

## Coronavirus Pandemic

### Health and economic measures in response to the COVID-19 pandemic- Effect on street vendors

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#### Abstract

**Introduction:** COVID-19 pandemic affects human health and the global economy. Its evolution is unpredictable, making it hard for governments to provide response actions suited for all populations. Meanwhile, informal street workers carry on with their labor despite contingency measures to sustain their lives. The objective was to conduct a case-control study to become aware of how street vendors' economy is affected during the COVID-19 pandemic.

**Methodology:** During phase 2 of the COVID-19 pandemic in a Mexican suburban city. We interviewed informal street vendors (cases) and formal employees (controls).

**Results:** Before mobility restrictions were in place, population income came 1.5% from formal employment and 23.5% from informal employment (street vendors). Informal employees lived on less than the equivalent of 1.5 Big Macs per day ( $p < 0.001$ ). After the contingency measures, formal employment kept the same, while the informal employment ratio increased to 57.4% ( $p < 0.001$ ). The street vendors were almost 100-times less likely to be concerned about the coronavirus outbreak ( $p < 0.001$ ) and were 38-times less likely to stop working compared with the formal workers ( $p < 0.001$ ).

**Conclusions:** We have proven that street vendors are a sector of the population that is highly vulnerable to significant economic loss due to contingency measures. Informal workers cannot stop working despite the "Stay at Home" initiative because the government has not implemented strategies that guarantee their survival and their families. Therefore, street vendors continue to be a source of the virus's spread throughout cities.

**Key words:** COVID-19; coronavirus; poverty; informal workers; human rights; economy.

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#### Introduction

There is no equivalent to the COVID-19 crisis in modern history, with more than 4.3 million confirmed cases and over 290,000 deaths globally. Contingency measures have led to a reduced workforce across all economic sectors and caused many lost jobs. Therefore, it has significantly affected human health and the global economy [1].

In response to the pandemic, most governments agreed to close off their frontiers, attempting to stop spreading the virus and expecting to avoid having too many infected people. This policy was also protecting the health system from collapse while trying to save many human lives [2].

Nevertheless, quarantines, closed factories, supply chain disruptions, and mobility restrictions affect the

provision of services and goods production. The evolution of the disease and its economic impact are highly uncertain, making it difficult for policymakers to formulate appropriate macroeconomic policy responses [3].

Macroeconomics is a subject of study and intervention by nations that attempt to mitigate the damage caused by the current pandemic. However, governments may not be taking the economic hardships of some of the population's vulnerable sectors into account. Street vendors are one such vulnerable sector given their level of poverty and economic dynamics. Present in all Latin American cities and other parts of the world, street vendors belong to what is known as the informal economy, which due to its characteristics, places them outside the regulations regarding the use or occupation of public areas and roadways as workplaces. Their commercial activities and services do not demand tax records or regulatory controls, nor any social protection service [4].

Street vendors sell all kinds of goods or services to the public and work from temporary static structures, mobile stalls, or utilize head-loads instead of a permanent structure. This type of work has expanded tremendously in public spaces of cities of all sizes, especially in developing countries. Nonetheless, in recent decades, is a continually growing phenomenon, affecting both developed and developing countries. In many developing countries, street vending represents an essential income source for marginalized and impoverished people, especially for internal rural migrants. Moreover, in many developing countries, petty trade is performed mainly by less educated people [5].

A study conducted in Bogotá, Colombia, identified street vendors' presence at 27% of the city's intersections, signifying that they form part of the urban ecosystem, with broad spatial dissemination [6]. The situation is no different in Mexico, where street vendors make up 29.3% of the population [7].

Street vending is an essential theme in political speeches. The media often reports on areas where it is prevalent, contrasting with the few scientific studies conducted to evaluate its reality. That disparity is problematic for debate and public policy implementation regarding street vending, based on very little knowledge of the phenomenon and its actors.

