

Extended Essay Subject

Economics

Title

The impact of Demonetization on agriculture and farmers in
Sultanganj

Research Question

To what extent has India's 2016 Demonetization act impacted
farmers, Kharif sale and Rabi sowing in Sultanganj?

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Introduction

The Demonetization act, implemented on November 8th 2016, by the Government of India was a cash-crunching move in which 500 and 1000 rupee notes were declared obsolete overnight. The Government of India had explicit aims with the demonetization move. It claimed that the action would curtail the shadow economy, crack down the use of illicit and counterfeit cash to fund illegal activity and terrorism, bring the era of digitization and inhibit the growing rate of inflation (Kumar). A number of countries have demonetized their currency before however, India, being one of the most cash-dependent countries world-wide, with 68% of all its transactions in cash, has had adverse effects in its economy due to the move (Bisen et al.).

The macroeconomic impact of Demonetization on the Indian economy has been widely researched in the past months; however, its effect on farmers and agriculture in small villages has not been studied as much. Agriculture is the backbone of the Indian economy, and farmers are directly behind this agricultural success. Thus, this paper aims to investigate the effect of the move on farmers and the agriculture in the village Sultanganj, in the state of Bihar. This has led to the development of the research question:

To what extent has India's 2016 Demonetization act impacted farmers, Kharif sale and Rabi sowing in Sultanganj?

There are two main types of crops that are grown in Sultanganj; Rabi crops and Kharif crops. Rabi crops are agricultural crops that are sown in winter (November to February) and harvested in spring (February to April) while Kharif crops are sown in the rainy season (April to October) and harvested in the winter (Srija). Rabi crops mainly compromise of wheat and pulses while

Kharif crops mainly consist of rice. Demonetization was implemented during the Rabi crops sowing season, when Kharif crops were being harvested and sold in the local markets.

Farmers in Sultanganj estimating account for 50 % of the work force and 75 % of the people there are directly or indirectly dependent on cash (Lal). Prior to Demonetization, liquid cash was essential for these farmers' day-to-day transactions. Most farmers in Sultanganj did not have bank accounts. These farmers did not have access to cash and with extinguished demand for crops in Sultanganj due to demonetized notes; farmers had to depend either on money lenders and black marketers or 'bigger' farmers to drive their household expenditure. Revenue from the sale of Kharif crops was not enough to buy seeds, fertilizers or any other agro-inputs required for early Rabi sowing. The government did expect such issues and therefore it set-up systems such as higher Minimum Support Prices and the Direct Benefit Transfer, however, most government policies did not reach out to lower-income farmers (Lal).

Methodology: Primary and Secondary Research

This study is based on primary findings collected from farmers, a member of Sultanganj's agriculture committee and a Pulses trader.

Over a ten-day period, 10 lower-income farmers and 4 higher-income farmers were surveyed. Farmers in Sultanganj are identified as higher-income if their monthly income exceeds Rs.20, 000 (305.62 USD at Rs. 65.44/USD) ("USD to INR") or lower-income if it falls under Rs.20 000 (Lal); the farmers were asked to identify their income ranges in surveys (Appendix 2). The study did not survey farmers at their place of residence but at the Sultanganj Mandi (market), however, the farmers who were surveyed grow crops in a number of different locations in the village and thus the findings should be representative of most farmers in Sultanganj. Percentages, pie charts and tabular analysis have been used to analyze the data collected from the farmers in the Sultanganj Mandi.

The agriculture committee of Sultanganj collects statistical data on farmers and keeps record of the overall agriculture progress in the village. Thus, a member of the committee, Mr. Shanti Lal, was interviewed to validate qualitative results and farmers' responses and corroborate statistical evidence and data (Appendix 3).

After Rabi and Kharif crops are harvested by farmers, traders purchase these crops in bulks (tens, hundreds and tons of kilograms), selling those to smaller traders in packs of 30-50 kilos. The grains are then refined and sold to wholesalers or retailers, from which consumers purchase them. This cycle is shown below. The importance of this cycle is that it shows that the demand for farmers' crops is directly dependent on traders' demand; thus the impact of Demonetization

on traders' business should reflect the effect on farmers. Hence, to investigate this, Prakash Jain, a pulses trader, was interviewed (Appendix 4).

