Review Article

Trade Liberalization, Employment and Income in India: A Cointegration Study

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Abstract

The transformation of trade sector into an important economic sector over a long period is one of the features of economic reforms initiated in India since 1991. The economic reform measures have resulted in very high and continuous performance of sector in the country over a long period. The degree and magnitude trade openness measured as export + import/GDP remains very significant particularly since 1991. This fantastic performance of trade sector has many implications on macro economy in India. The economies of large-scale production and economic linkages owing to trade reforms have resulted in development of industrial economy, service sector, technology development, and high skilled employment and income levels. Higher trade openness over a long period obviously affected employment scenario in the country. The development of export and import have provided large employment opportunities. This is an important achievement considering the large employment market in the country. Consequently, the income levels of the people are also increased. This study has measured the co-integration between trade openness, employment and income levels using the econometric methodology. The estimations of the co-integration show that variables such as trade openness, employment and income are co-integrated and statistically significant. We have estimated Dickey Fuller test to know whether variables are stationary. Then, Johansen tests for cointegration between trade openness and employment estimated. Similarly, Johansen test for cointegration between trade openness and income estimated. The Engle-Granger test estimated. Then Vector Error Correction Model (VECM) is measured. The results of these tests show that trade openness and employment are cointegrated and statistically significant. Similarly, trade openness and income are cointegrated and statistically significant. The Vector error correction model also supports the long run and short run integration.
Keywords: Trade policy, Trade and Labour market interactions, Economic impact of globalisation.
JEL codes: F13, F16, F60.

INTRODUCTION

India followed import substitution policy after independence. A huge protective wall erected to protect the domestic industrial economy from foreign competition. High tariff rates and restrictions followed. There was at the same time export pessimism or export sluggishness. Import substitution policy continued and import of commodities replaced by domestic production. In the early stages, particularly the import of consumer durables is replaced by domestic production. The basic and heavy industries such as iron and steel, cement, electricity etc fantastically developed under the umbrella of protection. However, the zeal and enthusiasm of import substitution lasted only up to the mid-1960s. Then there was a shift of Indian trade policy towards export promotion. By 1970s the keyword was promotion of exports. A large number of measures were implemented.

These include setting up of Tandon committee, Abid Hussain committee, etc to study export prospects. Other measures included are reducing negative import list, export subsidies, tariff reduction etc. Due to this export pessimism was replaced by export optimism. The export promotion was continued with cash compensatory scheme, import replenishment licensing scheme, etc. During 1980s again trade regime changed with emphasis on import liberalisation. The importing particularly of consumer electronic goods made sea changes in consumption behaviour. However, during the decade of 1980s import sector growth overtook export growth resulting in huge trade and balance of payment deficits. In this background of huge external deficit liberal trade experiments were implemented. A large number of measures included the harnessing of the EXIM policies, setting up of Export Promotion Zones, Export oriented units, etc particularly in the early stages of trade reforms.

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The trade regime in India further and further focused on opening up of the trade sector. Similarly of a number of trade agreements were implemented such as ASEAN SAARC, BRICS, etc. The tariff regime was rationalised with reduction of import duty in a very significant way. The liberal trade experiments of India witnessed global attention and the impact of trade reforms on the growth of Indian economy changed the very destiny of the country.

The effect of both export and import sectors on the economic development of the country transformed the position of India in the global economy. Thus, the role of trade sector as the engine of economic growth in India resulted in high growth rates of Gross Domestic Product after 1991. Here, the trade sector resulted in prospects of industrial economy, employment, technology transfer, per capita income, etc Against this background, the present study measures the Co-integration of trade sector with employment and income. The first section provides introduction and second section reviews the selected literature. In the third section prospects of trade liberalization is explained. In section four the co-integration is measured. The last section gives policy implications of the study.

