HEALTH SYSTEM RESPONSES TO COVID-19 IN MEXICO

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This article assesses the state of the Mexican health system in 2020 and how it responded to COVID. Mexico is a significantly unequal country, and its health system is based on a multi-tier structure. Although it has remained so since the 1940's, it was substantially reformed in 2004 and in 2019. These reforms account for its ability to respond to COVID in 2020 and 2021. In 2020, Mexico's health system had suffered a significant deterioration from its previous configuration, and this compounded the impact of Mexico's pre-existing social inequality.

In 2003, Mexico's health system had three tiers:

- A private system, on which Mexicans spent their own money, mostly through out-of-pocket expenses, but also through private health insurance.
- A social security system, founded by law in 1943, and comprising several different social security institutes. The largest, the Mexican Institute for Social Security (IMSS) [Instituto Mexicano del Seguro Social], was devoted to private sector employees. There are also institutes for the Mexican Petroleum (PEMEX) [Petróleos de México], for public sector employees, the Social Security Institutes for State and Civil Service Workers (ISSSTE) [Instituto de Seguridad y Servicios Sociales de los Trabajadores del Estado], for the army, and several state employee institutes. These institutes are funded by bilateral (employer-worker) or trilateral (employer-government-worker) fees. In the late 1970's, this system was charged with bringing health care to some of Mexico's poorest regions.[1]

1 In the late 1970's, the Mexican government decided IMSS was better suited to provide health care services to Mexico's poorest, and it therefore increased funding to IMSS in order to allow it to do so.

- A public "open access" system operated by the federal secretariat of health and state health secretariats (Escobar Latapí, 2022).

Mexico's tax revenue system is centralized. Most revenue is collected by the federal government, although starting in 1998 a system was created to re-distribute federally-collected funds to states and municipalities.[2] In 2003, the private health system received private payments totaling 586 billion pesos, the social security system received 333 billion from dedicated fees from workers, employers and the government, and the "open" system received 290 billion, mostly from the federal government, and the decentralized health fund created in 1998 (IMSS, 2003).

SOCIAL INEQUALITY IN HEALTH CARE PROVISION

Although the "open" system's share of federal funds had been rising in real and relative terms, it contributed to inequality in total health funding per capita, because it took 1998 funding levels per state and retained the shares distributed to states since. "Open" per capita spending ranged 8:1 among states, when considering the population without social security (Escobar Latapí & González de la Rocha, 2022; García-Junco, 2012; Knaul et al., 2003). Attempts to equalize federal funding to states had been barred in Congress by the most favored states.

It could be imagined that the system had a one-to-one social class correspondence, with the top tier serving the well-to-do, stable workers and employees in the social security tier, and the poor in the "open" service. While this is roughly correct, the impact of private health spending was largest (and rising) for the poor, and they were substantially affected by catastrophic health spending. In our research, we witnessed very numerous cases of catastrophic impoverishment of poor households on account of health emergencies or chronic disease.[3] In 1980, Mexico's poor did not access the private system, except for minor illnesses and maternity care. In 2003–2008, several studies pointed at the frequent use of private health care among Mexico's poor. Underfunding of the "open" system also meant it wasn't free. Patients and their families had to pay for various services and medical supplies (Escobar Latapí & González de la Rocha, 2022).

While the spread of private health providers to lower-class areas and communities played a role in this increasing expenditure, an additional factor was that private pharmacies added a doctor's office in the early 2000's. This served to stop the sale of antibiotics and other restricted drugs over-the-counter, but it also led to relatively large expenses by the poor. Private health consultations soared. Today, private pharmacy consultations are the largest single form of health provision in Mexico.

THE 2004 REFORM: THE SEGURO POPULAR

In 2004, Mexico's constitution and its General Health Law were substantially modified to accommodate a new form of health care provision for the uninsured. The main care providers in the Mexican health system were the state health secretariats, although a number of federally-managed high-specialty institutes comprised the pinnacle of attention. In all, over 200 articles were added to the general health law. These reforms built a very complex system for the financing and provision of health services in Mexico's public health system. The Seguro Popular strengthened the "open" provision of health care by the government, although it did provide payments for care to private clinics, where public clinics were not equipped to do so.

The reform contemplated a fixed per-capita amount to be provided to states for each uninsured person. This amount was to be matched by state governments. Mexico's unequal "open" funding was supplemented but could not be eliminated.

