POST-COVID SCENARIO: SOME ISSUES RELATED TO HEALTH EXPENDITURE AND URBANIZATION

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[*The socio-economic crises which most of the countries of the world along with India are facing pose huge challenges before the governments and the common people in the affected regions of the world, raising many novel issues and imposing wrenching trade-offs. In this paper, we have tried to establish the correlation between state intervention in health infrastructure and recovery from pandemic-led crises.*

Our analysis of morbidity and mortality from COVID-19 reveals significant causal effect of urbanization on the degree of incidence of COVID-19 epidemic across the states in India, in particular, every one per cent rise in urbanization rate translates into over 9 per cent in morbidity from COVID-19 and over 10 per cent increase in mortality rate, on an average across the states. Moreover, it becomes evident from this study that per capita health spending, particularly by the State, is statistically significant for explaining the role of health spending as preemptive factor against pervasion of COVID-19, and it is a justified case only after having controlled the impact of urbanization.

***Keywords:** Health Infrastructure, Urbanization, Pandemic, Fiscal Stimulus*]

Introduction

The COVID-19 pandemic and the associated socio-economic crises are posing huge challenges before the governments and the common people in the affected regions of the world, raising many novel issues and imposing wrenching trade-offs. Though this crisis is global, but its impacts are deeply local.

The policy response to both crises, viz. the health shock as well as the socio-economic shock, needs to be rapid, even if it is rough around the edges. But countries cannot expect to pull this off on their own, rather the global crisis requires global solidarity and coordination.

There is no denying of the fact that every government needs to respond to this health emergency with decisions based on evidence, provide people with the best accurate information, and provide free or

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affordable COVID-19 testing and treatment. These health services should be backed by adequate health infrastructure particularly in public sector since higher costs of availing health services from private health care service providers may not fulfil the affordability principle in this regard. It is normally assumed that a country with higher health expenditure per capita, higher share of public expenditure on health can fight out the casualty of this pandemic in a better way.

Table-1 Global Scenario of Health Spending and COVID – 19 Pandemic

Country	Health Expenditure Per capita (2016) (US$)	Health Exp as % of GDP (2017)	COVID death as % of total cases (As on 5 May, 2020)
USA	9869.74	17.06	5.76
Germany	4714.26	11.24	4.21
Canada	4458.21	10.57	6.34
France	4263.36	11.31	14.87
UK	3958.01	9.63	15.08
Spain	3259.8	8.87	11.14
Israel	2837.14	7.41	1.46
Italy	2738.71	8.84	13.72
S. Korea	2043.86	7.6	2.35
Saudi Arabia	1147.33	5.23	0.67
Russia	469.13	5.34	0.93
China	398.33	5.15	5.59
India	62.71	3.53	3.38

Source: WHO website, World Bank data website

Review of Literature

Islam et al. (2012) using a large panel data set from rural Bangladesh, estimates the effects of health shocks on household consumption and how access to microcredit affects households' response to such shocks. The prime finding remains as, that even though general consumption

remains stable in many cases when households are exposed to health shocks, households that have access to microcredit appear to be more resilient. The most important instrument used by households appear to be the sale of productive assets (livestock) and there is a significant mitigating effect of microcredit: households that have access to microcredit do not need to sell livestock to the extent households that do not have access to microcredit need to, in order to insure consumption against health shocks. Thus the study posits the case for that microcredit organizations and microcredit per se having to play the role of insurance.

In another study, Haren et al. (2020) project that brunt of Covid-19 on global supply chains will occur in mid-March, forcing thousands of companies to throttle down or temporarily shut assembly and manufacturing plants in the U.S. and Europe. The study indicates that the most vulnerable companies are those which rely heavily or solely on factories in China for parts and materials. Besides, the activity of Chinese manufacturing plants has been found to be plummeting past month and is expected to remain depressed for months. The study highlights how mounting pressure to reduce supply chain costs inducing companies to pursue strategies such as lean manufacturing, offshoring, and outsourcing. Such austerity measures smacks of severe dampening of manufacturing in the light of flagrant supply-chain disruption.

Hartley et al. (2020) presents an event-study analysis of 24 COVID-19 QE announcements made by 21 global central banks on their local 10-year government bond yields. The findings indicate that the average developed market QE announcement had a statistically significant -0.14% 1-day impact, which is slightly smaller than past interventions during the Great Recession era. In contrast, the average impact of emerging market QE announcements was significantly larger, averaging -0.28% and -0.43% over 1-day and 3-day windows, respectively. Moreover, the study comes with an estimate where an overall average 1-day impact of -0.23% averaged over developed and emerging bond markets Besides, the study posits that all 10-year government bond yields in our sample rose sharply in mid-March 2020, but fell substantially after the period of QE announcements.

