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The Effect of Traffic Congestion on Employee Productivity in Dhaka Bangladesh

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Abstract:

This study examined the impact of road traffic congestion on workers' performance in Dhaka, Bangladesh. The population for this study emanated from the staff quoted from different public and private companies within Dhaka city. The data was collected through a structured questionnaire from 63 sampled from different companies of Dhaka. Information was solicited on how traffic congestion affect their effectiveness, efficiency, development, satisfaction, innovation, quality of work and how it affect the set target at work. Workers performance measures the bottom-line results on which traffic congestion variables has an impact. The performance construct was indicated by items such as effectiveness, efficiency, career progression of worker, satisfaction, innovation, and quality of work. These data were subsequently analyzed through descriptive statistics and multiple regressions.

Keyword: Traffic, congestion, workers, performance, satisfaction, efficiency, innovation, Dhaka, Bangladesh

1. Introduction

Urbanization is a global phenomenon. Transportation system is an integral part of a modern day society, designed to provide efficient and economical movement between the component parts of a country and offer maximum possible mobility to all citizens (Leshem and Ritov, 2007). Bangladesh is the world's most densely populated country with 993 people per square kilometer (Bangladesh Economic Review 2011). Like other countries in the world, Bangladesh has also been experiencing intense traffic problem which is increasing day by day. Dhaka is only one percent of the country's total area but its contribution to GDP is 36 percent and it has created 44 percent of the country's total employment (Daily Star, 19/07/2017). Among the major urban cities like Dhaka, Chittagong, Khulna and Rajshahi especially the Dhaka city is now facing serious traffic problem along with drainage, housing, water, sewerage, gas and electricity scarcity (Osman, 2010). Monayem (2001) reveals that the average speed of a major road of Dhaka city, named "Mirpur road" is 15 to 17 kilometer per hour during peak period. According to (Leshem et al, 2007), road transportation is a critical link between all the other modes of transportation and their proper functioning. It is the lifeblood of industrialized economies. Unfortunately, the existing road network, including the motorway system, is becoming explosively congested due to increase in the number of vehicles and inability to build new and larger motorways (David and Gregory, 2010). Everyone detests traffic congestion, but it keeps getting worse in Dhaka city, in spite of attempted remedies. Since activities within organizations are performed by employees, it could be logically inferred that employee productivity translates to overall organizational productivity. Workers' productivity therefore can be affected by various factors one of which is commuting to and from workplace.

2. Literature Review

Most firms in Dhaka adopt a fixed work schedule under which all workers start working at the same time, typically at 9:00 a.m. This situation causes concentration of travel demand around the work start time and consequent heavy congestion. The transportation system of Dhaka is predominantly road based and non-motorized transportation (mainly rickshaws) has a substantial mode share. Dhaka's road network is nearly 3,000 kms (of which 200 km are primary) with few alternative connector roads. Only 7% of total land space is devoted to the roadway and transport facilities. Approximately 400kms of footpaths are available for pedestrians of whom 40% are being occupied illegally by vendors and others (Rahman 2008).

According to Eddington (2006), an effective transportation system is significantly important in sustaining economic growth in contemporary economies since it provides linkages between different parts of the country and the global world. Downie (2008) also opines that traffic congestion occurs when the volume of vehicular traffic is greater than the available road capacity, a point commonly referred to as saturation. He describes a number of specific circumstances

which cause or aggravate congestion. Most of such circumstances are concerned with reduction in the capacity of road at a given point or over a certain length, or increase in the number of vehicles required for the movement of people and goods. Downie (2008) further argues that economic surge in various economies has resulted in a massive increase in the number of vehicles that overwhelms transport infrastructure, thus causing congestion on roads in cities.

Traffic congestion and crowded public transportation systems are the top causes of stress and declining productivity among employees of Dhaka city, a recent survey by workplace solutions provider suggested recently. The problem of road traffic congestion and its influence on the performance of employees is increasingly gaining a space in the academia discussions and employers in particular time spent on road traffic congestions and time spent on work among the employee's plays a significant role on employee's performance in an organization (Lupala, 2010). Employers are feeling the negative impact of the daily traffic jams on their business. According to studies related to stress; job dissatisfaction and job changes are influenced by commuting factors (Novaco, Stokols, & Milanese, 1990). Recent study in the United States report that 48 % of working adults reported their job dissatisfaction as an impact of commuting, 32% took commuting into consideration when deciding their current job, 27% of the respondents stated that they could perform their duties from home and 15% of the respondents reported they would change their jobs for a shorter commute (Road Wage Survey, 2011). Also as stated by Kluger (1998), long distance commuting can easily be associated positively with tardiness.