An entirely new budget line was designed for Mexico's "Popular Health Insurance". The government signed agreements with states, on the basis of which significant infrastructure and services were added. Of the total funding, the federation allocated 8% to so-called "catastrophic illnesses", to be disbursed after individual diagnosis of rare and expensive health events. The rest was distributed to states according to their uninsured population. This meant Mexico's public health funding became progressive for the first time, although in all it wasn't, because the old unequal health fund persisted. Clinics were supposed to receive new funding, and so patient payments for services and materials were banned. Also because of the new funding, clinics had to be certified in order to be funded by the new system. According to top officials in the new system, the novelty lay in the financing mechanism for improved health care. They downplayed the need for accountability once the federal funds were disbursed to newly appointed agencies in each state.

2 This system was created when Mexico's government party lost control of congress (1998). This system is called "Branch 33" in the annual federal budget, and accounted for 34% of all federally-collected expenditure. Branch 33 comprises eight different funds. The health service fund is called FASSA.

3 Health emergencies lead to unusual expenses, debt, and asset loss. Chronic disease leads to the loss of one or two workers per household, including the caregiver, and constant expenses that also impoverish households.

By 2012, 52 million Mexicans had been enrolled in the Seguro Popular. This did not mean 52 million had access. Our analysis for 2012[4] (Escobar Latapí & González de la Rocha, 2022) showed haphazard health care trajectories, due to many refusals at public health institutions; rejections due to overcrowding or understaffing in Oaxaca (pregnant women mostly); some state governments led large affiliation campaigns, to capture federal, funds, and then refused access to those enrolled, directing them to federal health services such as IMSS-Oportunidades.

Concerning clinic certification, we found approximately half of the clinics in our fieldwork had been appropriately screened in 2010 – 2012, to guarantee their ability to provide the standard of care defined by Seguro Popular. The other half, however, had been rushed through the process, and did not meet the standard.

Nevertheless, most users finally received attention and made substantial savings. This included rare illnesses such as drepanocitosis, a growing number of types of cancer, and other less frequent illnesses. In spite of the state governments' reluctance to match federal funds,[5] in most states staffing, infrastructure and services improved. By 2018, service had improved considerably. Chronic disease prescriptions, which had been half-filled in 2012, also improved. External evaluations concluded that members' catastrophic expenses fell by 38%.

The progressive or regressive character of the reform was debated. Nevertheless, it was clear that indigenous peoples and the poor were the ones reporting membership most frequently, and that they were the most numerous users of the new system. Lack of access to health services dropped from 38.4 to 16.2% among the Mexican population in genmeral, according to self-reporting, from 2008 to 2018. This change, together with rising rural incomes and rural social security affiliations, accounted for most of the fall in Mexico's poverty rate during this period (Coneval, 2018).

THE 2019 REFORM

Mexicans elected a new president in 2018. López Obrador was seen as a polar opposite to the corruption that characterized the Peña presidency. Nevertheless, it soon became apparent corruption was not the target of the new presidency. Instead, something close to an institutional tabula rasa was sought.

Seguro Popular was defunded almost as soon as López Obrador took office. Its budget, however, was not transferred to other mechanisms to provide health services. Instead, the savings derived from this and other social services such as education, or water provision, were devoted to the President's favorite public works (an airport at a site deemed inadequate by IATA, a cargo – touristic train in the Maya peninsula, a refinery built at sea level that has since flooded on numerous occasions)[6] and to a much enlarged military, which added an entirely new corps, the Guardia Nacional.

An example of the cuts in health funds lies in the medical expenses devoted to childhood cancers. Expenditure stood at 300 MX pesos when López Obrador took office. It dropped to 15 million in 2021 (Campos & Cano, 2023). The cut is equivalent to 95%.

By May 2019, a new reform of the Health Law was passed. The new reform was very straightforward. It created the INSABI, or National Institute for Well-Being in Health. At its core, the federal government vowed to guarantee the right to health and universal health access. The government became the guarantor. As part of the health law, a number of cash and in-kind transfer programs were included. This gave the impression health spending was not lower, but in fact it was (Reyes-Morales et al., 2019). Other than naming the federal government as ultimately responsible for health care, it did not state specific mechanisms for the financing of hospitals, clinics, and other establishments. It relied on convincing state governments to turn over their infrastructure and staff to the federal government. About one-quarter of the state governments refused. Expense on prescription drugs fell significantly too.

On the other hand, the director of Mexico's Social Security Institute resigned within six months of taking office. When he left, he stated he did so because the institute was perceived as a tax collector, rather than a service provider (IMSS, 2019). The person taking his place was more compliant.

