ABSTRACT

Objectives: The objectives of this paper are two, the first one is to describe the impact caused in the population by the informal transportation service in Cuautepec, Mexico City and the second one is to know the opinion of the user’s concerning security and other topics of interest regarding the informal transport.

Theoretical Framework: The theoretical framework is related to public transportation services especially those that are considered informal and have the same conditions as the study area to have a better comprehension and sustain the information given.

Method: The methodology consisted of field work visiting the area, observing the system procedure and then, conduct a survey among users to know particular information regarding the transportation service.

Results and conclusion: This paper shows that despite the negative impact that this activity causes in the area and the welfare of the inhabitants, this service is still being used as a solution for the lack of any other transportation mean that can operate in the geographic conditions of the area of Cuautepec.

Implications of the research: The main contribution of this work is scientifically point out the problems generated by a solution to the demand for transportation in areas with few supply options that brings negative social impacts.

Originality/Value: This work contributes to scientific knowledge about the social impacts of an activity that has emerged as an alternative to a lack of transport services that can be used not only for future comparisons, but also as future references on different means of transport supply.

Keywords: Informal public transport, Transport offer, Informal transportation impact, Cuautepec – Mexico.
Método: A metodologia consistiu em um trabalho de campo visitando a área, observando o procedimento do sistema e, em seguida, realizando uma pesquisa junto aos usuários para conhecer informações particulares sobre o serviço de transporte.

Resultados e conclusão: Este trabalho mostra que apesar do impacto negativo que esta atividade causa na área e no bem-estar dos habitantes, este serviço continua a ser utilizado como solução para a falta de qualquer outro meio de transporte que possa operar nas condições geográficas da área de Cuautpec.

Implicações da pesquisa: A principal contribuição deste trabalho é apontar cientificamente os problemas gerados por uma solução para a demanda por transporte em áreas com poucas opções de abastecimento que trazem impactos sociais negativos.

Originalidade/Valor: Este trabalho contribui para o conhecimento científico sobre os impactos sociais de uma atividade que surgiu como alternativa à falta de serviços de transporte que podem ser utilizados não só para comparações futuras, mas também como referências futuras sobre a oferta de diferentes meios de transporte.

Palavras-chave: Transporte público informal, Oferta de transporte, Impacto do transporte informal, Cuautpec – México.

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1 INTRODUCTION

The mobility problems faced by the inhabitants of various regions of Latin America are practically part of their routine, regardless of the type of transport they use, whether public or private. This is mainly due to high rates of population growth in these regions, which generates, among other things, an increase in the vehicle fleet in the cities, poor road planning and pollution (Rodríguez, 2022).

To (Olowosegun, Moyo & Gopinath, 2021), the accessibility and quality of public transport is important due to the mobility needs of the inhabitants of urban centers. Transport services that are mostly provided by vehicles such as motorcycles, converted cars, taxis, and even minibuses, operate illegally in most cities in third world countries. According to (Abadía, 2015), informal transport systems have become a way to address the unmet transport needs of the population. Also, (Behal Kumar & Tiwari, 2019) have argued that these transport systems may not be the most comfortable for passengers, but this is the only option they have. (Oviedo, Scorcia, Guerrero, Delandsheer, Rodríguez-Molina & Dewez, 2021) argue that informal public transport includes also an operation that does not have fixed operating hours and that grows without government intervention

In the sense of emissions, according to (Canales Gutiérrez, Canales-Manchuria & Canales-Manchuria, 2022) air quality is affected by several factors among them, vehicle fleet particularly older vehicles which cause higher pollution because of the lack of technology in the engine construction and the loss of efficiency suffered by the catalytic converter through the passage of time and use.

As specified by (Cervero & Golub, 2007), this activity adds vehicle congestion that goes hand in hand with traffic accidents and air and noise pollution since mostly old model vehicles lacking technological development are used. As stated by (Ndlangamandla & Combrinck, 2019) informal transport activities can be considered as an indirect effect of uncontrolled construction practices originating in the suburbs of large cities in developing countries. For example, Cuautpec has such a characteristic, excessive growth in construction that does not take into account access roads for transport. According to (Talamini & Ferreira, 2019), informal
transportation that is adopted in informal settlements as a way of feeder to the mass transportation systems, tends to be inappropriate. However, it offers a direct and cheap solution.

