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The American University in Cairo

School of Global Affairs and Public Policy

**THE CHALLENGES OF TRANSPORT AND EGYPTIAN WOMEN'S PARTICIPATION
IN THE JOB MARKET**

A Thesis Submitted to the

Public Policy and Administration Department

in Partial Fulfilment of the Requirements for the

degree of Master of Public Policy

By

Radwa Abo Shady

Spring 21

Acknowledgment

To my mother, the one who always supports me, no matter what! Love you!

To my supervisor, Dr. Ghada, who helped me in making this idea a real thesis, starting from the Research Methods course, which built my research and academic skills, and the Gender course, which helped me to learn how to express my thoughts about women's conditions in an academic way.

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To each woman suffering in the daily commute, hoping for a better future for herself and her family, this work is dedicated to establishing how inspiring, determined, and hopeful you are. I hope this work can help form a better future for you or at least for your daughter.

The American University in Cairo
School of Global Affairs and Public Policy
Department of Public Policy and Administration

THE CHALLENGES OF TRANSPORT AND EGYPTIAN WOMEN'S PARTICIPATION IN THE JOB MARKET

Radwa Abo Shady

Supervised by Professor Ghada Barsoum

ABSTRACT

This thesis aims to **explore** the effect of transportation on development in general and as a barrier to women's contribution to the labor market in particular. A survey using a mixed method was filled online by working women in Egypt about their trip and perception about the transport problems. A framework was created to describe the relationship between different factors affecting women's options. The findings suggested that transport parameters have an impact on the freedom of transport and eventually the final decision to join the labor market. The findings match the literature that transport should be gender-sensitive to empower women in the job market. Variables such as the time, age, marital status, and cost helps in understanding women's decision to take public transport or not in their daily commute. Policymakers should take required actions to develop this sector for better female participation in the labor market.

Keywords

Gender, Job, Egypt, Mobility, Transport, Women, Empowerment.

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List of acronyms

CAPMAS Central Agency for Public Mobilization and Statistics

SDGs Sustainable Development Goals

OECD Organization for Economic Cooperation and Development

WB World Bank

FLFP Female Labor Force Participation

ILO International Labor Organization

ELMPS Egyptian Labor Market Survey

Chapter one: Introduction & Research Overview

Introduction

Transport plays a critical role in modern societies' productivity. Traffic jam leads to time waste, and productivity loss, combined with tiredness because of the long hours of commuting (World Bank, 2017). This all leads to a hidden “opportunity cost” of transport. Furthermore, time spent in traffic means that people are not engaging in commercial activities, which leads to fewer tax revenues and fewer purchases made, and poor health caused by the high rate of pollution (Selim, 2020).

Transport is a vital and severe problem in Egypt. People in general waste their time and productivity in traffic instead of efficiently using this time to attain education and search for job opportunities. Since women have less control over the financial resources and they usually live in the poor marginalized areas away from the center (Das, 2019), they are expected to face more of those challenges. Transportation in Egypt is a daily dilemma: which category will woman take, how much will she pay? With the low percentage of private cars' owners and the unsustainability of this solution because of the financial burden, pollution, and more congestion, there are doubts about the public transport quality and safety measurements (Selim, 2020).

The thesis studies the best practices in linking gender and policy making in transport to guarantee women's participation in the job market and decrease the leakage in resources either by women leaving the job market or paying higher fees in other alternatives. It is an exploratory study for both women and the transport sector in Egypt, ending with recommendations for a better future for women's welfare and society. It argues for the need to consider transportation as a public service and how the government needs to consider changing transport policies from collecting revenues (Sieverding, 2012) to a societal tool because of the overall impact of transport.

The thesis will study the situation of public transport in Egypt and how can transport help in a better participation rate of women in the public sector. Better transport can increase employment and the bundle of jobs to choose from them. It can reduce the travel time necessary to reach workplaces and give workers more opportunities. This helps employers as well to reach qualified workers, which makes it more efficient skills matching (World Bank, 2017).

Background

According to UN-Habitat (2020), public transport helps cities to be more inclusive and safer. Affordable and effective transport is vital to eliminate poverty and inequality. This leads to economic development since it allows employment, education, healthcare service, and other public goods access. However, it becomes complicated to access places regardless of the level of urban mobility. Distance between destinations such as offices, schools, hospitals, or facilities has become longer. This increases the dependency on private transport. In other words, widespread congestion. In some cities, this may lead to spending increasing amounts of time and around-thirds of the income on transport (UN-Habitat, 2020).

Worldwide, countries started to think about the role of transport in facilitating the daily lives of the people. More than 130 cities managed to provide free mass transit (Shawkat, 2020). For example, Tallinn, Estonia, became the first capital city to offer residents free public transport (The Economist, 2019); this was after the financial crisis in 2008 since the tickets were too high for the poor; eliminating congestion and providing transportation in the rural areas will boost mobility and access to rural areas jobs. In March 2020, Luxemburg became the first country to offer everyone free public transport. The country invested 600 Euros per person in rail mobility (Ministry of Mobility and Public works in Luxemburg, 2020). Countries as France, Sweden,

Poland, Italy, and Germany study this experience of providing free public transit to follow (Shawkat, 2020).

Moreover, participants of the 11th Annual Sustainable Cleveland Summit in 2019 identified transportation as one of the most significant barriers preventing the city from growing. Free transit becomes a proposed solution if quality services back it, can revive a city (Mathew& Mathew, 2019). In December 2019, Kansas City became the first American city to make public transit free. The City Council collectively chose for ‘Zero Fare Transit’ but it is working on details to retrieve the \$8 million loss in fares (Mathew & Mathew, 2019). Berlin in Germany has provided free public transport for children since August 2019 (Adams, 2019).

Other cities have introduced free public transport for particular groups or at certain times. (for example, in the U.K, 1/3 of the rides are free, especially for pensioners, Wales provides free rides during the weekends) (The Economist, 2019). However, free public transit should be based on a sustainable policy to assure the fund availability; for example, Hasselt city in Belgium used to have free public transport for 16 years before restoring fees because of escalating expenses (Hulten, 2014).

On the other hand, around the world, there were conflicts against the increase in fuel prices will affect the transit cost. This happens in different parts of the world, for example, 2019 ended with the “**Yellow Vest**” protests in France against the fuel tax increase. It was not the only protest against the transportation costs rise from the working class (Gad, 2020); Chile witnessed people’s demonstrations against the 3.7% increase in metro fares tickets since families spent 28% of their salaries on transportation (Gad, 2020). There were tensions in Ecuador following the program of fuel prices reform, the same occurred in Iran after a rise in gasoline prices (Gad, 2020).

In some African cities, due to transport poverty, walking constitutes 70% of trips. This deters from traveling to the city centers, where the business is located, depriving them of growth benefits (UN-Habitat, 2020). Transport has been related to trade costs and competitiveness. Well-developed infrastructure will lead to integrated markets. Moreover, connect them at low costs (UN-Habitat, 2020). For example, raising transport costs by ten percent reduces trade by more than double, in addition to the quality of infrastructure concerns (ESCWA, 2019). Energy is one of the most critical determinants of transport costs, with pricing fluctuations leading to uncertainty that drives transport costs higher (ESCWA, 2019).

In Egypt, there is limited access to the transport policies and the government's transport strategy in the transport sector (Kamal, 2019). Furthermore, the Egyptian government has removed the energy subsidy on petroleum products (Hussein, 2018).

According to the World Bank study (2014) about Cairo Traffic Congestion, the economic cost of congestion in 2011 in Greater Cairo alone was estimated to be around \$8 billion, around 3.6% of Egypt's total GDP at this time, which is expected to increase to \$15 billion by 2030 (Shawkat, 2020). Delay is the highest cost; it is around one-third of the total cost (Shawkat, 2020). This delay is around 14 Billion L.E., while productivity is 10% of the cost (Shawkat, 2020).

Data from (CAPMAS) demonstrates that transportation costs are harshly affecting the poor. According to 2017–2018 data, per capita expenditure on transport among the lowest income bracket in Egypt was 4.4% of the total spending, while the highest ones spent 8.5% (Gad, 2020). Egyptians spent around 70.5 Billion L.E. in public transportation, yet there is still a gap in transportation response to the needs (APS, 2020). Transportation spending is amongst the four vital spending components of Egyptian families, following food, housing, and health services sectors (APS, 2020).

Based on geography considerations, the average per capita spending on transit in the city among the highest income bracket comes to 8.8 % of total spending, around (32,000 L.E.) annually, about (2,600 L.E. monthly) (APS, 2020). This means that the middle class struggles to attain the life necessities, and people who live far from the job spend around a tenth of their income on transport. This shows that increasing transport cost directly influences this bracket's net income (APS, 2020). However, the transit costs are lower for low-income families, whose average household consumption is 2,700 L.E. per month. This might be explained that in this tranche, the unemployment rate is high (Gad, 2020), or they are working in the informal sector without access to data about their salaries and spending. This also can be justified due to their preferences to living near the workplace or using less comfortable cheaper alternatives “those means sometimes are unsafe or uncomfortable such as the overcrowded minivans.”

Besides, most means of transport like buses and minibuses are often filled beyond capacity. They do not go along with set schedules and they make stops at unscheduled terminals (Kamal, 2019). In addition to the grounds stated above, the probability of sexual harassment¹ occurrences while traveling has discouraged many women from taking public transport, and if women cannot afford other alternative options, they may resign or drop from education. So, a loss in productivity and income occurs to women, which, in the end, affects the empowerment condition.

Another challenge in transport in Egypt includes inadequate coverage in certain areas, unclear information of current lines, unreliable hours of operation, and overall poor quality of buses in terms of maintenance and cleanliness. Additionally, the frequency of bus trips needs to be increased (Zeiton, 2018).

¹ Sexual harassment includes many types such as visual “Staring”, Physical “Touching”, Verbal “whistling”, intimidating” threatening” and Obscene” Masturbation” according to Quinones, (2020).

The FY 2017/2018 increase in the metro prices leads to 1.4 billion L.E. annual revenues (EIPR, 2018). In Egypt during this tough time of budget constraints, it is understood that there are limited financial resources to provide subsidized ticket prices or an affordable one. However, this government policy of profit-seeking in transport which is one of the critical pillars hinders the empowerment efforts.

Concerning gender equality Women tend to be among the low and live-in far areas with limited control over the household income and more reliance on public transport (Das, 2019). Transport shows crucial importance in opening economic resources, education, health, and other factors needed for female empowerment. Efficient, safe, and affordable transport is essential for women's equal participation in economic activities. A lack of reliable, accessible, and safe transport networks affects gender equality. In rural districts, women's market access to transport is less than men's, mainly due to less control over money and vehicles (Uteng, 2012).

Transport helps women implement the most work they are assigned to, either in the formal paid market or the unpaid work related to other family commitments. Furthermore, women's choice of travel mode is not free, and it is constrained by cultural stereotyping such as religion or the usage of three-wheeled rickshaws (Das, 2019). Moreover, faster travel times encourage behavioral changes among drivers. For example, they were driving to a more remote store with lower prices.

Since society fears women's economic empowerment as it may lead to independence (Zeitoun, 2018), there is a need to remove the barriers and illustrate how economic empowerment will positively affect her family and society.

The impact of COVID-19 on women in the job market and transport

Egypt is facing two challenges that need to be dealt promptly. The first challenge has to do with the New Administrative Capital, which is far from the old capital. The distant location poses a challenge to working women. How can we make sure that women will commute to work and, at the same time, commit to other social duties? The second challenge has to do with COVID-19. It has imposed a challenge -especially to the working women- about how they can work regularly and stay safe. The world realized the need to have a flexible smart, efficient working system for women. Yet, the effect was not the same to all women since some organizations have asked female employees to take parental leave (The Entrepreneur the Middle East, 2020).

COVID-19 affected the service sector, where most women primarily work (hotels, resorts, restaurants, and retail), compared to the previous crises, which affected the male-dominated industrial sector (ECES, 2020). Women make up 70% of the healthcare workers and frontline defenders. There is an increasing demand in the healthcare sector (nursing), leading to more threats to women and their families (Transparency International, 2020). With the expected loss in jobs and savings, this may lead to poverty's feminization (Transparency International, 2020). Furthermore, more women work in the informal sector (street vendors, seasonal workers), so they are more vulnerable to become severely affected by the pandemic (Transparency International, 2020).

Based on the latest CAPMAS Labor bulletin regarding the fourth quarter of 2019, unemployment among young women in Egypt (20–24 years) is 49.6% and 35.7% (25–29 years). Since most of Egypt's youth are working in the informal sector, without any contract (76%) (ECES, 2020), they have been severely affected by social distancing, work hours eliminations, and

movement restrictions (online shopping, for example, requires less labor). This will increase the threat of rising unemployment rate (ECES, 2020).

The UNDP and UN Women issued a “Covid-19 global gender response tracker”, and Egypt was the first country in the Middle East and Western Asia to take gender-sensitive measures while containing COVID-19 (NCW, 2020). Twenty-one procedures were implemented during the COVID-19. One of the main achievements was providing exceptional paid vacations to all working mothers, those who are pregnant, and mothers with disabled children in the public sector (NCW, 2020). Since most women work in the small business sector, which was heavily affected by the COVID-19, and with expected returning workers from abroad, there will be pressure on the job market in Egypt.

However, COVID-19 is still an opportunity to (re)consider empowering women through socio-economic inclusion and representation. Historically, During Ebola, for example, although all salaries were negatively affected, men's income managed to recover faster than women. Mothers needed to take time off for childcare and the increased burden of unpaid work (like self-isolation). Since financial stimulus is paid directly to families, most of the women are Female Household; however, the governments are reactive and pro-short-term solutions during those circumstances (Lewis, 2020).

According to CAPMAS study on the impact of COVID-19 on Egyptian families in May 2020, the percentage of women who lost their jobs is 29.9% compared to 25.5% men, while 13.2% of women moved to unstable job compared to 19.1% men, and the overall impact was on less working hours/days (women 56.9% and men 55.4%). Even though this percentage may be an initial result because of the uncertainty of the COVID-19 impact, this impact is expected to be huge in the informal sector, where most women are concentrated.

The same study explained that spending on transportation decreased by 33.2% and 54.8% standstill and with the minimum percentage increase their spending on transportation (perhaps this is because of the usage of other private safer alternatives) and around 11% of the respondents did not spend on transportation at all (CAPMAS, 2020).

Moreover, the social distancing policies and eliminating public gatherings affect public transportation and mobility patterns and low occupancy rates (Hassanien, 2020). This problem impacted the on-demand mobility startups that used to flourish in the Egyptian ecosystem before COVID-19 (SWVL, Careem, Uber...) (Hassanien, 2020). While demand slowed dramatically in the first months of the lockdown, it is picking up again. Although COVID-19 has a positive side on health and the environment, due to walking, cycling; at the same time, according to the BBC (2020), people tend to avoid crowded public transportation and become more dependent on private car usage. Nevertheless, the cost of transportation increases because of safety and social distance considerations (Hassanien, 2020).

Furthermore, transportation has posed two challenges to its business model. First, there was a sharp financial drop in revenues. Mwasalat Misr², lost 85% of its daily revenues (Rabei, 2020). Second, there was an increase in expenses related to hygiene measures. Failure to apply social distancing may lead to workers' virus infection (Rabei, 2020), which means limited supply services and the possibility of over crowdedness in the means of transport (Rabei, 2020).

The thesis argues that the government should invest more in public transport and provide affordable means of transport for women to enhance female labor market participation.

² Mwasalat Misr² is based on a concession model in which private companies are appointed to operate specific corridors in exchange for an operating license cost of 8000 EGP for every vehicle. These costs demanded by The Cairo Transit Authority² (Transport for Cairo, 2020)

This thesis differs from the previous studies by combining the development and transportation subjects, as transportation has traditionally been approached from an urban planning perspective. The thesis considers transportation a human right vital for government planning from a non-financial perspective to encourage policymakers to invest more in sustainable policies in this sector. Public transportation is often considered a waste of time and effort for the people (Tadamun, 2013). It also involves an opportunity cost through the waste of resources and an increase in informal transportation systems. This leads to the expansion of private car usage and the elimination of public space. This thesis argues that the opportunity cost suffered by the lack of reliable transportation coverage far outweighs these other concerns.

Research Question and Statement of Purpose

According to Sen's (2000) Capability approach, developing a wide range of transportation alternatives and infrastructure is essential to meet working women's needs and preferences and give them the freedom to choose. Spending money and (or) time on transportation have negative externalities" spillover effect" on individuals' psychology.

One crucial aspect considered in public policy is "who should pay." However, this is not the case in transport policy since *the overall benefits to society far offset the costs* (Selim, 2020). The thesis shows the expected economic cost Egypt is losing by the absence of a suitable decent means of transportation offered to women to encourage the government and other stakeholders to eliminate this hidden burden on women. Sometimes social considerations won against the fiscal. At the same time, women's refusal to of public transport usage is a loss for public revenues "opportunity cost." This money is spent on other private or informal means of transportation

instead of public transportation. So, public investment in transportation is a win-win situation for both women and the government.

The thesis will focus on exploring the factors in women's needs about transport, and to what extent can this lead to women empowerment in the labor market? So, women are the leading group of interest in this thesis. The limited literature contribution is related to transportation and women empowerment in general, and in Egypt in particular. This will be based on theory by reviewing the literature and empirical by analyzing the survey responses.

The research question is: How can Egypt plan for a gender-sensitive public transportation?

Moreover, the sub-research questions were divided to answer this main research question:

First: What were the determining variables of women's decision to take public transportation?

Second: How women use public transportation? (behavior and practices of women who use public transportation)

Third: what is Impact of public transportation on women's socioeconomic life (taking a job offer in this case)?

Fourth: What solutions women perceive for improving public transportation?

Research outline

The thesis includes six chapters. The first chapter includes the background and introduction about the importance of transportation worldwide and in Egypt. Then the second chapter includes the literature review divided into many sections related to the importance of transportation and development, the challenges in the transportation sector in Egypt. Why transport should be gender-sensitive and what were the most international experience in tackling women's issues in transport in cities like Delhi, China, and Brazil.

Chapter three mentioned the conceptual framework of EASI model, the methodology, sample design and limitations of this thesis. While chapter four informed the main background information on both transportation and female participation in the job market in Egypt based on the most updated figures. Then chapter five analyzed deeply quantitatively and qualitatively the survey results about working women in Egypt needs in transportation. There was another section about the “multinomial regression model”. The survey findings were analyzed against the research question. To arrive to conclusion and recommendation about the need to take women’s needs in the public transportation planning to help in women participation in the labor market and some recommendations for policy makers to improve the situation of gender sensitive related problems and challenges in transport.

