

# Post COVID-19 Impact on Local and Global Economy<sup>Y</sup>

SugataMarjit<sup>\*</sup>

Suryaprakash Mishra<sup>♦</sup>

*This paper discusses the future impact of COVID-19 on economic activities in general and international trade in particular. An example of a model is developed to explain possible change in sectoral flow of foreign capital to non-traded segment. This short paper brings to the fore the possibilities of deep structural changes in post Covid-19 world in spheres of trade, technology and organization of production with special emphasis on virtual markets.*

**Key Words:** Covid-19, International Trade, Foreign Investments, Capital Flows.

**JEL Classification:** D62, F17, I10, I18.

## 1. Introduction

COVID-19 pandemic has induced a tremendous spike in uncertainty and delivered a significant global shock by heavily and badly impacting global trade. It has crippled both exports and imports. There have been a few estimates by the OECD (2020 a, b) WTO (2020), recent CEPR (UK) volume (Baldwin and Mauro (2020)) etc. with respect to the decline in economic activities. The studies suggest that there has been a substantial drop in trade and GDP of countries across the world. For instance,

---

<sup>Y</sup> This is a revised version of my invited lectures for the Arthabisleshan/ERC, ICSSR, ISEC, Bangalore, Serampore Girls College, Loreto College and the Indian Economic Association/WBSU. Discussions with Rajat Acharyya, Pranab K. Das, Saibal Kar and Biswajit Mandal have been helpful. The usual disclaimer applies.

<sup>\*</sup> Indian Institute of Foreign Trade, Kolkata; CTRPFP, CSSSC, India; CES-Ifo, Munich, Germany. Email: [marjit@gmail.com](mailto:marjit@gmail.com)

<sup>♦</sup> National Law University, Delhi, India. Email: [misra.suryaprakash@gmail.com](mailto:misra.suryaprakash@gmail.com)

one estimate shows that in India the GDP has fallen by more than 50% (Basak, Das and Sarkar, 2020). This is the level effect. However, the growth rates, globally, are largely determined by imported intermediates, capital goods, technology, raw materials etc. (Marjit, Basu, Veeramani, 2019). These (growth rate determinants) too are heavily and adversely affected, chopping off significant chunk of prospective growth rates for all nations.

Marjit, Basu and Veeramani (2019) covers 174 countries and shows that openness with respect to intermediate goods (for a particular country is the share of imported capital and intermediate goods in its GDP), Open Inter, and the per-capita GDP growth are positively correlated as shown below (Figure 1).<sup>1</sup>

In the above paper the authors estimate the following regression model to bifurcate the effect of import of intermediate and final goods.

$$g_{j,t} = \alpha + \beta_1(Open\_inter_j^{initial}) + \beta_2(Open\_final_j^{initial}) + \beta_3(W_j^{initial}) + \delta_t + \varepsilon_{j,t}$$

$g_{j,t}$  is the growth rate of per capita real income of country  $j$  during a five year period  $t$ . The growth rate is the average for each of the six such five-year periods: 1993-1997, 1997-2001, 2001-2005, 2005-2009, 2009-2013, 2013-2017.

$Open\_inter_j^{initial}$  is the share of the capital and intermediate goods in country  $j$ 's GDP for the initial year in period  $t$ .

$Open\_final_j^{initial}$  is the share of the final goods in country  $j$ 's GDP for the initial year in period  $t$ .

$W_j^{initial}$  denotes country level controls: Institutions, Secondary School Enrolment Rate, Human Capital Index, Export Share, Population growth, Initial GDP.

$\delta_t$  are the year fixed effects and  $\varepsilon_{j,t}$  is the error term.

---

<sup>1</sup> Both variables are averaged over each of the six five-year periods (1993-1997, 1997-2001, 2001-2005, 2005-2009, 2009-2013, 2013-2017). Each point in the scatter plot represents a particular country.