Hevia et al. (2020) envisages how emerging economies must navigate the COVID-19 pandemic amid collapsing exports, dwindling remittances and tightening international credit conditions. The study asserts that developing countries will be harder hit by the pandemic as many policy measures to fight it will be less effective. This is because that their governments will have difficulties to issue debt to smoothen the COVID-19 shocks as they struggle to credibly commit future tax revenues to pay for a fiscal expansion today.

Hofmann et al. (2020) indicates that borrowing through domestic currency

bonds has not insulated emerging market economies (EMEs) from the financial shock unleashed by Covid-19 in what is revealed by uptick in EME local currency bond spreads coupled with sharp currency depreciations and capital outflows. However, EMEs with monetary policy frameworks that are equipped to address the feedback loop between exchange rate depreciation and capital outflows stand a better chance of weathering the financial fallout from the Covid-19 pandemic.

Tanberg et al. (2020) discusses the role public investment spending can play in the fiscal response to the COVID-19 pandemic in two aspects: cuts or postponements in public investment spending to make room for emergency spending in the immediate response to the pandemic; and the scaling up of public investment spending to support economic recovery and growth. The fundamental highlights are regarding the key challenges facing countries at different levels of economic development and capacity, and it proposes concrete measures to address the two aspects. Besides, it proposes that both during the immediate crisis and the recovery phase, there is a need for strong prioritization and project selection processes, accompanied by clear policy objectives, dedicated coordination mechanisms, and high transparency.

Data Analysis

Herein, we review the correlation coefficient of health expenditure as % of GDP in 2017 (HLTHGDP) and COVID death as % of total confirmed cases (as on May 5, 2020) (COVIDD) across some selected nations including India, we find a positive correlation where Spearman's correlation coefficient is also statistically significant. Similar result is also obtained in case of per capita health expenditure (2016) (HELTPC) and COVID death as % of total confirmed cases (as on May 5, 2020) (COVIDD) [Table-2(a)-2(b)]. This seems to be counter-intuitive in the sense that a country that has a credibility of spending relatively higher (both public and private) share on health is expected to fight against any pandemic more efficiently with lesser casualties. But the situation is completely different. An explanation to this puzzling result might be ineffectiveness of the existing treatment to cure the COVID-affected patients, the mindset of the people to compromise their freedom of movement and adhere to the government lockdown and social-distancing rules, the share of migrant labourers and the intensity of cross-border movement of workers, the possible distribution of the health expenditure among primary, secondary and tertiary heath care services, the quality of support services provided by the government to the common people and health activists, the climatic condition in the country (it is apprehended that this virus becomes less fatal in hot and humid atmosphere), the type of this virus after mutation (medical researchers are of the opinion that the type of this virus found in Europe seems to be more virulent compared to that found in Asian countries), the pattern of vaccination across nations etc.

Table-2(a) Association between COVID Mortality and Health Spending (as per cent of GDP)

Measure of Association	Variable	COVIDD	HLTHGDP
Spearman's Rho	COVIDD	1.000	.604* (0.029)
	HLTHGDP	.	.
Karl Pearson's Product Moment Correlation Coefficient	COVIDD	1	.389# (0.189)
	HLTHGDP	.	.

*significant at 10 per cent (two-tail)   #statistically insignificant

Table-2(b) Association between COVID Mortality and Health Spending (per capita)

Measure of Association	Variable	COVIDD	HLTHPC
Spearman's Rho	COVIDD	1.000	.500* (0.082)
	HLTHPC	.	.
Karl Pearson's Product Moment Correlation Coefficient	COVIDD	1	.301# (0.318)
	HLTHPC	.	.

#statistically insignificant at 10 per cent

Given the novelty of this virus, the medical world was in complete darkness about its possible treatment and most of the countries have been operating still now on a trial and error basis in applying necessary treatment. Hence, the health infrastructure, though needed to give better support to the affected people, failed to check the morbidity. Further, in most of the nations this virus has affected the urban people more in comparison with their rural counterparts. Thus, if the distribution of health expenditure has been more in favour of primary health in

rural areas (though this is not the case with the developed countries) then also the urban centres would be incapable of tackling this problem. The mindset of the people and the level of democracy in a nation can also be a possible factor behind the initial spread of this virus since the people at large would not want to sacrifice their freedom of movement across regions and a democratic government may not take drastic steps to restrict such movements and business activities at the initial stage of this crisis (as happened in USA). Greater incidence of cross border movements of people in any region, if not restricted n time, can also raise the intensity of this crisis.

Further, as against such inter-country comparison, we can have intra-country comparison of the impact of this virus. Let us consider 15 major states of India and look into the existing status of health infrastructure in those states along with the incidence of death due to COVID-19. The urbanization (share of urban population to total population as per 2011 census) pattern in each state has also been taken into account.

