INDIA EXIM BANK
International Economic Research
Annual Award

India Exim Bank

MANDIS, COMPETITION, AND FARMER INCOMES IN INDIA

BASED ON THE DOCTORAL DISSERTATION TITLED

ESSAYS IN TRADE AND DEVELOPMENT ECONOMICS

Occasional Paper No.: 200

Export-Import Bank of India

Occasional Paper No 200

Mandis, Competition and Farmer Incomes in India

Based on the Doctoral Dissertation titled 'Essays in Trade and Development Economics'

This occasional paper is based on the first two chapters of the doctoral dissertation titled "**Essays in Trade and Development Economics**" selected as the award-winning entry for the Exim Bank International Economic Research Award 2019. This dissertation was written by Dr. Shoumitro Chatterjee, currently Assistant Professor of Economics at the Department of Economics of The Pennsylvania State University, USA. Dr. Chatterjee is also a non-resident visiting scholar at the Center for the Advanced Study of India, University of Pennsylvania, USA and a visiting fellow at the Center for Policy Research, New Delhi. Dr. Chatterjee received his PhD degree in Economics from Princeton University, USA, under the supervision of Prof. Esteban Rossi-Hansberg, Princeton University.

CONTENTS

LIST OF FIGURES

LIST OF TABLES

EXECUTIVE SUMMARY

A long-standing view in India has been that inefficient intermediaries contribute to low farmer incomes as they exert market power. Two facts in the data fuel this belief. First, despite massive improvement in infrastructure, roads, and communication costs, spatial variation in prices of agricultural commodities has not declined. This should have been the case if law of one price with perfect competition is to be taken seriously. Second, in the data there exists large wedges between wholesale and retail prices of agricultural commodities and these are indicative of large mark-ups that intermediaries charge.

The monopsony rights to regulate trade of agricultural produce provided to the intermediaries by the Agricultural Produce and Marketing Committee (APMC) acts of various states of India is believed to be the reason behind the market inefficiencies and the market power of intermediaries. Based on the above understanding, the Government of India on 15th May, 2020 announced three major policy reforms to further its goal of doubling farmer incomes. First, a proposed amendment to the Essential Commodity Act that would deregulate foodstuff and stock limits would be applicable in exceptional circumstances. Second, a proposed formulation of a central law that would not bind the farmers to licensed traders in APMC Mandis and remove barriers to inter-state trade. Third, facilitating a legal framework for contract farming.

This paper studies a particular slice of the very complex problem of low farmer incomes. In particular, it examines the economic consequences of the second reform – i.e. removal of inter-state barriers to trade. In order to understand the economic consequences of a trade liberalization, it is imperative that we first understand the economic mechanism through which such a reform will operate.

The key economic mechanism proposed in this paper is that of spatial competition. The idea is that when many buyers (intermediaries) bid for a seller's (farmer's) produce, they are likely to get a higher price. If there are few buyers, competition is low, and therefore the offered price is low. This mechanism also operates in a spatial context.

In India, trade of grains takes places mostly in APMC markets or mandis. Imagine two districts, one with few mandis and the other with many. Where are prices going to be higher on average, other things being equal? Suppose a farmer negotiates with the intermediaries in a mandi and they don't offer the farmer a good price. The alternative the farmer has is to go to a nearby mandi and try his luck there. Therefore, the other alternative mandis are the farmers' "outside option" or "threat point". What the farmer can get in an alternative market is the threat he can use to get a better price in any negotiation. This outside option is presumably larger when there are many alternative markets and hence in a district with many mandis the average price that the farmer gets is likely to be higher.

The paper first establishes that this is indeed the case in the data. By using micro data on location mandis and prices of various commodities the paper shows that a one standard deviation increase in market density causes prices received by farmers to increase by about 3%. Having established that the main mechanism has an empirical bite, the paper then proceeds to study the effects of removal on inter-state trade barriers to agricultural produce.

The economic mechanism at play when inter-state barriers to agricultural trade are removed is the following. For farmers living close to state borders, this is like an increase in their outside option. In particular, now while negotiating with intermediaries they can claim to have access to a larger set of buyers. Thus, to a first order, one would expect an increase in prices at least for farmers closer to state borders.

However, the force of spatial competition is stronger. Once prices in mandis close to state borders increase, farmers negotiating in mandis slightly farther from borders also have greater outside option. This is because for them, the border markets are the "alternatives". It is observed that spatial competition between mandis is an important determinant of the prices that farmers receive in India. Thus, almost via a diffusion process, removal of interstate barriers can increase prices in mandis even in interiors of states. However, the magnitudes might be small since this diffusion is discounted by costs of transportation. It is found that increasing spatial competition by one standard deviation causes prices received by farmers to increase by about 3%.

This is not where the story ends. Once farmers get better prices, they can afford to use better inputs like seeds, fertilizers, pesticides etc. This can then contribute to an increased agricultural output contributing to further increase in incomes. However, there can be a final negative force. Once supply of agricultural output increases in the economy, it will push down retail prices that would lower the overall value of agricultural surplus. Thus, will have a dampening effect on farmer incomes.

Quantitatively, how large can each of the above forces be? In particular, what are the distributional consequences going to be – i.e. which are the regions where farmer incomes may actually decline and by how much? To answer this question this paper proposes a spatial model of bargaining and trade that flexibly captures these forces.

The paper simulates the effects of a removal of the interstate trade restriction. Results suggest that this would increase competition between intermediaries substantially, thereby increasing the prices farmers receive and their output. Quantitative estimates from the model suggest that inter-state trade restrictions can increase farmer prices by about 11% on average. This price response has the potential to trigger a productivity improvement as farmers invest in better intermediate inputs like seeds and fertilizers. Average crop output could increase by 9% on average. The value of the national crop output would therefore increase by at least 18%. The increased crop supply can however have an unintended negative consequence. As farmers increase supply of crops, that triggers a downward response of consumer prices. This although increases consumer welfare but could reduce farm incomes in certain locations. The model estimates suggest that compared to the overall gains, the negative effects are small and as such average prices in the country would still increase by 9%. A small fraction of the farmers would lose and get about 10% lower prices than before. Thus, as is standard in any neo-classical trade model, a reform of the agriculture sector will create winners and losers. The study helps in learning about the mechanisms, and quantify the magnitude and locations of the costs and benefits.

The key policy implications of this study are the following:

- Although there is evidence of market power, the quantitative estimates are moderate.
- Potential gains from removal of interstate border restriction are in the 9-10% range in terms of revenue.
- There are definitely some farmers who benefit much more.
- Moreover, the study points out that there are important distributional consequences that the policy maker should worry about.
- This happens because increased competition can actually hurt farmers in certain regions as retail prices adjust downwards in response to improved agricultural productivity.

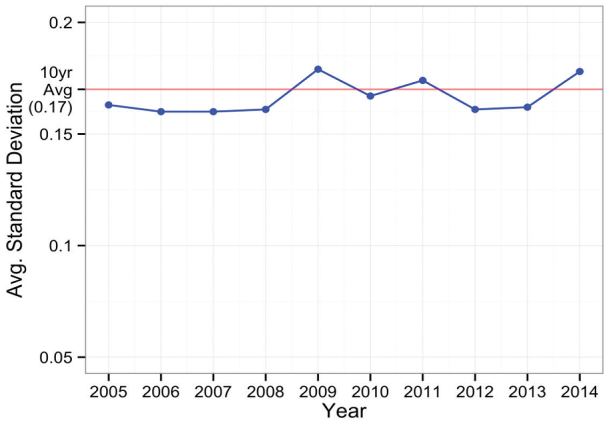
One must also note that the above conclusions are subject to certain key assumptions which may not hold in the real world. Although economic models are great in teaching us about potentially unknown mechanisms, policy making must deeply rely on local and institutional knowledge and how those might alter these results. The economic model of this paper takes the institutions, the political economy of rural India as given. That is, this paper does not allow the politics to respond to the policy. Moreover, to estimate increased productivity it is assumed that key inputs like seeds and fertilizers can be obtained at competitive prices which again may be subject to limits.

1. INTRODUCTION

Farm incomes in India are amongst the lowest in the world. Farmers' incomes are low partly because agricultural yields in many regions of the country are low and because farmers get low prices for their output. It is believed that middlemen, commission agents (also known as arthiyas) or intermediaries who buy produce from farmers exercise market power and that is one reason of a low-price realization by farmers. It has been argued that regulations on trade of agricultural produce under the Agricultural Produce Marketing Committee (APMC) Acts of various states is a key driving force that allows intermediaries to exert market power.