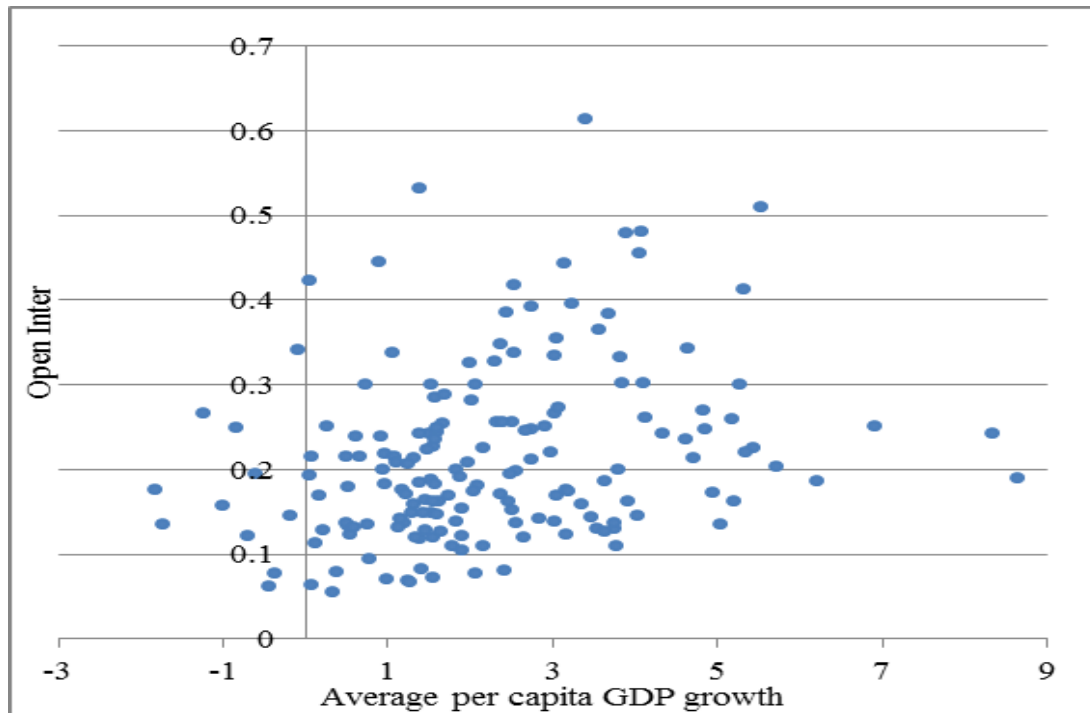


Figure 1: Positive Correlation between Import of Intermediates and Growth

Source: Authors' calculations using WDI, World Bank and UN COMTRADE (WITS)

The main results are summarized as follows. A 10% decline in openness index for intermediates trade reduces per capita income growth rate by 23%. However, this is not the case with the final goods. Thus, the recovery of trade in intermediates is essential for recovery of growth. Protectionist policies will imply lower growth rate if targeted towards intermediates and as supply chains that require human movements across nations get affected (WTO study on pandemic, 2020).

As stated above, the pandemic has severely hampered the global economic activities and trade (the level effect). As the worldwide imported intermediates contribute heavily to growth, it will be unwise to disrupt the supply chain of intermediates through protectionism to save inefficient local sources if growth rate is the concern. While closing borders may increase GDP temporarily, growth will surely falter. Thus, there is a trade-off between the level effect and growth. Hence, it is also crucial for India to keep this fact in mind when taking trade related decisions with respect to China.

However, the scope for taxing Foreign Investment from China might be less challenging.

As a short run policy we may follow Keynes-Mundell-Flemming framework and use effective demand generating effect of a cut back in imports. However, the issue of supply disruptions turns out to be significant and cannot be ignored. The effort to increase the rise in GDP may come at the cost of sacrificing growth hence along with the conflict between the level and growth effect. Under the current situation facing the world a mix of Keynesian/Classical open economy growth model may be the answer, however, the literature is yet to see a proper synthesis.

With this backdrop we are going to look at the changes in trade scenario as the world slowly recovers after the pandemic, which at this stage is quite uncertain to say the least. But the world is looking at late into 2021 for good times: How global trade would look like as nations recover, its basic patterns and features, what trade theory tells us and of course, from the Indian perspective, what to expect for India.