There are no clear definitions of street vendors. Their attitudes and needs are unknown. There is no basis to describe its social and economic dynamics, turning street vendors into a segregated sector from the rest of the population with no guarantee of respect for

their human rights, such as food, work, and health. The situation worsens when one of the most significant impacts that the pandemic has had has been the decrease in families' net income, which gives them less purchasing power of necessities such as food [8].

Street vendors are a relevant topic during the current pandemic because they can be at greater risk for coronavirus infection and be a potential source of disease transmission in cities due to their mobility and exposure.

Knowledge of the economic hardships of street vendors and their families can help understand their attitudes and needs in the face of the pandemic. While at the same time guide governments in designing strategies focused on that sector of the population. The fact that the State has the principal obligation to resolve and respond to the various necessities, interests, and preferences that supposedly satisfy every individual's basic needs should not be forgotten.

The “Stay at Home” or “Do not Go Out” media campaigns may not be useful for the group of people that do not receive a fixed salary and live in poverty.

We conducted a case-control study to become aware of how street vendors' economy is affected and understand their behavior regarding the COVID-19 pandemic, comparing them with employees working in the economy's formal sector.

## **Methodology**

During phase 2 of the COVID-19 pandemic in Mexico (between 30 March and 2 April 2020), a case-control study was conducted in Colima and Villa de Álvarez in Western Mexico, approved by the School of Medicine's ethics committee of the Universidad de Colima (approval number 2020-06). All participants gave their informed consent before their inclusion in the study, as indicated by the Declaration of Helsinki.

### *Sample selection*

A total of 115 street vendors (cases) and 136 formal workers (controls) were randomly interviewed. The controls were individuals with fixed salaries, most of whom worked for government agencies or large companies, which typically receive social security protection [9]. During the study's time frame, schools and different public institutions were closed, and physical distancing of 1.5 meters between people was in effect, among other measures.

### *Variable selection*

The general aspects of age, sex, educational level, healthcare coverage, and the presence of comorbidities

such as diabetes, high blood pressure, obesity, asthma or bronchial disease, liver disease, or cancer were collected.

### Data collection

The street vendors were asked about their average earnings by day, week, or two-week period (whichever time interval was more comfortable for them to calculate) during the first two weeks of March 2020 when there were still no recommendations or restrictions on daily activities. The same question was asked about the last two weeks of March when those measures and restrictions were then in place. The employees with a fixed salary were asked about their earnings during the same periods.

### Data analysis

The two groups' income perceptions were calculated by day and divided by the number of people dependent on those earnings. The total amount was expressed using the Big Mac Index, which is the price of a Big Mac at McDonald's in a given country at the same point in time. Such an index is accepted for making purchasing power comparisons between different countries or at different periods [10].

According to the 2018 Mexican Association of Market Intelligence and Opinion Agencies (AMAI, the Spanish acronym), the socioeconomic level was calculated. It describes eight levels, in which A and B are the higher levels, and D and E are the lower levels [11].

We grouped the levels into three categories: high (A, B, and C+), middle (C), and low (C-, D+, and D) for the present study. No worker was in category E.

The participants were asked if they presented with any of the comorbidities associated with severe COVID-19 illness [12] and if they had public or private health insurance. Regarding the pandemic's perception, the participants were asked about the fear of contracting COVID-19 infection or dying from the virus. The participants were asked about the possibility of stopping working during the health emergency and the number of days they could stop. They were also asked the degree to which quarantine measures were carried out at home and with their family members. The answers were expressed utilizing a Likert-type scale (not at all, slightly, somewhat, moderately, extremely). When transformed to an ordinal number scale, 1 means "not at all" while 5 means "extremely".

Descriptive statistics were carried out, calculating means, standard deviation, and percentages. For the inferential statistics, normal data distribution was first determined using the Kolmogorov-Smirnov test, and the Student's *t*-test was employed to compare the mean values. The qualitative data were compared using the  $\chi^2$  test. Binary logistic regression analyses were used to detect the associations between the kind of work (binomial outcome: street vendors or formal workers) and being afraid of or believing in the probability of contracting coronavirus (not at all or slightly vs. moderately or extremely).

