-market platform (infrastructure and equipment)