## **2. Sectoral Direction of Prospective Foreign Capital Flows**

We present the outline of a skeleton of a model to focus on a particular issue at the cost of sacrificing some degree of rigor. Consider  $X$  and  $Y$  as representing 2 sectors, namely traded and non-traded, respectively. Note that protectionist policies might increase the relative price of the non-traded sector. Here are the ways it can happen.

Focus on  $X$  which consists of export and import competing sectors. Protectionist policy in a country will raise the price of the import competing good and demand will switch from import competing good to the non-traded good and resources will move away from the non-traded to the import competing sector. Both will cause the relative non-traded price to rise. For the export good the opposite should happen, price is likely to fall as other countries follow protectionist policies and demand will flow to this sector and resources away from it. One could conceive of a situation when resources released by the export sector and the non-traded sector are mostly absorbed by the import competing sector and the strong enough demand switch effect and negative supply effect for the non-traded good raises its relative price even taking care of declining income effect moving away from free trade. Apparently with unemployed resources, such as labor, free trade itself could be less income

generating than restricted trade. These are conventional routes and with appropriate magnitude of demand and supply elasticity, the non-traded relative price will go up. Note that the traded good price will be an index of export and import prices which are moving in opposite directions and hence the relative price of the non-traded to traded good may easily rise.

Other situations also can emerge. The degree of non-traded-ness of a good may depend on how much of it is imported from abroad. Tariffs can be high such that imports become practically insignificant and rising prices attract more investments. Thus one could reinterpret the relative price of the non-traded goods as relative price of goods which have reached a critical minimum level of imports. So technically they are not pure non-traded good but with significant non-traded-ness.

There are situations when new goods or activities come up because certain activities die out. One can think of vector of goods where some have not come up yet. As demand for non-traded goods goes up, more varieties can show up and the same can happen for the import competing good commanding a sizable demand in the local market. This may encourage for example, new App based activities which in turn may attract more investment.

Fall in the price of a traded good may expand production in the conventional non-traded sector and reduce its relative price, say for the yellow cabs. But that may lead to more educated, entrepreneurial, tech. savvy drivers to opt for Ola or Uber as wage drops in the yellow cab sector and Apps for new cabs are made available. Supply of manpower makes the App operated cabs more lucrative spots to invest. Discerning consumers switch demand towards new products of higher quality in the non-traded sector. When the conventional non-traded prices start dropping because of a supply shift, new non-traded goods have better chances to emerge. Thus, the conventional route which pushes the price of the yellow cab down because contracting traded sector releases resource and the supply of yellow cabs increases, it also paves the way for introduction of new products and new investments take place. In fact, the supply of yellow cabs can very well go down with driver shortage and demand switch.

Let  $r^w$  represent the world interest rate (real) and is increasing in capital required for investment, i.e.,  $r^{w'}(K) > 0$ . Let the production function be given by  $Y = Y(K)$ . The investment incentive constraint would be as follows,

$$\text{Rate of Profit in } Y = \left[ \frac{P_y}{P_x} \cdot \frac{Y(K_y)}{K_y} - (1 + r^w) \right] \geq 0 \quad (1)$$

It is straight forward that the investor will invest as long as the value of average productivity is equal to  $(1 + r^w)$ , the cost of capital; and also that  $r^w$  is the real rate of interest expressed in the units of  $X$ . Rates of profit would be the determinant of the sector specific investment; the sector with the higher rate of profit would attract all the investment while there would be no investment in the other sector.

As long as value of the average productivities equals the cost of capital, investments would be undertaken by the investors. As shown below (figure (2)), the sectoral flow of capital is determined by the value of average productivities, the cost of capital and the amount of capital in that sector. Typically, the following should be true of the value of the average productivity of sector  $Y$ :

1. It is zero if the capital in sector  $Y$  is less than  $K_{y_1}$ , i.e.,  $\forall K_y < K_{y_1}, \frac{Y(K_y)}{K_y} \cdot \frac{P_y}{P_x} = 0$ .
2. It is increasing and convex if the capital in sector  $Y$  is in between  $K_{y_1}$  and  $K_{y_2}$ , i.e.,  $\forall K_y \in (K_{y_1}, K_{y_2}), \frac{Y(K_y)}{K_y} \cdot \frac{P_y}{P_x}$  is increasing and convex.
3. It is increasing and concave if the capital in sector  $Y$  is greater than  $K_{y_2}$ , i.e.,  $\forall K_y > K_{y_2}, \frac{Y(K_y)}{K_y} \cdot \frac{P_y}{P_x}$  is increasing and concave.