One fact in the data that starkly highlights this is spatial variation in prices. **Figure 1** plots the average spatial variation in prices of various agricultural commodities across *mandis* in India during the period 2005-2014. This is the period when India witness large reductions in transport costs and communication costs. Law of one price would imply that the spatial variation in prices should thus have declined over time. However, as **Figure 1** shows, there was no reduction is spatial disparities in prices in this period.

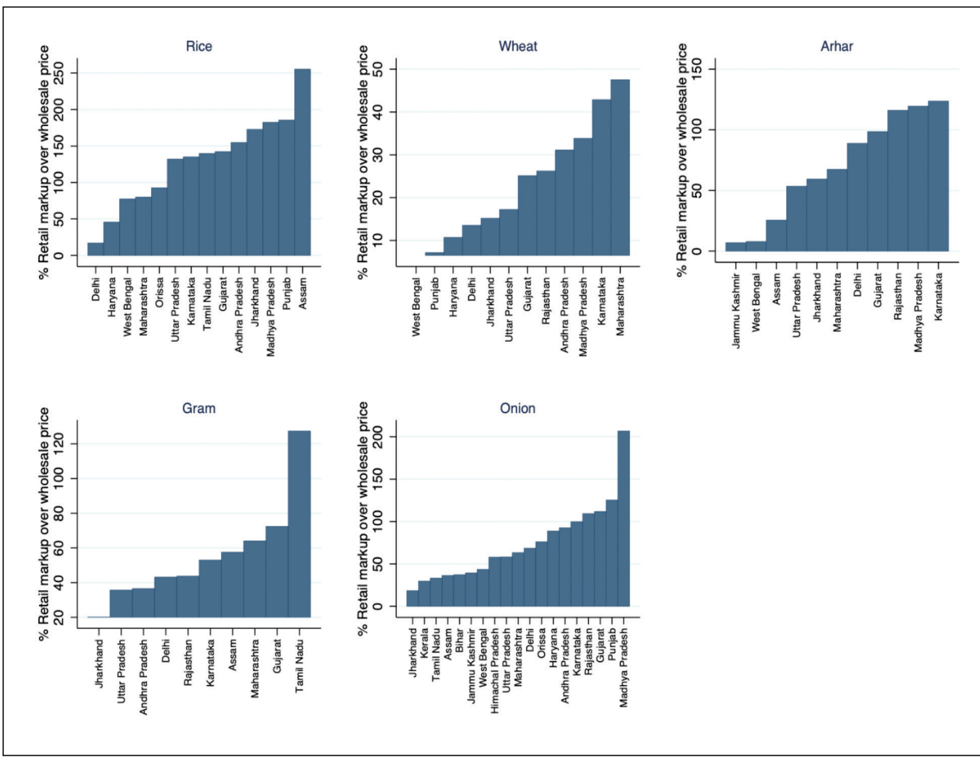
Figure 1: Spatial Variation in Prices of Agricultural Commodities Across Mandis in India



Source: Chatterjee and Kapur (2016)

How large could potential losses to farmers be? Many studies have tried to answer this question by computing large wedges between wholesale and retail prices (see **Figure 2**). The argument goes that if only policy could get rid of the inefficient intermediaries and thus reduce these mark-ups farmer incomes would rise. Note however that both **Figure 1** and **Figure 2** are draw with a key assumption that commodities across space can be compared. In other words, both figures do not account for any quality differences in commodities that might drive a wedge in their prices.

Figure 2: Wedge Between Retail and Wholesale Prices



Source: Economic Survey of India 2015-16

Nevertheless, based on the above understanding, the government of India on 15th May, 2020 announced three major policy reforms to further its goal of doubling farmer incomes. First, a proposed amendment to the Essential Commodity Act that would deregulate foodstuff and stock limits would be applicable in exceptional circumstances. Second, a proposed formulation of a central law that would not bind the farmers to licensed traders in APMC Mandis and remove barriers to inter-state trade. Third, facilitating a legal framework for contract farming. While several experts have said that these reforms are important enough to be the "1991 moment" for agriculture in India[1], others have advised caution[2] stating the need for regulatory intervention to cure deeper structural problems.

This paper examines a particular slice of what is a very complex problem – that of low farmer incomes due to limited market access. Using microdata from India on locations of intermediary markets, prices, and data on agricultural production, this paper studies the importance of spatial competition between mandis for farmer incomes and production. Key to the approach are the Agriculture Produce Marketing Committee Acts that regulate agricultural trade within states. The analysis has two parts. In the first part of the paper it is established that spatial competition between intermediaries is an important determinant of price realization. A key challenge here is to credibly measure spatial competition which is solved by appealing to the monopsony rights of the APMC markets and their fixed spatial location.

In the second part of the analysis, the implications of removal of inter-state trade barriers – which is one of the reforms announced by the government, are studied. This is done by developing a spatial model of trade in agricultural markets in India. The model uses the economic geography and flexibly captures the determinants of spatial competition. In the framework, post- harvest, farmers optimally choose a mandi to sell their output. At the mandi, they Nash-bargain with the associated intermediary who in turn sells the purchased goods in the local retail market. When farmers bargain with an intermediary at a market, they alternatively consider transporting their goods to another market nearby and selling at a higher price. Geography and policy create spatial variation in the farmers' outside options, and therefore, spatial variation in the degree of market power that intermediaries can exert.

Quantitative estimates from the model suggest that inter-state trade restrictions can increase farmer prices by about 11% on average. This price response has the potential to trigger a productivity improvement as farmers invest in better intermediate inputs like seeds and fertilizers. Average crop output could increase by 9% on average. The increased crop supply can however have an unintended negative consequence. As farmers increase supply of crops, that triggers a downward response of consumer prices. This although increases consumer

[1] https://indianexpress.com/article/india/freeing-up-the-farmer-govt-to-ease-curbs-on-trade-open-up-markets-6412147/ and https://indianexpress.com/article/opinion/columns/economic-package-agriculture-relief-fund-farmers-nirmala-sitharaman-ashok-gulati-6414759/

[2] https://indianexpress.com/article/opinion/columns/apmc-reform-law-nirmala-sitharaman-coronavirus-package-farmers-6421502/

welfare but could reduce farm incomes in certain locations. The model estimates suggest that compared to the overall gains, the negative effects are small and as such average prices in the country would still increase by 9%. A small fraction of the farmers would lose and get about 10% lower prices than before. Thus, as is standard in any neo-classical trade model, a reform of the agriculture sector will create winners and losers. The study helps in learning about the mechanisms, and quantify the magnitude and locations of the costs and benefits.

This paper contributes to a large empirical literature that measures market power of intermediaries in agricultural markets (surveyed in Dillon and Dambro, 2016) that provides mixed evidence, with some papers estimating sizable market power of intermediaries (Bergquist, 2017; Casaburi and Reed, 2016) and others finding that it is not so much (Fafchamps et al., 2006). This body of work has focused on testing competitiveness of particular agricultural markets without regard to their spatial locations. Papers either estimate pass-through rates at markets (e.g. Bergquist, 2017; Casaburi and Reed, 2016), directly measure margins of traders (Fafchamps and Minten, 2002), or account for the entry and exit of intermediaries (Fafchamps et al., 2005). This paper shows that the interaction of economic geography with spatial competition can generate spatially varying market power for intermediaries. It, therefore, provides a possible rationale for isolated studies finding different estimates of the market power of intermediaries.

There are three related papers on agricultural markets in India. Banerji and Meenakshi (2004) and Meenakshi and Banerji (2005) analyze transactions-level data from markets in North India to identify collusion among traders. Mitra et al. (2017) estimate high trader margins in the state of West Bengal. They conclude that their results are inconsistent with long-term contracts between farmers and traders but consistent with a model of ex-post bargaining. While these papers provide useful insights about the working of these markets, this paper further contributes to this literature by using microdata to estimate the spatial distribution of the market power of intermediaries in most of India.

The rest of the paper is organized as follows. The next section presents the institution background and context. The data in described in section 3. Section 4 presents reduced form evidence for the relationship between spatial competition and price realization. Section 5 discusses the structural model and section 6 presents results from counterfactual exercises. Section 7 concludes.