Here we observe a clear-cut negative correlation between the per capita public health expenditure across states (in 2014-15) (WBHLEPC) and the incidence of COVID death (WBCOVID). On the other hand, we get a positive correlation between the level of urbanization across states (WBURB) and the number of COVID cases (as on 5 May,2020) (WBCOV). [Table-3(a)-(b)]. However the negative correlation of mortality due to COVID with per capita health spending has been found to be insignificant which is perhaps because of the presence of idiosyncratic variation in epidemiological factors among the states.

Table-3(a) Association of COVID Mortality with Urbanization across the States in India

Measure of Association	Variable	WBCOVID	WBURB
Spearman's Rho	WBCOVID	1.000	.532* (0.041)
	WBURB	.	.
Karl Pearson's Product Moment Correlation Coefficient	WBCOVID	1.00	.499# (0.058)
	WBURB	.	.

*significant at 10 per cent (two-tail)   #statistically insignificant

Table-3(b) Association of COVID Mortality with per capita health Expenditure across the states in India

Measure of Association	Variable	WBCOVID	WBHLEPC
Spearman's Rho	WBCOVID	1.000	–0.163*
			(0.562)
	WBHLEPC	.	.
Karl Pearson's Product Moment Correlation Coefficient	WBCOVID	1	–0.237#
			(0.394)
	WBHLEPC	.	.

#statistically insignificant at 10 per cent

Table 4: Linear Regression Analysis of the Causality of COVID-19 Pandemic Across the Indian States

Independent Variable	Dependent Variable	
	Incidence of COVID-19 (in log)as of 5May,2020	*Mortality from COVID-19 (in log) as of 5May,2020*
Intercept	6.5324*	3.1679#
	(0.0003)	(0.0981)
Per capita health expenditure(in Rs.) as of 2014 – 15	-0.0043*	-0.0032*
	(0.0456)	(0.0392)
Urbanization	0.09921*	0.1141*
	(0.0105)	(0.0218)
R²	0.4327	0.3683
Adjusted R²	0.3382	0.2631
F – statistic (overall significance)	4.5772*	3.4992*
	(0.0333)	(0.0634)

*significant at 10 per cent   #insignificant at 10 per cent

The linear regression analysis of morbidity and mortality from COVID-19 [as in Table – 4] reveals significant causal effect of urbanization on the degree of incidence of COVID-19 epidemic across the states in India, in particular, every one per cent rise in urbanization rate translates into over 9 per cent in morbidity from COVID-19 and over 10 per cent increase in mortality rate, on an average across the states. Moreover, it is hereby evident from the partial regression coefficient of per capita health spending being statistically significant that that role of health spending as preemptive factor against pervasion of COVID-19 is a justified case only after having controlled the impact of urbanization. In this regard, the regression analysis envisage a lower incidence of COVID-19 in terms of morbidity to the tune of more than 0.4 per cent and that in terms of mortality to the tune of more than 0.3 per cent, on

average across the states. This in turn implies that the effectiveness of health spending in staving the backlash of COVID-19 in a given region depends crucially on the extent of urbanization of persistent in that region. Moreover, this finding hints at the virulence or predominance of COVID-19 being significantly spatial in nature and thereof, holds a strong bearing with urban planning.

The COVID scenario has given us a new wake-up call. We must prepare ourselves accordingly keeping in mind the real sustainable development goals with added importance to natural balance. Both short-term and long-term policy initiatives would be needed particularly in developing nations. At first, a fiscal space has to be created through an increase in revenues of the government and through avoiding wasteful expenditure.

Table-5 Health Infrastructure Equivalence of Military Expenditure

Sl. No.	Military expenditure on	Cost (USD Million)	Health infrastructure equivalence	Numbers
1	Virginia class submarine	2800	Fully equipped ambulance	9180
2	FREMM Class Frigate	936	Doctors' appointment	10,662* (in a year)
3	F-35 Fighter Jet	89	ICU Bed Maintenance	3244* (in a year)
4	Trident-II Missile	31	Masks	17 million
5	Leopard -2 Tank	11	Ventilators	440

Source: Greenpeace International [Based on OECD's yearly estimate for a doctor's salary & maintenance cost of ICU p.a]*

The government has to allocate more resources to public health, economic stimulus and the social safety net. This, in turn, would mean that the government has to revise its priorities reflected in budget revenue, spending and financing. By doing so, they can contain increases in fiscal deficits and surges in public debt. It is true that defense expenditure is one of the important segments of the government budget and it is also true that military budget, either as percentage of GDP or in terms of per capita military expenditure, India's figure falls far short of the developed countries of the world. Still we can think in terms of a health infrastructure equivalence of military expenditure (Table-4).