Note that the same should be true for sector  $X$  as well. Here will exist the possibility of multiple equilibria and the same is illustrated below (Figure 2). Suppose, initially both the sectors are near the same  $r$  (after long adjustments), i.e., they give the same returns, and (1) captures the common path (though, it would not matter even if they were different). Thus, this is the depiction of a situation where the same level of capital in both the sectors gives the same returns. Consider the same level of capital in both the sectors,  $A$ , less than  $K_{y_2}$ , i.e.,  $K_x = K_y = A = K_{y_2}$ . Clearly, this would

result into an undesirable situation because both the sectors would move towards  $E_1$ , i.e., the average productivities in both the sectors tends to zero, no investments would be undertaken in either of the sectors. This would happen as the cost of capital dominates the value of average productivities in both the sectors. Thus, the crucial point here is that there is a minimum level of capital required for breaking even. On the other hand, the same level of capital in both the sectors equal to  $K_{y_2}$ , i.e.,  $K_x = K_y = K_{y_2}$ , would lead both the sectors to be at  $E_2$ , though the investors would just be breaking even. However, the same level of capital in both the sectors,  $B$ , greater than  $K_{y_2}$ , i.e.,  $K_x = K_y > K_{y_2}$ , with similar reasoning, would lead both the sectors towards  $E_3$ ; investors will invest.