REVIEW OF LITERATURE

According to Sankaran, Abraham and Joseph (2020), the available evidence tends to indicate that the high growth has been accompanied by low employment growth in the organised manufacturing sector. The observed jobless growth has been coincided with an unprecedented increase in the rate of integration of Indian economy with the world market through trade liberalisation. This study explores the underlying factors behind the poor performance in terms of employment generation in the context of trade liberalisation.

Nidhi (2019) empirically examines the relationship between trade liberalisation and unemployment for the Indian economy using data for Indian states. This study provides support to the argument that effects of trade liberalisation have been different for the states in India. The results find evidence for the negative relationship between unemployment and trade openness. The results hence, confirm to the theory that in developing countries trade openness leads to increase in the employment of labour. Kumar (2014) tried to examine the effect of trade liberalisation on employment during the post-reform period in India's organised manufacturing Sector. The analysis shows that trade seems to be having negative effect on employment. Due to this it is important to encourage the labour-intensive exports, which can generate employment for unskilled workers.

Mushtaq *et al*., (2022) explains that while globalisations have increased the movement of goods, technology etc, it has also affected employment. The analysis shows the moderating role of human capital in the globalisation-employment nexus. Jayachandran and Seilan (2010) investigate the relationship between trade, foreign direct Investment (FDI) and economic growth in India over the period 1970-2007. This study adds to the literature by analysing the existence and nature of these causal relationships The cointegration analysis suggested that there is a long-run relationship. The results of Granger Causality test showed that there is a causal relationship between the examined variables.

Mohanamani, *et al*., (2018) assess the causality between GDP, exports and imports. Econometric tests performed are unit root test (ADF). Granger Causality test is applied to assess short term relationships, and cointegration test under unlimited Vector Auto Regression is carried over to assess long run relationships. By applying unit root test all variables became stationery at first difference which leads to the use of cointegration test. By applying cointegration test, results imply the absence of long run relationship between the chosen variables. There are studies looking at the link between trade openness and standard of living as proposed by Frankel and Romer (1999) and Alcala and Ciccone (2004).

There is an extensive empirical literature on trade-income link. First of all, the issue whether trade openness promotes development in terms of income generation is not settled yet. Second, the use of real trade openness as an outcome variable might still allow to gain important insights as to the impact of trade on GDP per worker (Alcala and Ciccone, 2004 and Doyle and Martinez - Zarzoso, 2011).

The theoretical channels through which trade openness impacts on per capita income are basically three; the neo-classical, the endogenous growth and the institutional approach. In the past decades empirical research on the link between openness and growth was abundant. Nonetheless, the research on the question of whether more open economies grow faster or produce a higher per capita income has not been settled yet. Michaely (1977) Krueger (1978) and Bhagwati (1978) started off the debate on whether foreign trade regimes matter for growth. These authors found empirical evidence supporting those outward oriented countries outperformed inward oriented countries in terms of growth.

Prospects of Trade Liberalisation in India

India witnessed serious trade policy reform measures after 1991. The policy focus on trade sector has resulted in higher performance of this sector. The sustained coherent trade policy regime became one important engine of economic growth in the country. Thus, trade liberalisation policy measures became instrumental to open up of the domestic economy. The underlying reforms in trade sector has resulted in transformation of Indian economy to a highest fastest growing economy in the world. These remarkable

initiatives have tremendous scope to transform the economy in the decades to come. Table 1 gives data on India's foreign trade sector since 2000. It is quite evident that the performance of trade sector before 1991 was limited. In 1988 India's export was Rs 20,000 Crores and import- was Rs 28,000 crores. The analysis of data pertaining to trade sector for the recent decades reveal encouraging results. In the year 2000, India export and imports increased to 2,03, 571 crores and Rs 2, 30, 873 crores respectively. In 2010 the same crores have jumped over to 11, 42, 922 crores and Rs 16,83,467 crores respectively. These very sustained development in the trade sector has resulted in the emergence of trade sector in Indian economy.