Considering that informal transport means affect directly the environment (Martinez Delgado, Mina Kim Jesus, Alves and Stolte Bezerra, 2022) have stated that collective means are necessary to reduce environmental pollution as long as those means provide high quality conditions for the users, use new technology in their operation, mainly in developing countries where their cities are in constant expansion. According to (Permana & Petchsasithon, 2020), a transport means in order to be called sustainable, the one must reduce the negative impact of different polluting factors such as air and noise and possible waste that can be generated as well.

2 THEORETICAL FRAMEWORK

Following (Iimi, 2022) the informal public transport is a phenomenon that grows rapidly in developing countries trying to cover the demand that is not being met by the government, according to (Booysen, Abraham, Rix & Ndibatya, 2022), In developing countries, the informal public transport service is an activity that is considered chaotic and also does not have the potential to eventually evolve into sustainable systems.

Mexico is not the only country that presents plenty of cases where the informal public transportation plays an important role in mobility. Only in Mexico City on the center of the country, can be seen different ways of informal public transport, from mototaxis, basically a cabin made to carry three people maximum attached to a motorcycle; to old vehicles with no identification that run to common destinations or nodes of transport.

From an alternative point of view, the use of these vehicles brings important benefits to the population with lower-than-average incomes, for instance, abundant transport and low costs for group travelling. In the lower income sectors the demand is divided between those who have better accessibility to formal means of public transport and those who only have informal, degraded, and unsafe means. Table 1 shows a brief comparison between informal transport that can be found in some cities of Latin America.

| Table 1 – Informal transport in Latin America regions |
|---------------------------------|---------------------------------|---------------------------------|
| **Country** | **Type of transport** | **Features** |
| Bogota, Colombia | Pedalcabs | Has been operating for more than 10 years. |
| | | -Service area: Operates around bus rapid transit stations and in outlying areas. |
| | | -Function: feeder of the BRT system (Transmilenio). |
| | | -Travel distance: up to 3km. |
| | | -Organization: 50 associations, 4 federations. |
| Santiago, Chile | Yellow buses and collective taxis | In service since 2007. |
| | | -Service area: around Transantiago, outskirts of the city. |
| | | -Function: feeder of formal transit companies. |
| | | -Travel distance: not specified. |
| | | -Organization: small companies. |
| Rio de Janeiro, Brazil | 10-Passenger wagons called: “vans” | The service has been presented since 2005. |
| | | -Service area: Baixada Fluminense, northern suburbs. |
| | | -Function: connection to the “central station” terminal. |
| | | -Travel distance: less than 80km. |
| | | -Organization: 25 bus companies. |
| Quito, Ecuador | Private cars | The service has been presented since 2009 |
| | | -Service area: the outskirts of the city. |
| | | -Function: connection with the Trole, Ecovia and Metrbus transport corridors |
| | | -Distance in trips: between 2 and 2.5km |
| | | -Organization: independent drivers. |

**Source:** Elaborated by the authors, (2022) based on (Golub, Balassiano, Araújo & Ferreira, 2009; Ferro, 2015; Guerra, Skuzinski & Shealy 2017; Heinrichs, Goletz & Lenz, 2017)
2.1 Informal service triggers

(Cervero & Golub, 2007) have stated that informal transport services are those that operate without the consent or endorsement of the corresponding authorities. Furthermore, it is believed that the drivers do not have licenses, and the vehicles are not registered with the authorities and therefore do not have the necessary permits as well.

According to (Cervero & Kumar cited in Al-Hasan, Momoh & Eboreime, 2015), the boom in this activity is due to the fact that operators considered it a way of entrepreneurship that requires little initial investment and low maintenance costs. In addition to the lack of a strengthened regulatory framework, other triggers for this activity are the low skill requirements for being a driver, the low prices of the vehicles they use to provide this service and the need for transportation in specific areas. Also contributing to this practice are the scarce job opportunities for people who are considered advanced for the formal job world. However, (Lopes, Carvalho, & Miranda, 2021) have stated that exists greatest acceptance of polices of change from people that uses more the public services than the others who do not, leading to a great opportunity.

