# Paradox of a Supply Constrained Keynesian Equilibrium The COVID-19 Case

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The Indian economy, which was facing demand deficiency and slowdown prior to the COVID-19 outbreak, plunged further with the lockdown. The present exercise represents the current problem as a typical demand constrained Keynesian equilibrium, afflicted further by demand and supply failures generated by transaction costs. The resulting scenario resembles a "supply constrained" Keynesian equilibrium. The article looks at the possible impact on prices and discusses the implications of select policy interventions for such an economy.

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In the context of a medico-economic calamity that has come to visit the entire world with the COVID-19 outbreak, when some economists are apprehending the reappearance of another Great Depression IMF (2020b), and fiscal stimuli and liquidity easing have turned into commonly discussed tools for treating economics trapped in the quicksand of economic inactivity, this article seeks to outline, in a textbook language, how this economic storm may be viewed. To begin with, however, we need to take stock of the recent history.

According to the International Monetary Fund's forecasts about the world economy's prospects in 2020–21:

Global growth is projected to rise from an estimated 2.9% in 2019 to 3.3% in 2020 and 3.4% for 2021—a downward revision of 0.1 percentage point for 2019 and 2020 and 0.2 for 2021 compared to those in the weo, October 2019. The downward revision reflects primarily negative surprises to economic activity in a few emerging market economies, notably India, which led to a reassessment of growth prospects over the next two years. (weo 2020)

The picture presented by the report was somewhat bleak insofar as it expected the growth rates across countries to be low. Moreover, it held India's unsatisfactory growth performance responsible for the overall global underperformance.

Subsequently, in April 2020, when the COVID-19 outbreak was unfolding across the globe, the World Economic Outlook (WEO) presented an even more depressing scenario. According to this report, the global economy is projected to contract sharply by (-)3% in 2020, and the growth of the emerging markets and developing economies to be (-)1%, while that for India is projected to be 1.9%. In a baseline scenario, which presumes the pandemic to disappear gradually in the second half

of 2020 and containment efforts to be slowly unwound, the global economy is projected to grow at 5.8% in 2021 as economic activity normalises, helped by appropriate policy support.

The world was not doing too well in January. However, the latest news conjures up the picture of unprecedented disaster and this is not on account of India's slowdown, but due to a phenomenon that does not figure in the science of economics at all. The cause underlying the catastrophe, as we all know, is the covid-19 virus, which no economic policy measures can bring under control, though the virus itself carries the potential of destroying economies.

Much has been written about the matter already in the print media and academic journals1 and a great deal more discussed by the electronic media. In contrast, as already pointed out, the present exercise has a humble, though precise, goal. Sooner or later, one hopes that the crisis will pass away (even if it does not occur as early as the second half of 2020). Once that happens though, the terrifying tale will surely find a place in economics textbooks. Although we do not know for certain all the implications of COVID-19 yet, we use standard techniques to present a possible manner in which students of economic theory can be exposed to the current happenings and their implications. Since the happenings in question are not yet over, we can present, at best, a partial picture. But it tries to capture the two different kinds of declining growth scenario outlined by the weo reports referred to above.

The chosen analytical schema recommends itself quite naturally since the pre-covid-19 slowdown was primarily a problem of demand deficiency. Various fiscal measures adopted at the time were aimed at lifting aggregate demand. Thus, the initial slowdown can be seen as a typical Keynesian demand constrained equilibrium. However, following the lockdown imposed in India and elsewhere in response to the pandemic, major supply bottlenecks began to emerge. This phenomenon added to the existing demand constraint problem

Figure 1: The Pre-COVID-19 Equilibrium

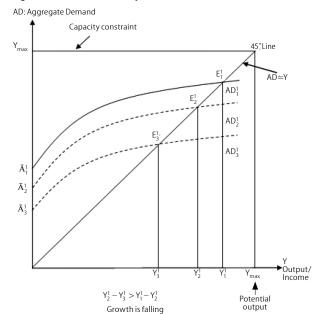
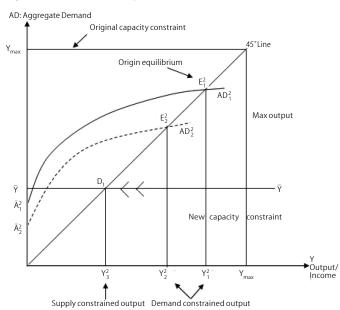