Farmer → Big trader/ Government → Small trader → Wholesaler/ Retailer → Consumer

The secondary data used in this analysis has been compiled from a number of different sources; news websites, Reserve Bank of India and State Bank of India's official reports and official agriculture government websites in an attempt to verify and cross-check the authenticity of the primary research.

Pre-demonetization

India experienced a crippling drought in 2014 and 2015, however, its monsoon season picked up early and strong in 2016. In fact, the rain-fed Kharif crop production was the greatest in history; as shown in Fig. 1, estimated at 135 million tons in 2016-17, 8.9% higher than the year before and the output 3.7 % greater than the record production of 131.3 million tons during 2011-2012. (Bera). Agriculture minister, Radha Mohan Singh stated that farmers' hard work and favorable monsoon conditions drove the great Kharif production (Narang). Sultanganj's Kharif economy reflected strong growth too. In Sultanganj, 205 hectares of land was used for Kharif sowing in 2016, compared to 146 hectares the previous year. The agriculture committee has estimated the Kharif crops yield to be 30 % higher than 2015 (Lal). Because of this great surplus, farmers crowded the Sultanganj mandi to sell their crops; however, the great harvest came at a great cost to lower-income farmers, as the surplus put a downward pressure on market prices (Sudhanva).

(Production in million tonnes)

| FOODGRAIN | 2015-16 | 2016-17 | % change |
|---------------|---------------|---------------|------------|
| Pulses | 5.54 | 8.7 | 57 |
| Rice | 91.31 | 93.88 | 2.8 |
| Coarse grains | 27.17 | 32.45 | 19.4 |
| Total | 124.02 | 135.03 | 8.9 |
| Oilseeds | 16.59 | 23.36 | 40.8 |
| Cotton | 30.14 | 32.1 | 6.5 |
| Sugar cane | 352.16 | 305.25 | -13.3 |

Fig. 1. Bera, Sanyatan. "Kharif foodgrain harvest to break past records, show first advance estimates."

Livemint, 23 Sept. 2016.

Demonetization

The decision to demonetize high denomination notes came up for the third time in India, however, the farming community has been affected worst this time as compared to the earlier two instances which occurred in the month of January, when most of the agricultural operations are generally completed (Bisen et al.). This time, Demonetization came when the farming fraternity of Sultanganj was engaged in the post-harvest operation of Kharif crops and the sowing of Rabi crops, both of which need great amounts of cash.

Impact on the sale of Kharif crops

The table below depicts the percentage of farmers in Sultanganj whose sale of Kharif crops were affected due to Demonetization, as compiled from surveys given to farmers. The response shows that 90% of lower-income farmers compared to 50% of larger farmers' Kharif crop sales declined, implying that lower-income farmers were strongly affected and higher-income farmers, less affected. However with 11 farmers being affected in total, it is reasonable to state that demonetization brought with it a great crash in traders' demand in the Kharif Crops market, regardless the farmer's income. Because the supply of the crops was unable to move through the chain illustrated in the cycle earlier, a shortage of crops was created in the consumer market, and crop prices in the consumer market remained high.

Table 1: Farmers whose Kharif sale was affected due to Demonetization

| Farmer Category | Sampled respondents | Affected | Affected (%) |
|-----------------------|---------------------|----------|--------------|
| Higher-income farmers | 4 | 2 | 50 |
| Lower- income farmers | 10 | 9 | 90 |
| Total | 14 | 11 | 79 |

Data collected by candidate

As trader, Prakash Jain stated that due to demonetization of notes, he temporarily had no cash to pay for the produce (Jain), farmers too, reported their main problems as receiving delayed payment or payment in parts for their produce, having no cash in hand for logistics, and unavailable adequate storage infrastructure for the crops.

Unlike vegetables and fruits, Kharif crops are not perishables and thus, they are more supply elastic. Several higher-income farmers managed the situation by storing their crops in inventories, keeping them locked up until the Demonetization period lasts and selling them at relatively higher prices after demonetization but there was inadequate storage infrastructure for the crops, and Kharif crops piled up quickly. On the other hand, lower-income farmers had no access to inventories to store their crops. Their Kharif crops were laying around in their farms and mandis with no buyers.



