Trade Potential for Arunachal Pradesh

Debottam Chakraborty[1]
Assistant Professor
Dept. of Economics
Sundarban Hazi Desarat College
Pathankhali, 24 Pgs.(S), West Bengal
Email: chiththi@gmail.com

Niladri De[2]
Assistant Professor
Dept. of Economics
Narasinha Dutt College
Howrah, West Bengal
Email: niladride1@gmail.com

Given the diversified framework different regions of India have different priority sectors and different priority requirements. In order to fulfill this, regions will engage in trade with different countries or other regions within India. In case of International trade, it is interesting to observe that, although any particular region (say a state) cannot individually trade with other countries, the trade basket of India, as a whole, will reflect different regional priorities of India. In this framework, it is challenging to find out the regional export potential in a country like India. Data regarding regional trade is not much accurate, since export data of regions are computed on the basis of the port-wise data. In this connection, a methodology is proposed in this paper, to estimate the regional export potential, considering Arunachal Pradesh as a case. The existing production basket has been matched with the potential export items from India for this purpose. Considering tariff, non-tariff barriers and import penetration ratio for different countries we identified high, low, and medium potential products for the state from this set. It has been observed that some products like spices, silk, bamboo and timber products have high unrealized export potential from the state to different countries.

Keywords: *Export Potential, Comparative Advantage, Shift Share.*

JEL classification: *F14*

1. Introduction

Arunachal Pradesh is like paradise on earth situated on the North Eastern tip of India bordering the countries of Myanmar, Bhutan, and China. The state is a part of the eastern Himalayan range, and covers an area of 83,743 sq. km. Its climate varies from sub-tropical in the south to alpine in the north. Evergreen forest covers more than eighty percent of Arunachal Pradesh with its numerous turbulent streams, roaring rivers, deep gorges, lofty mountains, snow-clad shining peaks, hundreds, and thousands of species of flora and fauna. Its endless variations of scenic beauty are the first to greet sunrise in the country.

Effort of our country towards globalization has been continuing since 1991. This itself has opened new vistas for the state like Arunachal Pradesh having long international border. In fact, the state is bordering one of the largest economy of the World. At the same time the state is blessed with enormous natural resources, which if properly utilized would bring substantial economic benefit not only to the state but as well as to the country. The state is proud of having more than five hundred rare species of orchids, rich horticulture resources, forest and mineral resources. It has a plethora of products in handicraft sector, which may have good markets outside the state and external markets. However, in spite of natural resource advantage the state remained primarily agrarian. Although, industrialization has been planned for the state and being implemented through policy level support through state and central government, due to lack of marketability, only a handful of value added industries has been set up in the state. Along with economic reform, the "Look East" policy has opened up new opportunities to explore trade potential for the states in the eastern region of the country. So, to reap the benefit of the policy it is essential that each state understand its export potential and enlist its priority sector for locational planning. In this paper we take the case of easternmost state of the country.

Exploration of export potential of Arunachal Pradesh can bring the state within the export map of India, which may become a big contribution towards enhancing the country's export. In reference to that, the specific objective of this study is to list out the export potential products from the state and to identify the potential destination countries.

Measuring export potential at the state-level in India is a difficult proposition. Data regarding regional trade is at best inaccurate. Export data of regions are computed on the basis of the port data. If a product originating in a particular state is channeled through a port located in another state, the export figures for the originating state may be undervalued. The reason for this may be that the state of origin code is not filled in most cases by the exporters themselves but by some clearing agents for whom the origin of a consignment does not bear any significant importance. Thus states without a coastline or a major port may be at a disadvantageous position and their exports may be undervalued. In this paper we try to develop a methodology for finding potential export products from a state. In section 2 we would try to understand how existing literature resolves the problem. Section 3 analyses our methodology. In section 4 we would highlight the findings and section 5 concludes the study.

2. Literature Review

Wu (2003) applied an extended Hecksher-Ohlin model to compare the export performance among Chinese regions. Variables like Government spending, non-state sector development, and foreign direct investment has been included in the model and it has been observed that they affect import intensity positively. Infrastructure development and government spending also have a positive influence on export efficiency. State sector also plays an important role for boosting regional export potential, but the foreign direct investment does not have necessarily any positive influence on export efficiency. It is found that Chinese regions have on an average achieved above 70 per cent of their export potential during 1992-2001. Regional export efficiency indices were calculated and it has been shown that Chinese regions, in general, preformed better in 1998-2001 than the period in pre-1998.