Figure 2: The Post-COVID-19 Equilibrium



faced by the economies, a problem of supply failures. When the two of these are put together, the resulting scenario appears to resemble what we call a supply constrained Keynesian equilibrium. The nomenclature is deliberately chosen to capture what might appear to be a contradiction to students familiar with the notion of a demand constrained Keynesian equilibrium.<sup>2</sup>

The phenomenon is presented below in two ways, first by means of a simple Keynesian model (sкм), and second with reference to a complete Keynesian framework. A typical Keynesian model that undergraduate students are introduced to views the economy to be producing a single macro good. That such a model might be governed simultaneously by demand and supply constraints is a somewhat new phenomenon that students need to be exposed to.3 Put dramatically, we are inhabiting a world today where, despite the demand constraints, the markets are characterised by (constrained) demand exceeding (constrained) supply.

## **Transaction Cost-constrained SKM**

The simple Keynesian description of pre-COVID-19 India (or any other economy in the world caught in a demand-deficient economic slowdown) is a straightforward replication of textbook macroeconomics.

The pre-COVID-19 case: The equilibrium for the SKM is captured by the following equation:

$$Y = AD^{1}(Y; \bar{i}) = \overline{A}^{1} + C(Y) + I(\bar{i}) + G + NX$$
 ... (1)

where, as of a fixed interest rate  $\tau$ ,  $AD^{\tau}$ ). is aggregate demand<sup>4</sup> as a function of aggregate income Y and rate of interest i, prior to the arrival of the novel coronavirus; C is private/personal consumption demand, which depends on aggregate income Y; I is investment demand, which is a function of the rate of interest i (fixed at  $\tau$  here).

In the Keynesian construct, both consumption and investment have an autonomous part, which we club together as  $\overline{A}^I$ . Government expenditure and net export are presented by G and NX. Like the variable i, the price level is held fixed in the skm. These restrictions will be removed when we move on to the complete Keynesian presentation.

Figure 1 captures Equation (1). Not much needs to be said to explain the model, except to emphasise the fact that the model, being demand determined, assumes excess capacity in the system. In equilibrium, aggregate demand equals aggregate output, but the output fails to utilise the full capacity of the system as determined by available capital stocks and labour supply. The full capacity output is captured by the variable  $Y_{\text{max}}$ .5

This is shown in the figure by the horizontal line through the point  $Y_{max}$  on the vertical axis and (using the 45° line) the vertical line through  $Y_{max}$  on the horizontal axis.

Three possible Keynesian equilibria are captured by the points  $E_1^I$ ,  $E_2^I$  and  $E_3^I$  on the 45° line. To increase the level of output, one needs to enhance demand in the system, and the often employed strategies for this purpose are raising G or increasing disposable incomes (via tax cuts). The Government of India did engage in several fiscal measures, including tax cuts and direct benefit transfers, to address the slowdown.

The equilibria at  $E_1^1$ ,  $E_2^1$  and  $E_3^1$  are associated with equilibrium incomes or outputs  $Y_1^1$ ,  $Y_2^1$  and  $Y_3^1$ , respectively. Here,  $Y_2^1$  denotes the output in the period immediately preceding the period for which the output is  $Y_1^i$ . Similarly,  $Y_2^i$  precedes  $Y_2^{1.6}$  We have deliberately chosen  $(Y_2^1-Y_2^1) > (Y_1^1-Y_2^1)$  to capture declining growth rates. The differences obviously do not measure growth rate changes, but for what follows; this artefact plays no analytical role.7 There was inadequate capacity utilisation in all cases with equilibrium output falling short of  $Y_{max}$ . The problem at that time was inadequate growth and the discussions surrounded the usefulness of monetary and fiscal policies to cure the disease. To reiterate, it was a lack of demand problem and that

