

PLANNING AND DEVELOPMENT DIVISION
NATIONAL TRANSPORT RESEARCH CENTRE

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CHOICE OF MODE FOR JOURNEY TO WORK
(FOR GOVERNMENT EMPLOYEES)

NTRC-36

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Questionnaire:= Journey to Work Survey.

CHOICE OF MODE FOR JOURNEY TO WORK
(for Government Employees)

INTRODUCTION:

The persistent shortage of transport and growing complexity of the problem have given rise to the need for more and more information on various aspects of transport. For a realistic assessment of requirements, it is essential to know, among other things, the relative position of each mode for different classes of users.

The Government Employees constitute the single largest category of commuters in the Federal Capital of Islamabad. It is for highlighting their problem that a Government Employees Travel Survey was carried out by this office. The objective was to find out the proportion of employees using different modes of transport, public and private.

The survey is of limited scope and coverage. Only employees working in Islamabad Secretariat Block "D", "P" and "Q" were covered. This included Ministries of Communication, Railways, Finance and Planning Commission. The staff of these Divisions working at places other than the Secretariat Blocks were not covered.

The Questionnaire:

The data was collected by means of a self-reporting questionnaire, a specimen copy of which is attached at Annexure-B, The items of information covered in the questionnaire included: name, age, sex, designation, National Pay Scale, department, section, location of office and residence, distance between office and residence, personal conveyance owned, mode of travel used for travel from home to work and back, fare paid and time spent in travelling.

The questions on personal conveyance, mode of travel and travel time were provided with pre-classified answers to be tick marked only. Answer for other questions were to be written by respondents, and space for coding these answers, later-on in the office was provided.

The questionnaire was designed for easy transfer to punch Cards. All answers were either self-coded or precoded except for one item viz. place of residence. By adding a code for this item, the information can be punched direct from the questionnaire, The punch card design has also been indicated on the questionnaire.

Methodology:

The questionnaire were distributed to all employees present in their respective departments on the specified dates.

The filled in forms were collected back after a few hours. Forms for those who were not in their seats for any reason were left for filling and return later.

The survey was voluntary and there was no compulsion for supplying the information. Nevertheless, there were only one or two refusals in the whole operation. In all other cases, the cooperation was voluntary and willingly given.

A number of senior officers could not be approached directly. Forms for such officers were given to their stenos./ personal staff. Some of them did not care to return the forms. As such the coverage of senior officers is not as good as of the lower staff.

The survey in the Planning Commission was carried out by the staff of N.T.R.C. In case of other division/ Ministries, a few volunteers were also employed for distribution and collection of forms.

Those who were unable to read and write were helped in filling up the forms by their colleagues and the survey staff. No particular problem was faced in this respect.

Survey Time:

The survey was carried out in the last week of March and first week of April, 1979. One Secretariat Block was covered each day as shown below:

TABLE - 1
SURVEY SCHEDULE

<u>Survey Date</u>	<u>Name of Deptt;</u>	<u>Location</u>
22.3.1979	Planning Commission	Block 'P'
1.4.1979	Finance Division	Block 'Q'
2.4.1979	Communication & Railways Division.	Block 'D'

Most of the forms were filled in on the dates shown above and information relates to these dates. However, a small proportion of employees who could not left, filled in and returned the forms later. Information in such cases related to dates later than indicated above. It was however not necessary that information in respect of all respondents should relate to the same date. Information for any working day within a limited period will be sufficient.

The salient features of the results are described in subsequent paragraphs;

Coverage;

The total of 1059 forms were collected from all the four Divisions. Details are given below:

TABLE -2
Employees Covered

Name of Department	<u>Forms Collected</u>	
	<u>NCS.</u>	<u>%</u>
Planning Commission	406	38
Finance Division	452	43
Communications and Railways Divisions	201	19
Total:	<u>1059</u>	<u>100</u>

No effort was made to determine overall coverage and corresponding response ratios for want of additional information on total number of employees present at places where survey was carried out. Although information on sanctioned strength of each Department is given in the Budget Document, it is not sufficient to serve the purpose for two reasons. One, it is not known as to how many of them are actually in position and attended office on the survey date. Secondly, due to shortage of accommodation at the Secretariat Blocks, Departments are spread over several locations and information on a number of persons at each location would require a complete census at each place. This would call for more field work or protracted correspondence which would have delayed the results.