Chapter Two: Literature review

As a foundation, the researcher begins by reviewing the literature on why transport should be gender neutral, then main international experience in empowering women in the transport. Some of literature about the role of transport in relation to development to strengthen the importance of transport and why the government should invest in critical infrastructure. Transport has received significant attention lately because of its link to jobs generation's economic quality, especially with the focus on safety measurements related to women's needs.

Transport is not gender-neutral

Women modal option to transport decision is usually controlled by different considerations than men which are not included in the mainstream transport planning, those considerations are mainly about the safety, time limits and financial resources and driver license. That is why they are more public transport users and prefer to walk (Ehab, 2018).

One of the most significant fiscal policies is providing better infrastructure to reduce the wasted time on unpaid work, encouraging women to enter paid employment. This will lead to accomplishing multiple economic and social goals (Fabrizio et. al, 2020).

Transport differs according to gender; for example, women tend to travel less after the late hours for safety concern (Hamilton & Jenkins, 2000). Safety concerns differ in developing countries, but according to (Ouali et. al, 2019) study on gender perception of safety on metro and buses in twenty-eight cities using customer satisfaction data, women feel 10% unsafe in metro compared to men. This indicates the gender gap in safety (Ouali et. al, 2019).

Women are more likely to perceive public space as less safe, so women tend to self-control their movement especially in urban areas compared to rural ones (de Madariaga, 2013). Sometimes women use clothes that allow them to run, or that make them look like men, as well as organizing

their schedules so that they can travel with someone. Those fears may lead to women prefer to stay at home, which will lead to more dangerous spaces and affect women's right to the city (Quinones, 2020).

Quinones elaborated that women in Bogota city may tend to dress ugly and avoid tight clothes, dresses skirts, shorts and wear coats and scarves to cover their bodies even though women witness sexual harassment regardless of what they wear (Quinones, 2020).

Because of absence of safety, travelers may use the first available option instead of waiting in the streets (Aloul et al, 2018). Since 63% of women in New York reported sexual harassment in the subway, the transportation system is considered one of the most dangerous systems (Aloul et al, 2018). Most women's travel is on foot in rural areas. Men travel further than women, making much greater use of motorized transportation and engaging in urban centers' jobs (World Bank, 2012).

The low quality of public transportation and services cannot be accommodated in women's expenses and working hours, especially during night shifts (ECES, 2020). In addition to its impact on entrepreneurship, especially in upper Egypt and the border governorates, it suffers from long distances and insufficient transportation means. This leads to limited opportunities for women or exposure to unsafe conditions to reach their jobs. Women's control over their schedule is vital for the opportunity cost of their time (Turner & Grieco, 2000).

Studies indicate that the long hours, childcare, geographic mobility, and commuting issues frequently act as structural obstacles to women's access to the labor market (El Ashmawy et. al, 2020). Zeitoun's study, 2018 demonstrated that the provision of transportation facilities was among the top recommendations to enable women participation in the labor force. The study stressed the need to provide transportation to encourage married women to remain at work after

marriage (Zeitoun, 2018). This was done for example to develop the accessibility of the garment industry for women since it has traditionally been a female-friendly industry.

Married women are less likely to take a long commute because of household responsibilities (Ehab, 2018). In 2012, for example, women commuted for 23 minutes compared to 35 minutes for men (Ehab, 2018). This was represented in fewer working hours by two hours and less payment by 13 percent in 2012 (Ehab, 2018). Women tend to travel shorter distances in closer areas to their neighborhood compared to men, in the decision making less women work in this transportation sector (de Madariaga, 2013).

Mothers and married women have different needs, such as having a stroller or convenient space for pregnant ones (Das, 2019). Furthermore, women tend to be over presented in social groups that suffer from the transport disadvantages such as the single working mother with care tasks (de Madariaga, 2013).

Men are also flexible as mentioned by Ehab (2018) that sometimes they may stay longer working hours to avoid the rush hours and long commuting hours while women are not having this flexibility since they have other related family commitments and time restrictions due to safety considerations (Ehab, 2018).

Men usually are the drivers, and women are the passengers. Furthermore, women are usually “*the second in line for the car*” which means they use the car if “he” does not want it (Dobbs, 2005). Despite the current rise in transport, women are the majority on foot and buses, while men on trains, motorcycles, and bikes (Hamilton & Jenkins, 2000). Public Transport is safer for both men and women during the bad weather compared to private cars (Namgung & Akar, 2014).

Age is a significant variable according to Gender Audit for public transport (2000). Younger women tend to use taxis and minibuses, while women over seventy years use a fifth of their public transport trips (Hamilton & Jenkins, 2000). Failure to meet women's needs in the transport sector will not only affect social exclusion efforts, but it will lead to a business tragedy (Hamilton & Jenkins, 2000) since women avoid using public transport (Hamilton & Jenkins, 2000).

Mobility may be one of the reasons for women to quit the labor market or for the female low participation rate; when women get married, they live in the suburban areas (cheaper alternatives) which may not have many job opportunities; adding to her responsibilities (Barsoum, 2019), Women decided from a rational economic point of view to quit. Lack of providing women with safe mobility to/from work leads to a 15.5% decrease in the FLFP in developing countries (Goldin, 1994). For example, 47% of women in Jordan does not join the workforce because of the absence of transportation according to Youth Foundation Organization, according to "Gender in Public transport" report (2018).

According to the Women Economic Empowerment Study, Labor survey, and 2014 SYPE point to the continually low female labor participation due to various causes, **poor transportation** is one of the causes (2014). Women reported more safety dangers during commuting, especially sexual harassment, theft, and shoving are some of the employment difficulties that women face in Egypt, as mentioned by Constant et. al, 2020. The study stresses that when the spending on transportation take up a large fraction of the salary, this prevents women from working (Constant et. al, 2020).

In Ehab's study (2018), she mentioned that commuting time to work has an impact on access to employment opportunities and hence the outcomes. There is a commuting gender gap

since women cannot take the same long commute (Ehab, 2018). She used the Labor Market Panel Survey for 2006 and 2012 to study the commuting time determinants and their impact on wages and working hours. Commuting time hurts men's hourly wage compared to a positive effect on the daily and weekly labor supply. While the effect on women on working hours was positive and negatively affecting the weekly labor supply (Ehab, 2018).

She elaborated in her study that commuting time plays a role in participating in the labor force according to labor economists as it is seen as a fixed lost time which at the same time affect the reservation wage (Ehab, 2018) “the minimum accepted wage by worker to take the job offer”. Other studies mentioned in her paper such as Kolesnikova et al. (2007) concluded that FLFP is lower in cities when the commuting time is longer (Ehab, 2018), for example, married women with children in particular. However, other studies like the one by Puigarnau & Ommeren according to Ehab, mentioned that there is no negative relationship between commuting time and labor supply, however it has a small positive effect on the short run (Ehab, 2018). This study was implemented in “Germany” and this shows the need to study the local context and the situation of the transport sector quality of service well to determine the overall impact of transport.

Also, women in a powerful transport sector decision maker are missed in developing countries (Das, 2019). This prevailing masculinity from the beginning led to the absence of women's needs in designing the transport.

The “She moves safely” (2017) study elaborated that since transportation plays a vital role in lifting people out of poverty, and most of the world's poor are most of the time women, it is essential to develop gender-sensitive policies around transportation. Helping cities be more inclusive and equitable is related to the SDGs. Since women's days are longer (due to the high percentage of unpaid work) and the regular need to take more than one trip per day due to family

commitments, it is better to consider encouraging female-friendly policies. Safe and secure public transportation plays a vital role in helping women access the labor market. This study concluded that transportation is an enabler for society members to participate in the economy, mainly in the labor market (Allen et. al, 2017).

Transportation has a crucial role in accessing economic resources, education, and healthcare for improving women's empowerment. In the (MENA) region, women's mobility is restricted by limited transportation and social factors. However, there is a scarcity of gender-disaggregated data for transportation planning that limits the development of gender-responsive measures (World Bank, 2011).

According to the (ILO) (2020) World employment social outlook Trends 2020, there is a need to provide safe roads to enable women to go to work, as safe mobility is considered one of the fundamental challenges for developing countries. Sexual harassment in street is usually done by strangers "compared to the incidents at work" which make it harder for reporting and restrict her right to the city (Quinones, 2020). Even though gender-based analysis shows the increasing use of roads by women for household needs rather than employment, some female participants in the Gender at Work (2014) study noted road safety problems within their communities due to poorly maintained sidewalks and inadequate lighting. The study argues for the need to invest in childcare and transportation options to provide skills-building for females and enhance labor market participation (Morton et. al, 2014).

According to the Arab women's organization and the UNDP study to achieve the SDGs (2018), there is a need to Provide women with safe, affordable, and clean transport to ensure access to opportunities, services, and commodities, the coverage of transport network in remote areas in particular. Enhancing women's efficiency-related means of transportation by providing specific

seats for pregnant, elders, and women with children. Providing specific areas for the tickets for women and the expansion of technology techniques to book the tickets to eliminate the incidents of sexual harassment or crowding. Providing street lights and surveillance cameras to report any sexual harassment acts.

According to the Egypt Economic Cost of Gender-Based Violence Survey (ECGBVS) (2015), safety is an essential factor in transportation, calculated at EGP 2.17 billion annually, yet 7.9 million Egyptian women experience violence annually public spaces. In 2015, 13% of women (18–64 years) were subjected to violence in a public space. More than half of them faced harassment in public transportation. With the low coverage of public transport services and the high cost of other private alternatives such as taxis and private cars, women in poor and rural areas have no choice but to use private means. The responses indicated that 81.8% were harassed in public transportation in Cairo, with the lowest percentage in the border governorates. Due to the extent of sexual harassment, families that can afford to sacrifice women's income might prevent them from working. Sometimes, women rely on their siblings or husbands, especially during the night or intra-city commutes (Zeitoun, 2018).

A recent study was performed by El Ashmawy et. al, (2020) regarding the jobseekers' preferences in Egypt revealed that women are more sensitive to long commutes than men, requiring compensation twice that of men for commuting sixty minutes to work relative to a thirty-minute commute. This study helps the demand side (employers) understand their employees' preferences and helps policymakers in the gender context regarding women's participation in the labor market (El Ashmawy et. al, (2020).

The Women empowerment study (2018) documented transportation as one of the barriers for working women, including overcrowding, harassment and being mugged, and the cost.

However, employed respondents have more self-confidence (empowerment) in dealing with harassment. Unsafe public transport sometimes causes women to refuse to join the job market. Some employers think that providing transportation to female employees is unnecessary from the supply side if they can afford the cost from their salaries (Zeiton, 2018).

Moreover, employers do not see transportation as a barrier that affects women's ability to perform in the workforce (Zeiton, 2018). McLoughlin (2013) noted women's constraints to join the labor market include mobility, echoing problems such as lack of safety, and reliable transport. The Human Development Report (UNDP, 2005) referred to the weak transportation infrastructure as contributing (among other factors) to high female unemployment in the MENA region.

Surveys of the MENA region detect the lack of safe and reliable transport as considerable constraints on women's ability to work (World Bank, 2012). In some areas like Yemen, restrictions on women's mobility in public space means women's mobility is more likely to be restricted to home-based jobs (World Bank, 2012). Those restrictions led women to use expensive means as they pay 50% more than men to have covered transportation modes (Aloul et. al, 2018). The same applies to the checkpoints in Gaza, Iraq, and the West Bank that limit transportation infrastructure and services, constraining women's access to resources, training, and employment (World Bank, 2012). While in Casablanca in Morocco, for example, transport access leads to access to education attainment and economic empowerment opportunities (Clarke, 2012).

In El Ashmawy et. al, study's (2020), women praised shorter commute timing and less distance to jobs, in addition to safe commutes. Women's perception of public transportation is unsafe (El Ashmawy et. al, 2020). Women tend to use Uber rides when they are offered discounts. The study concluded that providing safe transportation that is more accessible for women may

boost their mobility, limit their commute-related issues, and develop labor force participation (El Ashmawy et. al, 2020).

Most of the literature emphasizes that transportation is not gender-neutral because of the different socioeconomic responsibilities linked to transportation access patterns and needs. Even planning transport patterns does not address those differences, and there is limited sex-aggregated data or on women's transport needs. In Egypt, there is also limited data related to transport about development and (personal) passengers (ECES, 2020). Absence of those policies may affect the wellbeing of women, access to the job market, economic development and quit at the end (de Madariaga, 2013).

Since infrastructure has historically favored less prosperous regions, it has led to expensive and challenging access to formal jobs (Monroy, 2016). Poor workers will be deterred from commuting to formal jobs, which will raise the informal jobs (Monroy, 2016). Superior public transportation mode encourages low-income workers to shift from home-based work to formal employment (Monroy, 2016).

Empirical Studies (International experience in facilitating women's transportation)

This section aims to review the international experience and successful practices in women's mobility and identify priority interventions for policymakers to enhance women's access to economic empowerment. Women who had sexual assaults suffer from negative effects such as anxiety (Quinones, 2020).

Providing safe transportation for women will improve safety and encourage more women to use the system. Women in India had to refuse an opportunity to work outside home (paid work) if the public fees are expensive (Das, 2020), so, in October 2019, Delhi (the world's second-largest

city) started to provide free access to public transport for all women with an estimated cost of \$100 million and is considered the first city to do so (Mathew& Mathew, 2019). Delhi sacrificed 65% of the revenues since they have the lowest female participation in the labor force; 11.7% according to National Sample Survey Office data (2016).

The idea is that free transit will lead to women taking up jobs that were once inaccessible because of cost, but this needs to be associated with parallel workforce policies (Mathew& Mathew, 2019). ProJoven, a youth employment program in Peru, demonstrated that women's incentives to affect mobility increase their participation in the occupations (World Bank, 2014). It was proven in Peru that investing in safe transit modes will increase women's employment (Constant et. al, 2020). There were gains achieved in women's employment and per hour salary due to investment in Bus Rapid Transit and elevated light rail (Martienz et. al, 2020).

Porter et. al,'s (2011) paper offers a deep three-country (Ghana, Malawi, and South Africa) study of young people's mobility, exploring the children's school journeys' gendered nature. In most African countries, girls' participation in formal education is lower than boys', especially at the secondary school level. The study concluded that is due to the nature of gendered travel experiences in rural and urban areas (Porter et. al, 2011).

Girls' travel constraints to school are not only because of the safety concerns but also because of cultural to take care of the domestic work such as food and water transport (Porter et. al, 2011) compared to boys who enjoyed more freedom. Sometimes, policy intervention includes swimming classes in schools, sometimes wherein the river was in their ways. For example, in Ghana and South Africa, girls' inability to swim eliminates the ability to go to school since paths flood during the rainy seasons.

In a randomized trial in Afghanistan, reducing schools' distance by increasing community-based education elicited increased test scores for girls (Morton et. al, 2014). Such trials consistently show that transport is not gender-neutral. There have been minimal assessments on the impact of infrastructure on women's time allocation.

Lack of workforce participation and use of transportation could be explained due to domestic work, safety considerations, unequal access, and freedom to ride other means, like bikes, as well as cultural and societal norms that disapprove of girls' movements (Zeitoun, 2018).

Segregated metro and Tram cars are a clear example of women-only options (Constant et. al, 2020). Fifteen countries around the world managed to provide women's only buses and trains in 2014 according to the Gender in Public transport report (2018). Providing female-only means of transportation in Garment's industry is a motivation for encouraging women to participate in the labor market (Constant et. al, 2020).

In Pakistan, since women are more vulnerable to sexual harassment, they are heavily dependent on private services. The "Khyber Pakhtunkhwa" women recognize this problem. One of the students mentioned how they are burdened financially due to this problem, especially since the modes of transit are the over-capacity minivans or the three-wheeled rickshaws (UNOPS, 2018). Those threats prevented women from seeking an opportunity either in work or education. So, a partnership implemented by Japan and Pakistan, UN Women, and UNOPS to provide the Sakura bus service will change those threats. This service will include 14 buses for women and children under 12 years through the popular routes and the most populated areas in this province. This service will include women conductors with affordable costs, which is less than private options, and almost the same as other unsafe alternatives (UNOPS, 2018).

Brazil and Mexico provided segregated cars for women in the public transport “Metro, trains, and buses” even at a specific time or during the day, which were opposed by some researchers such as Graglia “(Quinones, 2020) which said that those segregated pink buses made the nature of problem more obvious. He elaborated that this may increase the mind of blaming the victim as if the woman who do not use those specialized cars deserve those acts (Quinones, 2020). Furthermore, it is considered as a step back towards the gender quality efforts and equal access, and it is not valid as a long-term solution (Aloul et al, 2018). In Sao Paolo, they are named “The Pink trains.”

Although the Egyptian government dedicated a Metro car for women only, this segregated mean of transportation sometimes include men rides “despite the imposed penalties” and the crowdedness during the rush hours may not be safe for both women and people with disability (Tadamun, 2013).

Another policy adopted in China was by enhancing women's participation in the top management with focus group discussions with women, elders, disabled, which improved the road improvement in Liaoning (Porter et. al, 2011).

Literature related to “transportation and development.”

Overall, the literature about transportation focuses on the positive impact of infrastructure development on income growth and equity (World Bank, 2017). In his book “Development as Freedom” (1999), Sen argued that freedom has a positive causal relation to development. Sen cites that expansion of freedom as a proxy for the capability perspective.

Reliable transportation affects economic development by reallocating resources away from subsistence agriculture and facilitating economic activities across regions, “rural and urban” zones. Generally, most studies have focused on broad highway or rail projects and their impact on

aggregate economic outcomes (Quium, 2019). The literature has also focused on how poor access to transportation can affect vulnerable groups by inhibiting trade (World Bank, 2017), poor access to quality education and healthcare (World Bank, 2017), and constraints in essential service availability (Aloqaily et. al, 2017).

Other studies such as Yi's (2006) refutes the impact of public transport on the underprivileged in the U.S. society despite its relevance to enhancing the employment levels. So, there is a need to improve regional public transit services policies, however development cannot be achieved alone.

In contrary to the expected outcomes of the government spending on transportation to have an impact on the most disadvantaged groups, the government spending in Rio city in Brazil while preparing for the World Cup (2014-2017) led to small significant effect on the wealthier areas compared to the low-income areas access to opportunities, despite the huge spending and investment in transportation infrastructure compared to the services. This example shows how the unequal transport development may lead to inequality in opportunity access (Pereira et. al, 2019). It is more important to see the overall impact and not only to focus on the huge amount of spending.