Figure 3: The Complete Keynesian Equilibrium—Pre- and Post-COVID-19

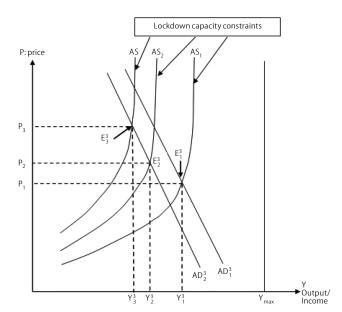
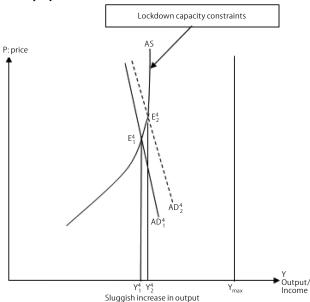


Figure 4: The Complete Keynesian Model: Possible Impact of a Monetary Expansion



alone, for which the cure lay exclusively in manipulating the AD (.; .) curve.

The COVID-19 case: The scenario changed completely when COVID-19 struck. Since no medical solution to the problem was coming forth and is still being awaited, governments across the world resorted to lockdowns and social distancing. From the point of view of economic theory, this amounted to introducing two constraints on economic activities, one affecting demand and the other affecting supply. In what follows, we call these transaction cost (TC) induced constraints.

On the demand side, the transaction cost imposes an extra psychological restriction on the Keynesian consumption function itself. The possibility of contracting the disease has created enormous fear (consisting of a perceived high cost of healthcare associated with participation in the transaction process) leading people to avoid markets. This has caused a fall in both the autonomous and induced parts of consumption demand.

Also, the lockdown inflicted sudden shrinking of income flows and negative expectation that the future will continue to be gloomy, weakened demand as well. Uncertainty about the future, which Keynes referred to as "state of confidence" impacts both autonomous and induced investment demand.<sup>8</sup> On the other hand,

the lockdown keeps workers away from the workplace (even though there are enough willing workers and employers in the economy), thus reducing the flow of production. This can be looked upon as an unboundedly high transaction cost incurred by firms to bring in workers to the production site. The cost is so high that it acts as a capacity constraint. Put differently, the lockdown creates a supply-related "artificial" capacity constraint for production, which is significantly below the pre-lockdown supply constraint *Ymax*.

On account of the transaction cost during the lockdown (total or partial), the aggregate demand function changes to:

$$\begin{array}{ll} AD^2(Y,\bar{\imath},TC\;)=& \overline{A}^2(TC)+C(Y,TC)+\\ I(\bar{\imath},TC)+G+NX(TC) & ...\ (2) \end{array}$$

where  $AD^2$  is the transactions cost constrained aggregate demand. Figure 2 represents the new scenario.

On account of the transactions cost, the aggregate demand curve shifts down from  $AD_1^2$  to  $AD_2^2$ . As noted, a part of the downfall may also reflect a weakening of the "state of confidence" as far as autonomous investment demand is concerned. The demand constrained equilibrium moves now to  $E_2^2$  from  $E_1^2$  and the corresponding output falls to  $Y_2^2$ . However, this is not the end of the story, for we have yet to bring in the supply constraint. On account of the supply side

transaction cost, the earlier capacity constraint  $Y_{max}$  is no longer relevant. The effective supply constraint may fall to  $\overline{Y}$ . If this were to be the case, the achievable output falls below the standard Keynesian equilibrium output and until the supply constraint eases, it cannot rise back towards the earlier equilibrium. From the point of view of the simple Keynesian model, the economy gets stuck at a disequilibrium point. Our analysis raises, therefore, a further problem that the output may fail to qualify even as a simple Keynesian equilibrium. The point  $D_1$  (or  $Y_2$ ) captures this changed scenario.