2. AGRICULTURAL TRADE IN INDIA

Agriculture is an important sector of the Indian economy: in 2011, 54.6% of the total workforce was employed in agriculture, and the sector comprised 18.52% of India's total GVA[3]. Eight non-perishable crops—rice, wheat, maize, sorghum, barley, finger millet, pearl millet, and soybean—account for 70% of India's gross cropped area. This restricts attention to these crops.

There are two cropping seasons each year: *kharif* (July to November during the south-west monsoon) and *rabi* (November to March). Some regions also have a third summer crop between March and June. Rice, sorghum, maize, millet, and soybean are primarily grown in the *kharif* season, while wheat and barley are grown in the *rabi* season.

The median Indian farming household operates a small farm of 1.5 hectares and cultivates it with the help of family or village labor. Its net annual income (including personal consumption valued at market prices) is approximately USD 365[4]. Usually, the farmers keep a small fraction of the final crop output for personal consumption and sell the rest to licensed intermediaries in a government-regulated mandi. Many farmers may also sell it to a larger farmer or an intermediary at their farmgate who would in turn take it to the mandi. This study refers to anyone taking the crop to sell at the mandi as a farmer, who may not be the original cultivator. However, the economic forces relevant for price realization at the mandi are applicable to the agent who actually conducts the transaction with arthiyas, commission agents and intermediaries at the mandi. The robustness of results is discussed with respect to the cultivator farmers later.

Thus, the institutional setting is comprised of three economic markets: (a) a market for intermediate inputs for farming; (b) the regulated market where farmers sell their output to government- licensed intermediaries; and (c) the retail markets where the intermediaries sell. The focus of this analysis is the regulated market and the transaction between the farmer and the intermediary.

Present-day trade in agricultural commodities in India is regulated by the autonomous state-level APMC Acts. The APMC Acts mandate that after harvest

[3]Agriculture Statistics at a Glance 2016, Ministry of Agriculture & Farmer Welfare, Government of India.

[4]Economic Survey of India, Ministry of Finance, Government of India, 2016

the *first* sale and purchase of agricultural commodities produced in the state must be carried out in government-designated marketplaces, and buyers of agricultural output must obtain a license from the marketing committee of the marketplace. Thus, these Acts restrict the set of buyers of farmers' output to intermediaries within the state.

3. DATA

Geospatial data on the location of markets and prices of commodities sold in them is necessary to assess the importance of spatial competition between intermediary traders in price determination. To capture the demand side, this should be matched geographically to local retail markets and must capture the local distribution of the population and retail prices. Further, credible quantification of production losses requires fine geospatial data on land productivity, land use, rainfall, and crop choice. Because such a data set is not publicly available, a rich and novel microdata set for India covering the decade of 2005–2014 was assembled by combining data from various sources.

Intermediary Markets: The main data set is comprised of monthly data on the modal price of eight major non-perishable commodities, specifically rice, wheat, maize, sorghum, barley, pearl millet, finger millet, and soybean, sold in any regulated rural agricultural market, along with the village names of the market. This is the price farmers get when they sell in these markets. This was obtained from the Ministry of Agriculture in India. Google Maps API was used to geocode the location of mandis.

This is combined with data on retail prices and production. These data are available only for administrative districts of India. There are 455 districts in the sample considered, so they can substantially capture the spatial heterogeneity.

Retail Prices: Monthly data on retail prices at the district level from the National Sample Survey (NSS) Schedule 3.01(R) - Rural Price Collection Survey (RPC) survey of the Central Statistical Organization of India is used. These data are collected from a fixed set of 603 villages spread across India and are available for the years 2005–2011, except 2008.

Production and Yields: To understand the cropping patterns of a district, data from the National Sample Survey (NSS) Schedule 33 - Situation Assessment Survey of Agricultural Households (Round 70) 2013 is used. This is a large survey of rural agricultural households conducted twice a year, once in each cropping season, in 4529 villages covering 35000 households. Because the survey is representative at the district level, it provides a good estimate of the local cropping patterns.

In addition, estimates of the price elasticity of demand from Deaton (1997) and of local crop yields at the district level for the years 2005–2014, provided by the Ministry of Agriculture of India, are used.

Further the above data on prices, production, and consumption with finer data on land use, land elevation, and distribution of population is matched. In particular, we obtained gridded data on land use from Princeton University's Geospatial Information Systems library, gridded data on land elevation produced by NASA's Shuttle Radar Topography Mission (SRTM), gridded data on rainfall from Willmott and Matsuura (2001), and geocoded data on village population from the Census of India 2001. District level monthly rainfall is computed by taking an inverse-distance weighted average of all the grid points within the boundary of any district.

Sample: For the analysis, the mountainous states of India are excluded because of the difficulty in measuring physical distances. Also excluded are the state of Bihar and all North Eastern states because they do not have an APMC Act, and hence there is no data on market–level prices. Some other territories and islands where agriculture is not practiced on any substantial scale are also exluded. Therefore, the study sample includes 15 states in mainland India covering 89% of the total cropped area and accounting for 90% of total production.

Table 1 presents summary statistics on prices at the market and retail levels. The average variance of farmer prices across markets within crop-month is 0.029. The variance in retail prices across regions, conditional on the crops' being produced in that region, is lower than the variance in farmer prices. The average variance in retail prices across districts within state-crop-month is 0.014, whereas the average variances in farmer prices across markets within state-crop-month is 0.022.

Table 1: Summary Statistics

Log Farmer Prices (Rs. per kg)	
Mean	
Barley	2.24
Finger Millet	2.21
Maize	2.15
Paddy	2.25
Pearl Millet	2.17
Sorghum	2.33
Soybean	2.92
Wheat	2.46
Variance Across Markets, Within crop x month	0.029
Variance Across Markets, Within state x crop x month	0.022
Variance Across Months, Within market x crop x agricultural season	0.003
Log Retail Prices (Rs. per kg)	
Mean	
Barley	2.55
Finger Millet	2.29
Maize	2.18
Paddy	2.11
Pearl Millet	2.20
Sorghum	2.34
Soybean	3.33
Wheat	2.49
Variance across districts, within crop x month	0.053
Variance across districts, within crop x month (Conditional on production)	0.026
Variance across districts, within state x crop x month	0.029
Variance across districts, within state x crop x month (Conditional on production)	0.014
Variance Across Months, Within district x crop x agricultural season	0.002
Standard Deviation of comp (as defined in equation 1)	1.85

4. SPATIAL COMPETITION AND PRICE REALIZATION

The analysis in this section is focused on the regulated marketplace (the mandi) where the transaction between the farmer and the government-licensed intermediary occurs. There are two potential forms of local competition among buyers (i.e. the licensed intermediaries in markets): between and within market sites. This paper focuses on between-market competition because current empirical evidence suggests that intermediaries within a market collude (see, for example, Banerji and Meenakshi (2004) and Meenakshi and Banerji (2005)). This section provides reduced-form evidence to suggest that local competition between market sites increases prices that farmers get for their output (herein after farmer prices).

The hypothesized mechanism influencing farmer prices, which will be explicit in the quantitative model, hinges on a farmer's access to alternative buyers while negotiating with a buyer at a given market site. More markets in the vicinity increase the set of alternatives available to the farmer, increasing the competition faced by the present buyer. Consequently, the farmer is likely to be offered a better price. Therefore, greater competition is likely when alternative markets are closer and there are more of them.

To explore the association between local competition and farmer prices, farmer prices at a particular market site are regressed on a measure of local market density (or local competition faced by a market). Similar to the market access measure in Harris (1954) and Donaldson and Hornbeck (2016), a local competition measure by taking a weighted sum of other markets near a particular market site but in the same state is constructed. The weights are the inverse of distances of the neighboring markets to the origin market. For any market *m*,

$$comp_m = \sum_{j\in\mathcal{M}\setminus\{m\}} \left\{\frac{1}{distance_{mj}}\right\} \mathcal{I}\{state\ of\ m = state\ of\ j\}.$$

M is the set of all markets in the country. As competition (in any market *m*) is driven by a farmer's ease of access to alternative markets, the $comp_m$ measure assigns a greater weight to a closer market. An analogous competition measure for a market site from the markets not in the same state is created, called .

$comp_m$. Under the null hypothesis, this measure should have no association with prices received by farmers at any market site.