Fig. 2. Rice crops ready for harvest season

Photo taken by candidate

In order to meet their demand for cash for Rabi Sowing, household expenditures and emergencies, several lower-income farmers sold their farm produce at throw-away prices to higher-income farmers, who could hoard the produce, while several rented or mortgaged their

equipment or land to other rich farmers. This in turn, benefitted rich farmers but further increased income inequality in society in the long-run (Lal).

One of the lower-income farmers, Karu, stated: “My daughter’s wedding was pre-planned five days after demonetization was announced and I really needed cash so I rented my 0.8 hectares land and my tractor in return for cash.”

Even-though the ability to expand fixed factors of production such as land and capital is a long run phenomenon, higher-income farmers were able to move along their LRATC curve, and achieve economies of scale to some extent, to lower their costs of production and increase their quantity of production temporarily.

Despite a bumper harvest, lower-income farmers suffered further loss due to Demonetization, as the demand crunch greatly lowered the price; however higher-income farmers were able to take advantage of the situation for their own benefit.



Fig. 3. Farmer, Karu.

Photo taken by candidate

Impact on Rabi Sowing

As farmers' incomes fell substantially, Rabi sowing was being delayed for weeks because farmers were unable to purchase new, certified HYV seeds from the market to start sowing and those who did not have old seeds were unable to prepare for early sowing.

It is not necessary to buy new seeds every year for Rabi sowing, however, the quality of seeds degrades overtime. The farmers who had old seeds from the previous year's harvest used those instead of quality seeds. Likewise, farmers needed cash to purchase other inputs such as pesticides, fertilizers and to give laborers their wages. However, with no cash in hand, they had to use old inputs. Farm laborers could not be paid wages timely so work was being postponed. In fact, the less-than optimal use of inputs and delayed work resulted in lower yields, reduced sales, higher wastage and lower price realization (V.G.Sumathy and T.Savitha).

Out of the total farmers surveyed, 43 % of the farmers reported a delay in the sowing of Rabi crops due to demonetization, of which all were lower income farmers. Even though 71 % of the total numbers of respondents were lower-income farmers, the data suggests that lower-income farmers bore the greater brunt of Demonetization in Rabi sowing, as the latter 40 % reported that they had either sold their crops at very low prices while others stated that they had rented their factors of production to higher-income farmers during the period.

Table 2: Farmers whose Rabi sowing was affected due to Demonetization.

| Farmer category | Sampled Respondents | Affected | Affected (%) |
|-----------------|---------------------|----------|--------------|
| Higher-income | 4 | 0 | 0 |
| Lower-income | 10 | 6 | 60 |
| Total | 14 | 6 | 43 |

Data collected by candidate

The Reserve Bank of India only predicted a marginal decline in Rabi sowing by 0.68% as compared to last year in the month of November. However, reports released after Demonetization all suggest that the cash crunch had almost no effect on the major Rabi crops (pulses and wheat) at a country level; in fact Rabi yield, and Rabi area sown, as shown in Fig.4. below, have both increased. There was a 1-2 week delay in sowing on average in the entire country, however, it picked up pace subsequently because farmers adopted mechanisms to deal with the situation and minimize its effect on Rabi sowing (Chand and Singh). The common management strategies that farmers used to mitigate the severity of the adverse effects of demonetization are: using of old seeds, fertilizers and other agrochemicals, borrowing agro-inputs from the friend or purchasing the inputs on credit from private traders, using family labor, and doing co-operative farming practices to deal with labor scarcity during sowing (Bisen et al.). This has also been reflected in the data collected from Sultanganj's agriculture committee which suggests that there has in fact, been a marginal increase in Rabi area sown and Rabi yield as higher-income farmers were able to sustain the impact of the cash-crunch (Lal).

| Major Crops | Area sown in November (Lakh ha) | | Area sown in December (Lakh ha) | |
|----------------|---------------------------------|---------|---------------------------------|---------|
| | 2015-16 | 2016-17 | 2015-16 | 2016-17 |
| Wheat | 78.83 | 79.40 | 202.28 | 225.63 |
| Rice | - | - | 10.98 | 8.00 |
| Pulses | 69.98 | 74.55 | 110.80 | 121.74 |
| Coarse Cereals | 37.86 | 25.98 | 49.13 | 44.83 |
| Oilseeds | 48.74 | 56.16 | 65.71 | 72.23 |
| Total | 243.38 | 241.73 | 438.90 | 472.43 |

Fig. 4. Bisen, Jaiprakash, et al. "Comparison of all India net sown area in the months of November and December", version 2, Feb. 2017.