Besides, such information was not crucial for the purpose of the survey so long as number of observations in each category are statistically adequate.

Grade Classification:

All Government employees are divided into 22 grades for pay and status. These employees of different grades covered by the survey have been grouped into five classes. Their distribution is as follows:

TABLE - 3
Distribution of employees according to Grades

<u>G r a d e</u>	<u>Employees</u>	
	<u>No.s</u>	<u>%</u>
1 - 4	294	28
5 - 9	280	26
10 -16	318	30
17- 18	113	11
19 & above	54	5
Total:	<u>1059</u>	<u>100</u>

Age Classification:

The minimum age for entry into Government Service is 18 years. The upper age limit for retirement is 60 years. In between, the employees has been classified into 10 years age groups except for first group upto 30 years which covers 12 years, from 18 to 30. The distribution is as below:

Table 4
Distribution of respondents according to age group

<u>Age Group</u>	<u>Number</u>	<u>Percentage</u>
upto 30 years	546	52
31 -40 "	255	24
41 - 50 "	173	16
51 - 60 "	85	8
Total:	<u>1059</u>	<u>100</u>

It is evident that majority of employees (52%) are in the younger age group upto 30 years. Of the remaining, 24% are between 31-40 and 16% between 41-50. In the last age group from 50-60, the number of employees is only 8%. The proportion of employees in this age group would have been different but for the recent increase in the age of retirement from 58 to 60 years.

Place of Residence:

The residential areas in Islamabad have been classified according to sectors. Rawalpindi has been treated as one area and so are Naval Colony and Quaid-i-Azam University. The distribution of employees by place of residence is as follows:

Table 5
Distribution of respondents according to place of residence

<u>Place of residence</u>	<u>Numbers</u>	<u>Percentage</u>
F - 6	65	6
F - 7	16	1
F - 8	11	1
G - 5	3	-
G - 6	257	24
G - 7	390	37
G - 8	30	3
G - 9	66	6
I - 9	30	3
I -10	7	1
Naval Colony	6	-
Quaid-e-Azam University	1	-
Rawalpindi	178	17
<u>T o t a l:</u>	<u>1059</u>	<u>100</u>

It would be seen that more than 60% employees are living in sectors G-6 and G-7. These are the sectors which contain the largest number of Government Quarters in Islamabad. The number of employees living in Rawalpindi is also significant (17%).

Distance:

The distance between office and residence can be measured from the address given in the questionnaire. However, respondents were also asked to indicate approximate distance between residence and place of work. As it is difficult that any one would have measured the exact distance, the answers would contain distances as perceived by respondents which are likely to be different from actual. In certain cases, the distances are based on bus routes which may not be the shortest one.

The respondents have been classified into 5 categories of 3 mile interval. The distribution is as follows :

Table 6

Distribution of respondents according to Distance from Residence

<u>Distance Range</u>	<u>Numbers</u>	<u>Percentage</u>
upto 3 miles	230	22
3 and upto 6 miles	448	42
6 and upto 9 miles	159	15
9 and upto 12 miles	135	10
12 and upto 15 miles	76	7
15 miles and above	41	4
<hr/>		
T o t a l :-	1059	100

It will be seen that 22% of respondents are living within three miles distance range which covers the whole of F- 6 and 2/3rd of G-6. Another of 42% of respondents come from the next distance bar of 3-6 miles which includes 1/3rd of G-6, whole of G-7 and F-7. This covers two third of respondents. The remaining 1/3rd travel more than 6 miles. Half of them (17%) come from various places in Rawalpindi and the other half from other areas of Islamabad e.g. Naval Colony, Q.A. University, G-8, G-9 and I-9 sectors, etc.

Personal Conveyance:

The ownership of personal conveyance is an important factor determining the choice of mode. The questionnaire asked ownership/possession of personal conveyance whether it was used for coming to office or not. The answers provided four categories namely, car, motor cycle/scooter, cycle or NONE if no conveyance was owned.