The main regression specification takes the following form:

$$log\ p^{f}_{cmdst} = \beta_0 + \beta_1 comp_m + \beta_2 comp'_m + \boldsymbol{X}'_{cdt}\beta_3 + \gamma_t + \gamma_c + \gamma_s + \epsilon_{cmdt}$$

Here, P^{f}_{cmdst} is the price that a farmer receives at market site *m* located in district *d*, state *s*, for crop *c*, at time (month-year) *t*. All price observations are at market-crop-month level. *X* includes controls for district specific time (year) varying controls like crop yields, crop area, population, and district-crop specific rainfall shocks. γ_t is a month-year fixed effect and controls for crop and district invariant unobservables such as macroeconomic shocks, large scale droughts, etc. γ_c controls for crop-specific factors such as crop-specific price levels and national tastes for particular crops. γ_s controls for state-specific and crop-time invariant effects such as state-level policies, relative incomes of states, and local tastes. Since cropping decisions and other shocks are likely to be spatially correlated, robust standard errors clustered at the district level are reported.

Variation in $comp_m$ comes from geographical differences in the placement of markets. Because the local crop production to population ratio drives this variation, controls for local yields, local cropped area, and population are included in the regression model. β_1 is identified from within-state variation in $comp_m$ under the assumption that $comp_m$ is uncorrelated with the residuals. As very little *mandi* construction occurred in the sample period, and due to lack of data on the date of construction of markets, $comp_m$ does not vary over time. Therefore, threats to identification can come only from spatially varying factors, and the specification controls for as many of them as possible. District fixed effects are not included because there are very few markets within a district, and therefore, there isn't enough within-district variation in spatial competition to identify its effect on prices.

Within-market competition is an omitted variable in these regressions and can potentially confound estimates if markets in local areas with a greater market density also have greater within-market competition. In the absence of any data on the number of buyers within a mandi or their transactions, it cannot be controlled directly. However, within-market competition is unlikely to be important because existing evidence points towards collusion among intermediaries within agricultural markets, not only in India (Banerji and Meenakshi, 2004; Meenakshi and Banerji, 2005) but also in other parts of the developing world (Bergquist, 2017). In the Indian context, incumbent intermediaries have also actively tried to prevent entry of new traders (Chand, 2012).

Table 2 reports the regression results. Column 1 reports results from the base specification. The coefficient on competition, β_1, is significant and equals 0.0163. Column 2 also includes crop-time fixed effects, which control for monthly world price shocks, and state-year fixed effects, which control for state-specific income levels and policy changes that vary over time. This does not change the estimate of β_1 much, which now equals 0.0146 and is still significant. The coefficient on out-state competition β_2 is close to zero and not significant in both columns.

The key message is that greater local competition increases farmer prices. A one standard deviation increase in competition increases prices by 2.7%. Moreover, the competition from markets in other states has no impact on prices. To get a sense of the overall magnitude of gains, note that if we removed all border restrictions to trade, the median increase in competition would be 1.6 standard deviations. This would increase prices in half the markets in India by at least 4.4%.

Table 2: Farmer Prices and Local Competition

Dependent Variable:	log price			
	All Markets		Border Markets within 30 km	
	(1)	(2)	(3)	(4)
comp (β_1)	0.0163	0.0146	0.0322	0.0292
	(0.0043)***	(0.0035)***	(0.0154)***	(0.0132)***
comp' (β_2)	-0.0005	-0.0007	-0.0057	-0.0056
	(0.0012)	(0.0009)	(0.0047)	(0.0041)
β_1 - β_2	0.0169	0.0154	0.0381	0.0348
	(0.0041)***	(0.0034)***	(0.0144)***	(0.0123)***
Observations	211963	211954	15838	15751
R-Squared	0.60	0.68	0.57	0.68
State, Crop FE	✓	✓	✓	✓
Month-Year FE	✓		✓	
State-Year, Crop-onth-Year FE		✓		✓

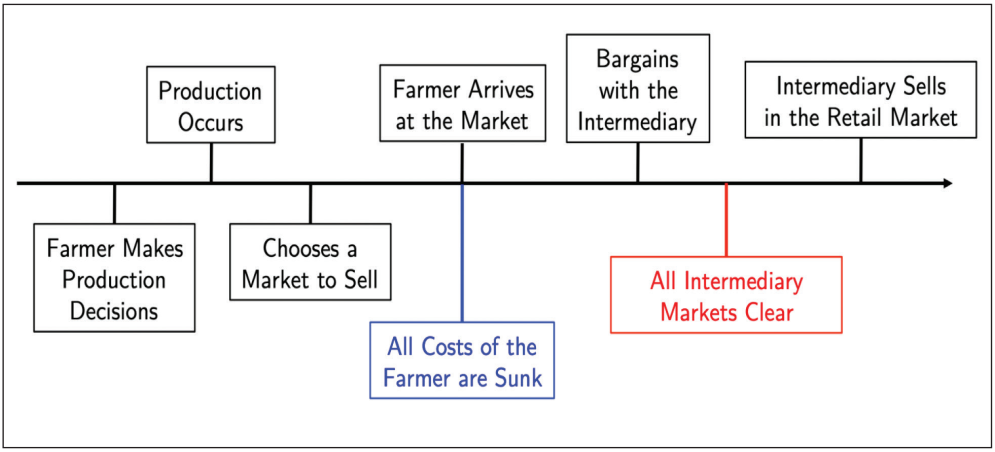
*Notes: Ordinary least squares. Each observation is a crop-market-month-year. All regressions include controls for district-year specific crop-yields, crop area, crop-specific rainfall shocks, and local population. Robust standard errors clustered at the district level reported in parenthesis. Crops in sample are barley, finger millet, maize, paddy, pearl millet, sorghum, soybean and wheat. *p < 0.1, ** p < 0.05, *** p < 0.01.*

5. MODEL

In order to study the quantitative effects of removing inter-state restrictions on agricultural trade, a simple model of trade in agricultural markets in India is developed that will flexibly capture the forces of spatial competition between markets and aid in quantifying the income and productivity effects of border restrictions on trade. Here, the basic structure and the mechanics of the model are described. Readers may refer to Chatterjee (2018) for the precise mathematical model and technical details.

The economy consists of many geographic regions. Within each region there are two types of agents: farmers and intermediaries. Each intermediary is identified with a market. The location of markets is determined exogenously by the government. Each farmer first chooses input levels. After realization of output, he chooses the market where he wants to sell his output. Transporting goods is costly. The price that a farmer receives at a given market is determined by Nash bargaining between the farmer and the intermediary after the farmer has arrived at the market with the output. Intermediaries sell all of the purchased output in the retail market at an exogenously given price. **Figure 3** shows the timing of events.

Figure 3: Timing of Decisions and Events in the Model



This model can be solved backwards from the last stage. Given retail prices, the Nash bargaining process between farmers and intermediaries determine prices received by farmers. An important object in the Nash bargaining process are the outside options or “the threat points” of the agents. This determines what would the agents get if bargaining fails and drives the determination of prices in equilibrium.

The outside option on intermediaries in the bargaining process is zero. This is because, if the bargaining fails, the intermediaries do not get anything. The outside option for the farmer, however, is the best prices they can get in an alternative market, net of transportation costs. Once farmer prices are determined, then their production choices and the choice of which market to sell in are outputs of a simple profit maximization problem.

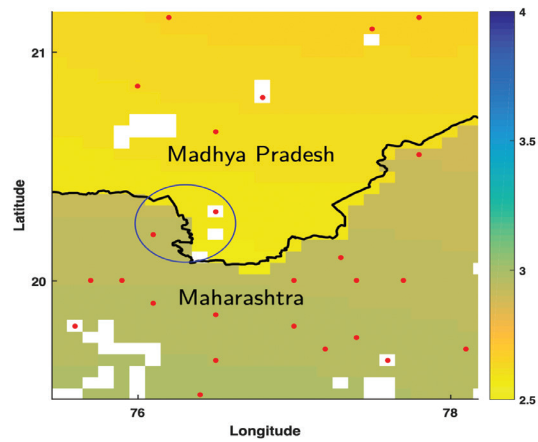
The structural parameters of the model are estimated using a Simulated Method of Moments procedure, the interested reader is again referred to Chatterjee (2018) for further technical details.