Following (Del Popolo, 2001), there is still inequality of opportunities in access to the labor market, as a result of the existing socio-economic inequalities. A large number of poor older adults have been poor throughout their lives, and it is very likely that these deficiencies will become more acute in old age, and that the possibility of getting a job will decrease.

2.2 The region of Cuautepec

Cuautepec is a region located on the northern outskirts of the Gustavo A. Madero Mayor's Office in Mexico City, and it is divided into several sub-regions, two of which are the best known: Cuautepec Barrio Bajo and Barrio Alto. According to (Hernández & Tinoco, 2022), the town is surrounded by hills, intersected by streams and slopes in the north; to the east and west it is sheltered by hills that not long ago were forests and pastures, and to the south is the valley that leads to the Valley of Mexico. Nowadays Cuautepec is a densely populated area, part of the towns and neighborhoods that make up the Sierra de Guadalupe region. According to (Rocha Érica, 2021) the process of occupation of the territories is essential to analyze the interaction of society with the environment and how this relationship permeates the dynamics of human mobility inside and outside cities.

Specifically, Cuautepec is located between the Cerro de Chiquihuite and the Sierra de Guadalupe, which gives it its main characteristic of relief. Figure 1 shows the entire area of Mexico City and the red circle points out the location of Cuautepec on the outside.
2.3 Current public transport in Cuauteppec

Since the area of Cuauteppec is the outer periphery towards the north, the main arrival point of the public concessionary transportation is through the Indios Verdes station of the Collective Transportation System. For this transportation, regular-size microbuses are used for approximately 43 people without exceeding the capacity of the bus. Figure 2 shows a unit of the concessionary transportation circulating through the lower part of Cuauteppec, in the picture at the back can be seen the Cablebús system and in the bottom right a formal taxi of Mexico City that only circulate in the lower part.
According to (Rakhmatulloh, Dewi & Nugraheni 2020) transport is a by-product of social, cultural, and economic activities, and therefore has a significant effect on the establishment of leisure and work centers. To meet their needs people, move to these centers, however, inadequate availability of services becomes a major problem. In some cases, due to the high amount of demand, microbuses provide the service exceeding the capacity, which has caused accidents. These microbuses run on diesel fuel which makes them much more economical and efficient, however, as these vehicles are older models, they lack the technology to reduce the generation of emissions. According to (Fayad Tsolakis & Martos, 2020) due to the use of diesel engines in power generation and the transport sector, there have been high rates of air pollution and the generation of solid particles harmful to health.

Particularly in Cuautpec, other factors that give rise to this type of service is the image that has been created about the area as the most unsafe of the municipality, therefore, legally registered taxis do not reach this area or only to points on the periphery leaving the inhabitants without any other transport options. In addition to this, the geographical condition of really steep slopes is another important factor, leading registered drivers to believe that their vehicle will be damaged or that it does not have the technical specifications to do the job. The emergence of this type of service is due to the lack of a government organization of any of the three existing orders in Mexico, which provides any solution to this public transport issue.

Of the different types of modalities with which informal transport can operate, the one used in the area of Cuautpec is the use of a private vehicle to provide the travel service, pirating, as it is commonly known by the people of the region. The characteristic of this is that the safety regulations necessary to provide this service are not met.

In contrast to other cases such as the one reported by (Cristancho & Ibarra, 2016) where informal public transport service providers have predetermined routes, pre-established fees, mandatory shifts, and official identification of drivers who provide the service on motorcycles carrying all their safety gear. Cuautpec lacks many of these measures that could help improve informal service and thus make the local population feel safe and comfortable using this service.
3 METHOD

This work has been done to analyze the situation in the area of Cuautepec regarding informal public transport, which has become an indispensable service for most of the inhabitants of the area. The reason for that means is to fill the gap that exists due to the insufficiency of concessioned services, due to the location of homes too high up the slopes making it difficult to reach those destinations, especially for the elderly.

The present research article was elaborated employing an exploratory methodology since the place described was visited, this to point out the characteristics of the phenomenon and the area. The research instrument used was an interview that includes a 10-question questionnaire that was developed to find out the opinion of informal transport users. The interview and the questionnaire allow obtaining first-hand information about the impact this service has on people in order to illustrate the context to the readers.