It is possible that one owns more than one units of any conveyance (e.g. two cars) or more than one type of conveyance (e.g. car and motor cycle, or cycle). Information on the former was not asked for as it was thought this would be a very exceptional case. In the second category, the ownership of more than one types of conveyance was not reported by any.

The number of respondents owning different types of personal conveyance owned including NONE are shown below:

Table 7

Distribution of respondents according to type of conveyance owned

<u>Type of conveyance</u>	<u>Numbers</u>	<u>Percentage</u>
Car	56	5
Motor Cycle/ Scooter	80	8
Cycle	123	12
NONE	800	75
Total :	<u>1059</u>	<u>100</u>

It is evident from the above that only 13% of respondents own car or motor cycle and are independent of public transport. Another 12% own pedal cycle which though handy and convenient for short distance and local travel, is uncomfortable and inconvenient for medium distance travel, not to speak of long distance of ten miles or so. It can carry one person at a time and topography of Islamabad is not in its favour as well. It is therefore of very limited use as a personal conveyance. Obviously, the cycle owners would be dependent on public transport partly for short distance travel and wholly for medium and long distance travel. The remaining 75% of respondents have no personal conveyance at all and are wholly dependent upon public transport.

Modal Split:

The major item of information central to the survey was mode of travel used. The information was asked separately for: (a) travel from office to residence on the last (Previous) working day; and (b) for coming to office on the present survey day specifically. These were the two most recent trips and did not involve any taxing of respondents memory. The respondents were deliberately not asked to indicate their usual or most preferred or alternative mode of travel in order to keep the questionnaire as simple as possible and to avoid ambiguity. Such information can be obtained from a smaller number of respondents selected on sampling basis.

The modes of travel were divided into two categories viz. "private" and "For Hire". The latter category is officially termed as "Public Carriers". We have however preferred the term used by general public in common speech since the purpose is to convey the message as clearly as possible. In the "private" category, five modes were listed i.e. walk, cycle, motor cycle/ scooter, car including staff car and other private carriers. Walk is treated as a mode when travel is made on foot exclusively. Otherwise short walking portion of trips made by other modes are ignored. The category "For Hire" included four modes namely, Taxi/Rickshaw, Wagon, Bus and Other Public or Contract Carriers.

The modes of travel not used in Islamabad were not included in the list. Examples are Tonga, and Trucks, etc. The latter is sometimes used for carrying labour to work sites. Tonga is a common means in small towns. In Rawalpindi, it can be found on a limited number of routes. In Islamabad, it is not allowed, Similarly, light commercial vehicles such as Suzuki Vans have not been classified separately. These are included in Wagons.

For survey at other places or for other purposes, the list of modes can be modified according to the types of modes is use at a particular place or for which specific information may be required separately.

The following table shows the number of respondents using private and public transport (For Hire) for travel to and from work:

Table- 8

Use of Private and Public Transport
(No. of respondents)

<u>Type of Transport</u>	<u>Office to Residence.</u>	<u>Residence to Office</u>	<u>% age</u>
Private Transport Personal Conveyance	253	259	(24)
Public Transport (For Hire)	801	800	(76)
Total	1059	1059	(100)

It would be seen that nearly one fourth of respondents (24%) used Personal Conveyance including walk, cycle, motor cycle, and car. The remaining 76% used Public Transport including bus, wagon, taxi and other for contract etc.

The use of public and Private Transport has been analysed in more detail. The table below shows the number of journies made by each mode of travel.

Table - 9

Distribution of journeys according to mode of travel

<u>Mode of Travel</u>	<u>Number of Journeys</u>		<u>% Age</u>
	<u>Office to Residence</u>	<u>Residence to Office</u>	
<u>Private:</u>			
Walk	34	35	3
Cycle	102	101	9
Motor/cycle/Scooter	69	71	
Car	53	52	
Total	<u>258</u>	<u>259</u>	
<u>Public(For Hire):</u>			
Wagon	452	469	42
Bus	354	341	30
Taxi	5	6	7
Other	33	33	3
Total	<u>844</u>	<u>849</u>	

It is not difficult to conceive that the mode of travel used for going from office to residence previous day can be different from the one used for coming to office next day, the two journeys for which information was sought in the questionnaire. In most of the cases, the mode of travel used for the two journeys was the same. In some cases, the mode of travel used in one direction was different from the one used in the other direction. However, in such cases, changes seem to have cancelled each other and the resulting distribution of journeys by mode of travel is more or less the same in both directions. The differences are so small that the figures round off in calculating ratios. The percentage distribution of journeys in the two directions is therefore the same for both directions.

