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Editorial: The Planet's Pandemic Pandemonium

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These are the first two issues of 2021 although we are still in May 2020 amidst a pandemic that has created pandemonium across the globe. This double issue has numerous mathematically oriented journal articles that should stimulate readers that have to remain home due to movement restrictions or otherwise. Stranger things have *not* happened to most of us in our lifetime. It is truly ironic that when pollution is at an all-time low in many parts of the world, human beings have to venture out in the clean air wearing masks! In Mumbai (India), there are reports of bird species like flamingos that rarely visited anymore due to the pollution, re-appearing over the course of the last few months, having rediscovered their old migratory grounds. In the absence of human activity and industrial chaos- the twin bedrocks of the usurers' pipe dream of never ending economic growth, we are witnessing the resurgence of other species that also belong to our planet. Yet human activity is also responsible for the ingenuity resulting in technological connectivity that lets us adapt to the demands made by the pandemic.

From a mathematical viewpoint, one sees and hears terms like "flattening the curve" thrown around by politicians to signal an end to the pandemic, which clearly reveals their ignorance of mathematics, and the behavior of a logarithmic curve- the flattening only means the rate of growth has leveled off. In other words, the exponential growth has stopped but the overall aggregate is still increasing. The clash between epidemiologists, i.e., those who model and understand the science of infectious diseases versus politicians who frame public policy based on voter bank populist considerations has been evident in many parts of the world. Public health is conflated with economic well-being, with the former becoming the collateral damage for the latter. Again, there are mathematically interesting things worth noting. For example, the U.S. economic bailout numbers tossed around in political rhetoric are in the order of 10^{12}- a staggering number uttered in sound bites like "trillions" which are difficult for many to comprehend.

About a year ago, we were investigating Fermi problems in one of my courses. One of my assignments for the unit covered was for students to pose questions taken from the real world that involved very large numbers for which a *Fermi calculation* could be undertaken. Two of the questions involving large numbers posed by my students were:

1. The U.S national debt was around 20 trillion dollars. What did this mean?
2. China and Japan each held around 1 trillion dollars of this debt. What did this mean?

We tackled the second question so that everyone understood that this debt was held by these countries in the form of bonds issued by the U.S. Treasury. In other words, these were IOU notes issued to foreign governments who purchased these notes in good faith. One of the follow up questions posed by a student was how could these foreign governments have so much "cash" around to purchase these notes? To wit, the connection between cheap labor and liquidity was quickly made as follows. If a foreign government could force a small portion of its' labor force to

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work for $0.10 an hour (10 cents an hour) but charge multi-national corporations that relied on this labor $1.10 an hour, they were profiting $1 for each hour worked by their labor force. This number seems benign but takes on astronomical significance if the proportion of the labor force equaled 100 million people working for 10 hours a day, for 360 days a year, for a period of 30 years!

Indeed, $1 $\frac{dollars}{hour}$ x $10\frac{hours}{day}$ x 360 $\frac{days}{year}$ x 30 $\frac{years}{people}$ x 100 x 10^6 $\frac{people}{country}$ ≈ 1 x 10^{13} $\frac{dollars}{country}$ a number in the order of 10 trillion!

Surely, 10 trillion dollars seems like a preposterous number, which made us challenge our assumptions. What if the labor force made to work at this preposterously cheap rate (by First World Standards) was only 10 million people, and not a 100 million people? This would reduce the order of magnitude of the total by one zero, and result in a profit of 1 trillion dollars for this country, which is equal to the cash needed to buy U.S treasury bonds to the tune of a trillion. The point here is that the order of a trillion is easily achievable. In the case of China with more than 1 billion people, 10 million people would suggest that *only* "1 out of every 100 people" worked in such labor conditions, but gave the government liquidity in the order of a trillion of dollars. The real numbers are considerably higher since very conservative assumptions were made for the calculation. The same argument holds for a country like India with over a billion people, many living in extreme conditions of poverty. In this case individuals and businesses (big and small) profit from this exploitation whereas the government uses them as voter banks whenever needed.

Multinational corporations that have utilized this scheme for many decades have greatly profited by selling the products obtained through questionable labor practices. For instance, I have heard from acquaintances working for multinational IT companies that it costs their company around $10 to manufacture a technology product in different countries with inhumane labor conditions, which are sold for several order of magnitudes more to consumers in the West, e.g., $1000. At the lower end of this spectrum is the entire potpourri of plastic goods produced for a few cents in China, sold in the order of 1 dollar in Dollar Stores littered around the U.S. Again, the difference between a few cents and a dollar is two whole orders of magnitude. If this seems like an outrageous example, perhaps we should look at where most goods come from that populate the shelves of our stores, and question why the cost of a can of tennis balls shipped from halfway across the world is less than the cost of a head of locally grown cabbage? What is the upshot of these calculations? Our consumer lifestyle comes at the cost of back breaking and inhumane labor elsewhere. The Usurers profit even more from selling the products of this labor by publicly trading stock of these corporations- whose value before the pandemic kept going up. The pandemic put an abrupt temporary break to this never-ending cycle of profiteering from cheap labor which resulted in "sell offs" of stock caused in the ensuing panic. Our planet, which ultimately bears the brunt of our collective human greed and profiteering from cheap labor has been given a rare moment of cessation of this activity. This pause has also given people that consume goods at a shocking rate a chance to question their consumption. Perhaps it is time to question production that generates profit for corporations and liquidity for foreign governments to buy our ever-growing debt from consumption. Can the global economy survive without non-stop production and non-stop consumption? It seems the flora and fauna can. Perhaps we can too, and emerge out of this crisis of planetary proportions as a better *more humane* species.