Along with increases in productivity; motivation level, financial savings and employment opportunities enhance according to the quality of the commuting. Individual time and monetary costs and individual consequences such as distortion of work-life balance, some health issues, increased stress and environmental concerns such as carbon emissions and increased traffic congestions should also be considered (IBM Corporation, 2009) (Lyons & Chatterjee, 2008). As being equilibrium for workers in residential and financial decisions, the work of Costa (et al., 1988) states that the main cause of the daily trips of half of the commuters is the difficulty in finding close residences to the workplace. This difficulty may arise both from limited supply of 3 available houses or prices. Almost same proportion of commuters state that they would sustain their commuting status for current jobs or even travel further for prospects of finding more satisfying and well-paid jobs. Thus a commuter individual is likely to change jobs or to be in search of new residences, both in some instances (Gottholmseder et al., 2009).

2.1. Effect of Traffic Congestion on Employee Productivity

The traffic congestion on the road is highly occurs during the peak hour or the rush hour that normally happens twice a day which is once in the morning and once evening. This is because of the standardized working hours as the employee so to work in the morning and coming home in the evening. There is also a third peak hours which occurs during the afternoon. This phenomenon happens because of the lunch break and the end of the morning school sessions. The heavy traffic during these hours usually occurs at the school area and food centers. There is proof that business sees traffic congestion as bringing about a major issue. The conviction is that it causes a huge cost burden. A study from the United Kingdom found that traffic congestion was seen as the most imperative component prone to influence expenses and administration in the following three years (Fernie, and Marchant, 2000). A substantial number of transport financial aspects concentrate on the time segment of driving costs (Small and Verhoef, 2007). According to UN, (2011) higher level of road traffic congestion causes stress and fatigue among people which have a significant impact on health and performance of employees. Oni (1992) argued that traffic congestions creates workers fail to realize time management in their work done as the result affect their work progress at an institutions. According to the co-location hypothesis, congestion simply induces employer-employee suburban co-location (Crane and Chatman, 2003; Gordon et al., 1989; Levinson and Kumar, 1994). In contrast, empirical research on job-housing imbalance (Cervero, 1996; Cervero and Wu, 1998; Schwanen et al., 2004) suggests significant commuting burdens while theoretical urban economic models likewise imply congestion-induced urban economic inefficiencies (Arnott, 2007; Anas and Xu, 1999; Fujita and Thisse, 2002; Weisbrod, Vary, and Treyz, 2001), most notably by reducing agglomeration benefits (Graham, 2007). Moreover, research suggests industry-variant sensitivity to congestion's potential drag—most notably, service industries are least sensitive while manufacturing industries are most sensitive, indicating that industry mix is important. Commuting has inevitable consequences for workers. Monetary costs of transportation outstands as one of the most important factors upon deciding the job search location, intention to change jobs and to quit, and evaluating the wage offered for job candidates. Besides wasting quality time, it may lead to stress and loss of productivity. Along with monetary costs, time wasted during daily trips should also be considered. Based on recent OECD reports, average amount of time spent travelling to and from work in OECD countries is 38 minutes per day. South Africa, Japan and Turkey have the longest daily commuting times as 56, 55 and 47 minutes respectively. Ireland, Denmark and Sweden on the other hand, have shorter daily commuting trips (OECD, 2011). Physical or mental, any commute is an effort and expenditure of resources for the individual. As stated, it is not only time, but the way it's allocated and individual differences that are important to interpret the outcomes. Van Hooff (2013) reports that psychological detachment from work during the commute is also important for commuters. According to the utilization of the commute or the subjective experiences about the process, commute from work can be the time for individual to relax and unwind from work. It is a transition between work and home and helps people change their mood and provides a transmission between roles. Depending on the 5 pleasantness of the commute, it can be considered a form of recovery. According to Gatersleben & Uzzell (2007), this might be the only part of the day when individuals have the chance to dedicate to themselves.

3. Research and Findings

3.1. Methodology

Research type- Qualitative (Online) Respondents- 63 employees (working in different private and public ltd companies in Dhaka, Bangladesh) There are several factors that causes impact on human lives due to traffic congestion faced by them everyday. Some of the factors that are discussed below, are: impact on productivity, time, health, expense, and work-life-balance. The pie-charts below describes the impacts that are caused due to traffic blockage, and to determine the factors, a survey was conducted online by maintaining the Likert Scale format.