This can be considered as a situation prevailing in the short run as long as the lockdown continues, either partially or totally.9 Two features of the low level of output/income  $Y_2^2$  ought to be taken into account. First, due to the underutilisation of capital, a part of the fall in income will be caused by a fall in profit incomes and not just wage incomes. Second, the output composition will be significantly different from the one that prevailed prior to the arrival of covid-19. In particular, whatever output is producible will mostly consist of essentials or necessities. It is unlikely that non-essentials will be produced in a large way, at least for emerging economies, though the lockdown lifted lately from liquor shops (probably to boost state government tax incomes during these hard times) could

look like an exception.<sup>10</sup> In any case, exports are likely to be reduced in a major way.

Of course, yet another unlikely possibility exists. The new capacity constraint  $\overline{Y}$  may well exceed  $Y_2^2$  so that the COVID-19 output ought to be viewed as min  $(Y_2^2, Y_2^2)$ . If Y is binding, which appears to be what has happened, the imposition of the lockdown will make output jump vertically down from  $Y_1^2$  to the horizontal line  $\overline{Y}$   $\overline{Y}$  and then push it leftwards along  $\overline{Y}$   $\overline{Y}$ . Since production will be severely constrained, this movement will be associated with a depletion in average level of stocks maintained by sellers. As stocks keep depleting and fresh production fails to rebuild stocks, the situation will worsen still more.

The way Figure 2 is drawn, an economy that finds itself at  $\overline{Y}$  is stuck at a disequilibrium level of output. Since demand exceeds supply here, there should be an impact on prices to bring the economy back to equilibrium. To appreciate this more clearly, we move on now to the complete Keynesian model (CKM).

### **Transactions Cost Constrained CKM**

A CKM is presented in Figure 3 where AD represents the aggregate demand curve once again (but this time as a function of the aggregate price level P) and AS is the aggregate supply curve (also viewed as a function of P). From standard textbook macroeconomics, it is known that the AD curve represents the IS-LM equilibrium in the (Y,P) plane. The economy was sluggish before the covid-19 attack. So, the IS curve must have been steep, leading to a correspondingly steep AD curve. Call this  $AD_1^3(P)$ . The initial equilibrium point is shown as the intersection between  $AD_1^3$  and  $AS_1$  at  $E_1^3$  in Figure 3.11

During the covid-19 lockdown, due to high transaction costs impacting the IS curve, the AD curve shifts backward to an even more steep  $AD_2^3$  curve. On account of the supply constraint mentioned in the previous section, the aggregate supply curve  $AS_1$  also shifts backward and becomes highly inelastic beyond a point. This is represented by  $AS_2$ . The new equilibrium is at  $E_2^3$ . The corresponding output is  $Y_2^3$ . Had the supply curve shifted even more (to  $AS_3$  say), the equilibrium

might have occurred at  $E_3^3$ . The corresponding equilibrium prices are  $P_1$ ,  $P_2$  and  $P_3$ . As already pointed out earlier, the market equilibrium is brought about through successive rises in the price level.

Clearly, a large majority of the population being poor, high prices such as  $P_s$  and  $P_3$  can only exacerbate the problem for them, since willing workers will be forcefully separated from willing employers on account of the lockdown. Under the circumstances, it has been suggested that foodgrains be released from the government godowns and transferred to the poor. <sup>12</sup> This will shift the supply curve to the right and lower prices. Further, the prices could be subsidised.

According to Economic Times (March 2020), "the Food minister Ram Vilas Paswan said in this context that the beneficiaries of the Public Distribution System can buy six months of their quota of subsidized grain immediately." In addition, Finance Minister Nirmala Sitharaman said via Twitter that state governments can draw foodgrains for three months from the Food Corporation of India on credit. This will ensure that the states do not face any cash constraint in distributing food to those in need. Under such policies, it might be possible to achieve a supply that lies to the right of  $E_2^3$ . The prices to be charged for such supplies need to be worked out. Whether food should be distributed free of charge is a matter that is not clear, particularly so since it is not obvious how the food will be delivered to the large number of recipients.