To sum up: Mexico's public health sector, but particularly the services aimed at the poor, improved significantly, albeit with significant deficiencies, from 2004 to 2018. After that, they were defunded. The entire system was in crisis. Pharmacy

4 Our study comprised an effort to account for the self-reported quality of care. We carried out a survey of 600 households in 12 communities in four states, and then we chose health incidents to trace individuals' health care trajectories.

5 States such as Oaxaca depend on the federal government for 98% of their revenue. There was no possibility for them to match federal funds aimed at health care. Rather than re-working the federal-state shares, which would have provoked complaints from richer states, the federal government decided to maintain the fiction that state governments, regardless of their revenues, would provide the staff and the operational funds for new clinics and hospitals.

6 And, one year after its inauguration, has yet to refine its first bushel of oil.

doctors, and pharmacy consultations, became the single most important means to access medical care in Mexico, with the poor as their main clients. Because these doctors' prescriptions are not supervised, they overprescribe, which leads to higher expenses and, possibly, to inferior health outcomes.

SYSTEM RESPONSES TO COVID-19

Is this reflected in the system's responses to COVID? This article argues it is. The lack of funding was compounded by very conflicting signals from Mexico's leaders, i.e., mainly the president, his federal health secretary, and the deputy secretary of health. The government's response included the following: In March, the president and the deputy secretary of health stated COVID was "like a flu", and Mexicans needed to keep hugging (Gobierno de México, 2020a, 2020b). Shortly after, they prescribed social distancing (Gobierno de México, 2020d). In March 18th, the president stated on national TV that he was protected by holy images he carried in his pocket (Gobierno de México, 2020c). Both officials repeated, until June, that there was no proof masks helped reduce infection. International tourism was never restricted, and infections along Mexico's border and in its main tourist destinations were not disaggregated. We later learned that unemployment, hospital saturation, and lack of care led to extremely high infection and death rates in these towns.

In April, the economy was locked down except for essential services, which led to a significant peak in unemployment and underemployment. Employers were told to keep all of their workers in employment, at least on a minimum salary, but there were no special policies for income replacement. In May, 2020, the deputy Secretary of health announced "we have flattened the wave". Resident doctors in Mexican hospitals were blamed for poor care, and had to buy their own PPE, but they were extremely scarce. Over 1,200 doctors died (Institute for Global Health Sciences, UCSF, 2021).

Whether a system's response is good or bad can be assessed by various means. In this case, we turn to a North American comparison of the incidence of COVID. Since Mexico, the U.S. and Canada employed diverse reporting systems, the following analysis draws on the ACS-Metropolis survey of COVID that consisted of five waves and was implemented simultaneously in all three, between 2020 and 2022. The survey asked the same questions, translated, in each country. While it cannot be guaranteed that the questions had the same meaning in each cultural matrix, this is the best source for a comparison of the major events and trends related to COVID in North America.[7]

According to official sources, Mexico had the lowest incidence of COVID in North America. According to the survey, however, Mexico's infection rate was the highest of all three. Note the rapid rise in self-report incidence from March to August, 2022. The most comparable figures are those for August 2022. In sum, Mexico's rates were the highest, and at 1:10, the gap between official data and self-reporting was also much higher than in the other two countries.

Was this higher incidence of COVID related to the social equality or inequality of infection? Figure One shows the rates of infection per income class, according to the ACS-Metropolis survey.

Figure One shows infections were "progressive" (they increase as income increases) in Canada and the U.S., while in Mexico the income classes with the highest incidence are classes 2, 3

TABLE 1. FREQUENCY OF SELF-REPORTED COVID: CANADA, UNITED STATES, MEXICO (%).

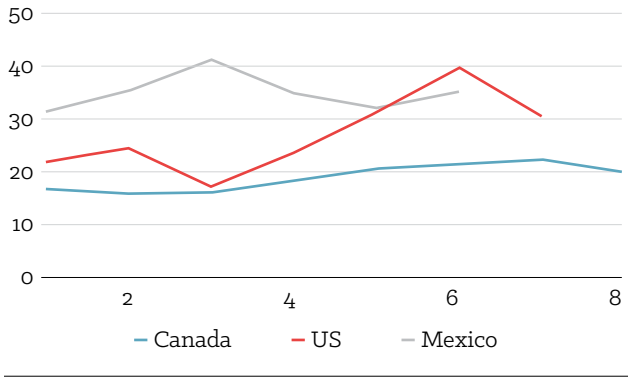
	Official sources (August 2022)	ACS – Metropolis, self-report (March 2022)	ACS – Metropolis, self-report (August 2022)
Canada	11.1	17.8	39.4
United States	28.4	25.3	37.9
Mexico	5.4	35.6	49.8

Sources: ACS-Metropolis survey, Waves 4 and 5, CDC (2020), Johns Hopkins University(2020/2023)[8], Mexican Secretariat of Health (2020).