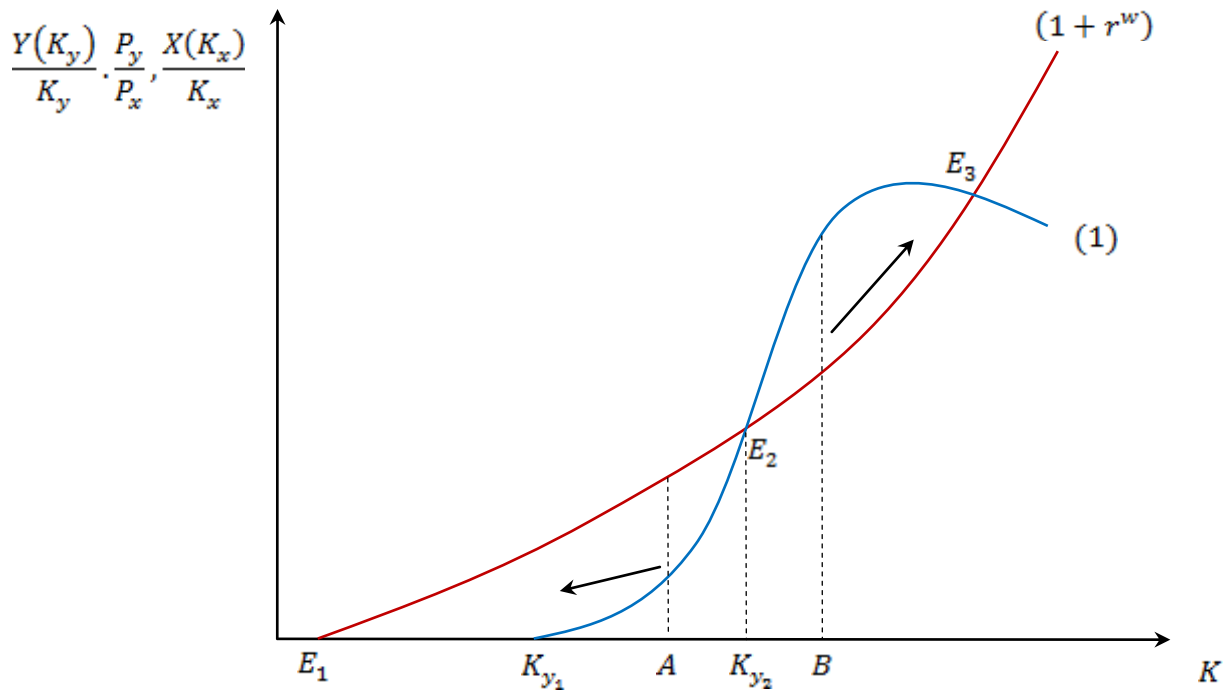


Figure 2: Multiple Equilibria with same sectoral rates of returns

Alternatively, if the same level of capital in both the sectors were to give differing returns, then needless to say that all the capital will flow to the one with higher returns while there would be no investments undertaken in the other sector. Assume that for the same levels of capital  $Y$  always gives higher returns. Now both  $X$  and  $Y$

would be on different paths, i.e.,  $X$  on (1) while  $Y$  on (2). Consider the same level of capital in both the sectors,  $A$ , less than  $K_{y_2}$ , i.e.,  $K_x = K_y = A < K_{y_2}$ . Clearly, investors will not invest in  $X$ , due to negative returns, and it would move towards  $E_1$ , while capital will flow to sector  $Y$  and it would move towards  $E_4$ . We can also consider the same level of capital in both the sectors,  $B$ , greater than  $K_{y_2}$ , i.e.,  $K_x = K_y = B > K_{y_2}$ . Here, there are positive returns in both the sectors, but,  $Y$  offers higher returns. Thus, all the capital would, again, flow to  $Y$  and it would move towards  $E_4$  and there will no investments in  $X$ . The explanation for  $K_x = K_y = K_{y_2}$  is redundant. Alternatively, we can consider during and post-COVID situations. Assume that during COVID both the sectors offer same returns and are on path (1). Post-COVID, however,  $\frac{P_y}{P_x}$  would increase and  $Y$  would move along (2) and tend towards  $E_4$  and attract all the investments. Thus, this outcome would be good for sector  $Y$  as all the capital would flow to it with no investments in sector  $X$ .