The very continuous and sustained development in the external sector attracted global attention. The role of Indian trade in the world trade has increased over a long period of time. In 2020, Indian exports shot up to Rs 22, 18, 233. Indian imports also stood at high levels, i.e. Rs 33, 55, 762. The Performance of trade openness in India is provided in Table 2. Due to the Importance of trade sector to the domestic economy, the trade openness is calculated by export + Import /GDP. This data further throws deep light on trade-led economic growth and development in the e economy.

In the Table 2, the data are given for X/ GDP, M/GDP and X+M/GDP. In the year 2000, the degree of trade openness measured is X+M/ GDP was 21.71%. The same has increased to 38.99 % in 2010 and to 44.11% in 2014. The detailed analysis of trade data pertaining to composition and direction of Indian trade also shows remarkable commodity -wise and country-wise diversifications. Thus, it is obvious that the performance of exports and imports has larger implications on industrial production, technology imports, employment and income levels in the country.

Table 1: India's Foreign Trade (Rupees-Crores)

Year	Exports	Imports
2000-01	203571	230873
2001-02	209018	245200
2002-03	255137	297206
2003-04	293367	359108
2004-05	375340	501065
2005-06	456418	660409
2006-07	571779	840506
2007-08	655864	1012312
2008-09	840755	1374436
2009-10	845534	1363736
2010-11	1142922	1683467
2011-12	1465959	2345463
2012-13	1634318	2669162
2013-14	1905011	2715434
2014-15	1896445	2737087
2015-16	1716384	2490306
2016-17	1849434	2577675
2017-18	1956515	3001033
2018-19	2307726	3594675
2019-20	2218233	3355762
Source: Directorate General of Commercial Intelligence and Statistics.		

Table 2: Trade openness in India (2000-2020)

Item/Year	x/gdp	m/gdp	x+m/gdp
2000-01	10.17477	11.53935	21.71412
2001-02	9.608874	11.2722	20.88108
2002-03	10.88533	12.68017	23.5655
2003-04	11.17239	13.67603	24.84842
2004-05	12.63147	16.86255	29.49401
2005-06	13.46166	19.4782	32.93986
2006-07	14.46343	21.26101	35.72444
2007-08	14.31364	22.09281	36.40646
2008-09	15.85263	25.9153	41.76794
2009-10	13.84101	22.32374	36.16474
2010-11	15.72764	23.16602	38.89366
2011-12	17.54905	28.07763	45.62668

Item/Year	x/gdp	m/gdp	x+m/gdp
2012-13	17.27424	28.21222	45.48646
2013-14	18.19007	25.92842	44.1185
2014-15	15.21055	21.95296	37.16352
2015-16	12.46297	18.08255	30.54552
2016-17	12.01581	16.74721	28.76302
2017-18	11.44258	17.56003	29.0026
2018-19	12.2104	19.01978	31.23018
2019-20	11.03401	16.69235	27.72636
Source: compiled from monthly statistics of foreign trade of India, DGCI & S			

Trade Liberalisation, employment and Income - A cointegration analysis

A Co-integration analysis is attempted here taking three variables such as trade openness, employment and per capita income. Trade openness is measured as X+M/GDP, for employment we have taken employment in public and organised private sectors. This is given as number of persons on the live register and per capita net national income is taken as per capita income. The stationary test is attempted. The Dickey-Fuller Unit root test is calculated. In table 3, we give the unit root test for stationarity problem. The Stationary variables are significant at 1% level and 5% level of significance. So, there is no spurious behaviour of variables. Next in Table 4 we have estimated the Johansen and Jusellius co-integration test in the case of trade openness and employment. Here both Trace statistics and Max-Eigen Statistics are significant at 0.05% critical value. In table 5 we have estimated the co-integrations in the case of trade openness and income. The Trace Statistics and Max-Eigen statistics are significant at 0.05% critical value. Subsequently, we have applied Engel-Granger test for co-integration (Table 6). This shows that co-integration does exist between trade openness, employment and Income. Table 7 gives Vector Error Correction model to measure the short run behaviour along the long-run behaviour. The Value of error L1 suggest the VECM model is fit and not explosive. Thus, there is short-run and long-run behaviour between the variables.