In this context, Abhijit Banerjee observes:

[I]f a government succeeds in giving effective free PDS it will not be enough. In a country like India, if the government says there is free food for the next six months people will not accept. People are accustomed to a better life. ... I think in India we are being too conservative. Oil prices are low. Print some money and do not think of inflation. We need to be quantitative in India and in large sums. (Telegraph 2020)

While Banerjee is quite correct in his observation about free food, one needs to consider how the money printed will be passed on to the poor. This may well be as difficult a proposition as delivering food free of charge to all below poverty line persons and migrant workers. A

redefined Mahatma Gandhi National Rural Employment Guarantee Act (MNREGA) scheme could be a possible way of achieving the goal, but the details of the redefinition and associated legalities are not yet clear, despite the urgency to find a solution to the famine-like condition.<sup>13</sup>

The Reserve Bank of India (RBI), too, has engaged in expansionary monetary policy, but not one that involves lending to the government (that is, money printing). In March 2020, the RBI announced a cut in the repo rate by 75 basis points and a reduction in the cash reserve ratio (CRR) by 100 basis points to 3% for a period of one year. Subsequently, on 17 April 2020, the RBI reduced the reverse repo rate by 25 basis points to encourage banks to deploy funds for lending to business enterprises (especially the micro, medium and small enterprises [мsмes]), rather than keeping them parked with the RBI. With the non-performing asset (NPA) norms relaxed too, some of these measures are aimed to increase liquidity for firms, especially MSMEs that have run out of working capital.

As a result of these policies, one possibility is that the LM curve will shift to the right, producing a corresponding rightward shift in the AD curve from  $AD_1^A$  to  $AD_2^A$  (as shown in Figure 4). Output might increase from  $Y_1^A$  to  $Y_2^A$  but given the inelastic nature of these curves on account of high transactions costs, the improvement in output is likely to be sluggish. However, to the extent that the rightward shift in AD does occur, the current misery of the poor will hopefully be alleviated, even if marginally.

One need not feel too optimistic even about the feasibility of such marginal shifts. For example, the idea of a reverse repo rate reduction discussed above is aimed at inducing the commercial banks to use their idle funds to improve the liquidity in markets by charging more competitive interest rates compared to the reverse repo rate. The dilemma here, though, is that the MSMEs are not likely to borrow at competitive interest rates when the economy is sinking. Some might believe that the MSMEs will borrow if the interest rate becomes very low. Even in this unlikely situation, they may not use the money either to invest in financial assets or to build up active working capital stocks in the short run.

This possibility can be compared with the Keynesian liquidity trap. (In any case, a very low rate of interest will defeat the purpose of the RBI's reverse repo rate reduction policy.) Thus, monetary policy, increased liquidity, etc, are unlikely to boost the real economy. Perhaps, fiscal policy is the only option left before the government, even at the cost of worsening the fiscal deficit. But dealing with the latter problem in the future ought to be an easier task than conquering the virus now. Of course, what form the fiscal policy will assume is not clear either. If it is meant to boost demand, one wonders how such demand will be supplied when production is substantially constrained.

Another action initiated by the RBI recently is to revamp mutual funds to the tune of ₹50,000 crore. This led to an immediate upsurge in the stock markets. One wonders, though, how an improving stock market will bring succour to the starving millions in the country. In this context, it is useful to take note of Paul Krugman's (2020) recent opinion piece in the *New York Times*, where Krugman observes:

(W)henever you consider the economic implications of stock prices, you want to remember three rules. First, the stock market is not the economy. Second, the stock market is not the economy. Third, the stock market is not the economy. That is, the relationship between stock performance—largely driven by the oscillation between greed and fear—and real economic growth has always been somewhere between loose and nonexistent. Back in the 1960s the great economist Paul Samuelson famously quipped that the market had predicted nine of the past five recessions.