**Table 1.** The main socioeconomic and work characteristics of the participants, as well as their perceptions of the coronavirus pandemic.

Characteristic	Formal employee	Street vendor	P
Socioeconomic level*			
High	90.4%	17.4%	< 0.001
Middle	8.8%	20.9%	
Low	0.7%	61.7%	
Educational level			
Middle school or lower	8.1%	74.8%	< 0.001
High school	4.4%	17.4%	
College degree or higher	87.5%	7.8%	
Money available before the contingency measures**	9.7 ± 5.8	3.3 ± 3.0	< 0.001
Money available during the contingency measures**	9.3 ± 6.2	1.5 ± 1.3	< 0.001
Reduction of available money due to the contingency measures	5.3 ± 14.8%	47.9 ± 24.0%	< 0.001
Slightly or not at all concerned about the coronavirus	1.5%	29.6%	< 0.001
Slightly or not at all afraid of becoming infected	17.6%	49.6%	< 0.001
Slightly or not at all believing in the probability of becoming infected	22.0%	47.8%	< 0.001
Slightly or not at all affected by contracting the virus	12.5%	22.6%	0.011
Slightly or not at all afraid of dying from coronavirus	37.5%	65.2%	< 0.001
Can stop working for a few days	53.7%	17.4%	< 0.001
Number of days that not working is possible ***	53.3 ± 59.3	4.6 ± 6.9	0.001

\* High (A, B, and C+), Middle (C) and Low (C-, D+, and D), according to the 2018 Mexican Association of Market Intelligence and Opinion Agencies (AMAI, the Spanish acronym); \*\* Per day and per person living on the income of the worker, expressed using the Big Mac Index; \*\*\* Only for those that said they could stop working.

Data were summarized as odds ratios (ORs) with 95% confidence intervals (CIs) and P-values adjusted (multivariate analysis) by sex, age group (39 years of age or younger vs. 40 years of age or older), educational level (middle school or lower, high school, or college degree or higher), comorbidities (presence or absence), and socioeconomic level (high, middle, or low). Correlation analyses were carried out, utilizing Pearson's correlation coefficient (CC). All statistical analyses were performed with SPSS version 20 software (IBM Corp., Armonk, NY, USA).

**Results**

The participants' mean age was 40.1 + 14.3 years for the formal employees and 45.0 + 14.7 years for the street vendors (*p* = 0.008). Men made up 36.8% of the formal employees and 50.4% of the street vendors (*p* = 0.020).

As expected, most formal employees (88.2%) stated they had healthcare coverage, whereas only 4.3% of the street vendors had that social benefit (*p* = 0.007). In contrast, 55.7% of the street vendors presented with comorbidities, compared with 36.0% of the formal employees (*p* = 0.004). Table 1 shows the socioeconomic characteristics of the individuals interviewed and their perceptions of the pandemic.

Concerning the amount of money a person economically dependent on the worker could live on, it was less than 1.5 Big Macs per day for 1.5% for the formal employees and 23.5% for the street vendors (*p* < 0.001).

In phase 2 of the contingency measures due to the coronavirus, that figure did not vary for the formal employees but rose to 57.4% for the people dependent on street vendors who lived on less than 1.5 Big Macs per day (*p* < 0.001). Only 2.6% of the street vendors and 1.5% of the formal employees were aware of any government aid in response to the coronavirus pandemic.

Table 2 shows the strong association between being a street vendor and being slightly or not at all concerned about or afraid of becoming ill from the coronavirus compared with the formal employees. Street vendors were also 38-times less likely to stop working for any number of days than the formal employees (adjusted OR = 0.026). If they did so, it was for a significantly shorter period.

The following correlations were observed for the street vendors: the bigger their earnings before the coronavirus outbreak, the bigger their losses (CC 0.25, *P*=0.006). The bigger their losses, the fewer days they could stop working during the coronavirus outbreak (CC - 0.54, *p* = 0.021), and the lesser degree quarantine measures could be carried out at home and with family members (CC - 0.18, *p* = 0.049). Those correlations were not significant in the formal employee group (CC - 0.15, *p* = 0.068; CC 0.04, *p* = 0.196; and CC 0.07, *p* = 0.424, respectively).