Table 3: Dickey Fuller Unit root test

		t-statistic	1%	5%	10%	MacKinnon P value Z(t)
Level	tradeopeness	-1.800	-3.750	-3.000	-2.630	0.3804
1st difference	tradeopeness	-3.577	-3.577	-3.750	-3.000	0.0062
Level	Income_pc	-1.954	-3.750	-3.000	-2.630	0.3073
1st difference	Income_pc	-4.325	-3.750	-3.000	-2.630	0.0004.
Level	emp_ind	-1.635	-3.750	-3.000	-2.630	0.4649
1st difference	emp_ind	-3.582	-3.750	-3.000	-2.630	0.0061

Table 4: Johansen tests for cointegration (trade openness and employment)

```
Trend: Constant                    Number of obs = 19
Sample: 2002 thru 2020             Number of lags =  2
------------------------------------------------------------
                                      Critical
Maximum                       Trace    value
 rank  Params     LL     Eigenvalue  statistic   5%
   0     6     -135.23487      .       17.8944   15.41
   1     9     -128.75789   0.49429    4.9405     3.76
   2    10     -126.28765   0.22897
```

Table 5: Johansen tests for cointegration (trade openness and income)

```
Trend: Constant              Number of obs  = 19
Sample: 2002 thru 2020         Number of lags =  2
-------------------------------------------------------------
                               Critical
                         Trace    value
Maximum
 rank  Params     LL  Eigenvalue  statistic    5%
   0      6    -103.2146      .        14.7201*  15.41
   1      9    -97.878547  0.42976     4.0480    3.76
   2     10    -95.854546  0.19189
-------------------------------------------------------------
* selected rank
```

Table 6: Engle-Granger test for cointegration

		N (1st step) = 21		
		N (test) = 20		
	Test Statistic	1% Critical Value	5% Critical Value	10% Critical Value
Z(t)	-1.979	-5.093	-4.192	-3.772

Table 7: Vector Error Correction Model

```
Source |    SS       df      MS      Number of obs =    20
-------------+----------------------------   F(4, 15)    =    4.24
     Model | 189.04836    4  47.2620899  Prob > F     =   0.0171
  Residual | 167.17098   15  11.144732   R-squared    =   0.5307
-------------+----------------------------   Adj R-squared =  0.4056
     Total | 356.219339  19  18.7483863  Root MSE     =   3.3384
---------------------------------------------------------------------------
D.          |
tradeopeness | Coefficient Std. err.    t   P>|t|   [95% conf. interval]
-------------+-------------------------------------------------------------
    emp_ind |
       D1. | .1030732   .0467921   2.20  0.044   .0033381   .2028083
       --. | -.0899121  .0321895  -2.79  0.014  -.1585223  -.0213019
            |
  Income_pc |
       D1. | -.2562621  .1832512  -1.40  0.182  -.6468527   .1343286
            |
      error |
       L1. | -.1703453  .0931195  -1.83  0.087  -.3688248   .0281342
            |
      _cons | 38.02175   13.5053   2.82  0.013   9.235883   66.80762
```

CONCLUSIONS

The economic reforms implemented in India has resulted in the transformation of economy to a fastly growing one. The trade sector has performed well. The detailed analysis of the trade performance has revealed that prospects of trade liberalisation are enormous. The trade sector has emerged as an important sector which has large implications in terms of employment, per capita income, etc. The analysis of the co-integration technique shows that variables such as trade openness, employment and income per capita are co-integrated and statistically significant. Therefore, from the analysis we may draw the inference that trade sector has emerged as an important sector which has resulted in employment opportunities and high per capita income. The very sustained and continuous trade sector liberalisation over a long period of time resulted in very high macroeconomic performances such as employment and income. So, the rigorous open trade policies are to be continued for the attainment of high growth performances of the country.

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