Fig 5, 6, 7. Fields ready for Rabi Sowing.

Photos taken by candidate

Analysis

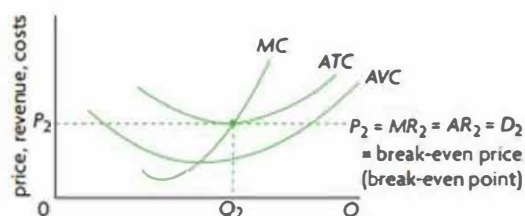
Market operating as Perfect Competition

The Agriculture market of Sultanganj, like any other common agriculture market, exhibits characteristics of perfect competition. The market is composed of many sellers, 312 farmers in total, as registered in the agriculture board of Sultanganj, of which most have very similar costs (Lal). All the farmers sell homogeneous products; Rabi and Kharif crops, and they are all price-takers. There are relatively low market barriers as farmers can enter and exit the market, whenever they wish. In the long run, no abnormal profits can be made (Welker).

Demand crunch due to Demonetization

The graphs below depict the Average Total Cost curve, Average Variable Cost curve and the Marginal Cost curve and the Marginal Revenue line for an individual farmer. Demonetization brought with it a great contraction in traders' demand for Kharif crops, as represented by D_2 shifting to D_3 . Prior to the fall in demand the quantity demanded by traders was at Q_2 , and the price, P_2 . The total economic profit, as given by $(AR-ATC) \times$ quantity, was 0 as $ATC = AR$ at Q_{ef} . However, due to the fall in demand the new equilibrium shifted to the quantity Q_3 and price P_3 , where the difference between the ATC and AR is given by $ATC-AR$, and the total loss is given by $(ATC -AR) \times Q_3$, as shown by the rectangle shaded in Fig. 9, below.

Zero Economic profit



Economic loss: farmer continues to produce

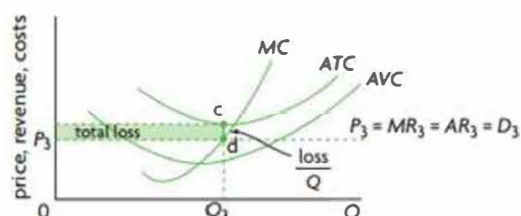


Fig. 8, 9 (Tragekes [Page 172])

The price where a farmer's total loss equals the total fixed cost, as shown in Fig.10, is a signal for him to leave the market as he can experience greater loss if he continues to produce. For most lower-income farmers, their total loss exceeded their total fixed costs. This is shown in Fig.11, where the vertical distance between ATC and AR (average loss) is greater than the vertical distance between ATC and AVC (average fixed cost) at the point of production Q_5 ("From Short Run"). Normally, such fall in demand tells the farmer that his crops are no longer demanded by consumers, driving the farmers to leave the market; however, in this case, the situation was only temporary, and lower-income farmers had to remain in the market.

Higher-income farmers stated that they only experienced a slight contraction in demand for their crops because they had been using e-payment methods even prior Demonetization. As a result, they suffered losses which were not as significant in the short-run, as their total fixed cost remained greater than their total loss.