In Reddy et al (2005), nominal protection coefficients (NPCs), effective protection coefficients (EPCs), and domestic resource cost (DRC) were computed to measure trade competitiveness. Trade competitiveness was estimated using the three measures for rice in India using the data from Karnataka on the basis of importable hypothesis for the two periods, pre-liberalization (1985-86 to 1991-92) and post-liberalization (1996-97 to 2000-01). Trade competitiveness of a commodity reveals whether a country has an opportunity to engage in export trade. It was found that rice, which is the major crop in Karnataka State, had been largely

competitive on an importable basis with its NPC values being below unity during the reference period. EPC estimates showed that, in only five years during the 17-year reference period, it was more than 1, indicating that the state had protected the crop only in those years. However, for the reference period, the average EPC revealed that Karnataka is an efficient producer of rice. The estimates of DRC revealed that the state had a comparative advantage in rice production.

Barua and Chakraborty (2010) tried to find out relationship between inter-regional inequality and trade openness in case of India. They found that regional inequality in India has been increasing in all components of income except for the primary sector. In these circumstances, while openness had initially led to a rise in both income and manufacturing inequalities, there was clear evidence of a decreasing tendency of inequality as openness had increased. In case of agriculture, this relationship is just opposite. Again any imbalance in infrastructural development within the country would result in a sustained increase in inter-regional inequality in this framework. But all this result has been drawn on the basis of generalized openness of a country and not regional openness.

Marjit et al (2007) proposes a regional trade openness index (RTOI) based on the comparison of production proportion of a state and the export/ import shares of India. The states had been ranked according to the rank correlation for a particular year for a particular state, in case of export and in case of import the same methodology has been followed but an inverse rank has been computed. A composite rank has been calculated from these two ranks (through the arithmetic mean of the two ranks), and this rank is actually the RTOI. This index has been further used to find out its relationship with regional disparity. It was found that states with relatively high levels of income are also those with greater exposure to trade and such a relationship has grown stronger over time.

Helmers and Pasteels (2006) carries out the analysis through forming a decision tree using four indicators: A) Trade potential at the sector level, based on the gravity equation specification, B) Trade flow analysis at the commodity level, C) Trade costs at the commodity level, and D) Supply and Demand conditions at the commodity level. It measured the trade potential at the sector level using the International Trade Centre's (ITC) TradeSim gravity model. Trade flow analysis at the commodity level indicates different parameters like current trade, indicative trade potentials (measured through the complementarity of trade between countries) and other parameters like average annual growth rates, unit value etc. It also takes into account the competitors in the exporting countries. The trade cost takes into account the import tariff, trade policy instruments and transportation costs. To assess the supply/demand conditions at the commodity level, the paper takes into account the quantitative production data, other production variables (like rate of utilization of production capacity, production efficiency etc.), product characteristics and consumer preference, FDI etc. It identified a few products where all the criteria have been met. By the nature of the approach, it does not arrive at single numbers, indicating precisely the magnitude of export potentials, but at broad qualitative conclusions. Nevertheless, these qualitative assessments allow for identification of products that bear potential and to narrow down the products under analysis.

Douglas and Hipple (1997) calculated the Export attainment index, export potential index and export performance index. Export performance indices were used to indicate the relative level of export attainment versus its potential for each of the 8 metropolitan areas in Appalachia. It was found that only one of the eight regions has attained exports in excess of the amount predicted by the export potential index. The figures for two other metro areas seem to suggest that they are both exporting at nearly the national average may have little room for more export development. The other five metro areas have significantly less export activity that the export potential index would suggest. The degree of deficiency ranges between 6 to 8 percent less than the national average for the other five metro areas.

Trade flow analysis was used to find the potential products and their markets by Krakoff (2003). The different non-tariff barriers and advalorem duties were used to measure the real barrier to trade for South African exporters. Consumption and import penetration ratio was also estimated to identify the markets.

A range of methods and variables have thus been used to find the export potential at regional or country levels. In this paper we propose a methodology which can find export potential at state-level through minimal use of published state-level data on exports (due to inaccuracy).

3. Methodology

To identify the potential product basket for exports, first the products which have advantage in production in the State should be identified. The production advantage has been calculated by considering Revealed Comparative Production Advantage Index for each product at the state level. This index shows the relative production of a particular product in a state compared to the relative production of the product at the national level. Thus if index has a value greater than one for a particular product for a state it shows that the state has a comparative advantage in producing that product. This may be due to resource availability, skills, policy incentives etc.