The questionnaire addresses residents’ views on the service, safety issues when using it as well as the collateral impact, fees charged, among other important aspects that can be used by researchers to make comparisons.

The procedure followed was first the review of the literature on informal transport followed by the observation of the phenomenon and the area in question, then the interview with the question instrument was applied to 300 people, with the only condition that they were users of the service, followed by an analysis of the questionnaire results presented in the form of graphs to provide an overview.

This article is important for the scientific community because it studies a relevant phenomenon that happens locally in a quite large area, this phenomenon besides having implications in the quality of life affects in a significant way the plans of sustainable development. The situation can also be compared with other places at a national or even international level where according to the literature it occurs in a very different way.

4 RESULTS

4.1 Preference for the Volkswagen Sedan

According to what has been observed, the vehicles used in the Cuautepec area are mostly Volkswagen Sedans that are in very poor physical condition. Besides that, as part of the modifications that they need to operate, drivers remove the passenger seat and place a chain to be able to close the door themselves so that getting in and out of the vehicle is much faster. The area has been cataloged as vocholandia, the beetle land, since it presents high rates of these vehicles.

This type of vehicle is one of the most preferred by drivers because of:

- Low cost of acquisition.
- Favorable mechanical characteristics.
- Low maintenance cost.
- Low fuel consumption.
- Small vehicle size.

Related to the above, (Cervero & Golub, 2007) had mentioned that the options in transit can be listed according to the size of the vehicle and the state of poverty of the country or region in which these systems operate. In short, the poorer the area, the smaller the size of the vehicles that provide the service, as long as the geographical conditions allow it.
4.2 Distribution of informal vehicle stops

Great accessibility to means of transport does not always mean that there is a great development in the region. As can be seen in Cuautepec, the fact that there are a large number of clandestine units and bases does not mean that the area has significant development.

According to (Bielich-Salazar, 2009), informal transport operators must work daily for their income because they do not have an assured profit, according to (Sungkawaningrum, Hartono, Holle, Gustiawan, Siskawati, Hasanah & Andiya, 2022) not all the population understand the needs to access to finance programs, so they do not request it. If they do not work one day, they do not receive any money. If one day their unit did not yield much, their income is minimal. They also do not benefit from bonuses, paid rest days, or even work disabilities when necessary, so an environment of instability is created. In addition to this, zero help for the maintenance that the vehicles require, vacation periods in which the demand of the service is reduced, increase in the insecurity in the area, uncertainty by some projects of mobility that put in risk the preference of the users, the increase in the tension of the drivers to cover most of the trips; the result is aggressive conduction, attention to users in prohibited points, accidents, run over and congestion related to the reckless conduction.

Also, (Bielich-Salazar, 2009) has mentioned that the driving style that drivers acquire is the result of the entire labor system they are under, and in the same way, this system is related to the lack of presence of public transport organizations.

According to (Behal et. al, 2019), informal public transport stops modules in most cases lack infrastructure and are always established depending on user demand regardless of whether they are well maintained.

In Cuautepec the distribution of the informal vehicle stops of this service is more than strategic and has become absorbing, since they are located near schools, street markets, hospitals, and microbus stops as well as every corner, particularly causing the displeasure of the neighbors because the drivers meet and sometimes consume prohibited substances.

The main reason for the mobility problems is because they are often seen parked on the driving lanes, creating problems for other drivers, leaving them with no option for complaints or confrontations. Figure 3 shows one of the bases of informal taxis.
4.3 Fees

According to users' opinions, the price of the trip ranges from 25 Mexican pesos to about 80 pesos. The fee depends mainly on how steep the road is to the destination area, and the schedules because it becomes more expensive as it gets dark, increasing the rates by about 20 percent.

For example, the price of a trip from Cuauhtemoc Barrio Alto to La Casilda, approximately 1.8 km, ranges from 35 to 40 Mexican pesos, however a trip from Cuauhtemoc Barrio Bajo to Lomas de Cuauhtemoc can cost up to 80 pesos, around 4 American dollars, using the informal service. In contrast to the microbus that drives a fee authorized by the Mobility Secretariat that ranges from 0 to 12 km for 6 Mexican pesos. The disadvantage is that microbus do not cover the entire area of Cuauhtemoc because their routes are distributed in open roads where they can move.