It would also be evident from the above that wagons are the most dominant mode of travel serving 42% of respondents. This is followed by buses serving 30% of respondents. The remaining 28% respondents are evenly spread over all other modes.

It would be seen from the above that for those using private transport, the number of journeys is the same as the number of travellers in Table 8. Obviously, when personal conveyance is used, journey has to be completed by the same mode and the change of mode on the way is not possible. Hence the number of journeys will be the same as the number of travellers.

It may also be mentioned that ownership of personal conveyance is a strong determinant of choice of mode. A comparison of Tables 9 & 7 will indicate that 94% of car owners, 88% of motor cycle owners and 75% cycle owners travelled to work by the same mode.

In the case of those using public transport, the number of journeys exceeds the number of travellers. For example, for travel from office to residence, 801 persons used public transport. However, they made 845 journeys. The number of journeys is 5 to 6 percent more than the number of travellers.

This is due to the reason that in cases where more than one mode is involved, e.g. a bus and a wagon, etc. travel mode by each mode has been classified as a separate journey. In other cases, where change of mode of the same type was involved e.g. change of bus from one route to the other, the travel was treated as a single journey.

The procedure for classification of journeys indicated above was followed for simplicity of data tabulation which was done manually.

It would appear from the questionnaire that it contains no provision for reporting change of mode of the same type, e.g. change of bus from one route to the other, although use of more than one modes can be reported i.e. a taxi, bus wagon, etc.

The need for change of mode arises when the direct service is not available. It is evident from the above that only 5 to 6 percent of cases fall in this category. This is not a significant number. Therefore, much attention was not paid to this aspect. In other larger cities like Karachi, the number call for detailed examination. If at any other place or time a more detailed analysis of composite journey may be needed, slight modifications in the questionnaire can be made to accommodate change of mode of the same kind and the data classified in more detail.

Status and Mode of Travel:

Status is also one of the main determinants of choice of mode. There is considerable difference in the choice of mode between various categories of staff as can be seen from the following table:

Table- 9
Status versus Mode of Travel:

Grade of respondent	Percentage of journeys.							Total	
	Walk	Cycle	M/cy	Car	Wagon	Bus	Taxi		Other
22 - 19	-	-	4	69	17	2	3	5	100
18 - 17	4	2	22	12	41	17	1	1	100
16 - 10	2	14	12	-	46	22	4	-	100
9 - 5	1	7	2	-	52	35	3	-	100
4 - 1	5	12	-	-	50	50	3	-	100

It will be seen from the above that those who walk are 45% grade 1-4, 20% grade 5-9, 22% grade 10-16 and 13% grade 18-17. Those who do the cycle ride are 44% grade 10-16, 32% grade 1-4 and 22% grade 5-9 and 2% Grade 17 & 18. The motor cyclists are concentrated in the middle grades and include 51% grade 10-15, 37% grade 17-18, 9% grade 5-9 and 3% grade 19 & above. Car users include 71% grade 19-22 and 29% grade 17-18. The car users include more from Grade 16 and below and motor cyclists for Grade 1-4. Wagon users are distributed over all the grades and include 33% each grade 5-9 and 10-6, 21% grade 1-4 and 11% grade 17-18 and 2% grade 19 and above. Bus users comprise of 43% grade 1-4, 31% grade 5-9, 20% grade 10-16 and 6% grade 17-18. The use of bus is inversely related to grade. There is no bus user in grade 19 and above. The use of taxi and others category are spread overall grades.