Yet another suggestion has come up subsequently from the Indian Revenue Service (IRS) officers who believe that a way out of the current crisis may be a rise in income tax rates for the rich and a reintroduction of the wealth tax (Dhingra 2020). It is not clear what sort of economic arguments were offered in support of the policy. In all probability, though, it was directed more towards protecting the fiscal deficit than anything else. Quite justifiably, the government has not reacted positively to the

suggestion. High tax rates do not auger well for an economy caught in a depression, since higher tax rates on slowly growing incomes are likely to damage the system by squeezing down spending. As far as wealth taxes go, in the current scenario, real estate prices too are moving down. Taxing these at government-determined valuation is likely to be counterproductive, since the actual market valuation is likely to be lower. Consequently, these measures might have a negative impact on the economy.

The following observation by Rittenberg and Tregarthen (2009) clarifies the last observation further. With reference to the Great Depression, they observe:

Other factors contributed to the sharp reduction in aggregate demand. The stock market crash reduced the wealth of a small fraction of the population (just 5% of Americans owned stock at that time), but it certainly reduced the consumption of the general population. The stock market crash also reduced consumer confidence throughout the economy. The reduction in wealth and the reduction in confidence reduced consumption spending and shifted the aggregate demand curve to the left. Fiscal policy also acted to reduce aggregate demand. As consumption and income fell, governments at all levels found their tax revenues falling. They responded by raising tax rates in an effort to balance their budgets. The federal government, for example, doubled income tax rates in 1932. Total government tax revenues as a percentage of GDP shot up from 10.8% in 1929 to 16.6% in 1933. Higher tax rates tended to reduce consumption and aggregate demand.

As the above quote attempts to clarify, during depressions, balancing budgets through taxation is unlikely to help revive an economy. The above policy measures, suggested or implemented, constitute only a few of the measures that have been discussed in the literature. A more comprehensive listing of the policy suggestions can be found in Ray and Subramanian (2020).

## **Concluding Remarks**

We conclude this short exercise by noting an important theoretical paradox. The paradox consists of transforming, via the economic lockdown command, a normal Keynesian demand constrained equilibrium to an artificially generated supply constrained equilibrium. This may

have been the policy pursued by many other economies, too, faced with the COVID-19 crisis. However, given India's predominantly large informal labour force, it has created a special problem of its own. The lockdown has unleashed the migrant labour problem that is leading to mortalities in poorer sections of the economy from causes which may have no obvious link with the virus.

As Ray and Subramanian (2020) have noted in their work in progress, it is important to find a way of computing what fraction of the mortalities was caused by COVID-19 itself as opposed to other reasons. At this stage of their work, they appear to suggest a serious need to figure out whether the draconian lockdown imposed on the economy was called for at all. Going back to our theoretical observation, the conversion of excess supply to excess demand by artificial means during the lockdown period is comparable to the disaster precipitated by the Bengal famine of 1943.

While we made an attempt to formalise the developments, when the pandemic is ruling and the lockdown measures in various forms are still in force, it is rather difficult to predict precisely how the future scenario will unfold. This is owing to the fact that no one is certain about when a cure will be found either in the form of a therapy or a vaccine, or whether herd immunity will be developed by the populace. Researchers from different parts of the world have provided different estimates of the time line for an end to the crisis. Even if a cure is found in the future, some of the economies, by then, may resemble warravaged ones and rebuilding efforts through demand or supply push may operate only very slowly.

From the demand side, re-establishing normalcy will require bringing back consumer confidence, both in terms of reduction of transactions costs (by improved sanitary measures, public healthcare and better healthcare options, etc) and removal of uncertainty of income flows. In the absence of the latter, not only income but also the propensity to consume could fall due to a rise in preference for savings in the face of uncertain earnings.

Enhanced liquidity in the system can be useful only if it reaches the pockets of the poor who, in general, have high propensities to consume. As pointed out above, this could happen through a redefinition of rural employment in the MGNREGA and making prompt payment through direct cash transfers. However, it is best to keep in mind that such a policy may be more successful only after the supply bottlenecks arising out of the lockdown are significantly reduced. There can be other problems as well.