3.2. Data of 63 Responses to the Survey Question About Traffic Congestion

Statements	Scale	Frequency	Rate (%)
• Traffic nowadays greatly affects an individual's productivity at workplace.	Strongly disagree	0	0
	Disagree	0	0
	Uncertain	0	0
	Agree	9	14.3
	Strongly agree	54	85.7
• You are late at work maximum time because of traffic jam.	Strongly disagree	0	0
	Disagree	5	8.1
	Uncertain	5	8.1
	Agree	31	50.0
	Strongly agree	21	33.9
• Do you feel any negative effects in your health due to spending a lot of time in traffic jam?	Strongly disagree	0	0
	Disagree	0	0
	Uncertain	5	7.9
	Agree	26	41.3
	Strongly agree	32	50.8
• Government is giving enough effort to solve the traffic problem.	Strongly disagree	12	19.4
	Disagree	24	38.7
	Uncertain	12	19.4
	Agree	7	11.3
	Strongly agree	7	11.3
• There is more than enough transportation on road than needed.	Strongly disagree	7	11.1
	Disagree	10	15.9
	Uncertain	6	9.5
	Agree	18	28.6
	Strongly agree	22	34.9
• You remain stressed because of traffic jam you face every day.	Strongly disagree	0	0
	Disagree	0	0
	Uncertain	1	1.6
	Agree	28	44.4
	Strongly agree	34	54.0
• Most of the time you leave office late to avoid traffic congestion.	Strongly disagree	0	0
	Disagree	6	9.5
	Uncertain	10	15.9
	Agree	32	50.8
	Strongly agree	15	23.8
• Traffic congestion increases your expense for hiring quicker transportation to reach on time.	Strongly disagree	0	0
	Disagree	2	3.3
	Uncertain	3	4.9
	Agree	18	29.5
	Strongly agree	38	62.3
• Traffic congestion is a strong fact that affects your work-life balance.	Strongly disagree	0	0
	Disagree	1	1.6
	Uncertain	1	1.6
	Agree	32	51.6
	Strongly agree	28	45.2
• Avoiding road-side parking can decrease traffic congestion.	Strongly disagree	1	1.6
	Disagree	1	1.6
	Uncertain	2	3.2
	Agree	23	36.5
	Strongly agree	36	57.1

Table 1

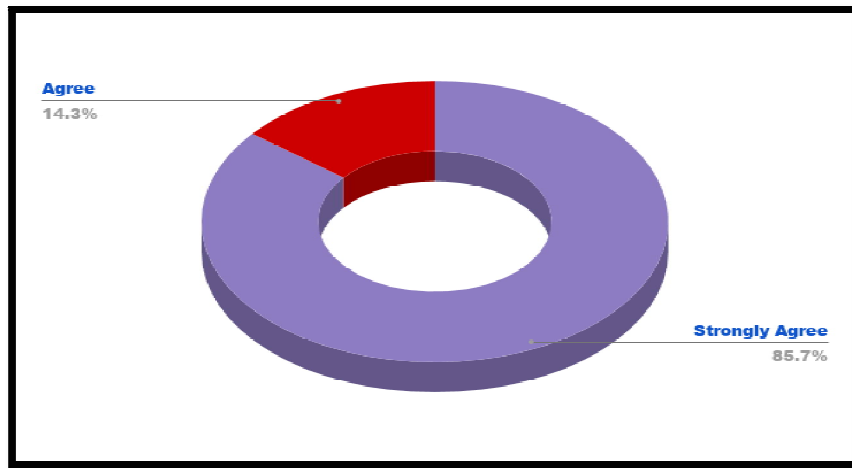


Figure 1: Impact of Traffic Congestion on Productivity

The pie-chart illustrates the effects on productivity that causes due to heavy traffic problem faced by an individual in a daily basis. The above result shows that more number of people strongly agrees with the fact regarding effects on productivity.