The formula for the index is given as follows:

$$\text{RCA (production)} = \frac{\frac{P_{iK}}{P_K}}{\frac{P_{iI}}{P_I}}$$

P_{iK} = Production of i-th commodity in State k

P_K = Total production (of all commodities) in State k

P_{iI} = Production of i-th commodity in Country I

P_I = Total production (of all commodities) in Country I

This index is a variant of Balassa's (1965) Revealed Comparative Advantage (RCA). Here instead of the export figures production figures have been used. Further the products with RCAP greater than one are matched with production volumes to find out the set of products having potential from the state. This has been done to eliminate the products with RCAP greater than one but low production volumes.

To identify the potential commodities from the demand side, we have used the country-level export data (since these factors should be same across regions). Shift Share analysis (David L. Huff and Lawrence A. Sheer 1967) has been performed using the export data to find out the potential export products from the demand side. Shift-share analysis requires measurements on a variable of interest (an exported product) for each member of the group (exporting countries) at the beginning and end of a specified period of analysis. The growth rate (GR) of the item i can be measured as:

$$\Delta V_i = V_{i,t} - V_{i,t-1}$$

Where $V_{i,t}$ is the export in year t, and $V_{i,t-1}$ is the export in year t-1 for an item i.

Now the growth rate of all items (k) is the ratio of total value of terminal time periods to the total value at the initial time period:

$$k = \frac{\sum_{i=1}^{n} V_{i,t}}{\sum_{i=1}^{n} V_{i,t-1}}$$, where i = 1---------n.

The expected value of the growth is the product of growth all items and the value at the initial time period:

$$E(V_{i,t}) = kV_{i,t-1}$$

The expected change of the value of a growth variable for a particular item in a given time period is the difference between the expected value and the actual value for the item at the end of the initial time period. If E (ΔV_i) is the expected change, then:

$$E(\Delta V_i) = E(V_{i,t}) - V_{i,t-1}$$

The difference between the actual change and the

expected change is the net shift. So, if Net Shift is N:

$$N = \Delta V_i - E(\Delta V_i)$$

Now the sum of positive net shifts or the sum of negative net shifts S represents the total absolute net shift.

$$S = \frac{\sum_{i=1}^{n} \left| \Delta V_i - E(\Delta V_i) \right|}{2}$$

The relative gain or loss in the value of a growth variable for a particular product i, in a given time period is defined as the percentage net shift ($P_i = \frac{N_i}{S}(100)$). So,

$$P_i = \frac{N_i}{S}(100\%$$

This represents the percentage of the total gain or total loss of market share accounted for by each product (i). The products showing positive net shift are identified as potential export products from India, as it seems for these products, India is not facing any barrier in the world market. Product list thus obtained from demand and supply side considerations can be matched to find out the potential export products from a state. Thus export potential of a product at the state level is a function of both demand and supply side factors.

EXPij=fij(Sij,D), i=product, j=state.

If a product is produced in relatively high volume in a state and if that product is exported from the country, it is concluded that the state can also export that product. Since the country can export the product, it is assumed that the product has market and the country is not facing any tariff and non-tariff barriers with respect to that product. So as the state is producing that product in relatively higher volume, it can also be exported.

One problem with this methodology is that while considering the supply side factors affecting export potential, we have not considered exportable surplus of the products. This implies that a product may be produced efficiently in one state but may be entirely consumed in that state itself or within the country. Hence such a product even if it has a demand in the World market will not be exported. Example of such a product may be pineapple, which is produced in large quantities in Arunachal Pradesh but is not exported at all. Since we have dearth of consumption data for such purpose secondary sources would not be of much help in calculating exportable surplus. To solve this problem a survey has to be carried out among producers, exporters, policy makers, commodity boards etc. in an attempt to eliminate those products which according to their perception do not have exportable surplus. Such a survey may additionally help to find out other problems faced by exporter, in destination countries and producers within the country in terms of barriers to trade, lack of infrastructure etc.

4. Findings

Arunachal Pradesh does not have any tradition of overseas trade. Historically, Arunachal Pradesh has been a major producer of commodities like spices, fruits, orchids, bamboo, timber, medicinal herbs, handicrafts, handloom etc.