On the supply side, producers face twin problems of getting factors of production/raw materials to the production location and a lack of consumer confidence. As the labour force is dispersed to various parts of the country, there might arise a non-trivial search cost for workers as well as employers when the economy attempts to turn around. Quite apart from the usual forms of unemployment, the economy will have to deal with search unemployment issues as well. Also, due to the slump in consumer confidence stated above, effective demand may not revive quickly, even with a total eradication of the pandemic.

Finally, as the lockdown gets gradually eased, the spread of the virus could well increase, bringing more disruptions and uncertainty to the economy. As a result, even the structure of the economy in terms of the output shares of various sectors may change. In the years following independence, agriculture had the highest share in the economy and services the lowest. With the Indian economy growing over time, the share had moved in favour of services and away from agriculture. The covid-19 problem, however, appears to have caused a return to the past, and regaining the immediate pre-COVID-19 equilibrium will therefore be a challenging exercise.

#### NOTES

- 1 Several of these have been published in the *Economic & Political Weekly*, dealing with issues ranging from public health to gender and racism. For a dynamic exercise, that views the pandemic as a non-internalised external diseconomy in a competitive framework, see Eichenbaum et al (2020).
- 2 The presence of both demand and supply constraints might produce the impression that the appropriate framework for studying the problem ought to be Walrasian. However, such a

- viewpoint will be inappropriate, since the current supply constraint coexists with potential excess capacity. Indeed, this is the reason why governments across the world are seeing economic remedies to the devastation in typical Keynesian fiscal and monetary policies.
- 3 It should be noted here that macro models that incorporate both demand and supply constraints have been studied in the past as well. Such models normally viewed the demand constraint to be regulating the industrial sector, while supply constraints characterise the agricultural sector. See, for example, Bose (1989); Dasgupta (1989). While these papers were devoted to studying underdeveloped economies alone, the present exercise addresses the problem from the point of view of all possible economies, including developed economies in a major way. For concreteness though, India receives emphasis in our presentation. This being the case, we have chosen to present our ideas in terms of a single good macro model, as opposed to the approaches followed by the authors referred to above. Since the great lockdown has imposed supply constraints on industry as well, both the industrial and agricultural sector have begun to share common features.
- 4 For a discussion on the novel coronavirus and a somewhat different AD curve linking productivity growth and employment, see Fornaro and Wolf (2020).
- 5 To the extent that there is investment in the system, one might wish to assume that full capacity itself rises over time. In that case, the Y<sub>max</sub> line need not be horizontal (viewed from the vertical axis) or vertical (viewed from the horizontal axis).
- 6 Without loss of generality, we are being somewhat casual about the definition of a period. The literature discusses year on year quarterly growth rates. From that point of view, Y² and Y³ may be viewed as annually separated quarterly outputs. However, for our theoretical discussion, they may also be viewed as yearly, or for that matter, quarterly outputs.
- 7 Strictly speaking, the differences would have represented growth rates if the variables were measured in natural logarithmic scale.
- 8 According to Keynes (1936) (Ch 12): "The state of confidence is relevant because it is one of the major factors determining the ... investment demand schedule."
- 9 Alternatively, as we shall point out in the CKM, the demand itself may fall towards  $Y_2^2$ .
- 10 Barua (2020) analyses this possibility in detail. As news has it, however, Italy has taken steps towards opening up its Ferari sports car factories. Whether this decision will stay in force remains to be seen.
- 11 Although we are calling this the complete Keynesian model, it should be emphasised that the AS curve is a straightforward aggregate supply curve (to which students are introduced in microeconomics courses) and not the typical AS curve one comes across in macro textbooks. The reason why we avoid the macro AS construction is that it is usually constructed to capture features linked to wage bargaining vis-avis the state of unemployment. In our simple framework, such details have no role to play.
- 12 According to repeated announcements by the media, 76,000 tonnes of foodgrains are available for distribution in FCI godowns.
- 13 Yet another suggestion from Abhijit Banerjee to distribute temporary ration cards to anyone who asks for it does not appear to be a feasible policy to follow.
- 14 What the proposal misses is that not too long ago, corporate taxes were reduced in the hope of reviving the economy. Turning the argument around, a rise in taxes will damage the economy, especially at times such as these.

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