Loss in the short run and the shut-down price

The loss-making farmer that would not produce

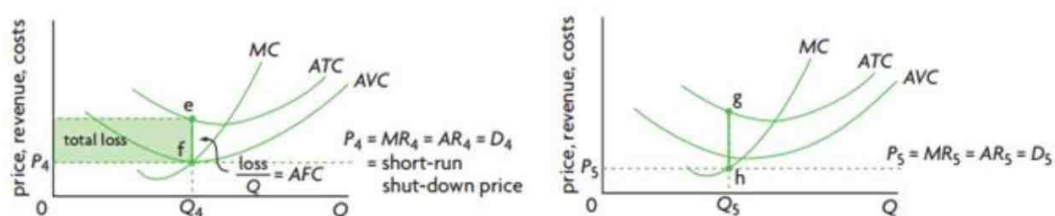


Fig 10, 11 (Tragekes [Page 172])

Changes in farmers' supply and traders' demand for Kharif crops

As individual farmers each had a robust supply of Kharif crops prior Demonetization, the total supply in the market increased, putting a downward pressure to the price from P_1 to P_2 . This has

been shown by an increase in supply as represented in Fig. 12, where S_1 shifts to S_2 . At the old price, there is a surplus of Kharif crops at the price P_1 as shown by the difference between Q_2 and Q_1 . The surplus of Kharif crops puts a downward pressure on the price of the crops lowering them until the surplus has disappeared. This new equilibrium quantity of crops now becomes Q_3 , and the price falls from P_1 to P_2 , given by the intersection of D and S_2 . As shown in the diagram, the surplus of crops pressured the price to lower from P_1 to P_2 .

As the demand for individual farmers' Kharif crops fell, the demand for Kharif crops in Sultanganj's Kharif crops market dropped substantially, bringing D_1 to D_2 , as shown in Fig. 13. below. At the price P_2 (due to the surplus of crops), there is an even greater surplus of crops as represented by the difference between Q_3 and Q_4 . Again the surplus of Kharif crops put a downward pressure on their price, bringing it even lower, to P_3 , as given by the intersection of D_2 and S_2 .

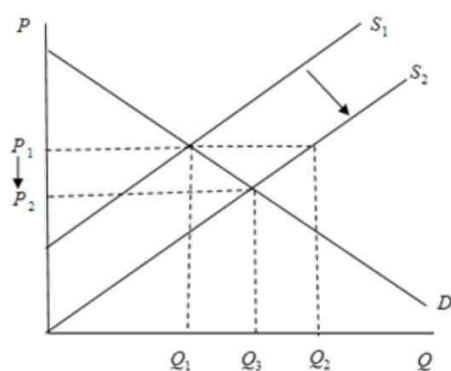


Fig. 12. Bumper Harvest: Increase in the farmers' supply of Kharif crops in Sultanganj's Agriculture Market.

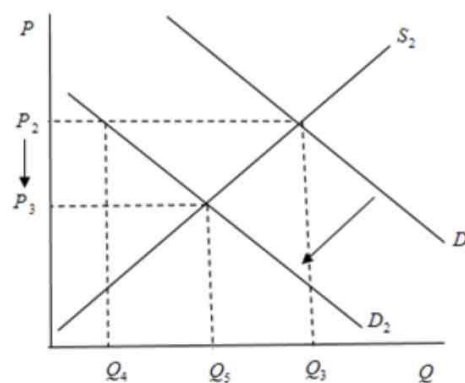


Fig. 13. Demonetization: Great decrease in traders' demand for Kharif crops in Sultanganj's Agriculture Market.

Diagrams created by candidate

Instead of relieving farmers' 2 year stress because of severe drought, the great surplus of crops and extinguished demand for Kharif crops pressurized Kharif crop prices to drop from P_1 to P_3 - an all-time low.

Government assistance

Provision of Loans

The government attempted to provide a wide range of support to farmers during the November – December 2016 period. For example, the government allowed farmers with Agri- Loan account to withdraw up to Rs. 25, 000 per week, and use 500 rupee demonetized notes to buy seeds and fertilizers from the government, to ensure that Rabi crops were sown properly (Singh et al.).

However, the farmers who did have agricultural loans had the banking knowledge and thus were able to sustain the impact of Demonetization. Of the farmers surveyed, only 2 lower-income farmers had Agri-Loan accounts compared to 3 higher-income farmers, during the November-December period. Farmers who did not have the loan did not have the facility of withdrawing Rs. 25000 in cash. These farmers did not have bank accounts either, and therefore all their money was in cash, which meant that they has to stand in queues for a number of hours to receive money like the general public (Sudhanva). However, they were allowed also to use old Rs. 500 notes to buy seeds and fertilizers from the government’s agriculture committee (Singh et al.). However, 70 % of the lower-income farmers stated that they only found out thirty days after Demonetization was announced, that demonetized 500 rupee notes could be used in government agencies to buy agro-inputs.