7 It was up to the respondent to consider whether or not (s)he had suffered COVID. The interviewer did not ask for proof. It could be said that environments with better access to testing would show higher incidences. In this case, however, Mexico had the highest incidence, and this would seem to reinforce the difference among all three.

8 On March 10, 2023 the Coronavirus Resource Center stopped collecting data after three years of 24-7 operations. The information that was collected during this time can be found at: https://github.com/CSSEGISandData/COVID-19

FIGURE 1. SELF-REPORTED INFECTIONS BY INCOME CLASS FOURTH WAVE, MARCH 2022 (%).



Source: ACS-Metropolis survey on COVID, 4th wave (2022).

and 4, roughly equivalent to urban lower income classes. They received treatment either from Mexico's "open" health care system, or from private pharmacies. In other words, lower classes were better protected in the U.S. and Canada than in Mexico. Note that Mexico's lowest income class was less subject to infection. It is comprised of mostly rural inhabitants. Also note that the number of income classes varies between countries.

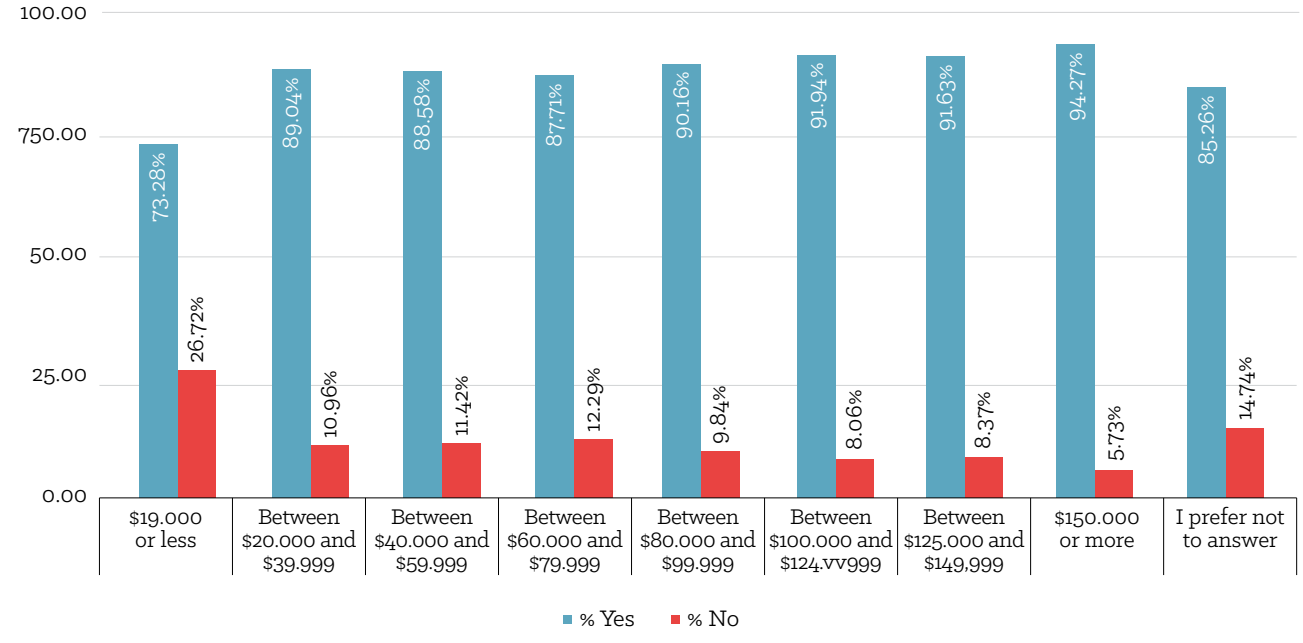
The "progressive" nature of infection in the U.S. and Canada may be related to the ability of the better-off to spend time and money being tested, which leads to more positives, to less risk-aversion among the higher income classes, or to other causes. In any case, there is a contrast in the class dynamics of self-reported infections. It may also be due to the proclivity of the various income classes to find, or to accept, vaccination.