It has been observed that Arunachal Pradesh has production advantage in those commodities where opportunities are increasing in the international markets. But somehow Arunachal Pradesh could not harness the benefits thrown up by these new developments. One of the reasons for such phenomenon may be remoteness of the state from any major seaport of the country. An attempt has been made to understand the export potential of the state from its own production data and country's export data. Primary survey has complemented this effort to arrive at the final list of exportable.

4.1 Secondary Analysis

To identify the products (from supply side) for Arunachal Pradesh both comparative production advantage and the high product values have been considered. The production data have been collected from Annual Survey of Industries, 2017-18 (three

digit level NIC '98 Code) as well as the Agricultural Statistics, 2017-18. Top twenty commodities satisfying this criterion have been considered for further analysis.

On the other hand to identify the potential commodities from the demand side, we have taken the Indian export data for the years 2012-13 and 2017-18. Four digit data from COMTRADE database has been used in shift share method described in the previous section for identifying the potential products.

The top 40 commodities, which have gained high market share, have been selected for further analysis. Now, if we match these products with the set of products, which have high production value/ advantage in Arunachal Pradesh, we will obtain the basket of commodities where Arunachal Pradesh has export potential. The important point to note here is the difference between product coding in case of production data and export data. Whereas in production data we have used NIC ('98) 3 digit code and for export data the HS coding system has been used.

Two related but distinct types of international classification have been in use while classifying products: a classification based on economic activities and a classification based on goods and services resulting from these activities. The NIC classification follows activity based classification whereas HS follows product based classification. Thus a one-to-one correspondence between the codes under the two systems is difficult to establish. To take care of these short comings it was decided that all classifications of activities or goods should use HS as the building blocks whenever revisions are made to the existing coding systems (Annual Survey of Industries). India was one of the first countries to embrace the HS coding system in 1988. While developing the NIC-1998 classification the steering committee decided that among other principles, "Every 4/5 digit category of the NIC may be so structured that one or more subheading(s) of the HS (applicable only to transportable goods) can be assigned as a whole to only one such category in the NIC to the extent possible". Thus three digit NIC could be matched with 4 or higher coding levels of HS. In our study we have used the updated concordance table1 while matching the manufacturing products/ activities under the two classifications. For the agricultural products we have used same method but, without any concordance established between the two classifications. This was due to the absence of any such concordance table for agricultural products. If the product has any production advantage for Arunachal Pradesh we have matched it with the products obtained from shift share approach. Now it may so happen that through shift share, the product category shows potential for exports. If the activity code under NIC falls under the same category (whether exactly matching or not) we say it has potential for exports. For example if the product category obtained from shift share is horticulture and the product obtained from production/ production advantage is pineapple, then pineapple is identified as a potential export product from Arunachal Pradesh.

Sixteen products obtained by applying our methodology. These products mainly fall under the category of limestone, dolomite, medicinal herbs based products, silk, handloom etc. Now, if India has the potential markets for these products, it is obvious that Arunachal Pradesh has both the market opportunities and production facilities for these products, since the products are being produced in significant quantity in Arunachal Pradesh both in relative and absolute terms.

Now, for agricultural products no mapping is available from HS Code to NIC Code. So, for agricultural product, the production data is considered separately and matched with the potential exportable products. So, specific agricultural items could not be identified, rather a broad group of items has been listed out. In the primary survey there would be an opportunity to be very specific about the agricultural products. This

[1]The trade industry concordance table for India was developed by Debroy and Santhanam (1993). They matched each of the three digit codes of NIC-1987 with various codes of ITC (International Trade Classification). Later on Veeramani (2003) have used this concordance table to find out the relationship between India's industry structure and export. The concordance table was later updated to include NIC 98 only for selected manufacturing products.

helps in the identification of potential agricultural products as has been done in case of industrial goods. These agricultural goods include fruits, spices, flower, bamboo and timber.

4.2 Primary Survey

Now, both the industrial products and the agricultural products identified through the secondary analysis have been verified through primary survey. The primary survey has been conducted among the government officials, producers/exporters, trade promotion bodies and commodity boards. The districts for the survey have been selected based on the availability of potential products in the districts identified from the secondary analysis. The selected districts are Papum Pare, Upper Subansiri, West Siang, Dibang Valley and Changlang. Based on a stratified random sampling approach the districts were first selected and then random samples were selected from each group of stakeholders. The exporters/producers have been selected from each group of products of importance in each district.