Travel by Cycle:

Because of special significance of Pedal Cycle indicated in the foregoing paragraphs, its use as a mode of travel to and from work has been examined in a little more detail. The following table shows the number of cyclists as a proportion of respondents in each distance:

Table-11

Cyclists as a proportion of respondents according to distance range:

<u>Distance Range</u>	<u>No. of respondents</u>	<u>No. of cyclists</u>	<u>of which % age</u>
0 - 3 miles	230	24	10.4
3 - 6 miles	448	50	11.2
6 - 9 miles	159	15	9.4
9 -12 "	105	4	5.8
12-15 "	76	4	5.3
15- and over	41	2	4.8
Total :	1059	99	9.3

It will be seen from the above that upto 9 mile distance, more than 10% commuters travel by cycle. However, as the distance increases beyond 9 mile, the proportion of cyclists falls to less than 5%. This indicates inconvenience of this mode for relatively longer distances.

It seems that the use of cycle being made now is due to lack of alternate facilities. If public transport services improve, many of the existing cyclists will shift to buses. If this is taken into account, the proportion of Government Employees depend upon public transport would increase from 75% to more than 30%. This should be kept in view for planning public transport services.

Fare Paid:

Those who travelled by public carriers, i.e. vehicles "For Hire" e.g. bus, wagon, taxi, etc. were asked to indicate fare paid for each journey. The journeys by bus and wagon have been classified according to fare paid. The distribution is as follows:

Table 12

Number of Journies according to fare paid

<u>Fare class</u>	<u>Bus</u>	<u>Wagon</u>	<u>Total</u>	<u>%age</u>
0.35	161	-	161	10
0.50	252	430	682	42
0.60	61	-	61	4
0.70	28	-	28	2
0.75	94	169	263	16
1.00	57	88	145	9
1.20	10	98	108	7
1-25	17	67	84	5
1.50& over	15	69	84	5
Total:	695	921	1616	100

The minimum bus fare is Rs. 0-25 for ordinary buses and Rs. 0-35 for express buses and both type of buses operate on Secretariat Route. Even then, none of the respondents reported a fare of Rs. 0.25. Perhaps very few employees live within the distance covered by minimum fare of Rs.0.25 and those who live do not seem to travel by bus. They either walk or travel by wagon. During rush hours, buses are so over loaded that it is not worthwhile to travel by bus at that time for such a short distance.

The maximum bus fare is Rs.0.75. However, a large number of cases (about 15%) bus fares of more than Rs. 0.75 per trip have been reported. These are the instances where change of route is involved from Chaklala to Saddar and then from saddar to Islamabad, etc.

The minimum fare paid for travel to and from work is Rs.0.35 per trip. Only 10% of trips by Public transport fall in this category; 42% trips including 16% by bus and 28% by wagons users, cost Rs.0.50; 4% Rs.0.60, 2% Rs.0.70; 16% Rs. 1.00 and another 16% cost Rs.1.20 to Rs.1.25 and the last 10% cost Rs.1.50 & more.

Government pays a conveyance allowance of Rs.30/- p.m. to its employees not owning car or motor cycle. However, the actual expenditure on travel to and from work, on the basis of 25 working days will be Rs. 30.00 or less per month so long as the cost of travel is Rs.0.60 per trip, The foregoing figures indicate that only 56% of journeys time in this category. The other 44% journeys cost more than Rs.30.00 per month. Of these 17% cost Rs.0.75 per trip or Rs.37.50 per month and the remaining 25% cost Rs.1.00 and above or Rs. 50/- or more per month. If account is taken of composite journeys, the expenditure per employee will be more and the proportion of employees in the lower category of Rs.30/- per month or less would be less. More about this in the next section.

Average Expenditure:

It is not necessary that one who travelled by bus or wagon on the survey date will always travel by the same mode. One can travel at one time or one day by bus and at other time, by wagon depending upon availability. Assuming that over a number of days, travel made by individuals by bus, wagon and taxi is in the same proportion as the number of journeys by these modes, the average expenditure on travel to and from work per journey can be expected to be the average fare paid by users of these modes. This works out to Rs.0.70 per trip as below:

Table -13

<u>Expenditure on travel by modes for Hire</u>			
<u>Mode of Travel</u>	<u>No. of journeys</u>	<u>Total expenditure(Rs.)</u>	<u>Expenditure per journey(Rs.)</u>
Bus	695	394.60	0.57
Wagon	921	709.47	0.77
Taxi	11	40.00	3.64
Others	66	38.45	0.58
T o t a l :	1693	1181.92	0.70

The above figures indicate expenditure per journey, It would be recalled that the number of journeys is 5 to 6 more than the number of travellers. Therefore, the expenditure per employees will also be 5 to 6% more or Rs. 0.74 per employee.