It could be hypothesized that Mexico's higher incidence of COVID among lower-income classes was related to lower total vaccination rates, or to lower vaccination rates among its lower-income classes. This is not the case. Self-reported vaccination rates (which are less subject to error than COVID vaccination rates) are higher in Mexico than in the U.S.

The ACS-Metropolis survey outcomes show that vaccination rates were higher in Mexico since March 2022 than in the US, and comparable or higher in Mexico than in Canada (the Mexican sample is smaller, and error margins are higher, especially when disaggregated). By social class, vaccination rates were most unequal in the U.S. (however social classes are defined), with the lowest income classes showing vaccination rates below 60% and the highest close to 90%. Canada comes second in terms of vaccination inequality, with the lowest income class barely above 70% and the highest income class at 94%. Mexico displays the highest and most equitable distribution, with all social classes above 90%. In other words, the social distribution of vaccinations does not explain Mexico's far worse health outcomes, nor its socially regressive infection rates. In Mexico. persons 65 years old and over were prioritized, which allowed the operatives to go forward before massive amounts of vaccines became available.

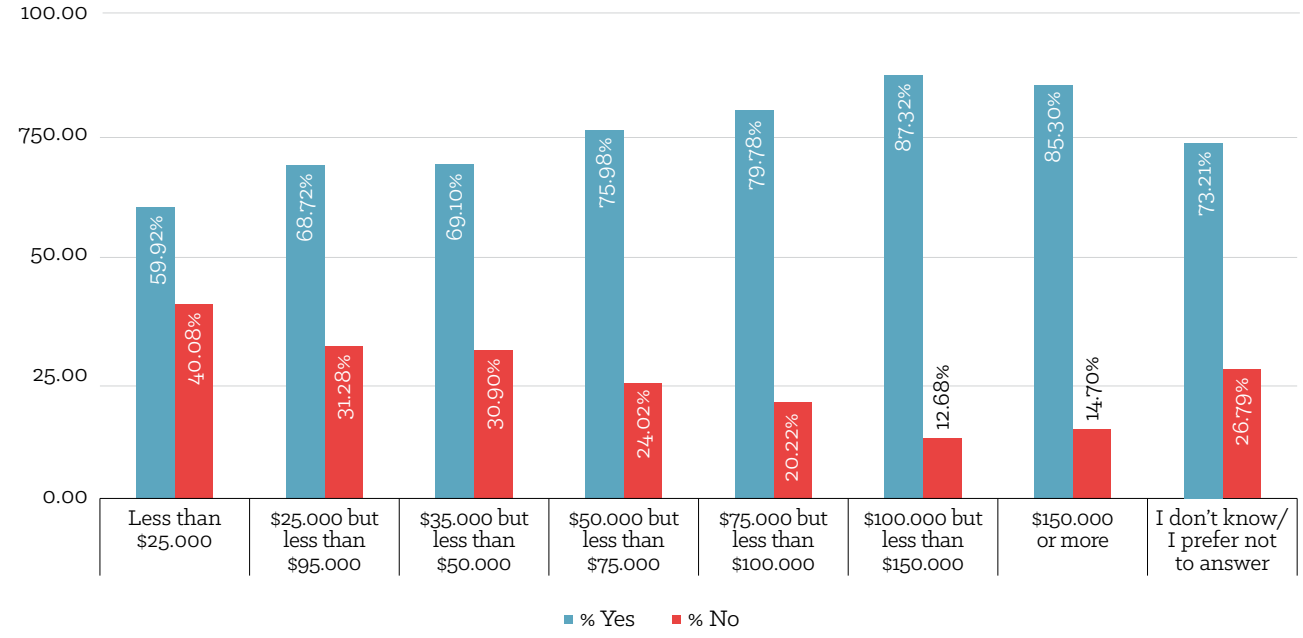
The timing and structure of Mexico's campaign may, however, be very relevant. In Mexico, the government decided to

FIGURE 2. VACCINATION RATES BY INCOME CLASSES, CANADA.