With the increasing threat and pressure of the informal settlement in Egypt, people usually prefer to stay close to the city center to facilitate access to services and job opportunities compared to the new cities that lack accessible areas (Tadamun, 2013). Providing reliable public transportation may eliminate the spread of informal settlements. This leads to social inclusion and social justice in access to opportunities (Tadamun, 2013).

Access to opportunities and social welfare

According to the World Bank report of 2020, *“Mobility must be a crucial part of the response to the pandemic, not just to curb its spread but also to rekindle economic activity and*

ensure that the poor are shielded from its immediate and long-term impacts.” Without a doubt, mobility has always been linked to economic empowerment, as it provides people with options and access to education and employment. Furthermore, mobility should be implemented through a multi-sector approach. Poverty reduction will occur when cities have access at all hours and weather to essential services (World Bank, 2014).

The World Bank reviews entitled “Cities on the Move” (2002) acknowledge the contribution of accessible and reliable transportation to poverty reduction, indirectly, through its impact on a city’s economy, thus, economic growth, and directly, through meeting the needs of the poor (World Bank, 2002).

Access to opportunities is necessary to move up the socioeconomic ladder (Tun et. al, 2019). Tun et. al, (2019) argues that promoting accessibility that prioritizes the under-served needs can help “social mobility” in society, providing greater economic productivity and improving environmental quality. World Bank (2012) data mentioned that billion people in low-income countries do not have access to proper roads (Hassan, 2019).

Reduced commuting expenses will positively affect job creation, according to (Monroy, 2016)’s study. Since most of the formal jobs are in the city centers, accessibility to better public transport will improve the updated news about the chance, making it more accessible (Monroy, 2016).

Another approach used, to a lesser extent, in the transport literature is qualitative studies that apply “semi-structured interviews” and participatory methods. In the World Bank study in 2017, “Connecting the dots,” simple comparisons were used to provide critical qualitative insights on the effect of publicly maintained roads, particularly in Indonesia, Sri Lanka, the Philippines, Nigeria, and Morocco. These qualitative assessments demonstrated significant social benefits for

the poor by investing in rural roads, especially in accessing outside services and market development. In the Tocantins, Brazil, a rural roads project led to improved school presence, especially amongst girls, facilitated agricultural jobs, and boosted household income in specific regions within the state (World Bank, 2017). This World Bank (2017) study findings suggest that road quality may be negatively correlated with consumption-based poverty (World Bank, 2017).

Based on the theories introduced previously, and as **Heeckt** and **Colebrander** (2019) the state's role is to foster maximum output for society, governments should reform policies to connect towns and cities. Many residents in remote and marginalized locales experience extended and costly commutes, sometimes in uncomfortable and unsafe vehicles (Tun et. al, 2019). Access to jobs, healthcare, education, and other services are out of reach for two types of people: First, those residing with limited transportation options; second, those who cannot pay (Tun et. al, 2019). It has been shown that people cannot live, work, study, shop, and entertain without travel in connected cities. In general, people find it hard to access jobs because of location and transportation options (Tun et. al, 2019).

Jobs, services, and opportunities are usually clustered in the capital, so the wealthiest people usually live there. In Mexico (Brito et. al, 2019), living in the wealthiest neighborhoods provides residents with 28 times more access to jobs within a 30-minute trip by public transit and walking than someone living in the most impoverished areas (Transport for Cairo, 2019). There is a relationship between accessibility and equity (Cheng et. al, 2019). Residents from informal settlements in Johannesburg travel around 20–23 kilometers to look for an opportunity (Tun et. al, 2019). Those who can access one of the below-average numbers of available jobs in Johannesburg within a 60-minute commute are either spending a lot of time and money traveling or are unable

to access opportunities because transport options are prohibitively expensive or lengthy (Tun et. al, 2019).

In Bogota city, Colombia, for example, where the poor are concentrated in informal jobs and most of the opportunities are in the center, traveling two to three kilometers in the city's poor areas takes around sixty minutes compared to thirty-five minutes in the wealthier area. This long commute will also be costly for the poor since they spent around twenty percent of their income on transport while the rich spent only 5% (Monroy, 2016).

When transportation systems are unsafe or not inclusively designed, vulnerable groups (women and people with disabilities for example) face more barriers to accessibility (UNDP, 2018). The frequency, pattern of individuals' trips, and transport modes depend on the type, density, and geographical distribution of land uses. Nevertheless, this can be influenced by a range of mechanisms such as policies, procedures, and measures to reorganize and regulate the demand for mobility (Heeckt & Colenbrander, 2019).

One crucial issue in the literature of labor economics is the fixed cost of employment, such as commuting costs unrelated to the amount of labor supplied (Cogan, 2009). Puigarnau & Ommeren's (2010) study established that when fixed costs of work are present, the labor supply is calculated by the extent of the fixed cost. In labor economics, the number of work hours is chosen over the commuting distances, so labor supply is chosen per day. This assumption implies that conditional on transport mode choice, an increase in commuting costs, due to a road tax, workers may reduce their total labor supply (Puigarnau & Ommeren, 2010). This may have similar impact on other commuting cost.

For example, in the report entitled “The Best Cities for Work-life Balance” (WEF, 2019), one of the standards was the required hours for work per week and average commute time. Inefficient transportation systems consume people's productivity, money and time.

Transport and SDGs

If this part is focusing on development and transport, SDGs are the most evident parameters. Due to this impact, the UN considered transportation in (11.2) SDGs goal” Provide access to a safe, affordable, accessible, and sustainable transport system for all.” It has direct economic advantages such as enabling more people to job opportunities and reducing welfare costs. According to the UNSTATS SDG report, the world population's share of public transport in 2018 is 53%. It is hard to know if this goal will be easier to achieve because of insufficient information about the current situation (Kamal, 2019).

While the volume of investment in transport worldwide ranges between \$1 trillion to \$2 trillion each year, developing countries (80% of world population lives) account for less than 40% of total investment in transport (World Bank 2015). Today, nearly two-thirds of the Arab population are either low or vulnerable to poverty (ESCWA, 2017). If planned and implemented successfully, market access through road connectivity would help achieve SDG 1 by lowering the poverty rate from 40.6 percent to 5 percent by 2030 (ESCWA, 2017).

Furthermore, transport is essential for implementing the goal. Both trade and transport costs shape the demand for goods and services. Many SDGs are thought to be directly related to transportation, so reducing transport costs must be a critical element to achieve. Since the SDGs are interconnected, and success in one lead to others' success (ESCWA, 2020).

The transport system plays a crucial role in development, environment, health, economics, tourism, and female participation. The SDGs relationship is direct to five targets: road safety,

energy efficiency, sustainability, public access, fossil fuel subsidy, and sustainable infrastructure. It has indirect effect on seven goals which are agriculture productivity, air pollution, access to safe drinking water, food loss, climate change adaptation, and mitigation. Lower transport cost contributes to more competitiveness and efficiency as preconditions for sustainable and inclusive economic growth. Briefly, reducing transport costs can significantly contribute to achieving various SDGs, directly and indirectly.

In particular, the thesis explores the central question of investigating why transportation should be gender-sensitive? Considering the previous assessment of the available literature, this thesis seeks to fill a gap in the understanding of transportation and gender empowerment by providing the first comprehensive analysis of women's employment and empowerment in Egypt, as "to the best of my knowledge and research," few studies link the female labor market with transportation in Egypt. Historically, most studies on labor markets mention the work conditions and society. The role of transportation in joining the labor market has increased in a developing country like Egypt (Assaad, 2010). Although attention has been given to eliminate the gender pay gap, in contrast, this thesis focuses on the gender spending gap. This topic is of significant policy relevance, as gender gaps in employment have an increasing effect on economic growth.

While recent studies tried to study the commuting time in general and women's safety in specific, this thesis provides a comprehensive understanding of the obstacles and how the effect of safety consideration may lead to higher financial burden for women or their decision to quit the labor market. This provides an explanation for the low participation rate and the preferences of the informal sector. Given those increasing responsibilities and the unstable labor market situation, the entrance or departure from the labor market depends on the distance between home

and job and other related family commitments such as childcare centers' availability (nurseries) (ECES, 2020).

Chapter Three: Gender Gap and Women's Participation in the Egyptian Labor market

Globally, there is an increase in hiring women and addressing the gender pay gap; despite the growing support, political will, and the efforts to empower women, there remains a considerable gap in both opportunities provided and pay rate between men and women (OECD, 2018).

According to demographic distribution, women represent almost half of the population. However, they are only 24% of the labor force (ECES, 2020). In Egypt and much of the world, women are considered a vulnerable group, as they often accept low wages and receive fewer social benefits, so they are more threatened by poverty instead of being empowered and gain access to benefits (ECES, 2020). Women are more vulnerable to discrimination policies since those policies usually favor those with authority and power (Zeitoun, 2018).

Despite the challenges in the situation of women empowerment in Egypt, Hendy (2020) concluded that gender gap in employment Egypt differs according to the economic and the social circumstances. "A relatively good" economic and social circumstance they gain equal employment opportunity. Income is among the factors to give women an opportunity for a better position in gender equality. Egypt's GDP is expected to increase by 35% by increasing gender equality (Woldemichael, 2020). Afterwards, Empowering women will positively impact their children and their families since most of women's salaries will be spent on children compared to men's salaries, that will affect the overall human capital and economic growth (Soliman, 2021). This will lead as well to enhance women decision to give birth because of the high opportunity cost of having children (Soliman, 2021).

Since the role of transport is about empowering the people through providing them with an opportunity. This part will focus on the situation of women empowerment in Egypt recently and

the main challenges she is facing. According to Barsoum (2020), social policy in Egypt has long been associated with system efficiency challenges. The social policy has been limited to universal subsidies of fuel and some food (mainly bread), free access to health and education (regardless of the quality of the services), and a public sector hiring system that provides excellent working conditions for the educated, leaving the rest of the population to struggle with the unpromising working conditions of the private sector (Barsoum, 2020). Samari's article titled "Women's agency and fertility: Recent evidence from Egypt" shows that when social policies are not attractive enough, women decide to have more children to ensure that they will take care of them in old age (Samari, 2019).

Another argument is that female employment does not necessarily lead to empowerment (Barsoum, 2019). There is partial empowerment possibility to jobs with low value, informality, and threat of sexual harassment. Social policies have failed to provide satisfactory childcare services and other related women-friendly workplace policies such as flexible hours or specific leaves to help married women with the household work burden (Barsoum, 2019). Assaad et. al, (2010) identified what they termed "significant and non-significant" jobs, in which significant jobs are regular jobs of at least 20 hours per week with a duration of at least six months.

The literature on the shift from school to work in Egypt noted the high unemployment rates and long unemployment durations experienced by educated women, and most of the unemployed are young, educated women (Assaad & Krafft, 2016). Women's educational attainment is associated with the "increased feminization of the labor force, "and increased education will enhance women's control of resources, leading to lower fertility rates (Lutz and McGillivray, 2009).

Egyptian Women in the job market

The job market in Egypt for females is characterized by low FLFP as it has been associated with *patriarchal family structures*, as religious and cultural norms recognize men's position as principal breadwinners (Barsoum et. al, 2009). Culture dictates the debate on women's opportunity, often reducing or eliminating female bargaining power to determine options and decisions regarding work (Barsoum, 2018). This was strengthened during the '70s by the oil boom era. According to the latest survey by Baseera, 2018, around 40% of the sample refused the remote places for girls' education, and the same percentage was mentioned about remote places for work (Mostafa, 2021). Cultural gender norms consider women taking the opportunity from men, who are the house's breadwinner, this leads to the uneven distribution of the unpaid work burden³.

There is a low female participation rate compared to men and gender gap in wages (ECES, 2020) moreover, "*The feminization of the public sector workforce*" (ECES, 2020) is motivated by shrinking and ultimately ending the gender gap in education and the growing share of women with secondary education in the region. It provides privileges such as relative equal salaries compared to the gender pay gap of 16% in 2019 in the private sector (ECES, 2020), providing nurseries, flexible hours, and maternity leave (ECES, 2020).

Hiring in the public sector is based on the achievement of specialized educational qualifications. However, due to the increasing privatization, women's dependence on the public sector will affect their low participation. This requires more effort in joining the private sector to compensate for these increasing changes (Zeitoun, 2018). The privatization process led many women to wait for an opportunity in the public sector, especially in the governorates (ECES, 2020). Female participation in the private sector increased to 57.7% (ECES, 2020).

³ According to Minister of Planning in Egypt in March 2020, the cost of unpaid work is 458 billion L.E. annually, around five hours daily.

According to Assaad and Barsoum (2019), there is a high concentration of women in the informal sector. Although this may be considered a step forward for women, “it is better than no opportunity,” it can threaten their safety, informal working conditions and low-quality opportunities encourage women to quit, as there are no viable expected benefits (Barsoum, 2017).

In his study, “Selling hope without reward: Youth unemployment in Egypt,” Pettit (2018) refutes the general argument claiming that youth are lazy and arrogant to accept low-skilled jobs. The study argues that youth get stuck in those jobs and cannot improve the situation (Pettit, 2018). The empirical evidence is diverse, pointing to both the stepping-stone effects and damaging effects of low-paid work, where individuals can become trapped (Schnabel, 2016).

Although Islamic law and society consider men as breadwinners, 12.9% are Female Household (FHH) in Egypt, according to the latest World Bank statistics in 2014, this percentage is expected to increase. This means that giving the woman an opportunity will not only improve her economic situation but also her family.

Historically, the labor market has been pro-women hiring, as women were thought to be too sensitive and pregnancy was considered to carry great disruptive potential; men have been traditionally preferred compared to women in the hiring process; what economists refer to as “statistical discrimination” (Weichselbaumer, 2004). According to Oxfam International, this preference assumes that women tend to quit when building a family, so they are paid less. Women earn 24% less than men, as businesses safeguard themselves against future losses. In turn, this unfair payment makes women more likely to quit in a vicious circle (Pearse, 2020).

Hendy’s study (2015) revealed that by analyzing the 2012 ELMPS, that women’s opportunities had declined remarkably following the Egyptian economic performance in the post

25th of January revolution. The results show that related marriage responsibilities partly explain the low FLFP (Hendy, 2015).

So, the main obstacles from joining the labor market are the societal perception about how men should be prioritized to take the opportunity as breadwinners, lack of nurseries, the low of the public transportation network, long commuting time, and high cost out of women's salaries (ECES, 2020). In addition to sexual harassment and the absence of skills-programs (ECES, 2020).

In Economics, free choice and the intersection of the supply and demand side are assumed; however, women's choice to join the labor force has never been their own decision. Women may well engage in informal economic activity close to home while making a *rational choice* not to join the formal labor force (Pfeifer, 2019). It is affected by a combination of social, cultural, economic factors, vocational training, value-added participation, and inequality of other factors (Abdel Fattah, 2020).

While unmarried women focus on the job quality issues, married women focus on work-family balance represented by the combination of labor market opportunities and social policies such as (long hours of work, family commitments, husbands' cooperation, and limited access to affordable and trusted nurseries) (Barsoum, 2017). This will be reflected in this thesis by different transportation needs. Singerman (2008) argued that young unmarried women often work to save for marriage costs in Egypt, and married women allocate their earnings toward family expenses. According to Kahn (2015).

Women need significant social policy reform, reliable public transportation and childcare, and other state programs that facilitate women's potential to continue working after marriage in the private sector (Assaad & Barsoum, 2019). This requires inclusive growth to create more job opportunities and inclusion of all human capabilities. Social policies should improve and expand

to include more women; according to CAPMAS, the percentage of women covered by social insurance is 16.8% compared to 25.7% of men (Purfield, 2018).

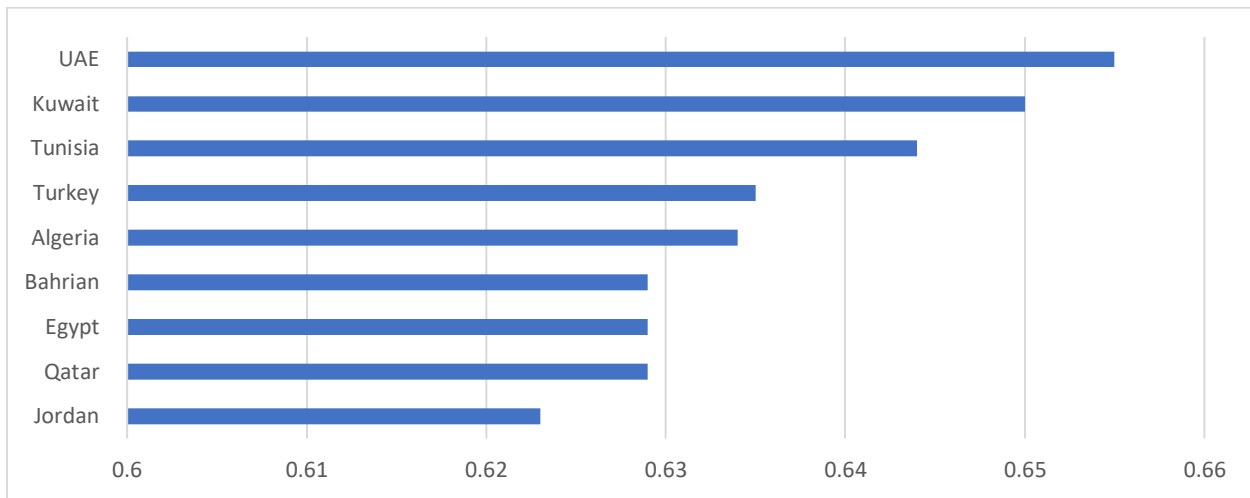
Global Gender Gap and Egypt rank

The Global Gender gap between 1990-2018 decreased from 27% to 20% (7% over three decades) (Fabrizio et. al, 2020). It is established that measuring empowerment is not a simple direct task, as it is multi-dimensional. Exogenous measures influence females' decision to take the job (El-Sheneity, n.d.).

According to the Global Gender Gap report 2020 (WEF, 2020), which measures Economic participation and opportunity, Educational attainment, Political empowerment, and health and survival (WEF, 2020). Women need viable opportunities to close the gender pay gap, to be elevated to a more productive career path. They can no longer continue to live on low-skilled jobs, (WEF, 2020).