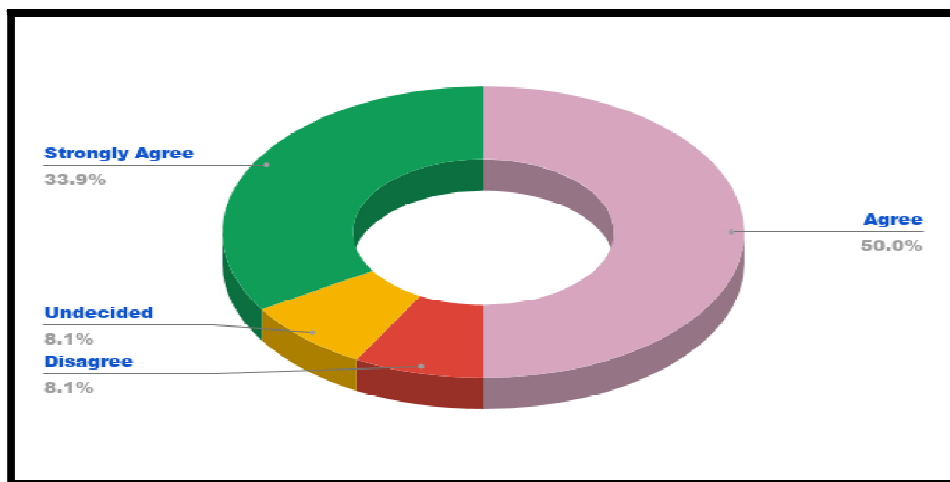


Figure 2: Impact of Traffic Congestion on Punctuality

The pie-chart illustrates the impacts of intense traffic jam on reaching the workplace on time. The above result shows that more number of people agrees with the fact regarding being late at work due to traffic problem, but there are some individuals who are unsure and certainly disagree with the fact.

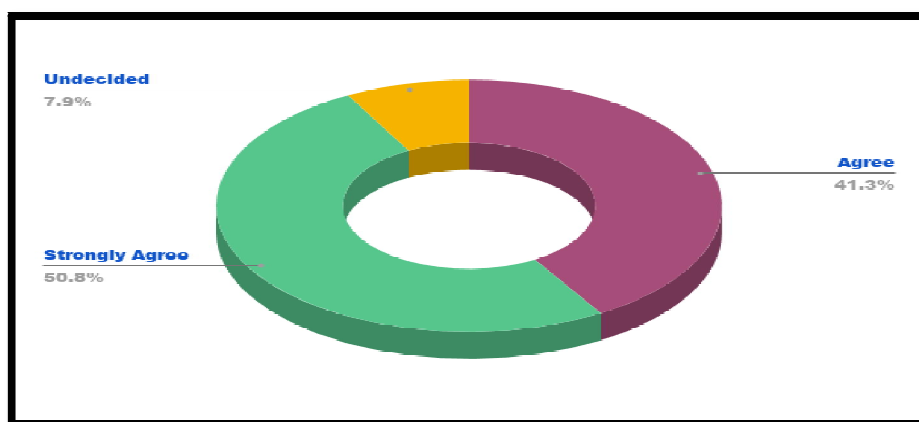


Figure 3: Impact of Traffic Congestion on Health

The pie-chart illustrates the negative impacts on health due to spending a lot of time in traffic jam. The above result shows that more number of people agrees that traffic jam actually affects their health immensely, but there are very few individuals who are still unsure about this fact.

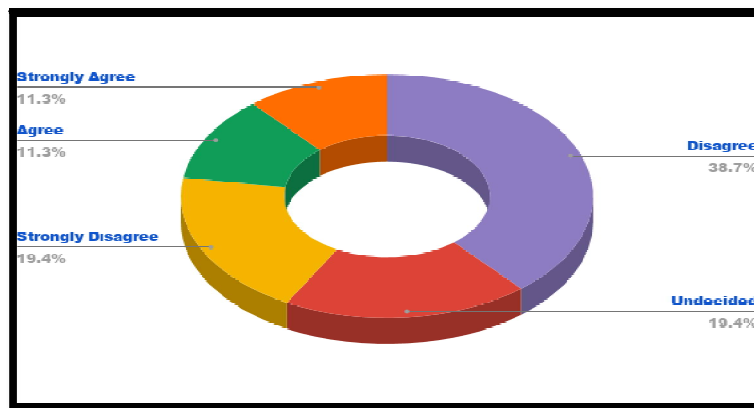


Figure 4: Government's Effort on Solving the Traffic Problem

The pie-chart illustrates the attempts Government is taking in terms of solving the traffic problem. The above result shows that more number of people disagrees with the fact that Government is actually putting enough effort to solve this serious problem, but there are some individuals those who agree with the fact and some of them are still not sure whether the government is doing something about the problem or not.