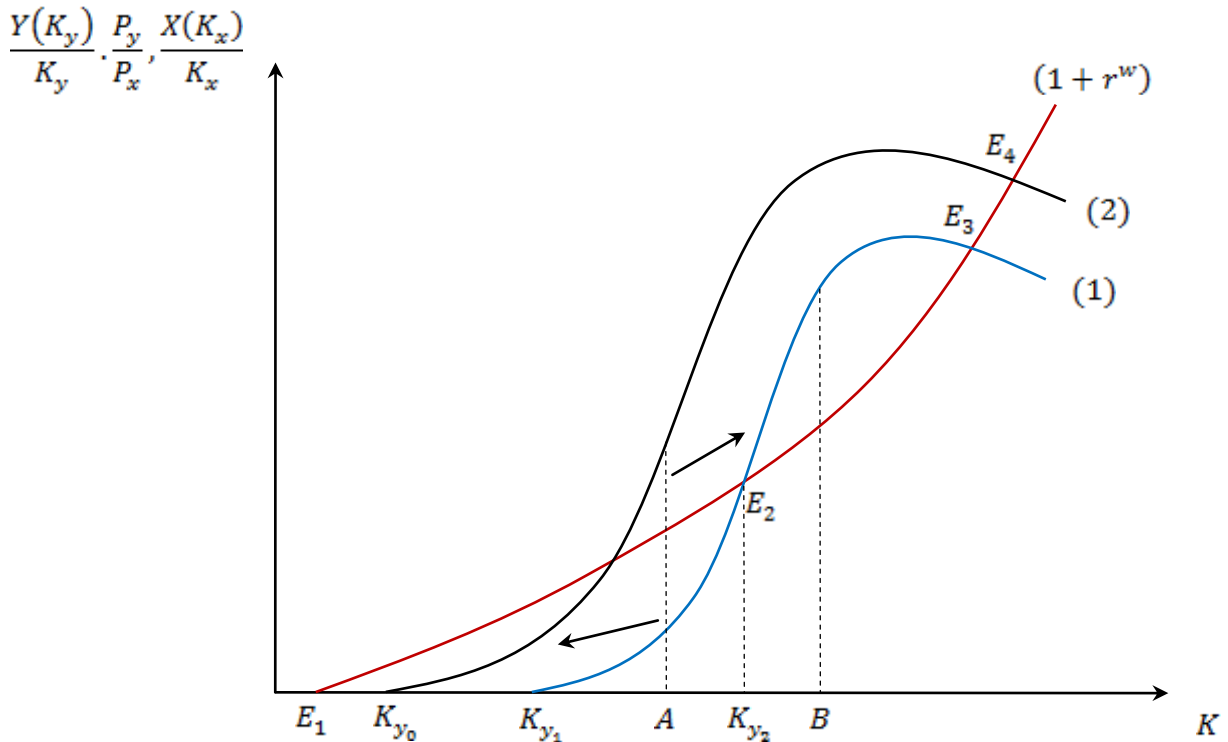


Figure 3: Multiple Equilibria with differing sectoral rates of returns



### **3. Economic Activity/ Trade Pattern**

#### **3.1 General**

As shipping and air freight kick off trade will pick up. However, supply chains will take time to pick up as production units which depend on physical and social interaction of workers will not flourish right away due to the (obvious) risks associated with the contagion. But the ones with fair amount of automation will do better. As a result, there would be a rise in inequality, which brings along additional set of challenges for the policy makers. As a consequence of the above stated trade disruptions, there are bound to be significant changes with respect to trade. The age of virtual trade and online markets and less interface of labor in production organization are what the world shall continue to experience (Marjit, Mandal, Nakanishi, 2020).

There is a new term doing rounds in academia – Contact Intensive Sector. This is beyond labor or capital intensive technologies, may be a sub sector of labor intensive segments. In fact, it has been shown that these sectors are hardest hit in Europe (Lewandowski, 2020). One has to admit that sectors where physical interface is essential will take time to recover and look for technologies that are non-contact intensive. Virtual trade and exchange are natural claimants to dominate in this context.

Generally, trade would also be affected as protectionism would be the preferred policy of the nations world over. It is worth noting that even before the pandemic, major and richer trading nations have been on the way towards anti-trade policies. It can be reasonably expected that factors such as huge and rising unemployment, spread of virus affecting peoples' movement and downfall of GDP would make protectionism more intense. Therefore, as a result, non-traded sectors, in particular in countries with larger home markets will expand. Needless to say that in this altered scenario local demand–supply conditions will be important for economic activities. Economic activities and hence welfare will be increasing in the size of the domestic market. Welfare consequences may go totally in the opposite direction. But populist perceptions and key economic indicators of the economy will be supreme. It is important to remember that a tariff on steel can hurt even those workers who are only engaged in the steel producing sector (Beladi, Marjit and Oladi, 2018).

The role of the domestic market in international trade was originally conceptualized by Linder (1961) and formalized by Krugman (1980) as the home market effect and is a part of the New Trade Theory. The crux is that the good which has strong increasing returns to scale would be produced and exported by the country having large domestic demand for it. Thus, the main factor driving the home market effect is the strength of the economies of scale. However, in our case, the role played by the size of domestic market is different. As stated above, under the current situation, when all nations world over are resorting to protectionism, economic activities and trade are severely and adversely affected. Under this prevailing condition, we bring forth the importance of the size of the domestic market in mitigating the economic adversities such as reduced supply, unemployment etc. Thus, the traded sector would bear the brunt of the current situation while the non-traded sector would expand, increasing the  $\frac{P_Y}{P_X}$  ratio, and if the domestic market is large, the economic woes of the traded sector would be alleviated by the large and expanding non-traded sector. For instance, countries like USA and India would benefit due to the size of their domestic markets while a country like Singapore may not. Thus for countries with larger home market it is easier to switch to the non-traded sectors at a time of trade crisis.

Apps of various sorts which target local retail markets would attract a lot of investments, which would be globally financed. This will lead to flourishing of the virtual trade and virtual markets. For domestic conditions, the size of the domestic market would be crucial. Technology will not be human friendly as it would be labor replacing. It would be more machine intensive everywhere and not only in the high wage countries. Physical supply chains might get hurt with inward looking policies. The role and the responsibilities of the governments are enhanced in this situation. They must watch out for inflation and rising inequality, disparity in education etc.