Egypt managed to a great extent in gender equality (equal ease of access to resources) but not in gender equity (being fair to men and women). Although the effort exerted by the government represented in positive labor law discrimination measurements and encouragement for more women empowerment in jobs, Egypt's ranking was (134), instead of (109) in 2006 (WEF, 2006); economic participation and opportunity is 140, according to the latest Gender Gap Index 2020; compared to the UAE (120), Kuwait (122), Tunisia (124), Turkey (130), Algeria (132), and Bahrain (133), as shown in this graph.

Figure (1) Global Gender Gap Index, Top countries in the MENA



Source: Global Gender Gap report 2020.

The Egyptian economic context

As mentioned earlier in the literature, during the 1950s, the public sector's hiring mechanism increased women's participation in the labor market (ECES, 2020). The system provided a job opportunity in the public sector to every educated person. There emerged a widespread culture of women joining the labor market in the society while at the same time keeping their jobs after marriage (ECES, 2020). During the 1970s, openness increased the difficulty of providing opportunities, especially for illiterate, low-skilled labor. Then, Egypt's Economic Reform and Structural Adjustment program (ERSAP, 1991) was implemented, and the devaluation of the Egyptian pound in 2016, along with several restrictive measurements, led to a decrease in social policies coverage and women's inability to either join the labor market or spend money on educating their girls (Assaad, 2018).

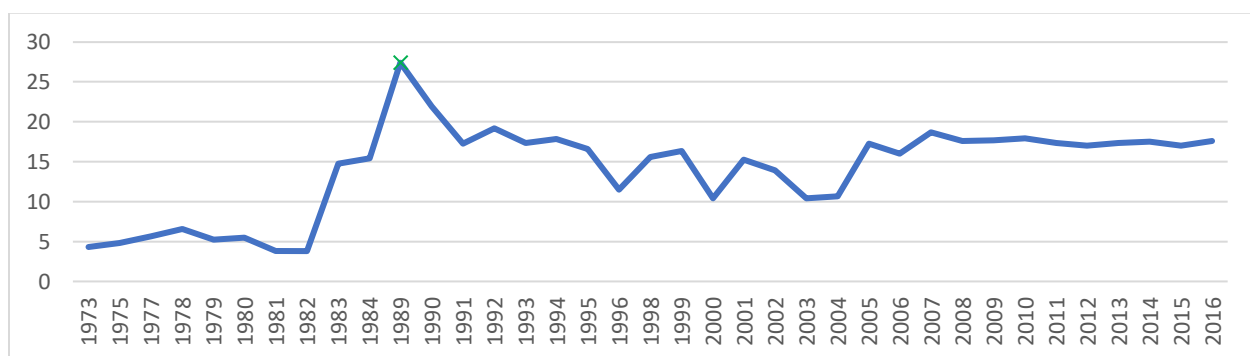
According to Income and spending, 2008, the national poverty rate rise resulted from several austerity measures adopted through the IMF reform program. So, Active Labor Market

Policies will not have an impact unless those reforms are adopted. This will occur by implementing decent job benefits and providing job search assistance programs. Assaad and Krafft (2015) stressed the same recommendation to adopt safe, accessible, and acceptable jobs for young women to provide a successful employment transition.

This graph reveals that female employment increased between (1977–1980), reached the peak in 1983, and then decreased until 1989 (ECES, 2020). This denotes the argument presented by the literature review concerning the adopted policies’ impact on women. It is seen that also by the adaptation of the reform program ERSAP and the privatization policies, the sharp decline of the employment rate.

Women in Egypt were integrated into the paid labor force during the era of state-led development in the services and administrative sector, and they managed this job opportunity in addition to family obligations (Assaad, 2018). In the neoliberal era, the private sector absorbs more women, with the shrinking demand in the public sector. This leads to the stagnation of female participation in the labor force.

Figure (2) Female employment compared to population ratio in Egypt



Source: “The World Bank, 2018”

Job Market Highlights for women in Egypt

In general, educated women are more likely to be unemployed, known as “gender paradox” (Assaad et al, 2020). Similar to the rest of the MENA region, Egypt is underperforming in female participation in the labor market and the quality of jobs available relative to men (Lo Bue & Sen, 2020). Thus, there is a need for other empowerment means, as opposed to just providing an opportunity. Such opportunity should measure related costs and challenges, especially since there is high proportion of women in the informal sector.

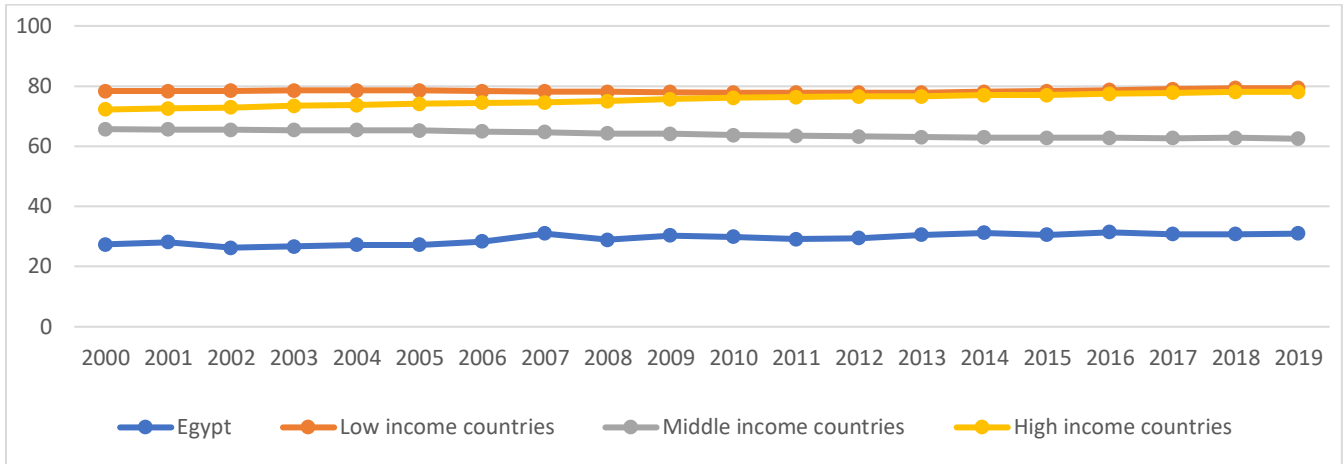
Economists suggest that women’s choices about joining the job market interact with the “opportunity cost” of time in paid work if less available decent paid work (Singh & Pattanaik, 2020). Despite the low social security mechanisms, recently, women choose not to join the formal economy from the beginning and participate in the informal sector more readily (Hoyman, 1987).

The percentage of female share of power and management positions in Egypt is low at only 7%, and women usually assume low-skilled labor jobs, as only 26% of women work in skilled occupations. More surprising is that the top occupations are in women’s skilled agriculture workers (ILO stats, 2020).

Female labor force participation

The percentage of women’s participation in Egypt is low compared to international standards (World Bank Gender Portal, 2020). Despite the exerted effort, this share increased in the last twenty years, with 4% only (2000-2018). This participation rate in Egypt is low compared to low-income countries. This graph illustrates more.

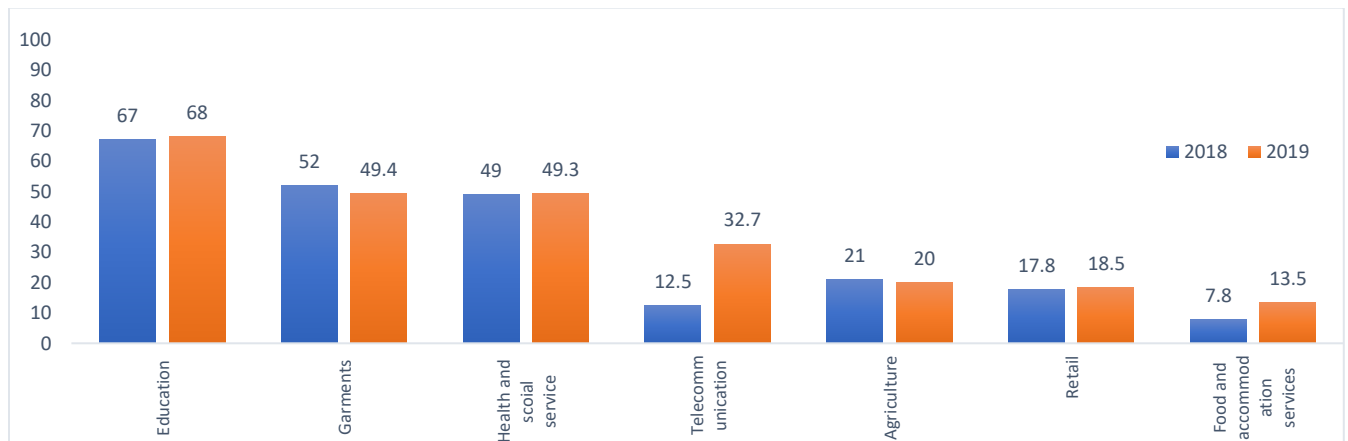
Figure (3) The Ratio of female to male labor force rate in Egypt



Source: World bank Gender Portal, 2020

As shown in this graph, Egypt female to male labor force rate in Egypt is low compared to low-income countries, Middle and High-income countries. This low participation rate may be justified to Egypt's labor market mechanism, and the sectors women take part in. For the in-depth sectoral analysis of the main fields where women work, it is as below:

Figure (4) Sectoral distributions for female work in Egypt

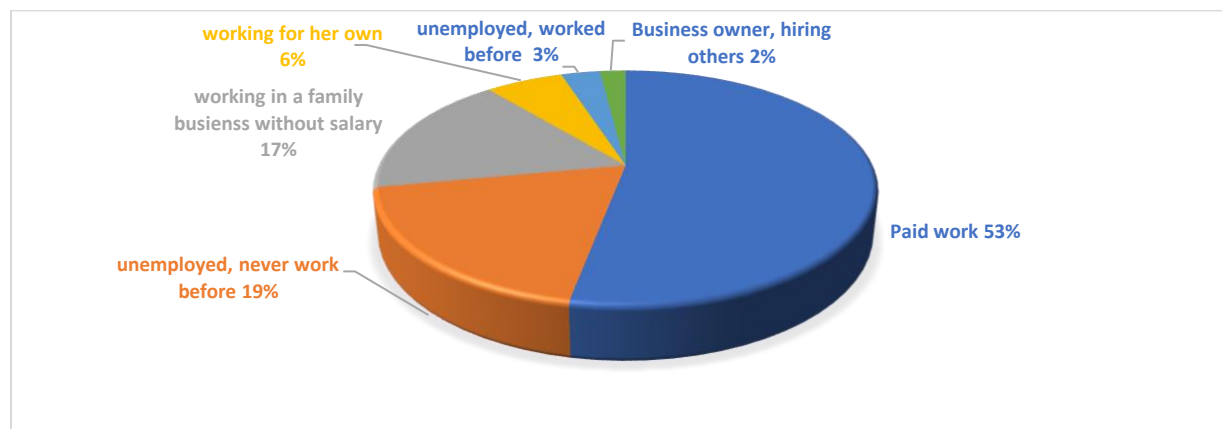


Source: CAPMAS, (2019- 2020)

The leading hiring sectors for women in Egypt are Education, then Garments and finally Health and social service. In 2019, there was a shift towards the telecommunication sector from 12.5% in 2018 to 32.7% and

the same applies to the Food and accommodation services from 7.8% in 2018 to 13.5%. there is some slight decline in the Agriculture and Garments sectors from 2018 to 2019.

Figure (5) Institutional distribution of female share in the labor market



Source: Labor Force Bulletin, CAPMAS, 2020

For the institutional analysis of the sectors hiring women, the majority of women (53%) are working in the Paid work, compared to 19% are unemployed and never worked before, while 17% works in family business without salary, and the smallest share are business owner and hiring others (2%).

From the previously mentioned figures, it has become obvious that women are still being asked to change themselves, work longer and harder. However, working practices should change to adjust to 50% of the population's demands challenging the patriarchy and framework of gender privilege. Women should gain a more powerful voice in bargaining instead of accepting what is imposed on them (The Economist, 2020). This calls for the development of family-friendly policies to boost women's participation and the welfare of their families while boosting society's economic growth (Winkler, 2016). Education and job preferences are potential avenues where women can improve the gender pay gap. This means eliminating the wage gap is dependent on women's effort and sacrifices. Some studies suggested as much as 38% of the pay gap can be

attributed to pure discrimination. At this level, the gender wage gap will not decrease until 2059; with more women in higher-paying fields, this share may increase faster (Miller, 2018).

Main challenges in the transportation policy in Egypt

For decades, urban development in Egypt has been governed by "horizontal urban expansion" to solve high population density (Hegazy et. al, 2019). Most national governments continue to devote more spending on roads and related infrastructure than mass transit (Colenbrander & Heeckt, 2019). While technology and infrastructure are essential, they cannot work alone without a vision. Smart transport improves the quality of the service (Colenbrander & Heeckt, 2019). Investment in mass transportation programs is not encouraged by the private sector as it generally does not generate profit. There is no political will to develop the transportation sector than other vital sectors (Kamal, 2019).

Despite the critical role of the transport sector, there is no separate clear data about its contribution to the Egyptian economy (ECES, 2020). storage is added to this sector, which gives an inaccurate image of its role (ECES, 2020). Transportation and storage sector absorbs 8% of the labor force and 11% of the total investments, two-thirds are public investments, and one-third derive from the private sector (Ministry of Planning and Economic Development, 2020).

According to the Human Capital Development Report for Egypt (2010), transportation affects the youth. In Egypt, the mass transportation system is considered one of the worst systems, as it is unreliable, overcrowded, and outdated, except for some privileges in the metro. Although Egypt started its transport sector early by having one of the oldest railways and subways, the country still lacks improvement and development of transportation to provide the best services and absorb its increasing number of users with the expected increasing population rate (UNDP, 2010).

Despite less than one-tenth of Cairo's households own private cars (Shalabi, 2018), the city's new roads are designed with the capacity to accommodate private cars instead of mass transit. Cairo is doing the exact opposite of many cosmopolitan cities' policies by eliminating private cars (Barber, 2017). *Elites are always a minority*, and planning a public transportation network around the preferences of a minority is in danger of yielding an outcome that does not work for the majority. Successful transit is mass transit (Walker, 2017).

Since low-income households rely on mass transit than a higher-income dependence on private vehicles (Shawkat, 2020), mass transit is becoming more expensive due to energy liberalization and privatization, (Gad, 2020). The growing prices drive up public transportation costs and unregulated informal market prices. The transportation sector's Egyptian government policies focus on money allocation by taking fees from the informal sector without considering the quality of its services (Hegazy, 2019).

El-Laithy (2019), head of the Income and Spending Report in Egypt, disagreed with the false claims regarding the consideration of energy subsidies as a waste of money, as the poor do not own cars and cannot bear the growing cost of transit. The in-depth analysis of the current reforms in the energy subsidy since 2014/2015 reveal that, overall, since the subsidy cut, savings have not been targeted to eliminate the impact on the poor.

Adding to the previously mentioned features of the transportation system in Egypt, more challenges exist in this sector, such as the inability to absorb the needs (either quality or volume of coverage) despite the variety of means (Hassan, 2019). This leads to a real challenge in development. The Internal transportation system is back warded, and these services push higher expenses in private services. Buses are more likely to move more slowly than vehicles and take the longest routes possible to ensure picking up the largest number of passengers; this is a waste

of passenger's time (Zeid, 2016). Even the Design of new cities did not consider mass transport (6th of October and fifth settlement) (Hegazy, 2019). In addition to the absence of information for future planning (Hassan, 2019).

Less regulation of the market (example of the price increase); lead to a flourishing black market during special occasions. The inability to guarantee cooperation between policies and implemented programs, absence of enforcement of regulations. However, running the current situation and facing the obvious problems without a clear vision and future planning will further complicate the issue (Kamal, 2019).

According to the Eurostat, 2017, private car ownership in Egypt is low, 45 cars per 1000 inhabitants and it reaches double in Greater Cairo, however, this rate is growing progressively (Almoghazy, 2020). This increase is faced with the erosion of bus services market share while the informal sector absorbs 8.1 million journeys per day (Almoghazy, 2020). Despite this low percentage of private cars and high congestion in Egypt in general and Cairo in particular, the government focused on investing in infrastructure.

Despite the expansion of the Egyptian government investment in road infrastructure, this investment did not take into consideration passengers' needs (Shelbaya, 2020) according to the International Road Safety Assessment Program, which assesses roads infrastructure level of safety from 5 stars to 1 star (least safe), 83% of the Egyptian roads are least safe (one star) for pedestrians, and 97% are without pedestrian crossings. According to World Bank Report (2019), 97% of the streets lack traffic lights, which affects the quality of the streets in Egypt, and 78% lack pedestrian space. The roads are not friendly for the pedestrian in general, particularly in terms of safety or mothers' specific needs to accompany their children (Shawkat, 2020) such as strollers. This will

not only lead to an increase in the danger and number of accidents, but it will also threaten the slipping further into poverty or a lower socioeconomic stratum (Shelbaya, 2020).

The Egyptian rank in Transport Infrastructure index for 2019 was 44 out of 141 countries. However, there are other neighboring countries in the region competing Egypt in this indicator, such as UAE (8), Oman (18), Qatar (19), India (28), China (24), and Morocco (41), according to The World Economic Forum, 2019.

In 2014 (El-Dorghamy, 2018), there were 22.4 million trips per day in Cairo, 87% of them are motorized (does not include cycling nor walking) and 63% are through public transport (around 14.1 million trips). On those trips, 63% are microbus and 21% metro and 16% are either public buses or Minibus (El-Dorghamy, 2018). Based on the General Metro Authority's official website, the Metro is transferring daily around 2.52 million passengers. There were no clear data about the percentage of women using the metro. According to the ministry of economic development, 12.3 billion L.E. is included in FY 2020/2021 in investment plans to expand and develop the metro network (2020).

The value of an investment in both transport and storage is the fourth largest sector; the total investment value is 97 L.E. billion, 11 percent of FY 2018/2019 (ECES, 2020). This value is the same since FY 2008/2009; around two-thirds of those investments are public (ECES, 2020). Transport share in Egyptian GDP decreased to 39085.90 L.E. Million in the first quarter of 2019 compared to 39271.90 L.E. Million in the fourth quarter of 2018, according to GAFI, 2020. The total direct investment is 77 L.E. Billion during 2018/2019.