6. COUNTERFACTUAL ANALYSIS

The model laid out in the previous chapter allows simulation of changes in farmer prices, production, and revenues as a result of more competition between intermediary markets. In this section, the removal of the restriction on farmers' selling in markets of other states as a convenient experiment to increase spatial competition between intermediary markets is used.

The key mechanism is the following. Consider two markets on the Madhya Pradesh-Maharashtra border marked in **Figure 4**. The farmer living close to the market in Madhya Pradesh gets low prices because competition is low in his local region as the next market is quite far away. Further, this farmer cannot cross the border and sell in Maharashtra. When restrictions on farmers' selling across state borders are removed, these two markets start competing for the farmer's output. This increases prices in both these markets. The farmer, wherever he chooses to sell, is better off. Moreover, these two markets are the "threat points" to other markets nearby. As the prices increase in the border markets, they also increase in other markets and this ripple effect increases prices even in the interior of the states. This is the direct benefit to farmers via an increase in prices. In response to an increase in output prices, farmers also adjust their use of intermediate inputs, and their incomes improve further as a result of increased production. Finally, as a result of changes in production and changes in the market-site where farmers choose to sell, retail prices may adjust and feed back into the prices farmers get.

Figure 4: Illustrative Example



[Figure Notes: The red dots are primary grain markets. The border markets in the example are encircled in blue. The figure also plots the log of soybean prices (Rs. per kilo) received by farmers.]

In the model, this removal of trade restrictions on farmers is equivalent to changing the trade cost between two locations in different states from infinity to what it would be as determined by distance. To study the role of the different channels mentioned in the previous paragraph, four exercises are conducted relaxing one constraint at a time. In the first exercise, retail prices are fixed. All decisions of the farmer are fixed except their threat to sell at a market outside the state. In addition to allowing farmers to offer a different threat, in the second exercise, farmers are also allowed choose a different market to trade in. In a third exercise, farmers are also let to adjust their intermediate input choices to study the change in their crop output. In the final exercise, retail prices at the district level are let to adjust in response to changes in supply to understand medium-run implications for farmer prices and output. The results from these simulated experiments are presented in **Table 3** and are described in detail below.

Table 3: Summary of Counterfactual Exercises

Change in Farmer Prices (in %)	Median		Mean		Mean For the Top 50%		Mean For the Top 25%	
	Fall	Spring	Fall	Spring	Fall	Spring	Fall	Spring
#1: Change the treat point	1.75	2.50	2.74	2.65	4.97	4.50	7.36	5.84
#2: #1+Market Choice	8.35	5.82	12.60	10.72	23.37	20.04	32.67	29.69
#3: #2+Adjust Retail Price	5.98	6.21	9.62	9.56	20.32	19.49	31.70	28.74

When farmers are allowed to issue a bigger threat to the intermediaries in the bargaining process, now including the possibility of being able to sell in mandis outside the state, the average increase in farmer prices is 2.74% and 2.65% in the kharif and rabi seasons, respectively. The average increase in prices for the top 25% of farmers with the largest gains is 7.36% in the kharif season and 5.84% in the rabi season. The maximum increase in prices is 9% and 13% in the kharif and the rabi season, respectively. These increases in farmer prices are purely due to an increase in spatial competition because farmers are not allowed to change any other decision.

When farmers are also allowed to change the actual choice of the mandi they sell in, farmers in most parts of the country are significantly better off. These results are presented in row 2 of **Table 3** and in **Figures 5 and 6**. The price increases are generally larger near state borders and lower in the interior of the states. The average increase in prices is 12.6% in kharif and 10.7% in rabi. The distribution of price increases is, however, skewed. The top 50% of the farmers who experience an increase in prices get 23.37% and 20.04% higher prices on an average in the kharif and the rabi seasons. The largest gains occur in parts of central India.

Figure 5: % Increase in Prices Allowing for Optimal Market Choice in Kharif

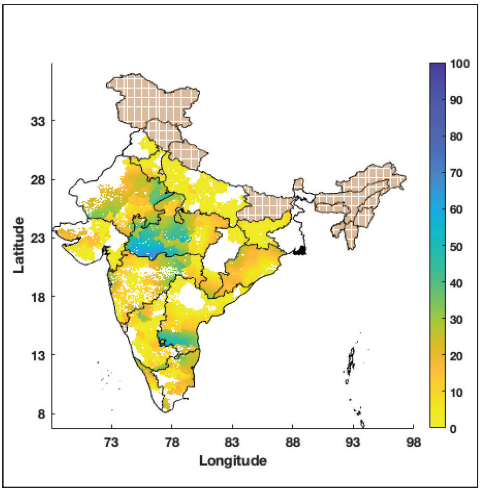
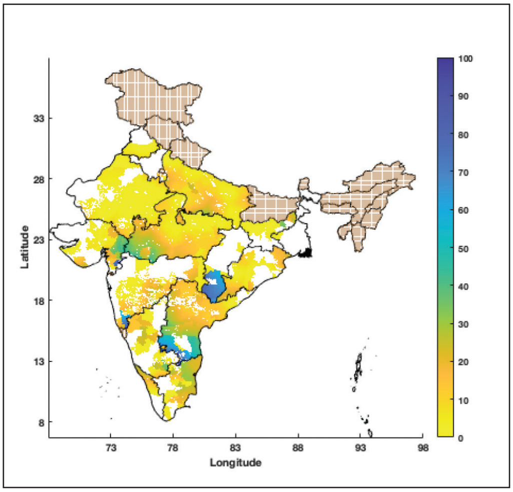


Figure 6: % Increase in Prices Allowing for Optimal Market Choice in Rabi



[Figure Notes: Brown color represents no data and white represents zero gains.]

Next, in response to the changed prices, farmers are allowed to adjust intermediate inputs that would lead to a change in crop output. The model predicts that the new output to the old output ratio is equal to the new price to the old price ratio, raised to a constant less than 1. This constant is a function of the labor and land share in the production function. To compute the total output on each farm – which includes a mix of crops – a Laspeyres quantity index is used.

The average increase in production is 9.1% and 7.75% in kharif and the rabi respectively. The average increase in production for the top 50% of the farmers is 16.9% and 14.46% in the kharif and the rabi seasons respectively. Farmers in less competitive regions use fewer intermediate inputs as a result of low output prices. Therefore, the benefit to farmers from the increase in competition comes from two sources—an increase in prices and an increase in quantities. This leads to an increase in the total revenue of farmers. The aggregate increase in the value of production is 17.3% in the kharif season and 20.9% in the rabi season.

To get overall effects of such a policy change, endogenous retail price adjustments that consumers face taking into account the changes in supply are also allowed. Using demand elasticities from Deaton (1997) and an iterative algorithm the final equilibrium is computed. **Figures 7 and 8**, and row 3 of **Table 3** present the changes in prices incorporating the endogenous adjustment of retail prices for kharif and rabi respectively. Although there are regions in the interior of some states where farmers lose, most farmers gain. The average increase in farmer prices is 9.62% in the kharif season and 9.56% in the rabi season. The average increase in prices for the farmers with above-median changes is about 20%. For the farmers who lose, the average decline in prices is about 10%

Figure 7: % Increase in Prices Incorporating a Demand Side Response - Kharif

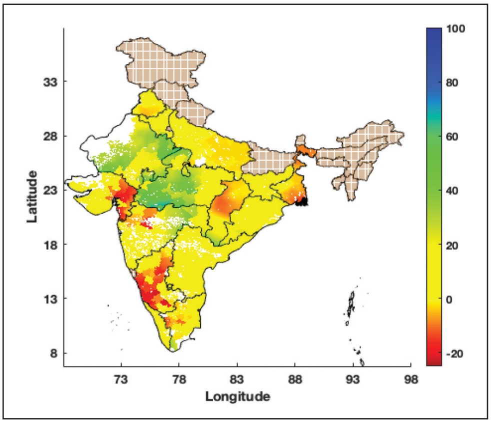
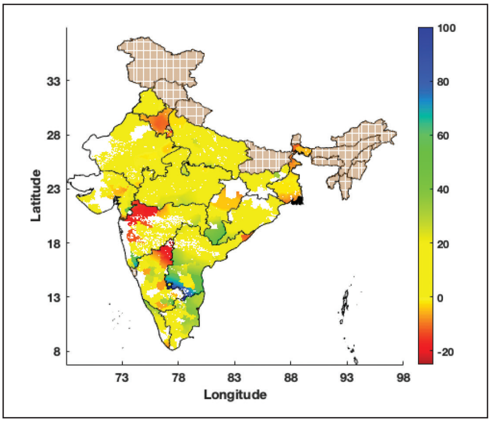


Figure 8: % Increase in Prices Incorporating a Demand Side Response - Rabi



[Figure Notes: Brown color represents no data and white represents zero gains.]