As (Contreras & González, 2014) have stated, the informal transportation provided by motorcycle taxis in the city of Cartagena, Colombia, is detonated mainly because of its profitability indexes, adding the fact that motorcycle taxiing is not seen as an activity that causes any problems. On the other hand, in the case of Cuauhtemoc, profitability is a matter that depends on driving habits and the hours that the driver decides to be providing service, not considering the COVID-19 pandemic which has caused isolation measures resulting in even less profit.

4.4 Results of the interviews

Interviews with a ten-question questionnaire were applied to 300 users of these informal service. The first question is, how do you consider the service in general? The response options are a) very good, b) good, c) fair d) bad and e) very bad. It was revealed that the service provided is cataloged as a regular service by 50 percent of the interviewees, this is because most people are satisfied just with arriving at their destination, 27 percent of the interviewees agreed that the service is good since it fulfills the task and avoids them inconvenience. 18 percent of the remaining mentioned that the service is very bad, especially when it is conducted by underage people as they take this activity lightly and do not provide the necessary attention, only 2 percent responded that they found the service bad due to price differences. The last 3 percent mentioned the service as very good. Interestingly, it was expected that most would answer that the service is bad given the conditions described.

Question number 2 is, how useful is the service to you? The answer options are a) essential, b) sometimes useful, and c) not useful. It was found that for 44 percent of the respondents the service was essential, on the other hand, 26 percent mentioned that the service was not entirely useful to them, unlike the remaining 30 percent revealed that the service was useful to them when they carry some kind of stuff or when they were accompanied by other people or children, the reason given to this is because microbus route is too full and it becomes inconvenient to use, even though it is cheaper than the informal service.

Question number 3 is, how do you consider the fees? The answer options are a) too expensive, b) regular and c) cheap. It was found that 53 percent of the respondents agreed that the price is too expensive, especially when taking into account the distances covered that most of the times are not that far away. They mentioned that charges up to 60 pesos have occurred and due to the bad appearance of the drivers, the users prefer not to make complaints. For 25 percent of those interviewed, the fee seemed regular, however, they mentioned that they prefer to avoid using it when possible. Lastly, for the remaining 22 percent of the respondents, the price of the service seemed cheap, this is because the minimum fee ranges from 25 to 30 Mexican pesos, a little over one US dollar, it is important to mention that the majority of those who answered in this way were young people over the age of 20, which allows inferring that
their economic burdens are less than adults and their possibility of payment is greater and it is worth paying for this convenient service and avoid using the microbus route and go straight to the destination instead.

Question number 4 is, how safe do you feel when using the service? The answer options are a) unsafe, b) indifferent and c) safe. It was found that 67 percent of the respondents felt unsafe using the service when they encounter drivers who have not yet reached the majority of age, because it is regular for these drivers to provide this service under the influence of drugs or substances used as hallucinogens. On the other hand, 18 percent said that depending on the appearance of the driver, it is the degree of safety that inspires them, this is a result of the great differences in the people who provide the service, which range from young people to older adults. Unexpectedly, the remaining 15 percent of the people replied that they found the service safe as they have not experienced any alarming situations. In this regard, a young woman exclaimed that on one occasion, in the unit she boarded, the driver was having an aggressive argument with his partner, which caused her great panic and a feeling of insecurity, thankfully, everything turned out well in the end.

According to (Nordfjærn & Rundmo, 2018) people who suffer from a risk situation in some type of public transport tend to highly reduce their intentions to travel by this means and therefore look for some other option, however for this case, the inhabitants do not have another transport option or have their own vehicle because it requires large amounts of investment.

Question number 5 is, how often do you use the service? The answer to this question is open. It was discovered that 26 percent of respondents used the service daily, 34 percent used it more than 3 times a week, as they mention that, if possible, they prefer to walk or use the microbus, when possible, to get home. The remaining 40 percent of the respondents used the service twice a week, due to the street markets that frequent the entire area of Cuautepec, the reason to this is because of how difficult it is to travel by microbus or walking with the stuff that they buy in those markets. Returning to the concept of necessary harm, on market days the traffic becomes very complicated due to the high demand for this service and the large flow that it generates, however, from the drivers' perspective, these are the days in which they can generate more profit.