A significant portion of the farmers depend on bank credit for their cash needs, however most farmers surveyed reported that they already had loans taken from banks and were scared to borrow loans because the banks may deny them loans or charge very high interest rate. At the same time, several banks would only grant new loans if farmers pay their existing ones. Of the targeted Rs. 18,000 crore crop loan for Rabi sowing, banks disbursed over Rs. 1,500 crore in

October (V.G.Sumathy and T.Savitha). However, no significant amount was released as crop loans after Rs. 500 and Rs. 1,000 notes became obsolete, as failure to repay their loans brought farmers to massive debts, burdened by interests (V.G.Sumathy and T.Savitha).

Minimum Support Prices

The government implements minimum support prices for a variety of Kharif crops and these prices differ depending on farmers' cost structures of producing a crop. The MSP is the minimum price set by the Government in which farmers can expect to sell their produce for the season. When the market price falls below the MSPs, procurement agencies step in procure the crop and 'support' the prices (Rajalakshmi).

The minimum price is set above the market equilibrium price; it results in a smaller quantity demanded and purchased at the market price, and acts as an incentive for farmers to produce more. The Indian government then buys the extra Kharif crops in the mandis, and then distributes these crops to traders in Indian states, where such crops are not grown (Lal). However, this government expenditure is made at a high cost to the society as it could be used in the development of other sectors of the Indian economy.

Specifically during the time of demonetization, the government increased the minimum support price for all crops (Appendix 1), with the intention of supporting farmers. However, 80 % of the farmers surveyed sold their crops lower than the minimum support prices, as set by the government. Whereas, the minimum support price for a quintal of paddy crops was Rs. 1470, the average price that was sold by farmers for was Rs. 1020 at the peak Demonetization period.

Despite the provision of such facilities to assist farmers in Rabi sowing and Kharif Sale at optimal prices, most farmers were unable to use such schemes, simply because they were unaware of the help that was being provided. However, all farmers with bank accounts benefitted a lot from Direct Benefit Transfer (DBT) program launched by Government of India in 2013 (Roy), which transfers subsidies directly to farmers' bank accounts, regardless of their incomes ("About Us").

Impact on consumption activities of farmers

Table 3: Farmers belonging to different income groups affected due to Demonetization

| Income groups | Sampled Respondents | Affected | Affected (%) |
|----------------|---------------------|----------|--------------|
| (1)5000-10000 | 4 | 4 | 100 |
| (2)10000-20000 | 6 | 5 | 83 |
| (3)20000-40000 | 2 | 1 | 50 |
| (4)>40000 | 2 | 0 | 0 |

Data collected by candidate

As can be seen in Table 3, the farmers surveyed have been distinguished by their income ranges to investigate the effect of Demonetization on their consumption activities. It is clear through the data collected that farmers in the lower income spectra had greater problems in driving household expenditures after the demonetization of 500 and 1000 rupee notes.

One of the farmers, Ravi Kumar, who identified his income range was 5000-10000 explained, “During the November-December period, I drove my household expenditures normally, promising delayed payment to shop keepers. It happened rarely but if they were uncomfortable in receiving payments, I would pay them in 100 and 50 rupee notes.”

The statement by Ravi Kumar can be supported with Fig. 15, which illustrates the modes of payment most used by farmers during the Demonetization period.



Fig. 14. Farmer, Ravi Kumar.

Photo taken by candidate

As people only had change in hand during the period, most farmers in income range (1) stated that they usually had delayed payments, or otherwise paid in small denomination notes, while farmers in the income range (4) asserted that they were not affected as much as they had been using e-payment gateways for most purchases, even prior Demonetization. However, all lower-income farmers stated that through Demonetization, they got a better understanding of e-payment methods and hence, they started adopting them in a matter of few weeks.