The questionnaire was kept simple and short to ensure good response rates, with most of the information to be furnished by simply checking boxes to indicate ranking of the advantages or disadvantages on a Likert scale 2. 36 samples were collected. The sample consists of 17% exporters, 28% producers, 33% government officials, 22% commodity boards/ Export promotion bodies.

In addition to the general use of Likert Scales in the questionnaires, some questions were framed to allow multiple responses to a range of categories and some were framed to allow free-text answers. The multiple response format was used where the scope for number of responses were many. Here the respondent can select the appropriate answers from different options. By using the Likert scale for the infrastructure facilities, policy for exports etc., enabled us to quantify the response of exporters on a common scale. On the other hand questions like "Can you prescribe some general measure which can be implemented to increase the exports from Arunachal Pradesh?' requires multiple answers or suggestions. The free text format was used in several places as, such questions required open-ended answers. The use of this structure also facilitated subsequent data entry and analysis. The final list is provided in Table 1 below with deletion of some products and addition of some new products. For example products like pineapple has been deleted from the list of products having unrealized export potential from Arunachal Pradesh, as it is having high level of domestic consumption, which could not be captured through the secondary analysis. Again, Handicrafts has been added in the list as it is having good potential from the state as per the availability of skill. It could not be captured through secondary analysis, as the potential has not been realized yet.

Table 1: Products having export potential from Arunachal Pradesh as verified from Primary analysis

Sl. No	Product
1	Medicinal Herbs
2	Citrus Fruits
3	Dry Ginger
4	Turmeric
5	Bamboo & Timber
6	Flower
7	Tobacco Products
8	Silk
9	Handicrafts
10	Limestone

Source: Authors' Calculation

4.3 Destinations of the Major Exportable

Analysis has been carried out to identify the countries where the major exportable products identified for

[2] A Likert Scale usually involves assigning between four and ten categories to a numeric scale for indicating one appropriate response. In our case a Likert scale ranging in value from 1-5 has been used with rating improving from highly inadequate (1) to low (2), medium (3), high (4), and excellent (5) has been used. Weighted average for each factor was worked out by using ranks 1-5.

the State, are being sent from India. The export data for India for the year 2017-18 has been used for this purpose. Major five destination countries have been selected for each product. Again the MFN3 Applied Tariff (Average for each group of commodities) has been used as tariff barriers. This will give us a basic overview of the destination countries and also about their market openness. Further, the Import Penetration Ratio4 (import as a percentage of GDP) has been calculated through the import data of the destination countries obtained from WITS and the GDP data of specific destination countries from World Bank database (2017-18). With this index, the possibility of penetration in the destination countries can be measured.

The products are then classified in to three different categories:

- Products having high export potential,
- Products having medium export potential, and
- Products having low export potential

This classification is primarily based on three types of entry barriers in a country for the different products, together with the exporters' perceptions. They are:

a) MFN Applied Tariff

b) Import Penetration Ratio

c) Non-tariff Barriers

Products which are facing low MFN Applied Tariff and high Import Penetration Ratio in a particular country will indicate a high export potential. Less stringent non-tariff barriers will be an added advantage for the product in that particular country. High MFN Applied Tariff and low Import Penetration Ratio with stringent non-tariff barriers will indicate a less potential for a product. For example, as turmeric has 4.7% tariff rate in UAE and it is having 62.31% import penetration ratio, it has a high potential in UAE. But dry ginger is having 5.3% tariff in Spain and 26.96% import penetration ratio, it have medium potential. The classification of products is given as below:

Table 2: Classification of Products based on Degree of Potentiality

Products having High Potential	Products having Medium Potential	Products having less potential
Turmeric (UAE)	Timber & Bamboo (Russia)	Limestone
Silk (Hong Kong)	Medicinal Herbs (Germany)	Tobacco Products
Citrus Fruits (Malaysia)	Dry Ginger (Spain)	
Handicrafts (UK)	Flowers (Germany)	

Source : Authors' Calculation

5. Conclusion

The paper has developed a methodology to identify potential export products at the state-level. It has tried to overcome the shortcomings in export data at the state-level through usage of production data at state-level and export data at country level. It then complemented the secondary analysis through primary survey of stakeholders to arrive at a realistic set of products which have export potential from the state. Most of the products have been captured through the secondary analysis, other than the products which have been excluded for the high level of consumption in the state.