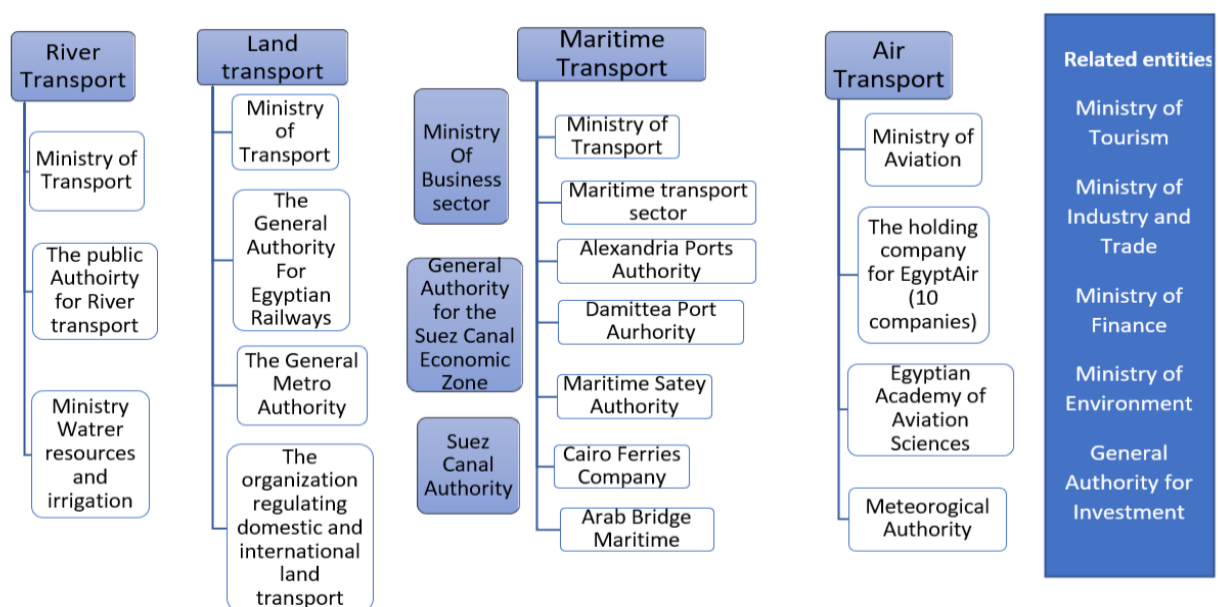
The transport strategy focused on the automotive in roads expansion and according to the 2030 outlook (GAFI, 2020), the focus was on the expansion of trade instead of investing more for passengers or on public transport, even the only time passengers were mentioned was related to

the highway on the Ain Sokhna road until 6th October, Alexandria, and goods (trade) was mentioned again. It is important to give the due attention to passengers' needs and public transport investment should be considered as well. The railway system used to be less politically appealing and the government investment neglected it since most poor people depend on trains. Instead, monorail projects and the new public-private railway investment company" Nayzk" is the new prestigious investment with 10 billion L.E. expected as an investment (Momani, 2020).

Stakeholders analysis

Ministry of Transport is the central organ of government, responsible for transportation policy in Egypt. It supervises and monitors twenty-five bodies (Ismail. 2019). This chart shows those public stakeholders interacting in implementing policies related to the transport sector in Egypt. This may include power relations and difficulty in implementing policies. There is no institutional guarantee for required coordination to achieve the objectives (ECES, 2020). This shows the weak governance of the transport sector.

Figure (6) Main public stakeholders of the policy-making of the transport sector in Egypt



Source: ECES views on the Crisis, Transportation sector, 2020. (modified by the researcher according to the latest update of the names of the stakeholders)

Ministry of transport in addition to the supporting entities such as civil society and international donors are the main responsible for the development of this sector. The collaboration of efforts and partnership is required to avoid any delays in implementing the policies or future interest conflicts.

The National council of women (NCW) can collaborate the efforts and advocate for the government and civil society unifications of the efforts. **Media:** is responsible for the awareness of the society, and developing the ethics in the society to respect the working women and help provide safe public spaces (including transport). **International donors:** those institutions have already started projects related to women empowerment. Society needs to figure out sustainable solutions for women's participation in the public space and job market. Leaving space for women to sit in the overcrowded public mode of transport is not the solution. This space should be safe, affordable, and comfortable.

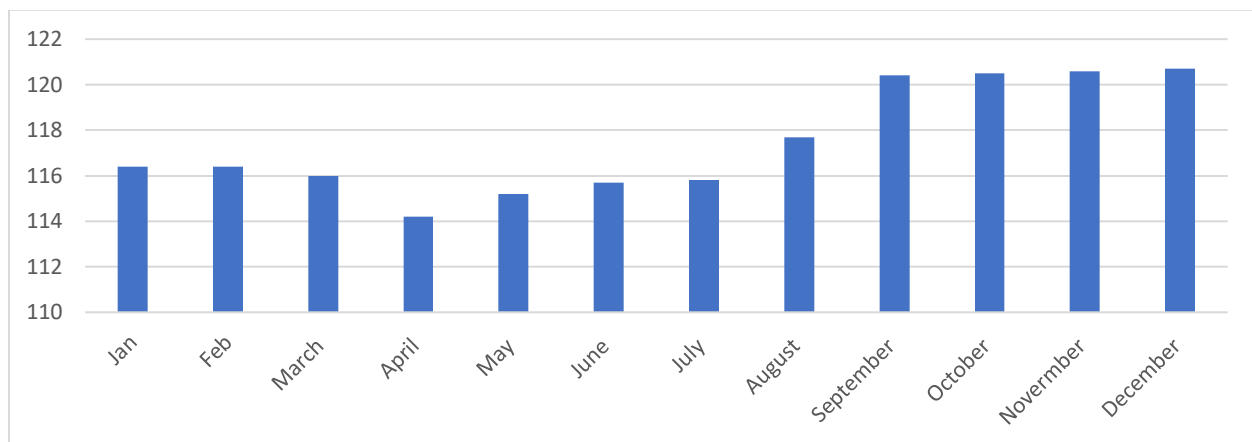
The ministry of transport's vision did not mention any relevant goals for gender or women empowerment. This should change, through adding new policies which consider providing gender-sensitive perception related to transportation (Hassan, 2019). There were no data in general about this sector as mentioned earlier and there were no segregated data about gender perspective.

From the economic perspective, the price of public transport means in Egypt is relatively affordable based on international standards. However, this affordability does not mean reliability (Tadamun, 2013) nor safety (women and sexual harassment for example). On the other hand, in Egypt, the reform program in energy subsidy started in FY 2014/2015. At the same time, prices of the bus tickets in Egypt increased from 1 L.E. to 4 L.E. So, the Cairo Transit Authority becomes more rent-seeking organization, as the metro tickets increase from a standard ticket to all zones 1

L.E. to 7 L.E. to the most extended trip, which was considered by the Egyptian Initiative for Personal Rights as a “***Covert privatization***” (EIPR, 2018). In August 2020, another increase in Metro tickets was imposed; the increase ranges from 20% (in the third line) to 66.7% in the first and second line (Ministry of Transport official Facebook page, 2020).

This imposes a significant burden on the working and Middle classes, who use the metro as an effective mean of transportation. The increase may exceed the price of private or informal fees sometimes. So, the metro becomes no longer the most affordable option for the public. The metro's short daily trip to the people under the poverty line consume 25% of their monthly salary (The Economist, 2020).

FIGURE (7) Egypt CPI Transportation 2020



Source: Trading economics <https://tradingeconomics.com/egypt/cpi-transportation>, 2020.

This graph shows that the transportation sub-index of the Consumer Price Index in Egypt “which usually measures inflation” increased to 120.7 points in December and sharply declined in April due to the social distancing policies (Trading Economics, 2020). This represents the change in trip preferences after the COVID-19 for more safe and less crowded modes and at the same time the increase in the prices of the tickets or the means of transport in general. Over the five years,

the soar in this subindex in Egypt reached the maximum in 2018 by 283.20 points after raising the metro tickets and subsidy reform policies on petroleum products as mentioned earlier.

Public investment in the transportation sector in 2014/2015 was 9.1 billion Egyptian pounds (1.1 billion Euro), and it reached 12.3 billion Egyptian pounds in 2016/2017 (1.4 billion Euro). This money was directed to roads and bridges; however, expansion in infrastructure is not always the solution to transportation problems (Schneider, 2018).

Concerning the transportation network coverage in Egypt (Hassan, 2019), The government stopped transit lines to low-quality, private-sector (formal and informal) transportation services, and when those lines were upgraded for the public buses, the government sold those services at prices higher to compensate previous losses (Gad, 2020).

Metro is considered the most perfect and attractive means of transportation to the people, even after the recent increase in the fares, it still attracts more passengers, it targets mainly Greater Cairo inhabitants. However, there are some crowdedness and lack of privacy during the rides. Then railways especially intra-cities transit, Buses is among the most widespread means of transportation, yet it still lacks the accuracy and time-efficiency with the increasing crowding, especially during the rush hours (Hassan, 2019). The gap is filled by the informal mini and micro-buses. This allows providing variety in the fares, so it attracts more passengers. Taxis are either in the traditional form or the new applications (Uber and Careem...etc.) with higher quality and tracking safe options to women (Hassan, 2019). Nevertheless, this is not an affordable choice for women with a limited transport budget (Quinones, 2020), so Tuk-Tuk is considered a vital mode in informal areas and to the poor citizens (Quinones, 2020). There are new alternatives modes of transit in Egypt, Swvl and Buseet for example. That provides more flexible mass transportation, which managed to address market needs. They offer a combination of the sharing economy and

using technology. Nevertheless, they target a specific market share, which is mainly highly educated and able to pay. So, these options do not offer sustainable solutions for the mass population. It is usually unlicensed and rode by teenagers. There are some other alternatives in the maritime means such as the ferries and air transport (intra-cities) transit (Quinones, 2020).

There is limited segregated data about gender and transportation relationship in Egypt. One of the recent studies was the UN-Habitat study “unpublished” in 2019 about women’s transportation preferences. According to this study⁴ in Greater Cairo, the highest transport mode usage was **Metro** and **Microbuses** (informal) 18% each, then walking (16%). Uber and Careem 11%, Private cars 11%, CTA Bus 9%, Minibus (8%), then Taxi 7%. However, women indicated that their preferred means are Uber, Metro, and private cars. This shows how there is a financial burden imposed on women, and this burden leads women to substitute their comfort with money by using other cheaper alternatives.

This UN-Habitat “unpublished study” (2019) revealed that three out of five women make three trips daily. This indicates that travel patterns change according to gender, women are more likely to stop on their trip (either for education or family commitment). This can help in gender policy formulation. One of the most observations of this study was that 41% of respondents have no income, but perhaps this is explained as a reason for the absence of daily transport access, which shows the need for transportation for financial independence for women and that was the reason that this sample targeted employed women as it will be explained later.

Then the study measures the reasons women tend to use the transport, education was the highest reason (27%) compared to men (24%), while men used transportation for work (51%) (almost half of the respondents) compared to women (18%), this represents the age differences

⁴ The data was collected from Public Transport Terminal Surveys (225 female), online (2500 respondents) and 3 focus group discussion (16 female)

and interests in addition to main features of the labor market in Egypt. This also ensures the need to provide due care to transport to develop women's educational attainment and access to jobs. Entertainment was the third essential reason for using transport.

This UN-Habitat “unpublished” study revealed how the time spent to and from work makes the trip exhausting for women; sometimes, it affects the ability to continue the housework or other duties after work (Affecting work-life balance). So, the study asked women about their satisfaction with the public transport, and 80% of them were not satisfied with the quality of the services provided (due to harassment, security, irregular timing, low quality, and cost), and 85% were willing to pay more to get access to **a better service** (UN-Habitat, 2019).

While 30% is making less than three thousand Egyptian pounds, 45% said they pay more than 10 L.E. per day on transportation, and 60% indicate spending two hours for the daily commute (UN-Habitat, 2019). Women reported CTA, Minibuses (26 seaters), then (14 seaters) as the most harassing places for safety concerns (UN-Habitat, 2019).

This study is very important in drawing an outline for understanding how should transport be gender-sensitive and helped the researcher in designing the survey questions as Chapter four will mention in detail.

Chapter Four: Conceptual Framework & Methodology

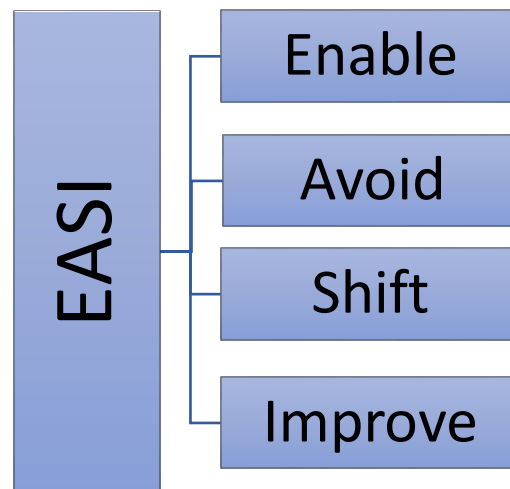
4.1 Conceptual Framework

Transport plays a transformative role in providing connectivity that eases constraints to economic development. Transport infrastructure enhances access to social services such as education and healthcare, facilitates labor market access, and reduces commodity exchange barriers. For chronically poor households, operating transport networks, and affordable transport services decrease geographic remoteness's adverse impact on income generation (World Bank, 2017).

The conceptual framework focuses mainly on” **EASI**” model, it was modified by the researcher to fit the studying of gender sensitive transport. (Hegazy, 2019) Enable, Avoid, Shift, and Improve. This will be used in both transportation policymaking following the labor market. It is a commonly agreed worldwide standard to improve transport for a better standard of living (Hegazy, 2019). The goal is to empower women and increase the participation rate in the job market. One contradicting theory within the field is that people, including women, accept job offers regardless of distance, without considering the commute's cost or safety. This model will be used for women in this case, for example. The “Enable” pillar tackles the institutions, enabling public mass transport to absorb women needs.

The “Avoid” pillar focuses on eliminating the need for private cars’ usage, and at the same time, eliminating the incidents of sexual harassment and taking care of safety consideration. this will remove the financial burden on women either through paying for the car itself (in advance payment or installments) or the car related expenses. Shift to maintain the use of mass transport and eliminate dependence on private cars. Finally, “Improve” is about to develop the efficiency and safety of transport modes. The main goals should be affordability, time saving and safety.

FIGURE (8) EASI, a Conceptual Framework for gender-sensitive policies



Source: Hegazy, M. (2019). Policy Paper: Towards Transit-Centric New Desert Communities in the Greater Cairo Region. (modified by the researcher to respond to women needs)

To understand how transport affects women's empowerment, the previous chapter studies the plethora of research analyzing “how transport should be gender sensitive to respond to women needs.

Those objectives were present in the **World Bank’s 2011-2014 Transport Sector Strategy (Johan & Johan, 2008)**, which emphasized integrating poverty reduction and social equity into transport policy and planning analysis (including gender equity). Simply, the framework conceptualizes the main channels through which transportation infrastructure directly affects access and mobility, facilitating the assets to improve a woman’s salary capacity and maximizing society's welfare. Since transport supports the accumulation of resources, either time or money, this will be clear in the long run since the high level of productivity and drive more income growth. Since income and consumption are determined by the assets already saved, the growth will enhance.

Despite the previously mentioned effects, such benefits depend on the quality of transport services along roads. Better connectivity may increase the demand for labor, which is the leading income-generating activity.

Concerning the capabilities approach by Amartya Sen (2000), the thesis argues for developing a wide range of transportation means to enhance people's choices. Based on the capabilities approach, this will develop women's welfare (for example, providing education and employment opportunities). since **Empowerment** is *"the expansion in people's ability to make strategic life choices in a context where this ability was previously denied."* **Women empowerment (by giving opportunities)** is the best model for international organizations; this allows women to merge in the economy, on a micro-level, allowing for her and her family's welfare. On a macro level, this individualistic seeking of profit behavior will lead to flourishing. The researcher argues that transportation should be gender sensitive. It enhances people's ability to choose and plan, provides a paved road that can prevent women's death during delivery, enhances girls' education opportunities, and improves farmers' market opportunities (Ahmed, 2019).

Transport gender-sensitive mean has Socioeconomic Impacts as Reliable public transportation increases access to employment, markets, and education. Women's benefits are indirect in reduced transport burdens and increased time for education—lack of appropriate transportation limits women's access to education and healthcare (World Bank, 2012).

Improved access to education and health services translates into further accumulation of human capital for poor households, which builds the foundation for higher incomes in the future. Wealthier households that already own the right set of skills, such that transport enhances their productivity. By reducing transport costs, transport projects may result in increased investments

in communities. Reduced transportation costs benefit investors because of lower transaction costs and employment generation (World Bank, 2017).

4.2 Methodology, Data Collection, and Sample Design

Desk research: to gather information related to the thesis, the researcher refers to a comprehensive literature review related to gender and transportation. Then policies related to gender and transportation in Egypt to analyze the local context. Subsequently, the researcher categorizes the best global methods while considering critical factors for a perfect transportation mode, such as availability, safety, affordability, to generate gender-specific solutions. This phase helped in developing the survey, agreed on the targeted sample. The UN-Habitat unpublished study (2019) and, “gender in public transport in Jordan” report (2018), helped the researcher to design the survey, as explained later in the methodology section. However, this thesis is different as it is one of the few studies in the academic field to review the literature about public policy and female participation in the job market and the transport. In addition, this survey was not limited to Greater Cairo as the UN-Habitat study.

Participant Observations: The researcher gained experience in commuting inside Egypt, and cost has always been a factor in her choice. For instance, she commutes from hometown (Alexandria) with a limited stipend to Cairo (education and job opportunity in the junior career). Thanks to family support, she was able to access to education. This helps formulate the survey questions and opens the space for women to speak up freely and share the essay section's experience. This helps in understanding women feeling during the daily commute and the determinant factors they are willing to pay for and missing in the mean of transport in general and in public transport in specific. These observations include gender-related situations, experience.

The previous observations contributed to the survey design.

Despite this previous experience, the researcher will not be biased against any factors that will help study the topic. This will help understand the situation profoundly and concerning research ethics of being unbiased and objective. This helped the researcher understand the topic from a comprehensive perspective.