Tourism industry will suffer in the western countries if vaccine is not available. Also, the west cannot do good without migrant workers as even the skilled activities are indirectly helped by them. The migrant workers, by increasing both the return to capital and the effective skilled wages, also play an important role in containing inequality (Marjit, Pant and Huria, 2020). Now, under the currently prevailing situation facing the globe, anti-immigration bias will magnify from politically distorted public sentiments against high unemployment. Skilled immigration is

necessary for R&D in rich countries and prosperity of their skilled and unskilled workers as it helps raising wages and controlling inequality (Das, Marjit and Kar, 2020).

### **3.2 India**

India's bad state of manufacturing seems to have no hope for help from the global markets. Sourcing from China by the world cannot fall drastically and other Asian countries will come in as alternatives. It is possible, as a result, that India may not gain in this situation. However, India can do better if its manufacturing sector can be revived and it does not continue as only a trading nation. Thus, a big push for manufacturing is essential if India is to benefit from the decline in global sourcing from China. With respect to the manufacturing/ industry, against China's average rate of investment of 44% and share of industry in GDP of close to 46% for many years, India's are around 28% and 30% respectively. India suffers and lags behind because successive governments and the private sector did not care to invest at the desired rate. However, it grew well due to its service sector. India is currently one of the most heavily dependent countries on international trade, in fact, more than USA and China. Without stepping up of investment India will continue to be a trading nation. But, India faces the typical problems of economic-decision making, as in any democracy.<sup>2</sup> Thus, industrial investment implies sacrificing current gains from redistribution and benefits are likely to arrive when the political party is not in power. However, the service sector is easy for the government to pamper. As a consequence, it imports things from China which we could have produced ourselves, for example, images of its Gods and Goddesses and Benarasi Sari. It is worth noting that cutting back all kinds of imports from China are infeasible and undesirable.

The informal sector in India is huge, which serves and saves the country. But there are also a lot of issues with this sector. For instance, it needs technological up gradation to be globally competitive. How productivity or efficiency in other countries can outweigh our advantage due to lower labor costs is amply evident with our trade with China. India seems to love Ricardo, as it specializes in services and forgets manufacturing and its millions of unskilled youth. At a policy level there is a

---

<sup>2</sup> The political parties in a democracy emphasize largely on the policies that are expected to fructify within their tenure (in office), hence beneficial for their re-election to office. Thus longer term concerns are not prioritized.

need for good quality education and training as the same are extremely crucial and thus are needed for entrepreneurial ventures. Also, the government must, on a priority basis, find out as to why the private sector does not invest in R&D utilizing and improving indigenous resources.

Before COVID hit the world, India has experienced a windfall gain due to the significant drop in oil prices, as reflected in its foreign exchange reserve and revenue. COVID created another such opportunity as demand for aviation fuel has not picked up yet and the government is likely to use this gain for recovery. However, in due course of time the situation may not be as favorable and may even go the other way as the tax revenue has already gone through the floor and oil prices eventually will pick up. USA has been pumping money and a part of it will arrive in India as it always does. The same has happened in the past, after 2008 financial crisis.

Ours is a big market, hence home market effect will be strong and capital will flow into the Indian economy. That's the reason why FDI keeps coming into India, though now, the remittances would go down. At the global level, India at this stage is looked upon as a good place to invest as global trade relations with China, for various reasons, may suffer. Also, Indians now might invest even more as US gives Indian job aspirants hard times and the significant retrenchment in higher education in the West may also be another possible reason. NRI professionals are also uncertain in the west and thus they may invest in the Indian economy. That might encourage some capital inflow into India.

We offer two policy recommendations for the Indian government. One, India should print money and spend (which it is doing) and not worry about increasing the public debt. Japan never went into massive recession and unemployment with huge public debt (Krugman, 2020). For India inflation should not be an issue if agriculture performs adequately and debt is utilized properly to generate growth. Two, India must focus on the financial power of its states, the states must be more powerful financially. They must be allowed to directly borrow from the Central Bank i.e., the RBI and must share a part of the fresh money creation. It is also important that the governments must invest and focus on facilitating the private sectors too to invest, in order to help manufacturing.