7. CONCLUSIONS

The median annual farmer income in India is low at USD 365 (Ministry of Finance, Government of India 2016). Given large estimated wedges between wholesale and retail prices, it is believed that intermediaries exert market power in agricultural markets. This paper, using unique data on the location of intermediary markets and farmer prices, shows that spatial competition between intermediaries is an important determinant of the prices that farmers in India get for what they produce. High transport costs and policies that limit the ability of farmers to arbitrage between different intermediaries cause the market power of intermediaries to vary in space. Farmers who live in regions where there is more competition between intermediaries receive higher prices for their output. A one standard deviation increase in competition increases farmer prices by 3%.

This paper also shows that increasing competition in one region spreads through the rural economy via a ripple effect. In particular, simulating the effects of reforms that prohibit inter-state trade show that such a policy not only increases incomes of farmers who live close to state borders but also of those living in the interior. Simulations also show that increased competition further increases farmer incomes because of the increased output of farmers as they optimize the use of intermediate inputs. It is found that the average increase in prices and output for the farmers with above-median gains is about 21% and 15%, respectively. Further, the value of national crop output increases by about 18%. Moreover, the results indicate that isolated studies in agricultural markets can indeed find varying estimates of market power of intermediaries because they are partly driven by spatial competition.

Thus, the key policy implications of this study are the following. Although there is evidence of market power, the quantitative estimates are moderate. Average potential gains from removal of interstate border restriction are in the 9-10% range in terms of revenue. However, there are definitely some who benefit much more.

Although the paper points toward important gains in store specially for farmers in remote regions where intermediary may enjoy greater market power, the results must not be read without caveats. Model simulated effects do not take into account political and social complexities which can both increase or exacerbate these effects. In particular, the economic model of this paper takes the institutions, the political economy of rural India as given. That is, this paper does not allow the politics to respond to the policy.

The market of inputs – seeds and fertilizers have been assumed to be perfectly competitive with inelastic supply. Departures from this assumption will change the quantitative magnitudes.

Finally, the model also assumes that farmers directly sell in mandis which is not always the case. Results are robust as long as the relationship between the farmer and the person who buys from the cultivator farmer and sells in a mandi does not change. This person could be a larger farmer of the village aggregating from smaller farmers or an intermediary buying from farmers and selling to larger intermediaries in mandi. Without further information on this relationship, it is outside the scope of this paper to predict the net change in prices for the actual cultivator who may not be going to the mandi.

Despite these considerations, the most important lesson perhaps is the general equilibrium distributional consequences of which that policy maker must be aware of. When agricultural productivity increases, farmers do not take into the externality the cause on each other by producing more. In response, to greater agricultural output retail prices in certain regions could fall too much and cause a net loss to farmers due to increased competition.

REFERENCES

Allen, Treb and David Atkin, “Volatility and the Gains from Trade,” *NBER Working Paper*, 2016, (22276).

Anderson, James E. and Eric van Wincoop, “Gravity with Gravitas: A Solution to the Border Puzzle,” *The American Economic Review*, 2003, *93* (1), 170–192.

Andrews, Isaiah, Matthew Gentzkow, and Jesse M. Shapiro, “Measuring the Sensitivity of Parameter Estimates to Estimation Moments,” *The Quarterly Journal of Economics*, 2017, *132* (4), 1553–1592.

Antras, Pol and Arnaud Costinot, “Intermediated Trade,” *The Quarterly Journal of Economics*, August 2011, *126* (3), 1319–1374.

Atkin, David and Dave Donaldson, “Who’s Getting Globalized? The Size and Implications of Intra-national Trade Costs,” *NBER Working Paper*, 2015, (21439).

Bai, Xue, Kala Krishna, and Hong Ma, “How You Export Matters: Export Mode, Learning and Productivity in China,” *Journal of International Economics*, 2017, *104*, 122–137.

Banerji, A. and J. V. Meenakshi, “Buyer Collusion and Efficiency of Government Intervention in Wheat Markets in Northern India: An Asymmetric Structural Auctions Analysis,” *American Journal of Agricultural Economics*, 2004, *86* (1), 236–253.

Bardhan, Pranab, Dilip Mookherjee, and Masatoshi Tsumagari, “Middlemen Margins and Globalization,” *American Economic Journal: Microeconomics*, 2013, *5* (4), 81–119.

Bates, Robert H, *Markets and States in Tropical Africa: The Political Basis of Agricultural Policies*, Berkeley: University of California Press, 1981.

Bergquist, Lauren Falcao, “Pass-through, Competition, and Entry in Agricultural Markets: Experimental Evidence from Kenya.,” *UC Berkeley Mimeograph*, 2017.

Casaburi, Lorenzo and Tristan Reed, “Competition and Interlinkages in Agricultural Markets: An Experimental Approach,” *Working Paper*, 2016.

Chand, Ramesh, “Development Policies and Agricultural Markets,” *Economic and Political Weekly*, 2012, *47* (52).

Chatterjee, Shoumitro, “Essays in Trade and Development Economics.” *PhD dissertation, Princeton University*, 2018.

Chatterjee, Shoumitro and Devesh Kapur, “Six Puzzles in Indian Agriculture,” *India Policy Forum 2016–17*, 2017, *13.*

Conley, Timothy G, “GMM Estimation with Cross Sectional Dependence,” *Journal of Economet- rics*, 1999, *92* (1), 1–45.

Cooper, Russell and Huacong Liu, “Money or Grit? Determinants of Mismatch by Race and Gender,” *NBER Working Paper*, 2016, (22734).

Cosar, A Kerem, Paul Grieco, and Felix Tintelnot, “Borders, Geography, and Oligopoly: Evidence from the Wind Turbine Industry,” *Review of Economics and Statistics*, 2015, *97* (3), 623–637.

Deaton, Angus, *The Analysis of Household Surveys: A Microeconometric Approach to Development Policy*, World Bank Publications, 1997.

Dell, Melissa, “The Persistent Effects of Peru’s Mining Mita,” *Econometrica*, 2010, *78* (6), 1863– 1903.

Dillon, B. and C. Dambro, “How Competitive are Food Crop Markets in Sub-Saharan Africa? A Review of the Evidence,” *Working Paper, Evans School of Public Policy and Governance, University of Washington*, 2016.

Donaldson, Dave, “The Gains from Market Integration,” *The Annual Review of Economics*, 2015, *7* (1), 619–647.

----, “Railroads of the Raj: Estimating the Impact of the Transportation Infratructure,” *American Economic Review, forthcoming*, 2015.

---- and Richard Hornbeck, “Railroads and American Economic Growth: A Market Access Approach,” *The Quarterly Journal of Economics*, 2016, *131* (2), 799–858.

Eaton, Jonathan and Samuel Kortum, “Technology, Geography, and Trade,” *Econometrica*, 2002, *70* (5), 1741–1779.

Edmond, Chris, Virgiliu Midrigan, and Daniel Yi Xu, “Competition, Markups, and The Gains from International Trade,” *The American Economic Review*, 2015, *105* (10), 3183–3221.

Engel, Charles and John H. Rogers, “How Wide Is the Border?,” *The American Economic Review*, 1996, *86* (5), 1112–1125.

Fafchamps, M, E Gabre-Madhin et al., “Agricultural markets in Benin and Malawi.,” *African Journal of Agricultural and Resource Economics*, 2006, *1* (1), 67–94.

Fafchamps, Marcel and Bart Minten, “Returns to social network capital among traders,” *Oxford Economic Papers*, April 2002, *54* (2), 173–206.

, Eleni Gabre-Madhin, and Bart Minten, “Increasing returns and market efficiency in agricultural trade,” *Journal of Development Economics*, 2005, *78* (2), 406–442.

Gourieroux, Christian, Alain Monfort, and Eric Renault, “Indirect Inference,” *Journal of Applied Econometrics*, 1993, *8* (S1).

Great Britain and Royal Commission on Agriculture in India, *Report of the Royal Commission on Agriculture in India.*, London: H.M. Stationery Office, 1928.