Seeking to obtain better knowledge of the topic, there was two steps of analyzing the data and this was clear since the survey design. This allowed for analysis of this problem from different perspectives and for obtaining both in-depth information on the experiences of women, as well as a larger wide picture of transport and women choices.

An analysis of agreed international standards of the transportation modes, by descriptive analysis to the Egyptian government's policies and the government's response. The Egyptian government's behavior in the transportation sector focuses on the financial impact and collecting revenues instead of focusing on the development impact. The survey structure ranged between multiple choices and open questions to help women speak freely, express their experience, and enhance an in-depth analysis reflecting the current situation. This survey was sent to experts for feedback before sharing it “pilot” phase. The survey was built using “Google Forms”, so it can be easily shared online.

It was also tested to understand the clarity of the questions since there was a problem of those online surveys that they may exclude some women “unintentionally” who cannot have access to those platforms or may face some difficulties in responding to some questions, so the researcher tries -at her best- to make the questions very clear. It is understood that there may be a strong self-selection bias (Quinones, 2020).

There methods adopted were mixed methods in analyzing the results, as below:

First: Quantitative methodology via the data collection from a primary source collected by the researcher. The data were collected using a structured survey. The survey has multiple sections covering the different socioeconomic background of the respondents such as age, marital status, and employment. The other section was related to understanding the transport modes preferences to study why women use transportation and their perspective towards public transport, commuting time and cost share of the monthly salary. Finally, the survey ended with some suggestions from women to develop the transport sector.

This survey includes a wide range to understand to a great extent in the in-depth analysis for the respondents (since it is hard to deal with women as one homogenous group and they have different needs). This is also to give the space to express herself freely with some open questions about their perspectives, hopes for the future of transportation. The answers to questions sometimes include multiple choices and justification for understanding the different reasons for a clearer insight. Then, in preparing the quantitative analysis model, those answers and choices were limited to main categories: the cost (financial and time), age, salary, and safety concerns (sexual harassment).

Second: Qualitative: there were some essay open questions in the survey. Qualitative research helps in understanding the perspective of people (Rossman, 2006). The variables studied were mainly the reasons to link between the job and mode of transport used, main reasons they refused a job offer before, their satisfaction about the share of transport out of the monthly salary and the quality of the service provided. There were another question about the perception of using public transport and whether transport should be gender neutral or not. Thematic analysis was used to analyze the responses.

4.3 Sample Selection

It is a **purposive** sample (*a non-probability sample selected based on the characteristics of a population and the study's objective. It is A selective sampling*). The sample is **300** respondents, **264** (88%) were accepted out of the total since 36 respondents (12%) were responses from men or did not work before in Egypt, so those responses were excluded. There were two selection questions at the beginning of the survey for this selection process and if the response for any of those two selection questions was “No”, the survey ends automatically.

The research sharing the survey first among the researcher’s colleagues, friends (network). Then, they keep sharing to their network who have the same criteria required in the sample. That is why it was a mix between purposive and snowballing. The researcher share the survey on some social media platforms “such as LinkedIn and particular Facebook” as well to collect various responses.

Then, responses were analyzed using E-views, and the data generation was implemented using STATA. The data coding for the quantitative study led to graphs, charts, and The **Multinomial Regression Model**.

Data collection was between August and October 2020, after the IRB approval. The survey was an online self-completing survey for many purposes, first this aims to saving time and the environment. Second, online survey ensure privacy primarily since some of the questions were related to sensitive private topics such as the salary or the sexual harassment incidents. Finally, for the health safety measurements because of the social distancing policies. It depends on snowballing, then on women's selection criteria and having previous work experience in Egypt “purposive sampling”. There were two Arabic and English versions to facilitate the reaching out

process and express themselves freely, and to ensure the clarity of the survey because of the length of the survey.

4.4 Ethical Considerations:

It was essential to keep the participants' confidentiality and anonymity preserved and guaranteed to the highest possible level with no kind of harm. The Institutional Review Board (IRB) approval was received on the 28th of August 2020 before any data collection activity. The different possible ethical considerations were put as a top priority before collecting data. To ensure voluntary participation, the data's voluntary collection was mentioned at the beginning of the survey. In addition to the privacy and anonymity of the respondents. The data was collected only for the research purpose. These ethics were mentioned at the beginning of the survey and were implemented. The researcher interpreted the results, and it will be kept for three years as per IRB policy.

4.5 Limitations of the Study:

Even though the researcher did her best to study this topic, such as any other study, there are some **limitations**. First, it is hard to deal with women as one unified group. There are different needs and principles for women. Second, the survey is limited to educated and working women. The researcher cannot generalize the findings to all Egyptian working women. Some women are not educated, and live in rural areas. There is difference transport system in each city. Third, the socioeconomic background difference is not limited to the poor, uneducated ones, but it may not apply to elite professional women protected by class position and available resources (financially) to decide and choose freely. The focus has been intentionally on middle-class, educated, and working women.

This also applies to the long commuting distances or the intra-cities commute, but this is an exploratory study to touch upon and point out the challenges women face in their everyday trips.

Fourth, this survey could not reach women who had to quit due to transportation challenges. *This was not an intentional decision, but sampling referrals did not allow to reach this group.* Nonetheless, there may be essential differences in unobservable characteristics, especially since there is a lack of information and specific data about transport in Egypt, and it is usually related to the number of passengers in the aviation sector or the maritime, no revealed data about the road sector (ECES, 2020). Finally, women have different preferences and options compared to men. However, both men and women face the worsening situation of transportation in Egypt in general, and there is a necessity to come up with an inclusive reform for the transport sector to decide which factor is affecting women in specific.

Furthermore, there are many factors affecting women's choice to join the job market. Besides, it is hard to segregate the impact of transportation alone. Those factors are overlapping in determining the decision of women to join the job market or leave it.

Still, this survey was not designed to be representative, as it did not seek to represent with full accuracy this topic to all the Egyptian women, but rather to collect data on a topic for which there is a considerable lack of information.

From the supply side, women working in informal and unpaid work are hard to reach and measured. So, the researcher chooses the formal sector. However, sometimes women tend to join the informal sector or work from home to face commuting distance (Morane, 2016).

Delimitations: The boundaries around the study. Those delimitations are mainly about society, which is educated women working in Egypt, regardless of work nature. This means that the society of the thesis did not deal with all women in Egypt (unemployed, and uneducated for example.)

Chapter Five: Data Analysis and Key Findings

There were 46 questions divided into sections to understand women's characteristics (Socioeconomic background) and transportation challenges. There was a section for private car owners that contains six questions). The survey was designed to cover many problems related to transportation in general and public transportation in specific. The sections included the financial burden (share of the salary), the commuting time, the safety, and some indirect questions about the social perception of using public transportation (which is sometimes a burden on women to avoid public transportation).

The age and salary range were the expected age to have an opportunity (as the thesis is focused on the working female) and then divided the age into categories based on the background chapter about women's age participation in the job market. This age is based on the definition of youth, expected years to have a stable job and a fixed salary, and building a family. It was also related to junior levels, which sometimes include many activities such as learning, education, work, and family commitments.

The questions were divided into multiple choice and open questions to give women the space to express themselves freely; the survey was about measuring the problems and suggesting solutions they are willing to pay more for more public transportation usage. Even women who own a car, the survey has a specific part to see if private car is helping woman or a burden, did women buy a car to facilitate going to work or for other purposes. In addition to ask if she is willing to get rid of her car if she quit her work.

This will be reflected in the responses, and the sample is directed mainly towards employed women since they have a fixed salary, and they have regular timing and need to commute. In addition to economic empowerment for them will help to understand their situation.

Age is an important variable, as it will be seen later in the model analysis, first it is an endogenous proxy for years of experience, positive relationship is expected with the commuting time but at the same time, the older woman is, she become less willing to accept longer commutes (Ehab, 2018). The data were gleaned, and age is divided: the majority is 42.6% between (24-29) years old, then 28% is between (30-35) years old. 12% is between (36-41) years old and higher than 42 years old, and (18-23) years old is 8.7% each.

Employment status

Most of the sample is “Employed,” the percentage of “unemployed” is 6% (either she does not want to work, worked before, and left the job) and 3.4% is a student. The employment status differs “full-time job” is highly represented 74.6% among the respondents, “part-time job” 8.7%, freelance 4.2%. The rest (3.1%) is “working more than one job” or “business owners.”

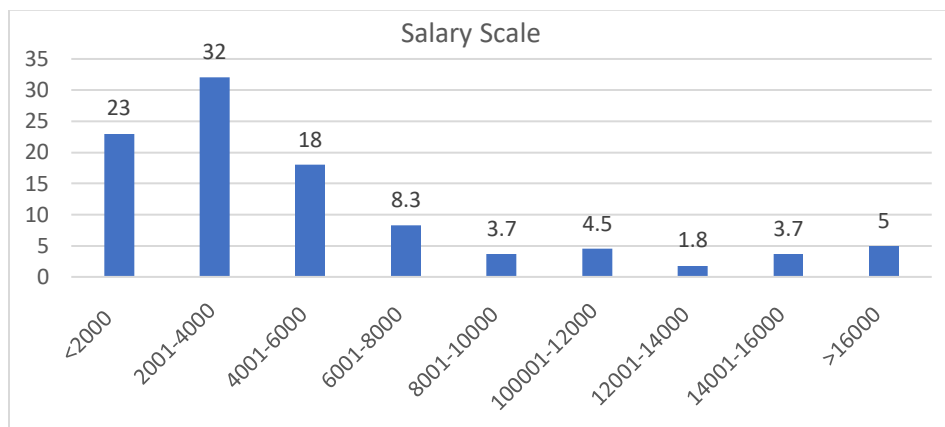
There is almost 55% of the sample's career path in “senior positions” and 8% in “Top levels.” The rest are either in the “junior” or “middle” level. Then the survey asked if respondents connect their seniority level with the type of transport they use, and 53.7% answered: “Yes and Maybe.” Most of the respondents repeatedly justified this due to social prestige since it is not socially acceptable to use public transportation, also to save effort, time, energy, and productivity to match senior positions' responsibilities. They added that most of the top positions provide transportation means.

Those reasons may be considered as another burden on women they had to fit in top positions. This also shows that when women are highly paid, they can shift to a more comfortable, convenient transportation mode (expensive) or own a private car. Being exhausted before starting the workday will affect productivity. Finally, the respondents mentioned that some top positions tend to provide personal transportation.

Socioeconomic background

Income is important as it controls the transport choices (de Madariaga, 2013). Since the minimum wage in Egypt is 2000 EGP/month in 2019. This was the parameter to determine the scale of the salary in the choices. The sample continues based on the salary range scale in Egypt and the sample age range. There was a detailed scale of the salary options in the answers to present an in-depth analysis and understanding of Egypt's salary scale for women. It was noted that although the age differences in the sample, the majority of the sample (around 73%) took less than 6000 L.E. Only 5% of the sample earn more than 16 thousand L.E. (around \$1000). This may show some concerns about the gender pay gap and economic situation of the respondents.

Figure (9) the percentage of the salary scale in the survey



Source: Author's calculation based on survey data

Figure (10) Social status of respondents

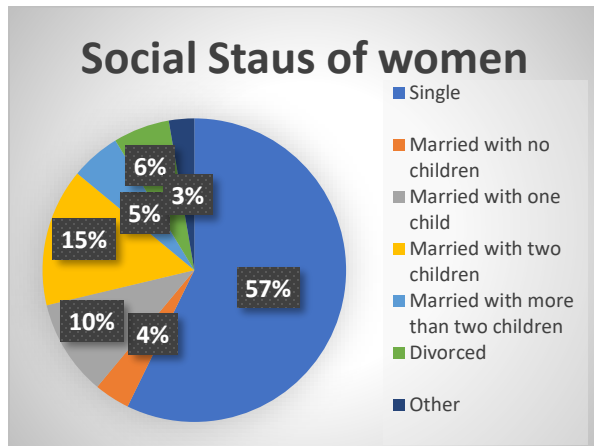
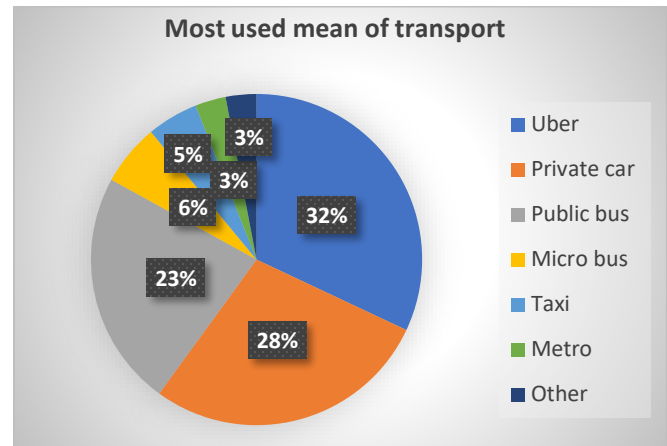


Figure (11) Public transportation usage



Source: Author's calculation based on survey data

Social status:

Since one of the main theories explaining commuting is the Household Responsibility theory (HRT) (Ehab, 2018), the survey included a question related to the respondents' social status. As shown in the graph. 57% of respondents are single, 15% are married with two children, 10% are married with one child, 5% are married with more than two children, 4% are married with no children, 6% are divorced and the rest 3% is other. These responses will help in the change in the usage of public transportation based on marital status. Married women usually take more rides because of family commitments, as mentioned earlier in the literature.

Most used means of transport:

This question allows the respondents to choose many options; 32% mentioned they use Uber, 28% private cars, 23% public buses, 6% microbus “informal”, 5% taxi, 3% metro, and the rest 3% mentioned other options. It is noted that there is a high percentage of usage to Uber & Private cars, this can be justified to two reasons. First, this question allows the respondents to choose up to three options of usage. Second, this will help in understanding the coming questions

about the reason they do not use public transport and the most important factors they seek in the transport mode.

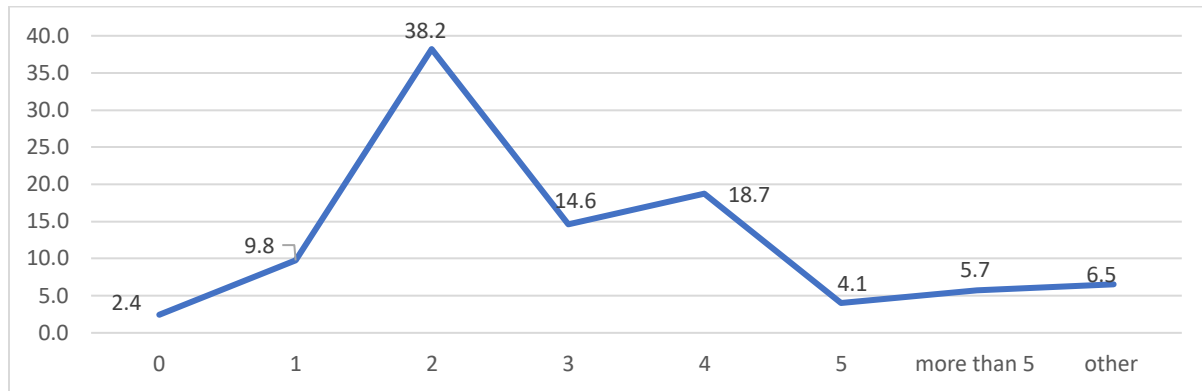
The respondents tend to avoid using public transportation, and second, the government is losing more money from this usage pattern. This requires the government to invest more in public transport “gender-sensitive” means to attract women and at the same time raise the revenues “win-win” situation.

Reasons for using public transportation.

66% of the sample use public transportation to go to work. 12% for Education and learning (like joining classes), another 8% for “Family commitment” and the rest 10% for “Entertainment” (meeting friends and free time) 4% “other”. This response stresses the previously mentioned point about the most used means of transport: women rely on public transport to “work”. So, there is a correlation between investing in public transportation and improving the situation of joining the labor market, hence more empowerment.

Then, another question about the frequency of the daily usage of public transportation as a scale question, ranging between (0-5) which zero means “never” and five means “always”. Frequency of trips: Since it was mentioned in the literature that women need more than one trip per day” trip chaining” (Turner & Grierco, 2000) due to family commitment, it was confirmed from this sample. Furthermore, the percentage is as below:

Figure (12) percentage of the daily trips



Source: Author's calculation based on survey data

The responses show that 38.2% of the respondents tend to take two trips per day, and around 49.6% take more than two trips per day (family commitments such as picking her child, going to clubs, taking her child back from her mother...). This may also be due to the inability to have one long trip because of the less transportation coverage. This trip pattern shows that it would be more rational and money-saving for women to have a monthly subscription instead of paying for each trip.

According to the **UN-Habitat**. (2020) transport should include those parameters:

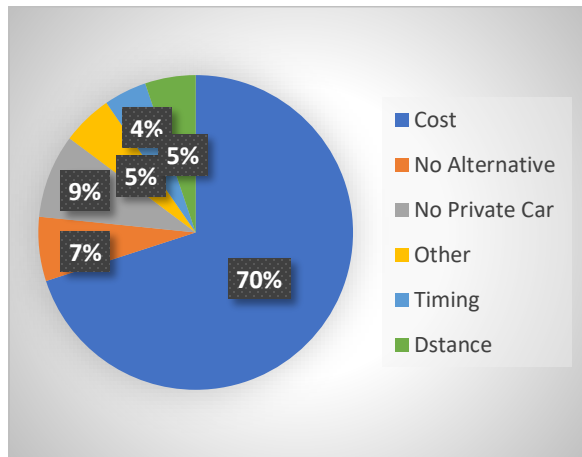
Affordability: is measured as the lowest quintile of the population spent on transport, and this share should not be more than five percent. It is an equity measure. Furthermore, other related costs should be considered (such as the other transportation mode to reach the primary means of transportation and the opportunity cost of time). **Frequency:** It provides frequent public transport service timing, especially during peak travel times, with an average waiting time of around 30 minutes. **Convenient access:** Refers to 500m walking distance to the nearest public transport stop. **Safe and comfortable stops:** Public transport stops that present a safe and comfortable station environment. This could be measured from accident and crime statistics near stations and on the

transit systems themselves. **Variety**: providing a variety of means of transportation completely covering geographic areas. **Simplicity**: easy and convenient to use with the information necessary to help the travelers' choices. **Impartiality**: access to available mobility options with the most importance on efficient and sustainable options. **Flexibility**: as traveler's needs are always changing.