It is evident from the above that average cost of travel to and from work by Public Transport comes to Rs.0.74 per trip for each employee. On the basis of 25 working days, the monthly expenditure would be Rs.37.50. As against this, the conveyance allowance paid by the Government to its employees not owning car or motor cycle is Rs. 30/- only .

Effect of Increase in Fares:

The foregoing figures are based on fares that existed before the last revision. The wagon fares have since been increased by about 25% and taxi fares^{*} by more than 100%

It is assumed that inter modal cross elasticity of demand with respect to fares will be in-significant. The reason is that during rush hours, the choice of mode is mainly dependent upon availability and rarely by fares. This is true for bus and wagon. The user of taxi is also made exceptionally in a small number of cars. Therefore, its demand may also be assumed as inelastic. As the number of persons using taxi is small, its effect would be insignificant.

On the basis of above assumptions, the effect of increase in fares on cost of travel to and from work would be as follows:

* From Rs. 1.00 per mile to Rs.1.20 per k.m.
or Rs. 2.00 per mile.

Table -14

Effect of Increase in Fares on Cost of travel

	<u>Bus</u>	<u>Wagon</u>	<u>Taxi</u>	<u>other</u>	<u>Total</u>
1. Expenditure before increase in fares (Rs.)	394.60	709.47	40.00	38.45	1181.92
2. Percentage increase in fares.	-	25%	100%	-	-
3. Increase in expenditure.	394.60	886.84	80.00	38.45	1399.89
4. Number of journies	695	921	11	66	169.3
5. Present cost(3 ÷ 4)	9.57	0.96	7.27	0.58	0.93

It is evident from the above that increase in fares will increase cost from Rs.0.70 to Rs.0.83 per journey - about 20% increase. The increase in monthly expenditure will be as follows:

Table - 15

Increase in Travel Costs:

	<u>Before increase in fare</u>	<u>after increase in fares</u>
Cost per journey(Paisa)	0.70	0.83
Cost per traveller	0.74	0.88
Cost per month 25 working days	Rs.37.00	Rs.44.00

It would be seen from the above that increase in fares increased cost of travel by about 20% from Rs.37.00 to Rs.44.00 p.m.

If the assumption about the elasticity of demand is relaxed, one can expect some diversion of traffic can be expected from wagons and taxis to buses. The increase in expenditure would be less than indicated above. However, due to capacity constraint on buses, there is no scope for diversion of traffic to buses. The above figures are therefore quite realistic.

Travel Time:

Travel Time to and from Secretariat and any place in Islamabad would be very small for those having their personal conveyance. It would not be much for others once the transport is available. However, waiting times for public transport are uncertain and irregular. It is therefore more important to have an idea of time spent in travelling and waiting.

The questionnaire therefore asked travel time from door to door including walking, waiting and actual travelling. However, if there was break in journey for any purpose other than change of mode, the time spent in the break would be excluded. No such case was, however, reported.

For answer to this question, five classes of time were provided with 1/2 hour interval namely, up to 1/2 hour, 1/2- 1 hour, 1 - 1 1/2 hour, 1 1/2 - 2 hour and more than 2 hours. The results are given below:

Table - 16

Distribution of Employees according to time spent in travelling each way:

<u>Travel Time</u> *	<u>Employees</u> <u>Nos.</u>	<u>%age</u>
Upto 1/2 hour	299	28
1/2 - 1 hour	450	43
1 - 1½ hour	205	19
1½ - 2 hour	71	7
2 & more hours	34	3
<u>T o t a l :</u>	<u>1059</u>	<u>100</u>

It is generally felt that morning arrivals are spread over longer hours than the afternoon departures. Therefore, the afternoon peak should be higher than in the morning. This should result in shorter waiting and overall travel times. in the morning than in the afternoon. However, against this expectation the distribution of employees according to travel time was identical for both directions. Hence, the above figures represent time spent in either direction.