The products which have been identified as high potential should be the immediate focus of export promotion activities in the state. It has been found out that products like silk, spices, handicraft, horticulture, and floriculture products are of export interest of the state of Arunachal Pradesh. While from secondary methodology all items could be captured, handicraft items has been added in the list only after the primary survey. Specific products like spices, silk, handicraft is having high export potential in the international

[3] Most Favoured Nation tariff applicable for all countries as per WTO regulations.

[4] This ratio illustrates how far an economy depends on imports. It may be calculated for an individual industry, but we measure this ratio for the whole economy.

market. Flower, have medium level of potential in the international market. Products having middle or low potential must be kept in mind during negotiations. These products face a variety of barriers in the destination countries. Thus the tariffs can be negotiated and non-tariff barriers if any can be discussed during the deliberations.

As it is observed that exportable items are mostly raw materials coming from primary sector of the economy, the potential value added industries must be thought out which may be established in the state. Most important is to chalk out the location of such industries which would have the demand and supply side advantages for its production. A location planning exercise for the identified industries must be carried out in the state.

Further, logistical issues, the brand preference of the consumers in the destination countries may also be taken into consideration to find out the most exhaustive set of potential exportable items. The survey among other kinds of stakeholders like logistic firms (both India & abroad), port authorities (both India & abroad), foreign government officials (in embassies) may through newer insights into the problem.

References

Balassa, B. (1965). "*Trade Liberalisation and 'Revealed Comparative Advantage"*, The Manchester School, Vol. 33, pp. 99-123.

Balassa, B. (1977). "*Revealed Comparative Advantage Revisited*", The Manchester School, Vol. 45, pp. 327-44.

Balassa, B. (1989). *Comparative Advantage, Trade Policy & Economic Development*, Harvester Wheatsheaf, New York, NY.

Barua, A., Chakraborty, D. & Chakraborty, P. (2010). "Trade and Industrial Performance since the WTO Reforms: What Indian Evidences Suggest?" in A. Barua and R. M. Stern (Eds), "*The WTO and India: Issues and Negotiating Strategies*", pp. 142-169, Orient Blackswan.

Barua A. & Chakraborty, P. (2010). "Does Openness Affect Regional Inequality? A Case Study for India", *Review of Development Economics*, 14 (3) (2010), pp. 447-465.

Debroy, B. & Santhanam (1993). "Matching Trade Codes with Industrial Codes." *Foreign Trade Bulletin*, 24(1).

Douglas, P. Dotterweich & Hipple, F. S. (1998). "Measuring The Export Potential Of Urban Regions: A Case Study From Appalachia", USA, ERSA Conference papers, ersa 98, p. 128, European Regional Science Association.

Green, R. T. & Arthur, W. A. (1985). "Identification of Export Opportunities: A Shift Share Approach", *Journal of Marketing*, Vol. 49 (Winter 1985), pp. 83-88.

Huff, D. L. & Lawrence, A. S. (1967). "Measure for Determining Differential Growth Rates of Markets", *Journal of Marketing Research*, Vol. IV (November 1967), pp. 391-5.

Helmers, C. & Jean, M. P. (2006). "*Assessing Bilateral Trade Potential at the Commodity Level: An Operational Approach*", International Trade Centre Working Paper.

Krakoff, C. (2003). "SADC: Key Potential Export Markets And The Market Access Barriers Facing Exporters", *Southern Africa Trade Regional Network.* Symposium conducted at the Maputo, Mozambique.

Marjit, S., Kar, S. & Maiti, D. S. (2007). "Regional Trade Openness Index and Income Disparity – A New Methodology and the Indian Experience", *Economic and Political Weekly,* March, 3, India.

Reddy, B.V.C., Raghavendra, M.S., Achoth, L., Toriyama, K., Heong, K. L. & Hardy, B. (2005). "Global Competitiveness of Medium-Quality Indian Rice: A PAM Analysis" in *Economics*.

Wu, Y. (2003). "*Export Potential and Its Determinants among the Chinese Regions*", School of Economics and Commerce, University of Western Australia, 35 Stirling Highway, Crawley WA 6009, Australia.

Annual Survey of Industries (2017-18). Central Statistical Organisation, Government of India

WITS Data base (2012-13). COMTRADE, United Nations.

WITS Data base (2017-18). COMTRADE, United Nations.

World Bank Data base (2017-18). World Bank Group.

MFN Tariff Database (2017-18). World Trade Organisation.