Those elements the researcher used to design the survey in this thesis to study the most critical factors women need in transportation, as there were two questions first one about the reason why women prefer public transportation and the other one is why they avoid using it. The answers were as follow: The two graphs show the main reasons the respondents prefer or avoid using public transportation. In contrast, 70% prefer to use public transport because of the cost “more affordable” while 66% refuse to use public transport because of crowding.

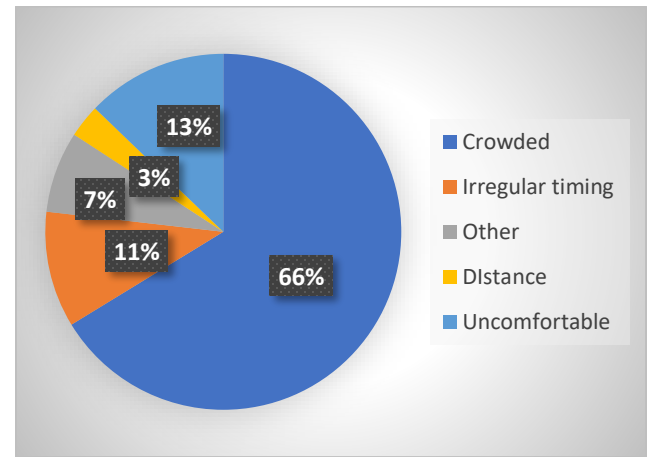
Public transport usage preferences are 9% as there is no private car, 7% as there is no other alternative, 5% each for “distance” and “other” reasons, finally, 4% for timing. However, 11% mentioned that irregular timing is the reason they avoid using public transportation. This shows that the irregular timing is an essential factor for the respondents, either to avoid taking public transportation or change the transportation mode. 13 % mentioned “uncomfortable” and 3% mentioned “distance”. In comparison, the rest 7% mentioned “other reasons for avoiding using public transportation.

Figure (13) Reasons women prefer public transport



Source: Author's calculation based on survey data

Figure (14) Reasons women avoid public transport



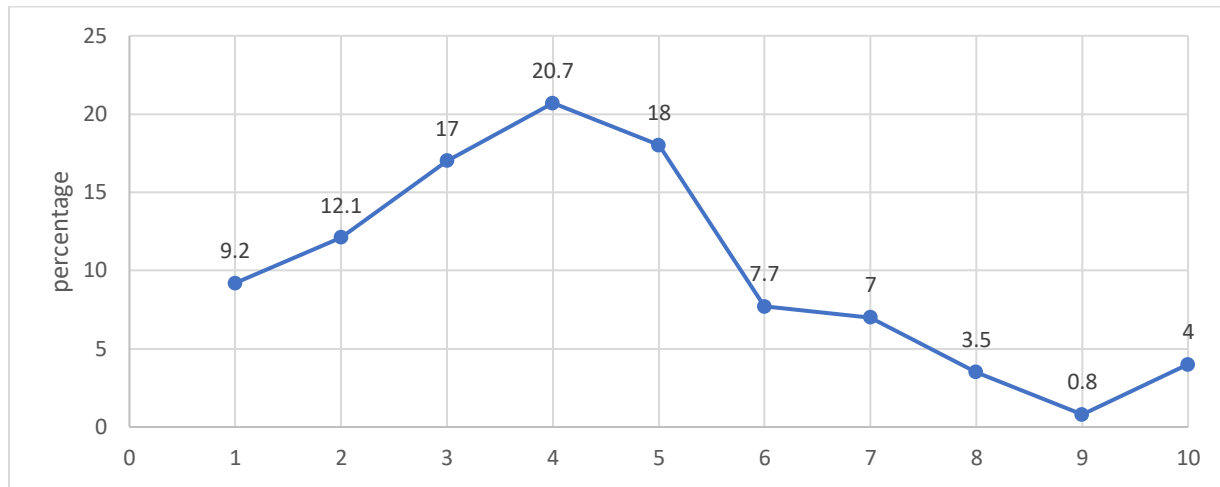
Source: Author's calculation based on survey data

Cost (as a Share of spending out of the monthly salary) since there was a difference in the salary scale among the respondents as mentioned earlier, it is more accurate to measure the share of transportation spending out of the monthly salary first, to avoid bias, and second to realize the burden on women and how much they need to afford to continue their commute.

As shown in this graph, around 20.7% of the respondents spent around 40% of their monthly salary on transportation, 18% of the respondents spent 50% of the monthly salary. The situation becomes worst since 4% spent around all of their salary on transportation. This is a threat to the financial stability and empowering women, and what the ILO called for the “decent work” if the salary was spent on the way to work.

With the limited access to money and the high opportunity cost of money, the poor dependence of the public transportation “either in quality or in the responsiveness to mothers' needs of accompanying their children, for example to nurseries” may put more burden on women. This may show a high dependence on low quality public transport services (Turner & Greico, 2000).

Figure (15) The relative spending on transport to salary



Source: Author's calculation based on survey data

61% are not satisfied with this deduction of their salaries, and 19% said maybe. The reasons mentioned were that they are almost spending all of salaries on transport instead of saving for a better future for themselves or their families (married women). They also mentioned that the accumulation of this money could buy a car. Others added that the money spent is not equal to the quality of the services provided.

The percentage of dissatisfied women with the cost spent on transport is around 60% of the respondents, and most of the reasons were because of the high cost, It is expensive and low-quality service provided, most of the respondents said that they work to spend their salaries on transportation instead of saving.

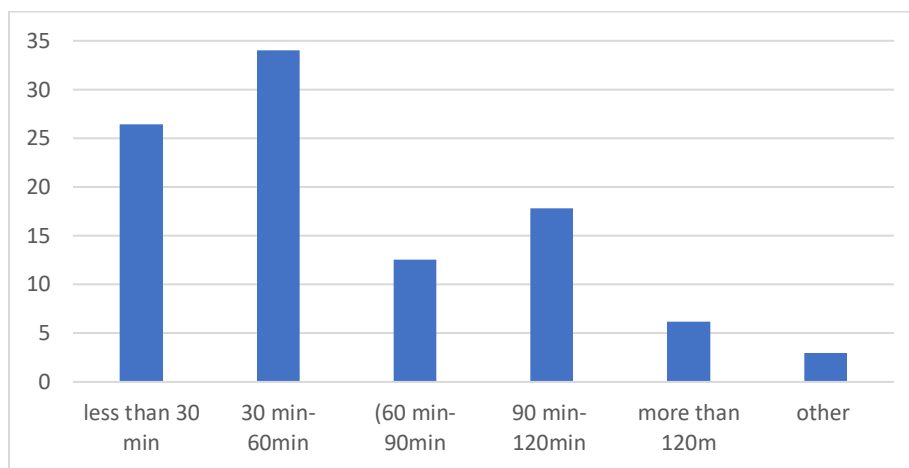
“This means that I am taking my whole salary to spend on transport,
which is not fair.”

“More salary means more freedom in choosing the mean of transport.”

“If I am going to spend a large portion of my salary on transport, then no
need to go to work from the beginning.”

Commuting time is defined as the time taken to travel from home to work for one way in minutes (Ehab, 2018) since cost does not only mean the money spent, but it is also the time wasted and its effect on the work-life balance, productivity, and other commitment “opportunity cost,” while time according to White (Ehab, 2018) is a return to time for leisure and work, since women are time-poor (Turner & Grieco, 2000). The mean commuting time in Egypt is thirty-two minutes in one way (regardless of the gender) (Ehab, 2018), So, the next question was about the duration of the daily commute.

Figure (16) the percentage of daily Commuting time in the survey



Source: Author’s calculation based on survey data

The majority is 34% of the respondents mentioned they spent from (30-60 minutes) in the daily commute, 26.4% spent (less than 30 minutes), 17.83% spent (90-120 minutes), and 12.57% spent (60-90 minutes). This high percentage of commuting time will affect the decision to join the labor market. 6% of the respondents take more than 120 minutes, and less than 5% are other options such as intra-cities transit. This long time of commuting represented in the survey does not match the scale of wages mentioned earlier, contrary to what Wasmer mentioned (Ehab, 2018) that commuting time has a positive effect on wages. This effect was not obvious in this sample.

Linking between transport and jobs,” transport is a determinant factor in deciding whether to take or not a job offer” since 84% of the respondents mentioned that they had to refuse an offer before because of one transportation considerations (**Yes**, and **Maybe**) options. Then respondents elaborated about the distance, time, safety concerns they have when deciding to accept the job offer.

Transport and job preferences, there was a question about the preferences to accept a job offer options “salary and career path”, and another question related to the reason to quit, the majority of the answers mentioned job environment and career path. Since none of the answers mentioned were related to transportation (cost of commuting, safety, and distance) despite being included in the choices, this can be justified based on the previous questions as the respondents from the beginning considered transportation first priority in their decision; then they compare other factors in the job offer.

Sexual harassment

Women's safety is an essential concern; we cannot tolerate women facing dangerous public transportation threats alone. Today women are encouraged more to speak out loud about those harassing acts. 83 percent of Egyptian women have been sexually harassed on Cairo’s streets (UNOPS, 2020). Since most women said they refused to take public transport because of crowded “safety” is one of the threats in crowded modes of transport. This part of the survey was designed to study in detail “sexual harassment in public transportation. “

The respondents’ percentage witnessing sexual harassment (78.6% said that they witnessed sexual harassment act in transport, 5% preferred not to answer, 14.4% said no, and 2 % said maybe).

Most common types of acts, 51.8% said it was “touching”, 21.3% said it was “verbal acts”, 15.7% said it was “looks,” while the least types of acts were 2.7% “physical acts” and the same percentage witnessed them “all”. Finally, 5.8% preferred not to answer “which was among the options to respect the privacy of respondents”.

Location of harassment: “public buses” got the highest share of responses as 41.2%, then “street” either in a bus stop or the way to take the mode of transportation 17.2%. Other 11% witnessed in “Metro”, 10.5% in “mass buses” (informal), 3% in all means, Finally, 1% in Uber and the same proportion in Taxis and 16% in other than mentioned. Those acts may explain why the percentage of using public buses and the metro was less significant than the usage of Uber and private cars because they are more crowded especially during the rush hours.

Since some women may avoid the night trips or early morning trips because of the social dimension of night as women “should not be out alone “according to Condon et al. (Quinones. 2020), the next question was about if they think there is an expected time for harassment 83% said it is “not related to a specific time”, 5% said “late-night rides” and 8.7% said they “do not know”, the rest said it is either during the rush hours or early morning rides.

This entails the need to activate the role of “no night shifts for women”, which may at the same time prevent them from taking other opportunities since, in some workplaces, late shifts provide extra payments and salaries, this may pass over the promotion (de Madariaga, 2013).

For policy recommendations, among the responses was the reporting. Recently, The National Council of Women launched an initiative with the EBRD and Japanese Embassy to protect women from sexual harassment and provide a hotline (**15115**) to receive sexual harassment complaints (NCW, 2020). There is a need to expand those policies in the future to provide a safe commute for women. So, there was a question about if there was a person to report sexual

harassment acts to, and almost 44% said there was a person to report those acts to, while 41% said “No”, and 9% said “Maybe” there was, 6 % said “no idea” and those response mean that there is a need to think about the awareness of women’s rights and reporting mechanism in such incidents.

Acting differently when using public transport, 38.3% of the respondents “prefer to sit near women”⁵, 17.3% said they “prefer group rides” which is an option in Quinones, 2020 study as well since women tend to adopt to other group schedules and some family member tend to wait them at the bus stop, 10.4% said they “dress differently” (this shows restricting women freedom “which is related to the victim blaming” according to Quinones, (2020), and 23% said they “avoid early or late rides”. 11% said “other” options.

In order to know about women’s suggestions against sexual harassment in transportation, a question was asked about how to protect women from sexual harassment in public transportation. 42% of the responses suggested “segregation” in transportation as the best solution to fight sexual harassment. While 40% preferred the “technology-related applications” Uber and Swvl, for example, as the best solution. “Awareness” to ensure safety and eliminate sexual harassment either to drivers or society to protect women was 8%. Hiring females in top positions in female leaders’ ministry took 3%, encouraging women to report and provide an exact reporting mechanism 2%.

In comparison, 2% said other solutions such as refusing the idea of segregation and raising the salaries, providing transport by employers, eliminating crowdedness of transport to enable women to move safely. So, another question was about linking sexual harassment and women’s preferences to public transportation 64% of the sample think that sexual harassment influences women’s preferences in transport, while 7% replied maybe, the rest said No.

⁵ Women in Jordan mentioned they use to put their bags as a “deterrence” between them and the person sitting next to them if he was not a woman (Aloul et al, 2018)

Women's suggested solutions to develop public transport

Main stakeholder responsible for developing the situation in public transportation for women 50% said the ministry of transport should improve the situation while 40% thought the National Council of Women should do so, 10% said other options such as media, civil society, the people, and international organizations (donors).

Some questions were asked in a particular way to understand women's most essential features. (like the reason respondent avoids public transport, what is the most important criteria the respondent is willing to pay) and some essay questions about women's dreams of the most convenient mean. The recommendations were similar to the UN-Habitat mentioned in simple words: safety, clean, regular timing, less crowded, and quick. Most of the respondents said they need a mode like “Mwaslat Misr”⁶ or Swvl but with a lower cost (once more, this shows the financial burden by paying the higher cost and being not able to afford those modes). Some of respondents mentioned they dream of a system like the German one (which is according to the Independent 2020 the best because of the integration)

Several recommendations to improve women's public transportation were to provide a specific segregated means of transportation to women like in metro or women drivers, linking between work opportunities and women's locations to have less commute time. Flexible remote working and provide facilitated loans for private cars. Employers are responsible for providing transportation, raising salaries, or relocation (when possible) to opportunities closer to women's homes. Seniority level in work and public transport usage shows how transportation influences empowering women and giving access to an opportunity.

⁶ “Mwaslat Misr” is based on a concession model in which private companies are appointed to operate specific corridors in exchange for an operating license cost of 8000 EGP for every vehicle. These costs demanded by The Cairo Transit Authority” (Transport for Cairo, 2020)

Despite all the problems women mentioned earlier in the survey, it was surprising that 45% of respondents said that “transport is gender-neutral” or it has a bad quality for everyone. This indicates the need for more awareness about this concept of “gender-sensitive”, even for women. While the other 55% of respondents with (Yes, Maybe) said that men in most cases are not obliged to children related activities or other family commitments. Others said men careless about the safety and quality of the services, while woman may pay extra for her safety “two seats in micorbuses, for example”.

Men are more flexible to take any mean compared to women because of less safety and comfort concerns. In that case, men’s flexibility may extend to relocation to save money and time, and it may also be because of the other men’s financial obligations “breadwinner”. More options were available to men; Carpooling is a safe option for men compared to women. Providing Accessibility for the disabled, vulnerable groups was among the suggestions for a better “inclusive” transport system, and the need to consider mothers needs to provide a space to sit with their children properly.

The high dissatisfaction rate with the transportation share out of the total salary was justified to many reasons that salaries should increase to cope with the increasing transport prices and provide comfortable means of transport since it is an irrational decision to spend the salary on transportation. This was reflected in another question about the society views on women’s taking public transport as most of the respondents replied she either has no other option or poor.

When income increases, it is expected that women will spend more on comforting, timesaving, and more convenient means of transportation. In addition to some questions about the “social perception” of using public transport through the image of low or poor class and the inability to use other options, concerns about connecting social status and means of transportation,

i.e., if society is putting pressure and assuming stereotypes about women using public transportation, this may be another reason woman avoid public transportation usage. Therefore, the survey designed a particular part for private car owners to study how the relationship is and a supporting factor for continuity in work or a burden.

Private cars owners

Part of the burden on women is the need to own a private car, since driving for long hours is exhausting, and the financial burden is either by paying for the installments or the expenses.

28% of the respondents mentioned that they have cars because of the social prestige, and 60% said cars facilitated daily commute, while the rest said other reasons (like no alternative, avoid crowded areas). The ownership is 50% either by women or family cars. 46% said that they must work to pay for the car's installments. 43% said no, and the rest said not applicable.

41% of the respondents said that society perceives women who take public transport as she has no other options, while 27% said she is free to do whatever she wants. 17% see her as low class. The rest said other options. 84% said that even if they quit, they still need their private cars. 30% said that they bought the car because of society's perception of public transport usage, while 60% said no and the rest said maybe. Most of the responses said they spent range from 600-3000 L.E. per month on cars related expenses.

The Multinomial regression analysis:

Since women are usually centered in the most impoverished areas and have less access to financial resources, men tend to use single-purpose trips using the superior mode of transport as noted by Turner & Grieco (2000), this will affect women's access to economic opportunities. The responses analysis previously mentioned the same results, so the researcher picked the "Multinomial Logistic Regression" model to understand the public transportation usage "outcome

better.” The model was estimated jointly with other variables. The Data Generation was done by E-views 10, and STATA implemented the model.

It is a trial for understanding the factors that explain women's usage of public transportation; however, it is understood that some variables may not significantly impact because of the sample power. This does not imply there is no correlation, but this low significance is due to the sample power. Besides, this is a more “correlation” instead of “causality” relationship for a better understanding of” reasons women use public transport. This is done by considering the potential endogeneity of the variables related to age and salary, career path, and marital status.

1)Salary, for example, in this model, the more the salary increases, the less the public usage is. That is really clear like salary category more than 16000 L.E. are less dependent on public transport usage. This may relate to the literature where most women tend to use public transportation because of the affordability and to eliminate the financial burden, compared to the high earners, where they can afford to use other options “private cars for example”.

2)There were three options in the sexual harassment incidents, either “No”, Prefer not to answer, or Yes. The model shows that “prefer not to answer” and “Yes” answers have a positive correlation, which means explicitly women who respond “prefer not to answer” witnessed sexual harassment before. This means there is a need to protect those vulnerable groups who had no other option but public transport usage regardless of sexual harassment and safety concerns. Since this may represent that they are afraid to deduct any reporting sexual harassment “measurement error”

3)One of the most significant ages for the age group was (24-29) years; this is similar to the literature results since this is the expected age for entry-level jobs and education. So, dependency on public transportation is essential compared to other age categories such as. This matches as well with Ehab (2018) concluded that age (20-28) years had longer commute.

4) Finally, marital status has a different significance. Single women and women who have less than two children are more dependent (significant) on public transportation than women who have more than two children. This may be explained due to the financial needs and other spending matters women had because of the family commitment, so the only available option is the dependency on public transportation. Women who have more than two children are expected to have a stable income source and the high opportunity cost of time, so less public transportation preference. This matches Ehab's study (2018) that married women have the lowest commuting time compared to single, divorced and widow women since she is responsible for household work.