One issue of significance is the twist in India's BOP surplus through trade and capital flows. It has been the case that trade and FDI data are polluted due to misreporting (Marjit et.al, 2019). India has always under-reported capital inflow from USA and over-reported the same from Mauritius. Even IMF does not look at the two sided data to match and the Central Banks also do not match the data among themselves. This, however, is a perennial issue. This is an extremely serious concern because the efficacy of policy(ies) in general is heavily dependent upon the quality of information. Needless to say that better information implies better policy. It would be a good exercise for the governments to track how such mismatches or anomalies respond during and after COVID pandemic.

#### **4. Conclusion**

In this paper we discuss the economic impact of COVID-19 and particularly focus on the international trade. We analytically illustrate the possibilities of multiple equilibria with respect to capital flow and show that capital would flow to the non-traded sectors as protectionism promises higher rate of returns in this segment. We also bring to the fore the shifting paradigm with respect to trade and exchange from physical to the virtual platform and emphasizes the potential prominence of the latter under the current situation facing the world. There is a fundamental conflict between level and growth of GDP in the recovery process if supply chains are disrupted even after the pandemic through import substituting policies. We, like others, cannot see behind the great wall that is still rising, except making educated and informed conjectures. That is what we do in this paper.

#### **References**

- [1] Baldwin, R. and di Mauro, B.W. (Eds). 2020. Economics in the Time of COVID-19. *CEPR Press*.
- [2] Beladi, H., Marjit, S. and Oladi, R. 2018. Does Protectionism Harm Unskilled Workers? *Economics & Politics*, 30(3), 444-450.
- [3] Basak, G.K., Das, P.K. and Sarkar, S. 2020. Lockdown and GDP Contraction in India: A National Income Perspective. *Working Paper at ISI & CSSSC*.

- [4] Biswas, A., Marjit, S. and Sarkar, S. 2019. Misinvoicing Trade & Informal Capital Movements: The USA - India Case. *Seventh IMF Statistical Forum on Measuring the Informal Economy*. November 14-15, 2019.
- [5] Das, G.G., Marjit, S. and Kar, M. 2020. The Impact of Immigration on Skills, Innovation and Wages: Education Matters more than where People come from. *Journal of Policy Modeling*, 42(3), 557-582.
- [6] Krugman, P.R. 1980. Scale Economies, Product Differentiation, and the Pattern of Trade. *The American Economic Review*, 70(5), 950-959.
- [7] Krugman, P.R. 2020. The Case for Permanent Stimulus. In Richard, B. and di Mauro, B.W. (Eds). *Mitigating the COVID Economic Crisis: Act Fast and Do Whatever It Takes*. *CEPR Press*.
- [8] Lewandowski, P. 2020. Occupational Contagion and Spread of Covid-19 in Europe. *IZA DP No. 13327*.
- [9] Linder, S.B. 1961. An Essay on Trade and Transformation. *Almqvist & Wiksells*.
- [10] Marjit, S., Basu, A. and Veeramani, C. 2019. Growth Gains from Trade. *CESifo Working Paper No. 7905, CESifo, Munich*.
- [11] Marjit, S., Mandal, B. and Nakanishi, N. 2020. Virtual Trade and Comparative Advantage: The Fourth Dimension. *Springer-Nature*.
- [12] Marjit, S., Pant, M. and Huria, S. 2020. Unskilled Immigration, Technical Progress, and Wages—Role of the Household Sector. *Review of International Economics*, 28(1), 235-251.
- [13] OECD. 2020a. OECD Interim Economic Outlook. Coronavirus: the world economy at risk. <https://www.oecd.org/economic-outlook/>

- [14] OECD. 2020b. Evaluating the initial impact of COVID-19 containment measures on economic activity. *<http://www.oecd.org/coronavirus/en/>*
- [15] WTO. 2020. Trade Statistics and Outlook. Trade set to plunge as pandemic upends global economy. *Press release.*