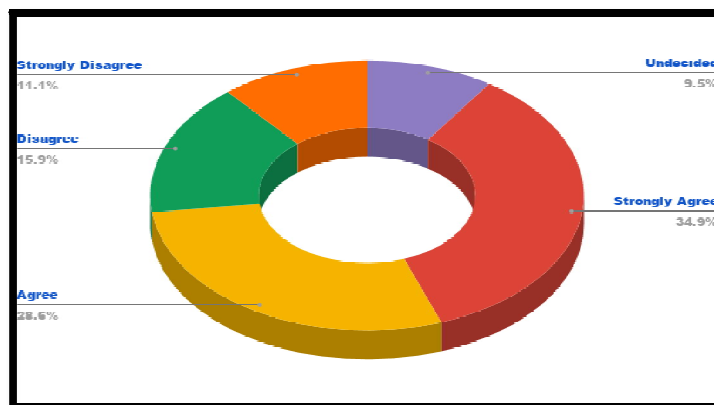


Figure 5: Impact of Excess Transportation

The pie-chart illustrates the impact of excess transportation present on road than needed. The above result shows that more 50% people agrees that there are actually excess transportation present on road than needed for which the roads remain blocked and packed which creates a chaos, but there are very few individuals those who disagree with the fact.

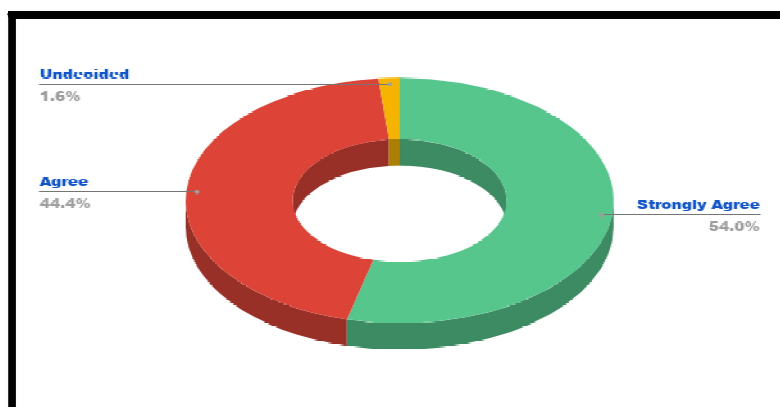


Figure 6: Impact of Traffic Congestion on Stress Level

The pie-chart illustrates the stress level that is caused due to traffic jam faced on a daily basis. The above result shows that more number of people agrees with the fact that they are highly stressed due to heavy traffic congestion and it is immensely affecting their life, but there are very few individuals those who are still unsure about the fact maybe because they face traffic not as much as others or maybe they are less stress takers.

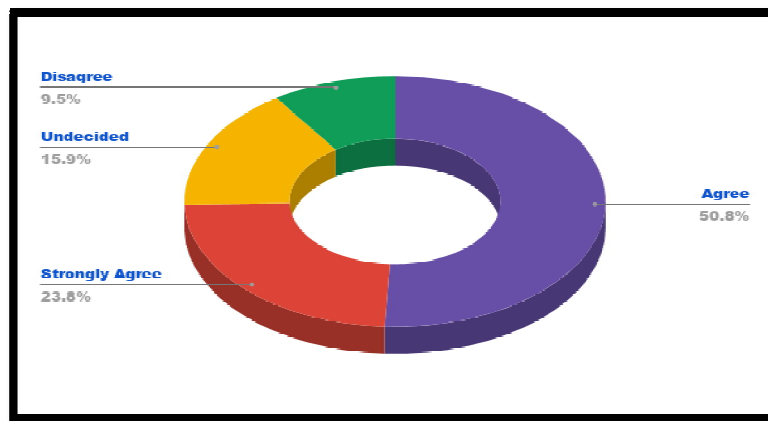


Figure 7: Impact on Time Balancing Due to Traffic Congestion

The pie-chart illustrates the loss of time due to traffic problem. The above result shows that more number of people agrees with the fact that people actually stay back late at office to avoid traffic congestion that occurs at the end of office hour, but there are very few individuals those who are unsure and disagree with the fact maybe because they prefer not to stay back rather than become a part of the traffic congestion.