Those variables are considered a correlation factor instead of causality; they can affect the final decision of women taking public transport (which is affordable compared to other alternatives). Hence, this can affect her decision to join the job market in general. Those findings are similar to what the literature concluded: there is a need to think more about women's financial liabilities and needs, empower them, and invest more in public transportation to provide women with safe and affordable access to opportunity and participation in the job market (Zeiton, 2018). Although those variables are significant, they cannot fully explain women's low participation in the job market; there are other variables and determinants for women to take this decision.

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)
Public Transportation Usage	Never (base)	Rarely	Randomly	Sometimes	Usually	Always
1. Salary						
(Less than 2000 L.E) (base)						
2. (2001-4000 L.E)		0.153 (1.083)	0.692 (0.965)	-0.256 (0.917)	-0.611 (0.925)	-0.604 (0.852)
3. (4001-6000 L.E)		-0.113 (1.047)	0.166 (0.938)	-1.275 (0.914)	-1.118 (0.897)	-2.051** (0.848)

4. (6001-8000 L.E)	0.825 (1.134)	-0.607 (1.162)	-1.883 (1.204)	-1.310 (1.089)	-2.047** (1.027)
5. (8001-10000 L.E.)	-0.00263 (1.151)	-0.338 (1.086)	-15.97 (744.5)	-2.270** (1.149)	-3.852*** (1.324)
6. (10001-12000 L.E)	-0.0393 (1.178)	-0.741 (1.153)	-16.31 (865.4)	-2.893** (1.361)	-4.066*** (1.348)
7. (12001-14000 L.E)	15.02 (1,267)	14.12 (1,267)	13.75 (1,267)	-1.283 (1,792)	12.22 (1,267)
8. (14001-16000 L.E)	0.339 (1.259)	-1.170 (1.443)	-2.218 (1.406)	-16.88 (1,325)	-17.14 (947.7)
9. More than (16000 L.E)	-1.057 (1.250)	-3.018** (1.454)	-17.50 (1,103)	-3.350** (1.411)	-3.980*** (1.187)

1.Marital status

Single (base)

2. Married with no child, Divorced, Widow	-0.0832 (0.915)	-0.293 (0.972)	-0.588 (1.107)	-0.265 (0.954)	-0.443 (0.885)
3.Married with one child	-0.258 (0.887)	-0.0724 (0.872)	0.476 (0.874)	0.200 (0.853)	-0.438 (0.838)
4.Married with two children	-0.323 (0.786)	-0.351 (0.751)	-0.446 (0.812)	-1.687* (0.991)	-1.351* (0.767)
5.Married with more than two children	1.536 (1.626)	1.502 (1.580)	1.934 (1.646)	0.652 (1.812)	0.841 (1.575)

1.Age

Less than 18 years & Greater
than 42 years (base)

2. (18-23) years	-1.083 (1.116)	-1.177 (1.036)	0.501 (1.253)	0.896 (1.419)	0.426 (1.065)
3. (30-41) years	1.302 (1.119)	1.252 (1.069)	2.538* (1.295)	2.522* (1.472)	2.610** (1.124)
4.(24-29) years	0.305	-0.473	1.034	1.349	0.619

		(1.063)	(1.014)	(1.243)	(1.420)	(1.068)
0.Sexual Harassment						
No sexual harassment (base)						
1.Prefer not to answer		1.223	0.770	0.870	0.753	0.251
		(1.510)	(1.361)	(1.594)	(1.388)	(1.355)
2.Yes		0.543	-0.104	1.043	-0.341	0.112
		(0.720)	(0.676)	(0.940)	(0.727)	(0.690)
Constant		-0.515	0.821	-0.638	0.520	1.691
		(1.356)	(1.214)	(1.498)	(1.561)	(1.217)
Observations	264	264	264	264	264	264

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

This sample cannot represent the working women's diversity; it represents and helps to introduce an overview of the challenges, perspectives, and Egyptian women's needs. It is understood that there are other hidden challenges like intra- governorates transit, the difference in salaries, and other determinates that women consider accepting the job offer; however, this thesis tries to explore the transportation effect and needs to the female labor market's participation rate. Those findings should be read with concern because this thesis focuses on employed women. These findings are consistent with the literature previously mentioned that transport is not gender neutral and women's options in considering a job offer (Aloul et. al, 2018).

Although the literature used to relate transportation mainly to safety concerns and sexual harassment, these results show other concerns and factors women consider, such as the cost represented in the money “share of the salary” or the opportunity cost of time. Time importance increases when women are married and have kids because of related family commitments (Turner & Grieco, 2000).

Safety may justify the high share of transportation payment and the preference to more convenient means as safe alternatives compared to public transportation. The findings call for the need to provide specific preferences for the transport service related to gender, as gender is a serious consideration for transport policymaking; the survey results show the difference in women's needs and how different factors lead to her final choice to take public transportation or not. So, improving public transportation will facilitate women's entry into the job market (Aloul et. al, 2018).

Chapter Six: Conclusion and Recommendations

Conclusion

The transport sector faces many general challenges in Egypt for both men and women. The poor people are dependent on public transport, “usually women are included in those vulnerable groups,” so better access means better opportunities and reduce inequality in the labor market. However, gender is rarely included in policy formulations related to the transport sector, employers as well consider transport as given, and the employee (woman in this case) is responsible for reaching their workplace regardless of her needs and concerns. This thesis is only one step in understanding gender differences in transport. The analysis and results suggest an explanation of gender differences. Gender and transportation have not taken the necessary consideration in Egypt. Therefore, the thesis contributed to the limited effort in the literature related to exploring transportation's role in empowering women. Future studies are needed to study this impact, especially to grasp the needs and variables better. More information is needed about the commuting options for informal workers and women who quit due to transport. Further research is needed to evaluate the remote working experience of women after the COVID-19 and whether it managed or failed to help them. In general, the transportation sector needs to adopt a two-pronged approach: engaging the “fierce urgency of now” and planning the medium and long-term.

Recommendations

Based on the earlier cited literature, while most of the transport sector reform were targeting the supply side, through the expansion of roads network which is usually capital intensive and may have negative externalities by encouraging more rides and more congestion, it is preferred

to focus on the demand side, for example by reducing the mass transit prices. The government may provide free public transport for women on some special days (The Egyptian women's National day, for example) as a basic step to encourage the usage of public transport.

Since transport cost are a deterrent for women to join work as transport consumes a sizeable monthly salary. So, women tend to quit. The employers should provide transportation benefits or arrange transport facilities for workers to overcome prolonged trip time or dangerous conditions such as night rides when needed. This significantly will protect women who may be vulnerable to sexual harassment.

The speeding of digitalizing the transport will help travelers' "women" plan their journeys in advance and choose the safest and most suitable mode of transport. Especially since the world is encouraging the move towards the Internet of things (IoT) and smart transit applications. This will require workers' training in this sector and drivers as well.

A mixture of national and local policies to reduce public transport journeys' duration and eliminate private vehicles' dependence. "ICT" applications can help the transportation system jump into a better position. Governments must adopt an open data policy and engage the tech community and citizen-led groups in developing smart solutions. Invest in mass transport network not on urban roads. It is better to include residential vouchers and transport subsidies that consider the location patterns of new low-skilled jobs and transport allowances.

Since informal transportation and coverage capacity helps the government cover the city without bearing additional costs, the government should work with this sector to ensure both the drivers and passengers rights. Integrating the informal sector into a genuine public transportation system is needed to consider it as a partner and a solution. This requires communication between the informal sector and the government by providing competitive advantages to the informal

sector. In general, policies should expand the transportation network to provide a minimum quality and approach.

A transport sub-committee is needed to examine, monitor, and report the informal sector policies and strategies as the formal ones. Establish an institutional entity capable of transportation management to coordinate the efforts between entities.

First: Women empowerment in the job market: Despite what was demonstrated earlier about the need to consider the gender lens in formulating transport policies, it is understood that there should be parallel empowering strategy steps in the short and long run.

Policymakers should think of women work as a functional contribution to economic growth, this requires policymakers to care more about *gender-sensitive* transport, institute and impose anti-discrimination laws, and work directly with religious leaders and males to relieve the commonly prevailing stereotypes about gender roles. The social norms about economic gender roles are agreed upon in society. However, changes could happen because of intergenerational education and exposure to different norms. Social norms perception can change by advocacy and awareness in society.

Furthermore, provide women with the required training to join the labor market, besides the need to reach out policies to women in the informal sector. Transport should be included in the unpaid work especially if it includes some of the trips to deliver children to school or trainings.

Initiate a new program like the EU commission initiative “bridge to jobs”, directed to women only. The targeted programs will offer technical and vocational training to enhance female’s qualifications and provide them with an opportunity to join the formal market.

Gender-responsive budgets are needed to allocate financial resources towards the needs of women in transport, social protection being ‘*feminized*,’ This means social policy should explicitly

compensate women, financially or otherwise, for domestic care, enabling them to participate more in the formal economy. The government should share the payment of the maternity leaves in the private sector. In addition to provide fiscal stimulus packages that benefit women and children on social sector infrastructure and service delivery.

Syndicates, supported by the NCW and the civil society, should play a vital role in empowering women and defending their rights. If women want to make a difference in society instead of adapting to changes, they need to collaborate to have a louder voice. Social solidarity can enhance this role. There is a need to enact legislation that provides a more inclusive and equitable workforce.

Implementing a detailed investment map explaining the requirements for women's demand in the job market to link between the supply and demand side in the nearest possible destination. Targeted infrastructure projects can help increase women's time for paid jobs instead of the increased participation in the informal sector or work from home. The political will to provide women with opportunities or make a change in the labor market.

This is through providing services to the elderly and children (unpaid work) to give women the chance to go outside home and change regulations with both the public and the private sector to improve women's participation. Policymakers should consider the value-added of women's participation as a factor in economic growth and as a factor for social transformation. An active government's role is to correct market failure in policies, especially parental leave, and childcare.

Second: gender in public transport

The government should start first by documenting the number of users and coverage of the public transport areas, to understand the nature of public transport areas and informal transport users. The mass transport system has immense influence compared to other smaller bus systems.

Decision-making participation like women bus drivers' or in women officials in the decision-making process. Cooperation with other stakeholders is not only about the public entities but also the civil society and international donors. For the safety concerns, this can be achieved by providing a phone or an alarm in the public transport in case of any security concerns that can direct women to report. In addition to driver awareness trainings about a “gender-sensitive” environment, women about their rights and appropriate response.

There is a need to provide a sustainable financial resource to finance the transportation sector's needs. This can be achieved by providing mass transportation means with high quality and bigger capacity and providing subsidized means for the needy. It gives some buses privileges for a commercial purpose, enhances services, and provides new buses.

Encouraging exchange between cities and exchanging between governments is vital to exploring policymaking ideas in transportation for sharing. The sustainable solution should be to invest in a competitive public transport system with “availability, affordability, high quality, accessible to the disabled and older people with Regular timing.

Providing facilitated loans to female in rural areas for women and their families. Provide a reduced unified ticket to reduce the costs of trip chaining. Encouraging the private and public employers to provide women with means of transportation. Alternatively, compensating them with money for transportation costs. Despite the expansion of safety applications” HarrasMap” and hotlines to report sexual harassment acts, women prefer the physical presence of security for better prevention from sexual harassment.

Allocating part of the extra revenue from subsidy removal on fuel to improve mass means of transportation. Transparency of the transport-related Data, so, providing detailed and

transparent information is vital to develop the situation of the accountability and planning in policymaking in this sector and segregated data related to gender.

Moreover, the need to reconsider spending patterns and focus on enhancing the efficiency of this spending, especially about the reformation of the roads and enhancing the capacity of mass public transport this is with the Fewer funds available. Expansion of public-private partnerships instead of focusing on improving public transportation means selecting the most efficient projects relevant to the market needs, not the mega projects with available international funds without a real value-added.

Fiscal policy to eliminate the gender gap: despite some success in the segregation of the data according to gender, some data are not distributed to understand the ways of policy development. Decentralization of the financial resources and opportunities would give more fiscal freedom to balance the revenues with the expenditure, especially on mass transit, as leaving the price determined according to the market power will be unaffordable.

Policy intervention is needed to stop considering “women-related work challenges” as ‘women's issues,’ this can be achieved either by reforming higher education to focus on quality and labor, market needs, or providing required skills. A renewed interest in the Social security policies to spread the number of beneficiaries in addition to women-friendly workplace policies, such as flexible hours or leave and childcare support. To recap: women assign a significant time to activities that are not recorded as ‘economic activities. Some governments start thinking about including commute time in the working hours.

Finally, Egypt -Cairo in particular as the centralized Capital full of opportunities- is still in need of improved public transport infrastructure, and governments are the sole players that can successfully provide, or at least facilitate, these factors. By following a more collaborative

approach, though, work can take place in parallel. The society perception about the usage of public transport as mentioned by one of the respondents that “*public transport is for the poor only*” will change by developing the quality of the service, coverage, expansion, and reliability.

Annexes

The Survey

This survey is a part of Master thesis at the AUC to study challenges and needs for women in transport in general and public transport in particular. It is a space for women to express their daily struggle ending with recommendations for policy makers to formulate policy recommendations fro a better and convinet situation for public transportation. The data collection is voluntary, will be ensure secrecy and privacy and for scientific research only. This survey will take only 10-15 minutes.

Selection questions

1-Do you live in Egypt or did you use to live and work in Egypt before? *

Yes

No

2-You are *

Female

Male

Personal Information

3- Age ranges between *

Less than 18 years

18-23 years

24-29 years

30-35 years

36-41 years

More than 42 years

6- What is your current job status? *

Full time

Part time

Worked before, but I left work

Own business

Freelance

Student

I do not want to work

Unemployed

work more than one job

Other

7- If you are working, what is your career level

Junior

Senior
Top leader
Not applicable
Other

8-What is your regular mean of transportation? (You can choose up to 3)

Public Buses
Private car
Uber/ Careem/ SWVL, any other App means of transportation
Taxi
Metro/Tram
Micro buses
Other private buses
Work/ school private buses
Other

Usage of public transportation

9- How often do you use public transportation? (0 =never and 5 =always) *

0
1
2
3
4
5

10- Why do you use public transportation? (You can choose more than one)

Work
Learning and studying
Family commitments
Friends and free time
Other

11- How many rides per day do you usually take? *

1
2
3
4
5
More than 5
Other

12- Why do you choose public transportation? (You can choose more than one)

Cost
Timing
Safety
Comfortable
Distance
Regular schedule
No private car

No alternative
Other

13- Why do you avoid using public transportation? (You can choose more than one)

Safety
Crowded
Not comfortable
No schedule
Distance
Other

14- Do you link your level of seniority in work to your pattern of spending on transportation?

Yes

No

Don't know

15 - If yes, Explain why?

16- Did you have to refuse a job offer before because of one of the transportation factors? *

Yes
No
Maybe
Prefer not to answer
Other

17- If yes, elaborate?

18- What are the important factors for you to accept a job offer? (You can choose more than one) *

Salary
Career Path
Distance
Relation to your study
Passion
Safety
Cost of commuting
Availability of means of transportation
Other

19- What will be the reason for you to quit your job?

20- How much does transportation cost relative to your monthly salary? *

(0-10%) 1

2

3

4

5

6

7

8

9

(91-100%)10

21- Are you satisfied with this percentage? *

Yes

No

Maybe

Other:

22- Why? *

23- Do you think men pay the same amount for their transportation? *

Yes

No

Maybe

Do not know

Do not want to answer

Other:

24- Why? *

25- What is the main element you miss in public transportation and you are willing to pay for? *

Safety

Timing

Cleanliness

Comfortable

Close to your destination

Regular and stable schedule

Other

26- How long does it usually take to go to work?

Half an hour or less

An hour.

An hour and half

Two hours

Other

Sexual harassment and safety during transportation

27- Did you ever witness sexual harassment during transportation? *

Yes

No

Prefer not to answer

28- What type of sexual harassment did you observe during mobility?

Touch
Verbal harassment
Physical
Looks
Chasing
Prefer not to answer
Other:

29- Where did you witness those acts?

Public buses
Metro
In the bus stop while waiting
In the street while waiting
Uber, Careem, SWVL, any other App mean
Taxi
other buses than public ones (Collective transportation, Mwaslat Mar)
Other

30- If yes, was there a responsible person to report?

Yes
No
Maybe

31- When do you think is the most likely time to witness sexual harassment during transportation? *

Early morning
Late nights
No specific time
Do not know
Other:

32- How do you see the best solution to fight sexual harassment during transportation? (You can choose more than one) *

Segregation of means of transportation (separated)
Female drivers
female leaders in transportation sector
Training for drivers and ticket sellers
Awareness
Technology, Apps that facilitate reporting and provide monitoring and evaluations for those acts.
Reporting unit or person
Policemen
Other

33- What precautions you usually take to feel safe in public transport?

Go with a group (family, friends....)
Avoid night rides, early rides

Way of dressing
Sit near a woman
Other

34- Do you think sexual harassment leads to change mean of transportation? *

Yes
No
Maybe

General Questions and recommendations

35- We want to hear from you, do you have any other recommendations or words to help other women making their lives better? *

36- Who should be the main stakeholders for improving the gender situation in transportation?
(You can choose more than one) *

The National Council of women
Ministry of transport
Civil society
Media
The people
International organizations/ donors
Do not know
Other

37- Imagine and dream, how should public transportation be? *

Car owners

This part is designed if you have a car.

38- Do you have a car or had a car before? *

Yes
No

Car Owners (continue)

39- What is the main reason for having a car? (You can choose more than one) *

Social prestige
Facilitate daily commuting
Less costly for transportation
No other alternative for a safe comfortable mobility
Work
Other:

40- Is your car private or family shared? *

Private
Family
Other

41- How long do you have a car? *

Two years or less

2-5 years

5-8 years

8-11 years

More than 11 years

42- If you quit your job, will you still need your car? *

Yes

No

Maybe

Other:

43- Do you have to work to pay for the installments of your car? *

Yes

No

Maybe

Not applicable

Other:

44- How much does it cost you monthly for the car? *

45- What do you think of the image of the society about women using public transportation? *

Do not have other options.

Middle income

Lower class

Brave

Free to do whatever she wants

Do not know

Other:

46- Is this image one of the reasons for having a car and refusing to take public transportation? *

Yes

No

Maybe

Do not know

Other

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