* The intervals are not statistically precise as the beginning and end hours also appear in preceding and succeeding class intervals. However, it was retained for better understanding by respondents.

Normally, people do not keep a record of travel times. Answers to this question would therefore be an approximation only. Much significance should therefore not be attached to results given above.

Besides, it may be added that waiting times are more irksome than time spent in travelling. Therefore, waiting times are often overstated. Accordingly, perceived times are usually more than actual time. This bias is likely to be present in the above reported figures as well.

A comparison of tables (vi) and (xi) relating to distance from residence and travel time indicates that the two distributions are closely related and are consistent with each other.

Conclusions:

The main purpose of this exercise was to find the choice of mode for journey to work by Government Employees. The survey has shown the relative importance of various modes of travel both public and private. By a large margin, wagons and buses have come out to be the pre-dominant modes of travel used by 42% and 30% of journeymen respectively to and from work in Islamabad.

The factors affecting the choice of mode include, among other things, relative cost, convenience, frequency, speed, accessibility, social status, etc. Among these factors, buses have an advantage over wagons with respect to cost only. On all other cases, wagons have an edge over buses.

The lowest category of staff is more sensitive to costs. This is evident from the fact that in this category, (Grade 1-4) the proportion of employees travelling by buses is more than wagons. For all other categories, cost is not significant. The proportion of employees using wagons is more than buses. In their case, the main determinant seems to be the availability. During rush hours, one would travel by the mode one gets earlier.

The cost differential between wagon and bus is not much. The most crucial factor seems to be the accessibility or availability during rush hours. If this is correct, the proportions of employees using Bus and Wagon are a reflection of relative capacity rather than any other factor. Once the capacity constraint is removed, other factors will come in.

Whether the present distribution of traffic between buses and wagon is appropriate or not will be indicated by the type of traffic carried by the two modes. An idea about this can be had from relative costs incurred by users of buses and wagons. It is known that for similar distances the wagon fare is about 60% more than bus ⁽¹⁾. If users of wagons and buses have similar lengths of trip, the average cost of travel by the two modes would be in the same proportion as the fares are.

(1) Between Islamabad and Rawalpindi the maximum bus and wagon fare which was previously Rs.0.60 and Rs.1.00 was later increased to Rs.0.75 and Rs.1.20 and is now Rs. 0.75 & Rs.1.50 respectively.

The wagon fare is 40 to 100% more than bus fares for varying distances. As compared to this, the expenditure incurred by wagon travellers (Rs.0.77) is only 35% more than bus travellers (Rs.0.57). It implies that short distance travel is made relatively more frequently by wagons than by buses. This seems to be the more desirable trend. Buses cost less per seat mile. Thus, the lower cost mode is used for longer distances and vice versa.

It would also be relevant to add here that buses are owned and operated by the Government and receive substantial subsidies. On the other hand, wagons are owned and operated privately and receive no favours from the Government. Therefore, transfer of traffic from buses to wagons can reduce the amount of subsidy. This will cost more to users. However, as the real cost of travel is less for buses, transfer of traffic from buses to wagons would cost the economy more. Such a policy would therefore not be desirable from economic point of view. What is needed is to improve the efficiency of bus services.

Limitations:

The foregoing analysis relates to specific conditions prevailing in Islamabad. The results may be different at other places. There is therefore need for such surveys at other places including Lahore and Karachi to have more generalized results.

ANNEXURE-'A'

JOURNEY TO WORK SURVEY OF GOVT. EMPLOYEES-SUMMARY OF RESULTS

	<u>Grade</u>					Total
	19 & above	18-17	16-10	9-5	4-1	
NUMBER OF RESPONDENTS:						
Planning Division	33	47	116	99	111	406
Finance Division	10	57	131	126	128	452
Communication & Railways Division	11	9	1	55	55	201
T o t a l	54	113	318	280	294	1059