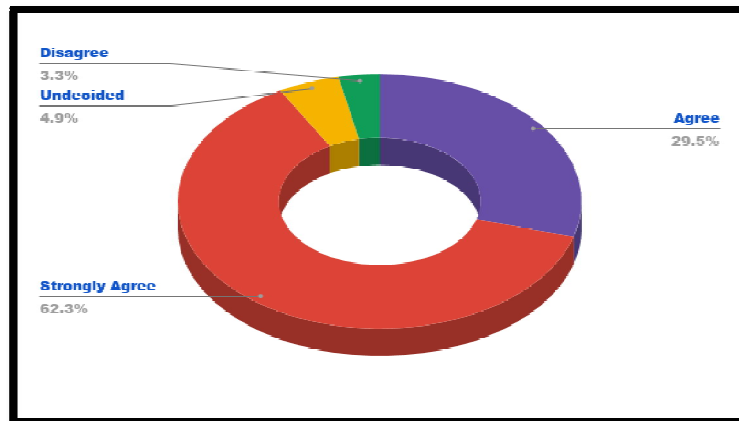


Figure 8: Impact on Expenses Due to Traffic Congestion

The pie-chart illustrates the impacts on increasing expenses due to availing quicker personal transportation to work. The above result shows that more number of people agrees with the fact that traffic congestion do increases their expenses for hiring quicker transportation to reach destination on time, but there are very few individuals those who are unsure and disagree with the fact maybe because they prefer regular transportation rather than hiring personal ones.

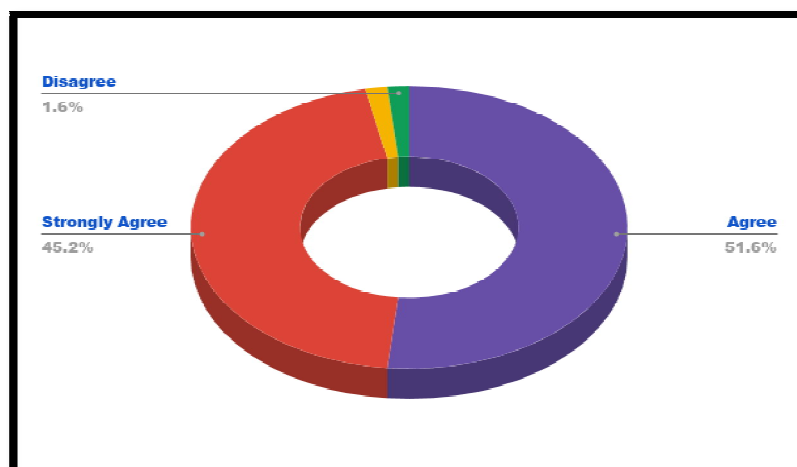


Figure 9: Impact on Work-Life-Balance Due to Traffic Congestion

The pie-chart illustrates the impacts of traffic jam on work-life-balance of a working person. The above result shows that more number of people agrees that work-life-balance is truly being affected by traffic congestion as they are not being able to spend more quality time with their loved ones, but there are very few individuals those who disagree with the fact maybe because they manage to balance their work and personal life differently.

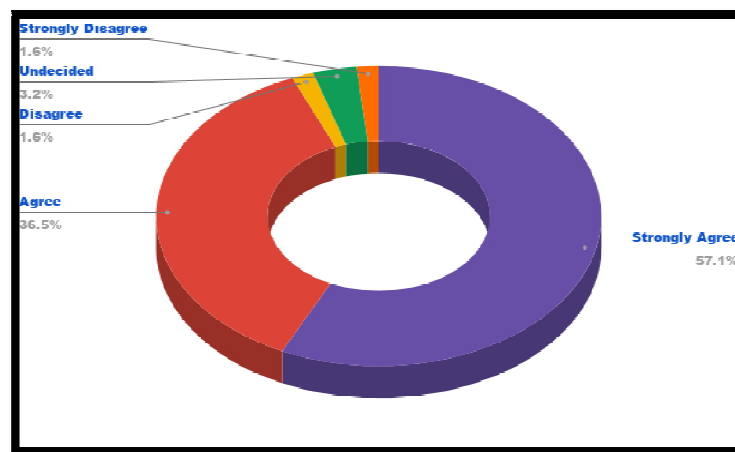


Figure 10: Avoiding Road-Side Parking Can Decrease Traffic Congestion

The pie-chart illustrates a solution that can be undertaken as a step towards decreasing the traffic jamming problem. The above result shows that more number of people agrees with the fact that avoiding road-side parking can actually decrease traffic congestion problem, but there are very few individuals those who are unsure and disagree with the fact maybe because they are less concerned and bothered about the dilemma and its solution.

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