Harris, Barbara, *State and market: State Intervention in Agricultural Exchange in a Dry Region of Tamil Nadu, South India*, New Delhi: Concept Pub. Co., 1984.

Harris, Chauncy D., “The Market as a Factor in the Localization of Industry in the United States,” *Annals of the Association of American Geographers*, 1954, *44* (4), 315–348.

Horn, Henrick and Asher Wolinsky, “Bilateral Monopolies and Incentives for Merger,” *The RAND Journal of Economics*, 1988, pp. 408–419.

Kapur, Devesh and Mekhala Krishnamurthy, “Market Towns and the Dynamics of India’s Rural and Urban Transformations,” *Working Paper, International Growth Center*, 2014, (F-35007- INC-1).

Krishna, Kala and Yelena Sheveleva, “Wheat or Strawberries? Intermediated Trade with Limited Contracting,” *American Economic Journal: Microeconomics*, August 2017, *9* (3), 28–62.

Krishnamurthy, M., “Harda Mandi: Experiencing Change in an Agricultural Market in Central India (1980-2010).” Ph.D. thesis, UCL (University College London) October 2011.

Loecker, Jan De, Pinelopi K Goldberg, Amit K Khandelwal, and Nina Pavcnik, “Prices, Markups, and Trade Reform,” *Econometrica*, 2016, *84* (2), 445–510.

McCallum, John, "National Borders Matter: Canada-US Regional Trade Patterns," *The American Economic Review*, 1995, *85* (3), 615–623.

Meenakshi, J.V. and A. Banerji, "The Unsupportable Support Price: An Analysis of Collusion and Government Intervention In paddy Auction Markets in North India," *Journal of Development Economics*, 2005, *76* (2), 377 – 403.

Melitz, Marc J. and Gianmarco Ottaviano, "Market Size, Trade, and Productivity," *The Review of Economic Studies*, 2008, *75* (1), 295–316.

Ministry of Finance, Government of India, "Economic Survey of India 2015–16," 2016.

Mitra, Sandip, Dilip Mookherjee, Maximo Torero, and Sujata Visaria, "Asymmetric Information and Middleman Margins: An Experiment with Indian Potato Farmers," *The Review of Economics and Statistics, forthcoming*, 2017.

National Aeronautics And Space Administration And The National Geospatial Intelli- gence Agency, "Shuttle Radar Topography Mission 30 Arc Second Finished Data," 2000.

Redding, Stephen J and Daniel M Sturm, "The Costs of Remoteness: Evidence from German Division and Reunification," *The American Economic Review*, 2008, *98* (5), 1766–1797.

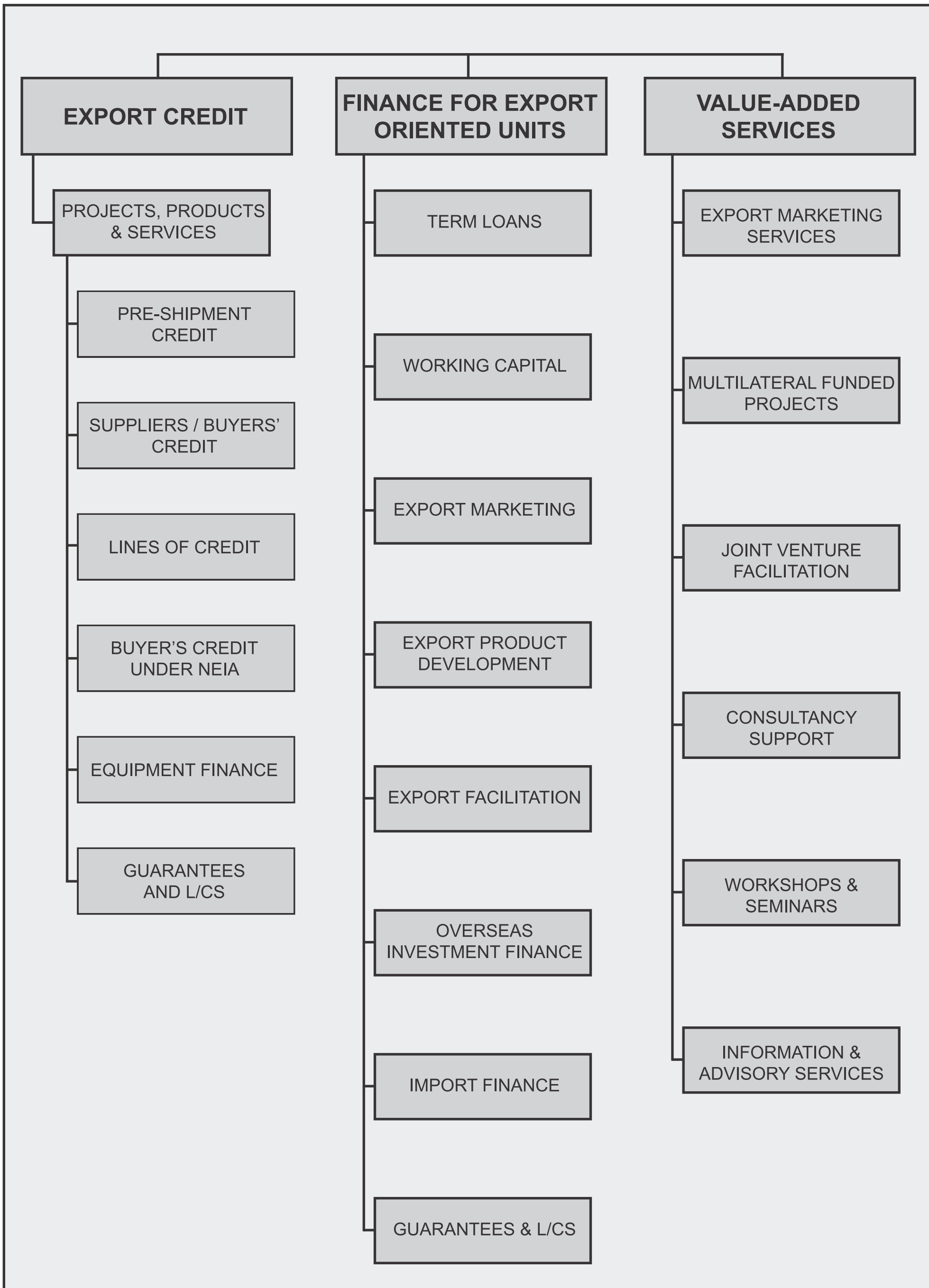
Willmott, C. J. and K. Matsuura, "Terrestrial Air Temperature and Precipitation: Monthly and Annual Time Series (1950 - 2014)," 2001.

RECENT OCCASIONAL PAPERS	
OP No.	**Title**
134.	Sikkim: Export Potential and Prospects
135.	Mizoram: Export Potential and Prospects
136.	Floriculture: A Sector Study
137.	Biotechnology Industry in India: Opportunities for Growth
138.	Indian Gems and Jewellery: A Sector Study
139.	SADC: A Study of India's Trade and Investment Potential
140.	Innovation, Imitation and North South Trade: Economic Theory and Policy
141.	Comesa (Common Market for Eastern and Southern Africa): A Study of India's Trade and Investment Potential
142.	Indian Shipping Industry: A Catalyst for Growth
143.	New Renewable Energy in India: Harnessing the Potential
144.	Caribbean Community (Caricom): A Study of India's Trade and Investment Potential
145.	West African Region: A Study of India's Trade and Investment Potential
146.	India's Trade and Investment Relations with LDCs (Least Developed Countries): Harnessing Synergies
147.	Indian Electronic Industry : Perspectives and Strategies
148.	Export Potential of Indian Plantation Sector: Prospects and Challenges
149.	Mercosur : A Study of India's Trade and Investment Potential
150.	Openness and Growth of the Indian Economy: An Empirical Analysis
151.	The Commonwealth: Promoting a Shared Vision on Trade and Investment
152.	Southern African Development Community (SADC): A Study of India's Trade and Investment Potential
153.	Strategic Development of MSMEs: Comparison of Policy Framework and Institutional Support Systems in India and Select Countries
154.	Indian Chemical Industry : Exploring Global Demand
155.	Technological Interventions In Indian Agriculture for Enhancement of Crop Productivity
156.	Exports of Services and Offshore Outsourcing: An Empirical Investigation in the Indian Context
157.	Indian Ocean Rim Association for Regional Co-operation (IOR-ARC): A Study of India's Trade and Investment Potential
158.	West Africa: A Study of India's Trade and Investment Potential
159.	The Effects of Financial Openness: An Assessment of the Indian Experience
160.	Comparison of Labour Laws: Select Countries
161.	India's Trade and Investment Relations with Cambodia, Lao PDR, Myanmar, Vietnam (CLMV): Enhancing Economic Cooperation
162.	Indian Horticulture-Imperatives to Enhance Trade from India
163.	India's Trade and Investment Relations with Gulf Cooperation Council (GCC): Strengthening Economic Ties
164.	India's Hi-Tech Exports: Potential Markets and Key Policy Interventions