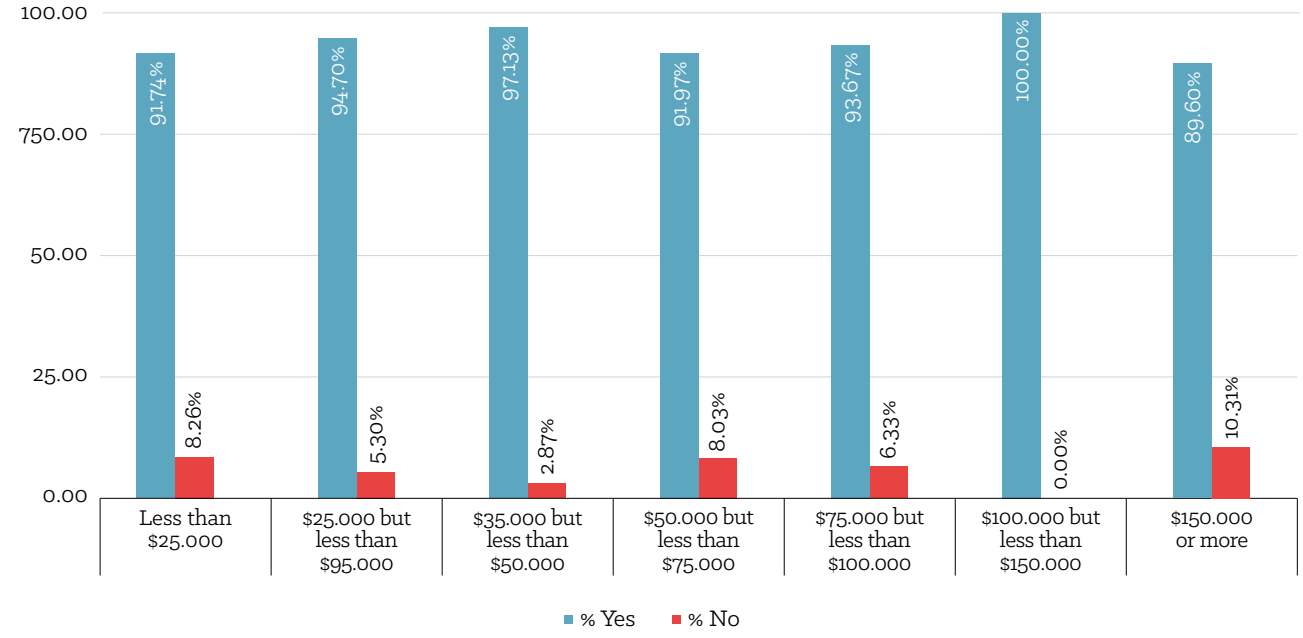
Source: ACS-Metropolis survey on COVID, 4th wave (2022).

FIGURE 3. VACCINATION RATES BY INCOME CLASSES, UNITED STATES.



Source: ACS-Metropolis survey on COVID, 4th wave (2022).

FIGURE 4. VACCINATION RATES BY INCOME CLASSES, MEXICO.



Source: ACS-Metropolis survey on COVID, 4th wave (2022).

only allow public health providers and the army to organize mass vaccinations. It decided to forego its health secretariat vaccination apparatus (one that had earned international awards for its large coverage of basic vaccines), and instead recruited the army and secretariat of well-being staff to deploy the operatives. Note that the secretariat of health's vaccination apparatus had been seriously de-funded by 2020. Private practitioners had no access to vaccines. Vaccination started in Mexico's most socially marginalized communities, typically rural, distant and poorly connected. It then progressed towards medium-sized towns and cities, and finally arrived in metropolitan centers once vaccination supplies had

increased (Institute for Global Health Sciences, UCSF, 2021). It is reasonable to assume this strategy benefitted the rural poor and the elderly the most, and that the urban poor of working age in metropolitan areas were among the most disadvantaged. While this strategy seems socially progressive, lower income classes in metropolitan Mexico were among the last to benefit. This, together with the absence of income-replacement programs, forced them to continue to work and they suffered high rates of infection.

CLOSING REMARKS

This article intends to show that Mexico's high rates of infections was due to the disarray (and budget cuts) associated with Mexico's 2019 reform of the health system.

While there may have been few national success stories from the point of view of allowing a population to arrive safely, from a health and an economic point of view, to a full vaccination scheme, the Mexican strategy had to face the pandemic with a much diminished secretariat of health, which never overcame the restructuring arising from the end of the Seguro Popular and the instatement of INSABI. The above analysis showed that lower income classes in urban Mexico were the worst-hit by infection, and that their rates of infection were higher than in the U.S. or Canada. This article did not analyze rates of lethality, which were also much higher in Mexico than in the other two countries, at 9% during the first two years of the pandemic. In other words, hospitals were particularly ill-equipped to treat the ill.

In April, 2023, the official party's majority in Congress voted to abolish INSABI, and passed all of its assets and responsibilities to IMSS, the social security institute. Whatever the structure of the latest reform of the health system, however, if the funding isn't there, it is unlikely to be able to respond to a new health emergency.

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