Governments should use stimulus funds and incentives for a significant section of population that need them the most. This would mean channeling sizeable parts of such stimulus packages to small and informal businesses, the vulnerable and poor, and avoid the use of stimulus funds and incentives that enrich the well-off. Small and Medium Enterprises (SMEs) and informal enterprises are the most affected businesses, with informal workers who consist of about 90% of the workforce of India. They are expected to be the hardest hit by the economic shock. The ILO expects a devastating 6.7 percent loss in working hours globally in the second quarter of 2020, equivalent to 195 million full-time workers, 125 million of which are in Asia and the Pacific. Migrants, displaced people and informal workers are facing a stark trade-off between safeguarding their lives and livelihoods. Already 100 million migrant workers in India are on the move in search of safety and basic sustenance, defying a nationwide lockdown.

Governments should make it easier to conduct business by improving public services and making them accessible through digital technology. They should support small, medium-sized and informal enterprises. If we make an international comparison between the fiscal stimulus declared by some COVID affected countries, we find that India's present position is 5th in that ranking (Table-5).

Table-6 Post-COVID Fiscal Stimulus Package across Countries

Sl.No	Country	Fiscal Stimulus as % of GDP (%)
1	Japan	21.1
2	USA	13.0
3	Sweden	12.0
4	Germany	10.7
5	India	10.0
6	France	9.3
7	Spain	7.3
8	Italy	5.7
9	UK	5.0
10	China	3.8
11	South Korea	2.2

Source: STISTA Infographics Bulletin, USA

Conclusion

We now have an opportunity to build a new, just and fair social contract between governments and people. This includes universal social safety nets and health insurance. The fiscal stimulus package must also address this issue. A sustainable solution to present crisis needs global coordination among countries and optimization of the COVID-19 response. This endeavour would make development more sustainable. The global spread of the virus in our interconnected world offers little chance of success if each country takes a piecemeal approach towards health and economic response on its own. To make the response more effective and reduce the cost of the crises, strong coordination and cooperation among governments is needed, coupled with clear and transparent communication between the stakeholders. These will help enhance governance and build public trust inside and across borders.

References

- Islam, A., and P. Maitra. (2012). Health Shocks and Consumption Smoothing in Rural Households: Does Microcredit Have a Role to Play? Journal of Development Economics 97 (2): 232:242.

- Haren, P., and D. Simchi-Levi. (2020). "How Coronavirus Could Impact the Global Supply Chain by Mid-March." Harvard Business Review, February 28. https://hbr.org/2020/02/how-coronavirus-couldimpact-the-global-supply-chain-by-mid-march.

- Hartley, J., and A. Rebucci. (2020). "An Event Study of COVID-19 Central Bank Quantitative Easing in Advanced and Emerging Economies." Available at: https://papers.ssrn.com/sol3/papers.cfm.

- Hevia, C., and P. A. Neumeyer. (2020). "A Perfect Storm: COVID-19 in Emerging Economies." Vox CEPR Policy Portal, April 21. Available at https:// voxeu.org/article/perfect-storm-covid-19-emergingeconomies.

- Hofmann, B., I. Shim, and H. S. Shin. (2020). "Emerging Market Economy Exchange Rates and Local Currency Bond Markets Amid the Covid-19 Pandemic." BIS Bulletin No. 5, Bank for International Settlements, Basel.

- Tandberg, E., and R. Allen. (2020). "Managing Public Investment Spending During the Crisis." Special Series on COVID-19. May. International Monetary Fund, Washington, DC.

Appendix :

**Incidence of COVID across the Indian states vis-à-vis
Health Spending and Urbanization**

States	Per Capita Public Exp on health in 2014-15 (Rs.)	Health Exp as % of GSDP in 2014-15	Urbanization (2011)	COVID Cases (5May 2020)	COVID death	Death as % of confirmed cases
Andhra Pradesh	1030 (7)	1.92	33.36	2018	45	2.23(7)
Assam	1137(5)	1.83	14.09	65	2	3.08(10)
Bihar	530(15)	1.45	11.29	747	6	0.80(4)
Gujarat	1156 (4)	0.8	42.6	8541	513	6.01(16)
Jharkhand	750 (11)	1.14	24.05	160	3	1.88(6)
Karnataka	1043(6)	0.7	38.67	862	31	3.60(13)
Kerala	1437 (1)	0.97	47.7	519	4	0.77(3)
MP	722 (12)	1.14	27.63	3785	221	5.84(15)
Maharashtra	931(9)	0.61	45.22	23401	868	3.71(14)
Odisha	913(10)	1.19	16.69	414	3	0.72 (2)
Punjab	1001(8)	0.78	37.48	1877	31	1.65(5)
Rajasthan	1303(2)	1.52	24.87	3988	113	2.83(9)
Tamil Nadu	1162(3)	0.73	48.8	8002	53	0.66 (1)
UP	665(13)	1.36	22.26	3573	80	2.24(8)
West Bengal	665(14)	0.82	31.87	2063	190	9.21(16)
India Average	973	0.98	31.1	70756	2293	3.24(12)