Question number 6 is, do you consider service to be a necessary harm? The answer options are a) yes, a necessary harm and b) not a necessary harm. It was found that 77 percent of the participants considered this type of transport as a necessary harm because it complicates traffic and is unsafe, however, it is so useful or becomes indispensable as mentioned above. Nonetheless, 23 percent of the users commented that this service is not considered a bad thing after they see it as a source of honest work for drivers who engage in this activity to earn their daily income. The label of a necessary harm was made because the activity comes with negative impacts on the population, however, it is the same population that uses these services and for some they are essential to accomplish a task as simple as getting home.

Question number 7 is, would you use a formal service if it existed? The answer to this question is open. Interestingly, 94 percent of respondents said they would use a formal service if it existed. Of that percentage, 12 percent mostly women would be willing to pay more, as long as their safety in the service is guaranteed, this is a result of the waves of violence against women in Mexico. The remaining 6 percent would not use a formal service if it existed, the main reason to this is because the convenience of finding an informal vehicle stop at literally every corner of Cuautepec and a formal service, would not have random stops, in order not to interfere with the welfare and safety of people and businesses around the area.

(Campbell, 2020) has argued that the areas where these types of systems operate could become unimaginable without these services due to the transportation facilities they provide. This suggest that a change would be too drastic for Cuautepec if they stopped having their informal system and only relied on private transport means.
Question number 8 is, what would you recommend to improve the service? The answer to this question is open. It was mentioned some common points that users consider fundamental to improve the service, so they are shown in the following points:

- Data about the vehicle and the driver should be available to the user.
- The existence of a taximeter or a price list should be established to avoid excessive charges.
- There should be Zero consumption of drugs or substances harmful to health among the drivers, otherwise it represents a danger.
- The unification of the colors of the vehicles should be done to avoid confusion with private vehicles.
- Drivers The repair and periodic maintenance of the units.
- To have insurance for passengers and damages to third parties as required by law.

Question number 9 is, which of these two reasons is the one that makes you use the service? The answer options are a) to get to the destination rapidly and b) there is no other way. It was discovered that 43 percent of the respondents used the service to get home quickly, due to users' schedules when leaving work late at night. The remaining 56 percent used it because there are no other means of transport available. It was said that drivers tend to charge unfairly or, in worse cases, pick up strangers during the trip or be accompanied, which causes great anxiety for the user.

Because of the geography of the place, when it rains great chaos is generated when the water descends through the steep streets. So, the last question is, do you use the service at the time of heavy rain? The answer options are a) no because it is dangerous and b) I use it to avoid the rain. Interestingly, 60 percent of the respondents answered that they did not use the service because it is too dangerous. For the remaining 40 percent, using the service was the way to avoid the rain, they also mentioned that they did not worry about how risky such a situation becomes.

4.5 Consequences of informal transport

One of the consequences of informal public transport is that the drivers, the vehicle, and, as a result, the passengers, usually do not have any kind of insurance to provide coverage. According to (Secretaría de Seguridad Ciudadana, 2022) Article 46 of the New Mexico City Traffic Regulations has stated that motor vehicles must have a valid civil liability insurance policy, which covers at least civil liability for damages to third parties in their person and property, but the reality is that they do not meet the requirement.

According to (Tvinnereim, Haarstad, Rødeseike & Bugnion, 2020), instruments can be applied with the aim of reducing traffic congestion in cities, for example, a charge to drivers for driving at peak times. Measures such as these would help to improve traffic in the Cuautepec area. (Gutiérrez & Mohan, 2020) have argued that the existence of a large number of informal, formal, and private vehicles on the road has caused a considerable increase in traffic accidents due to competition in limited spaces.

In Mexico, informal drivers do not make any contributions to Social Security, which leaves them without the opportunity to be entitled to benefits, and as a result, their medical expenses and those of their families are borne by them. For the vehicles, since they do not have any auto insurance that represents civil responsibility and damages to third parties, any accident must be covered by the person driving the car, as well as the medical expenses that may arise, which leaves the users in a permanent state of risk.