Because of the sale of perishables at very low prices and low income generated during the Demonetization period by the sale of Kharif crops, an average Indian farmer's income dipped by 0.26 per cent during the November-December period. Farmers' incomes are therefore projected to have increased at a very slow rate of 5.8 per cent in real terms in the 2016-2017 fiscal years ("Macroeconomic Impact"). In comparison, farmers' incomes in Sultanganj have decreased too, but much more significantly, regardless of the farmer's income level, because Sultanganj's agriculture economy is almost wholly cash-dependent, and the announcement of Demonetization deterred the sale of Kharif crops (Lal).

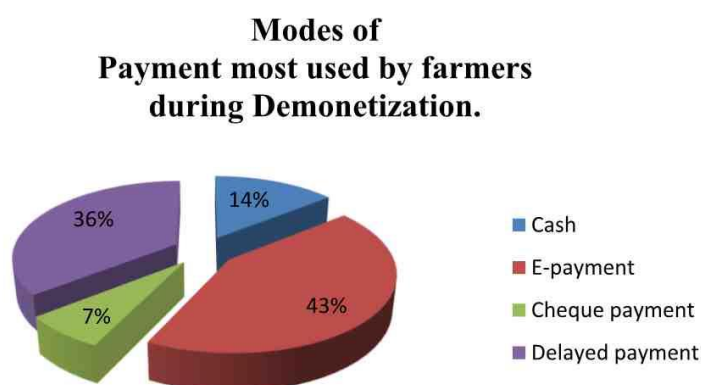


Fig. 15. Modes of Payment most used by farmers during Demonetization

Data collected by candidate

Conclusion

The decision to demonetize notes was indeed a very bold move however; it has had an adverse impact on the entire economy, especially the agriculture sector in villages such as Sultanganj.

The agriculture market of Sultanganj is truly dependent on cash; therefore the sudden demonetization of the two biggest denominations of rupee notes was bound to invite a temporary distress ("Short-term pain"). The November period marks the peak time for post-harvest season for Kharif crops and the sowing for Rabi crops; the period when farmers need the most money in cash.

In response to the research question, **To what extent has India's 2016 Demonetization act impacted farmers, Kharif sale and Rabi sowing in Sultanganj?**, Kharif crops had a bumper harvest, and India's wheat imports were at the peak prior Demonetization, and due to a great demand contraction in the market as a result of Demonetization, prices fell greatly in the trader market (Jain). In fact, a decline of 240 bps in the food inflation during the November period reflected the combined effect of record pulses production, wheat imports and compressed demand in the market ("Macroeconomic Impact"). But, the prices in the consumer market remained high because crops were simply not being sold through the chain. With input agencies demanding cash for agro-inputs, farmers without cash could not purchase inputs for production, and this led to delayed sowing, however the sowing picked up with great productivity and Rabi yield became greater than last year. The government provided support to farmers by allowing them to purchase inputs through government input agencies but with only a small network of agencies available, that too mostly in urban areas, this restricted farmers who needed the greatest help were unable to get assistance. Similarly, most schemes introduced by the government were effectively used by higher-income farmers but lower-income farmers have by far been hit the

hardest by demonetization because they were simply unaware of all the schemes that were provided for them, and were too dependent on cash.

Although the research has led to conclusion supported by evidence, as reflected by the data analysis of the primary research, it is important to acknowledge several limitations to the survey.

The survey was only conducted with a sample size, different sectors of the economy were not taken into consideration, and thus the study is preliminary in nature; it cannot represent the whole agriculture market of Sultanganj.