165. Outward Direct Investment from India: Trends, Objectives and Policy Perspectives
166. East African Community (EAC): A Study of India’s Trade and Investment Potential
167. Trade Liberalization, Product Variety and Growth
168. Research & Development in BRICS: An Insight
169. Indian Capital Goods Industry: A Sector Study
170. Bangladesh: A Study of India’s Trade and Investment Potential
171. Indian Electronic Goods Industry: Neutralizing Trade Deficit with China
172. Indian Steel Industry: Export Prospects
173. Value Addition Chains and Trade in Manufactured Commodities in South-East Asia
174. Potential for Trade of Organic Products from India
175. Multilateral Development Bank- Funded Project: Trends and Opportunities for Indian Exports
176. Indian Pharmaceutical Industry: Challenges and Prospects
177. Migration and Remittances in India
178. Technical Progress and Structural Change: The Roles of Demand and Supply in Economic Growth
179. Inter-linkages between Exports and Employment in India
180. India’s Engagements with CLMV: Gateway to ASEAN Markets
181. Export Promotion From Rajasthan: Key Insights And Policy Suggestions
182. Potential for Enhancing Exports from Andhra Pradesh
183. The Internationalisation of Indian firms through outbound Foreign Direct Investment: Nature, determinants and developmental consequences
184. Financialization and its Implications on the Determination of Exchange rate of Emerging Market Economies
185. Export from Uttar Pradesh: Trends, Opportunities and Policy Perspectives
186. Essays on International Trade, Welfare and Inequality
187. Essays in Indian Trade Policy
188. Exchange Rate Dynamics and its Impact on India's Exports to USA and EU: An Assessment
189. Liberalisation, Wages and Sector Growth : General Equilibrium Analysis for India
190. Manufacturing in SADC: Moving Up the Value Chain
191. North Africa: Unlocking India’s Trade and Investment Potential
192. Essays on Education and Institutions in Developing Countries
193. Project Exports From India: Strategy for Reenergizing and Reorienting
194. Packaging Sector: Potential And Way Forward
195. Realizing India's Trade & Investment Potential with South Korea
196. India & Central Asia: Reinitalizing Trade & Investment Relations
197. AfCFTA: Opportunities for India in Africa's Economic Integration
198. India-CLMV: Building Supply Chains in Asia
199. Self-Reliant India- Approach and Strategic Sectors to Focus

EXIM BANK'S MAJOR PROGRAMMES

Bank's Major Programmes



EXPORT-IMPORT BANK OF INDIA

HEAD OFFICE

Centre One Building, 21st Floor, World Trade Centre Complex, Cuffe Parade, Mumbai 400 005.
Phone: (91 22) 22172600 Fax : (91 22) 22182572
E-mail : ccg@eximbankindia.in Website: www.eximbankindia.in

LONDON BRANCH

5th Floor, 35 King Street, London EC2V 8BB United Kingdom
Phone : (0044) 20 77969040 Fax : (0044) 20 76000936 E-Mail :eximlondon@eximbankindia.in

DOMESTIC OFFICES

Ahmedabad

Sakar II, 1st Floor,
Next to Ellisbridge Shopping Centre,
Ellisbridge P. O.,
Ahmedabad 380 006
Phone : (91 79) 26576843
Fax : (91 79) 26578271
E-mail : eximahro@eximbankindia.in

Bangalore

Ramanashree Arcade, 4th Floor,
18, M. G. Road,
Bangalore 560 001
Phone : (91 80) 25585755
Fax : (91 80) 25589107
E-mail : eximbro@eximbankindia.in

Chandigarh

C- 213, Elante offices, Plot No. 178-178A,
Industrial Area phase 1,
Chandigarh 160 002
Phone : (91 172) 2641910
Fax : (91 172) 2641915
E-mail : eximcro@eximbankindia.in

Chennai

Overseas Towers,
4th and 5th Floor,
756-L, Anna Salai,
Chennai 600 002
Phone : (91 44) 28522830/31
Fax : (91 44) 25224082
E-mail : eximchro@eximbankindia.in

Guwahati

NEDFi House, 4th Floor, GS Road,
Dispur, Guwahati 781 006
Phone : (91 361) 2237607/609
Fax : (91 361) 2237701
E-mail : eximgro@eximbankindia.in

Hyderabad

Golden Edifice, 2nd Floor,
6-3-639/640, Raj Bhavan Road,
Khairatabad Circle,
Hyderabad 500 004
Phone : (91 40) 23379060
Fax : (91 40) 23317843
E-mail : eximhro@eximbankindia.in

Kolkata

Vanijya Bhawan, 4th Floor,
(International Trade Facilitation Centre),
1/1 Wood Street,
Kolkata 700 016
Phone : (91 33) 22891728/29/30
Fax : (91 33) 22891727
E-mail : eximkro@eximbankindia.in

New Delhi

Office Block, Tower 1, 7th Floor, Adjacent Ring
Road, Kidwai Nagar (E) New Delhi - 110 023
Ph.: +91 11 61242600 / 24607700
Fax: +91 11 20815029
E-mail: eximndo@eximbankindia.in

Pune

No.402 & 402(B) 4th floor Signature Building
C.T.S.No. 853, Plot No. 195, Bhamburda,
Bhandarkar Road, Shivajinagar,
Pune, Maharashtra 411004
Phone : 020-25648856
Fax : 020-25648846

OVERSEAS OFFICES

Abidjan

5th Floor,
Azur Building,
18-Docteur Crozet Road,
Plateau,
Abidjan,
Côte d'Ivoire
Phone : (225) 20 24 29 51
Mobile : (225) 79707149
Fax : (225) 20 24 29 50
Email : eximabidjan@eximbankindia.in

Addis Ababa

House No. 46,
JakRose Estate Compound,
Woreda 07,
Bole Sub-city,
Addis Ababa,
Ethiopia.
Phone : (251 116) 630079
Fax : (251 116) 610170
E-mail : aaro@eximbankindia.in

Dhaka

Madhumita Plaza, 12th Floor,
Plot No. 11, Road No. 11, Block G,
Banani, Dhaka, Bangladesh - 1213.
Phone : (088) 0170820444
E-mail : eximdhaka@eximbankindia.in

Dubai

Level 5, Tenancy 1B,
Gate Precinct Building No. 3,
Dubai International Financial Centre,
PO Box No. 506541, Dubai, UAE.
Phone : (971 4) 3637462
Fax : (971 4) 3637461
E-mail : eximdubai@eximbankindia.in

Johannesburg

2nd Floor, Sandton City Twin Towers East,
Sandhurst Ext. 3, Sandton 2196,
Johannesburg, South Africa.
Phone : (27) 716094473
Fax : (27 11) 7844511
E-mail : eximjro@eximbankindia.in

Singapore

20, Collyer Quay, #10-02,
Tung Centre, Singapore 049319.
Phone : (65) 65326464
Fax : (65) 65352131
E-mail : eximsingapore@eximbankindia.in

Washington D.C.

1750 Pennsylvania Avenue NW,
Suite 1202, Washington D.C. 20006,
United States of America.
Phone : (1 202) 223 3238
Fax : (1 202) 785 8487
E-mail : eximwashington@eximbankindia.in

Yangon

House No. 54/A, Ground Floor,
Boyarnyunt Street, Dagon Township,
Yangon, Myanmar
Phone : (95) 1389520
Mobile : (95) 1389520
Email : eximyangon@eximbankindia.in

Centre One Building, 21st Floor, World Trade Centre Complex, Cuffe Parade, Mumbai - 400 005.
Ph.: (91 22) 22172600 | Fax: (91 22) 22182572
E-mail: ccg@eximbankindia.in | Website: www.eximbankindia.in, www.eximmitra.in
Follow us on