The refusals are not only towards users and providers but also sustainable development, according to (Permana & Petchsasithon, 2020), in order to be called sustainable, a transport...
system must reduce the negative impact of different polluting factors such as air and noise pollution and possible waste that can be generated. In short, the system must not cause any negative impact on climate change. Furthermore, according to (Montoya, Cartes & Zumelzu, 2020) to be a relationship between the concept of sustainable development and a community, it must be identified whether the environment is capable of sustaining life without an eventual fall in the future.

One of the solutions that have been done by the government of the City Hall Gustavo A. Madero was the construction of the Cablebús system in 2021, it is a system that follows the principle of operation of the cable car that will connect the area of Cuautepec with the Indios Verdes station of the city's collective transport system. The publicity campaign began in the sports centers of Cuautepec where it was pointed out that the Cablebús is a modern transportation system that provides quality service to the population. According to (Gobierno de la Ciudad de México, 2022), it is a social project that serves areas of high population density, reducing travel times and providing a safe and innovative service, in order to combat social inequality and increase access to opportunities. However, Cablebús is consider a massive transport mean, so, the informal situation is not completely tackled. To (Heeckt & Huerta Melchor, 2021), the Cablebús in Cuautepec improved the accessibility to the region where travel time was reduced impressively and offers to the users more comfort and safety.

5 DISCUSSION

One of the most important points for the population is security, this aspect would increase a lot mainly by showing data of the driver and the vehicle, in the other hand, this would be considered as a threat by some drivers that do not have a license or even the driving age that the government has established.

Vehicle identification is a necessary issue because this way users would feel safe when getting into an identified car. It is worth mentioning that the identification of these units must be different from the one handled by the official taxis in Mexico City, in order to avoid confusion for them and for the people who own a Volkswagen Sedan.

Informal transport activity in Cuautepec is considered a necessary harm because there is not other option for most people, otherwise they would have to move mostly on foot to reach their homes, which is difficult due to the geography, but using this service generates pollution traffic jams and a feeling of insecurity in the streets, there is a controversy.

It is also necessary for the service providers to have insurance to cover the passenger and the driver themselves since this would prevent risky situations and create a climate of safety for both parties. Nevertheless, the income in this activity is not consistent so that would be a great effort for most of them to pay for coverage.

To avoid congestion in the narrow streets of Cuautepec, the ideal would be that this service would have predetermined stops strategically placed, to avoid in-traffic stops and reduce the seizure of any corner to mount a stop, this action would cause a great positive impact for the circulation in the streets and would also avoid the panic that causes in the inhabitants having to transit the sidewalks with strangers at every moment.

Maintenance of the vehicles is a must otherwise there is a very high risk that the unit will fail while in service and, as already mentioned, the unusual geographical conditions of the area multiply the demand of the units. Nonetheless, the question of earnings and what percentage each driver spends on the maintenance of his unit arises again.
**6 CONCLUSION**

Based on the information obtained, it is shown that the negative impact caused by this service on the population is too harmful, not only because it generates congestion and other traffic problems, but also because it generates mainly air pollution and insecurity in the environment.

It is clear from the opinions of users that a feeling of insecurity predominates, especially on the part of adult users who in most cases are victims of excessive charges. However, for some young people, the point of view is quite different, this is due to different factors such as the economy and age, which make the quality of life seen from a different perspective.

The idea that the informal service in Cuautpec is a necessary harm is ratified by the opinions of the users, which almost three-quarters of the interviewees mentioned that they consider it this way. This idea allows us to reflect on the non-existence of this service that covers the gap left by government authorities as an irreplaceable system that has created a very important sense of belonging.

In a context where the concept of sustainable development is more and more frequent, informal transport services, in particular the one in Cuautpec, threatens its establishment mainly because of pollution issues since it should not generate any kind of pollution to be called a sustainable service. On the other hand, the quality of life is affected, although a need is being faced, this has important collateral damage for the tranquility of the vast majority of inhabitants.

The development of a city is based on avoiding marginalization of all regions, the key factor for inclusion is high-quality public transportation. Specifically, in Cuautpec with high rates of population, a system such as Cablebús, a cable-car based system, would be useful not only because it is a proper transportation means but also it would improve the quality of life of the inhabitants by reducing the need to use the informal system and all the implications that this entails.

**REFERENCES**