**Discussion**

Our results showed that street vendors significantly reduced their earnings (48% on average) during phase 2 of the pandemic compared with formal employees. There was practically no change for the formal employees (5.3%).

A total of 23.5% of the people who economically depend on the street vendors lived on less than 1.5 Big Macs per day before the contingency measures were indicated. That figure rose to 57.4% once the mobility restrictions were put in phase 2 of the contingency plan.

Even though different sectors of the population are affected economically by the pandemic, the most vulnerable sectors, such as street vendors, suffer the most. The drop in their earnings can affect most necessities, such as providing food for their families and themselves. The limitations resulting from not receiving a fixed salary make it impossible for the street vendors to stop working. If they can, it is only for a few days, unlike the situation for formal employees.

**Table 2.** Association between being a street vendor and being slightly or not at all concerned about or afraid of becoming ill from the coronavirus, compared with the formal employees (reference group).

Regarding the coronavirus	Unadjusted OR	95% CI		P	Adjusted OR*	95% CI		P
		Lower	Upper			Lower	Upper	
<b>Slightly or not at all:</b>								
Concerned about getting infected	42.3	9.7	183.5	< 0.001	96.1	10.1	911.6	< 0.001
Afraid of getting infected	5.9	3.1	11.2	< 0.001	11.1	3.3	37.3	< 0.001
Believing in the probability of contagion	4.0	2.1	7.6	< 0.001	18.0	4.0	80.7	< 0.001
Concerned about becoming ill	2.3	1.1	4.5	0.016	4.5	1.5	13.8	0.007
Afraid of dying from the virus	4.7	2.5	8.5	< 0.001	11.4	2.6	49.3	0.001
<b>Can stop working for a few days</b>	0.18	0.10	0.32	< 0.001	0.026	0.005	0.152	< 0.001

\*Adjusted by gender, age group, comorbidities (presence or absence), and educational and socioeconomic levels.



Street vendors had an 11-times more probability of not being afraid of contagion or dying from coronavirus and almost 100-times less probability of being concerned about the virus than the formal employees.

Given the considerable economic losses that reduce an already precarious income, the street vendors' focus of concern appears to be on economic survival and continuing to work. Losing their work can be directly related to a lack of food.

Notably, the lesser degree to which street vendors carried out quarantine measures at home and with family members was associated with a higher degree of economic losses most likely related to not stopping working and a lower educational level.

The “Stay at Home” initiative did not consider street vendors' lifestyle and livelihood, given that they have no fixed salary. Their very survival is at risk if they stop working because they have no access to a social assistance system or a broad network of public support services.

Governments must implement measures to attend to vulnerable sectors. Even though they belong to the informal sector, they are an integral part of society, just as employees are. In humanistic terms, they must have access to all human rights no matter their economic and social condition.

In phases 3 or 4 of the pandemic, street vendors can be increasingly affected. It is also likely that governmental support will be activated. During the time frame of the present study, which was during phase 2, only 2.6% of the street vendors were aware of some government aid because of the coronavirus outbreak.

Our results show that support and economic strategies for the informal sector of the economy should be implemented when mobility restrictions are indicated to cover their needs and particular conditions. Governments should not delay providing means of support for the informal sector. Street vendors can be at high risk for contagion and spread of the disease throughout cities, given their extensive mobility and contact with many people.

In conclusion, street vendors are a sector of the population that is highly vulnerable to significant economic loss during the restrictions imposed throughout the current pandemic. Placing their daily food needs at risk, which is why they cannot stop working or moving throughout the cities despite the “Stay at Home” initiative.

Governments do not appear to understand the magnitude of the problem caused by not implementing specific public policies that guarantee human rights to the informal sector of the population, attending to their

particular needs to ensure their survival and families. Besides, they must implement science-based economic, healthcare, and education strategies that are realistic for street vendors so that sensible decisions can be made to protect them and prevent them from becoming a source of the virus's spread throughout cities.

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