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Appendix 1

The table below depicts the minimum support prices set for Kharif sale season (November 2016-January 2017) during 2015-2016, compared to the set prices during 2016-2017, which are notably significantly greater for all crops. The data suggests that the Demonetization act was anticipated by the Government of India, and thus all prices were increased especially to support farmers during the time, as higher prices were only applicable from 1 September 2016, a few months before the start of Demonetization. The increased MSPs prior Demonetization also may have acted as an incentive for farmers to produce more crops, to maximize their revenue, and thus, this may have been one of the factors that drove the bumper Kharif harvest in 2016.

| Commodity | Variety | MSP for 2015-16 (Rs per quintal) | MSP for 2016-17 (Rs per quintal) | Increase over previous year (Rs per quintal) |
|---------------------|-----------|----------------------------------|----------------------------------|--|
| KHARIF CROPS | | | | |
| Paddy | Common | 1410 | 1470 | 60 |
| | Grade 'A' | 1450 | 1510 | 60 |
| Jowar | Hybrid | 1570 | 1625 | 55 |
| | Maldandi | 1590 | 1650 | 60 |
| Bajra | | 1275 | 1330 | 55 |
| Maize | | 1325 | 1365 | 40 |
| Ragi | | 1650 | 1725 | 75 |
| Arhar (Tur) | | 4625 (includes Rs.200/- Bonus) | 5050 (includes Rs.425/- Bonus) | 425 |

Table continued on page 30.

| Commodity | Variety | MSP for 2015-16 (Rs per quintal) | MSP for 2016-17 (Rs per quintal) | Increase over previous year (Rs per quintal) |
|--------------------|------------------|----------------------------------|----------------------------------|--|
| Moong | | 4850 (includes Rs.200/- Bonus) | 5225 (includes Rs.425/- Bonus) | 375 |
| Urad | | 4625 (includes Rs.200/- Bonus) | 5000 (includes Rs.425/- Bonus) | 375 |
| Cotton | Medium Staple * | 3800 | 3860 | 60 |
| | Long Staple ** | 4100 | 4160 | 60 |
| Groundnut in shell | | 4030 | 4220 (includes Rs.100/- Bonus) | 190 |
| Sunflower seed | | 3800 | 3950 (includes Rs.100/- Bonus) | 150 |
| Soyabean | Yellow and Black | 2600 | 2775 (includes Rs.100/- Bonus) | 175 |
| Sesamum | - | 4700 | 5000 (includes Rs.100/- Bonus) | 100 |
| Nigerseed | - | 3650 | 3825 (includes Rs.100/- Bonus) | 300 |

Appendix 2

Survey questions to farmers

How was your Kharif harvest in October-November 2016?

What difficulties did you face with your Kharif harvest, due to Demonetization?

Was your Kharif sale affected by Demonetization? If yes, how?

How did you manage to sell your Kharif crops during Demonetization?

Was your Rabi sowing affected by Demonetization? If yes, how?

Did you have enough money to carry out usual Rabi crop sowing?

If not, how did you arrange money for Rabi sowing and Kharif harvests?

Did you form an alliance with other farmers during the November/ December period?

How was your business affected, overall, by the Demonetization of notes (profits/ losses)?

How did you price your crops 7 days before the Demonetization act?

Did the prices change after the announcement of Demonetization? If yes, how did the crop prices 7 days after Demonetization compare with a week before its implementation?

Which modes of payment did you use during the November- December period?

| | |
|-----------------|--|
| Cash | |
| E-payment | |
| Cheque Payment | |
| Delayed Payment | |

Did you receive any help from the government during the November- December period?

Please identify your income range.

| | |
|----------------|--|
| (1)5000-10000 | |
| (2)10000-20000 | |
| (3)20000-40000 | |
| (4)>40000 | |

Appendix 3

Interview questions to Shanti Lal, a member of Agriculture Committee of Sultanganj.

How important are high denomination notes (cash) for farmers in Sultanganj?

How was the Kharif harvest in Sultanganj, in 2016?

How did Demonetization impact Rabi Sowing in Sultanganj?

What did farmers do to make money during the November-December period, for household expenditures and Rabi sowing?

What steps did the government take to help farmers?

Were farmers aware of the help that the government arranged for them?

How beneficial and effective was Demonetization, in your view, for Sultanganj's economy and the Indian economy?

Appendix 4

Interview questions to Prakash Jain, a Pulses trader (Owner of the business: 'Prakash Dal Mil').

How was your business affected by the Demonetization act?

If it was affected deeply or even slightly, has the business recovered from cash crunch?

How did crop prices compare a few days before and after Demonetization?

Did you receive any help from the government during November- December period?

How beneficial and effective was demonetization, in your view, for Sultanganj's economy and the Indian economy?