PLACE OF RESIDENCE:						
F - 6	15	26	14	8	2	65
F - 7	9	3	-	-	3	16
F - 8	6	1	3	-	1	11
G - 5	2	1	-	-	-	3
G - 6	11	38	96	63	49	257
G - 7	2	20	129	87	152	390
G - 8	-	2	4	12	12	30
G - 9	-	1	15	32	18	66
I - 9	-	4	2	14	10	30
I - 10	-	1	-	4	2	7
Naval Colony	-	-	-	5	1	6
Q.A. University	-	-	-	1	-	1
Rawalpindi	9	16	55	54	44	178
T o t a l :	54	113	318	280	294	1059

AGE - GROUPS:						
upto 30 years	-	21	125	257	143	546
31 - 40	12	42	104	18	79	255
41 - 50	32	23	64	4	50	173
51 - 60	10	27	25	1	22	85
T o t a l :	54	113	318	280	294	1059

DISTANCE:						
0 - 3 Miles	31	61	61	44	33	230
3.1 - 6 "	14	27	137	112	158	448
6.1 - 9 "	-	4	57	45	53	159
9 -12 "	6	10	31	38	20	105
12 -15 "	1	10	20	29	16	76
Above 15 "	2	1	12	12	14	41
T o t a l :	54	113	318	280	294	1059

	19 & above	18-17	16-10	9-5	4-1	Total
PERSONAL CONVEYANCE OWNED:						
Car	39	17	-	-	-	56
M/Cycle	2	28	43	7	-	80
Cycle	1	10	55	25	32	123
None	12	58	220	248	262	800
Total:-	54	113	318	280	294	1059
NO. OF EMPLOYEES AND TYPE						
(a) Personal Conveyance	39	49	88	30	50	258
(b) For Hire	15	64	230	250	244	801
Total:	54	113	318	280	294	1059
NO. OF PERSONS TRAVELLED FROM OFFICE TO RESIDENCE BY PERSONAL CONVEYANCE:						
Walk	-	5	8	5	16	34
Cycle	-	2	44	23	33	102
M/Cycle	2	25	36	6	-	69
Car	37	16	-	-	-	53
Total:-	39	48	88	34	49	258
NO. OF PERSONS TRAVELLED FROM RESIDENCE TO OFFICE BY HIRED CONVEYANCE:						
Wagon	10	48	151	151	92	452
Bus	1	23	70	109	152	355
Taxi	1	1	1	2	-	5
Others	3	1	13	8	8	33
Total:-	15	73	235	270	252	845
FARE						
Wagon	8.45	33.70	113.85	128.40	68.67	353.07
Bus	.50	6.45	38.45	64.95	88.80	199.55
Taxi	2.00	5.00	4.00	8.00	-	19.00
Others	3.00	.50	5.65	1.50	5.90	16.55
NO. OF EMPLOYEES AND TYPE OF TRAVEL FROM RESIDENCE TO OFFICE:						
Personal Conveyance	38	45	88	34	48	253
Hired Conveyance	16	68	230	246	246	806
Total:-	54	113	318	280	294	1059

	19 & above	18-17	16-10	9-5	4-1	Total
<u>NO. OF PERSON TRAVELLED FROM RESIDENCE TO OFFICE BY PERSONAL CONVEYANCE</u>						
Walk	-	4	7	9	15	35
Cycle	-	2	45	22	32	101
M/Cycle	2	27	36	6	-	71
Car	38	14	-	-	-	52
Total:	40	47	88	37	47	259

<u>NO. OF PERSONS TRAVELLED FROM RESIDENCE TO OFFICE BY HIRED CONVEYANCE</u>						
Wagon	9	52	153	156	99	469
Bus	1	19	69	105	147	341
Taxi	2	1	1	2	-	6
Others	3	2	13	7	8	33
Total:	15	74	236	270	254	849

F A R E

Wagon	8.95	35.20	116.0	126.85	69.40	356.40
Bus	-	6.75	38.75	62.55	87.55	195.05
Taxi	6.00	4.00	3.00	8.00	-	21.00
Others	1.85	2.50	5.65	6.50	5.40	21.90

JOURNEY TIME

Upto ½ hour	42	59	86	53	59	299
½ - 1 hour	8	34	155	133	120	1050
1 - 1½ hour	3	18	55	52	77	205
1½ - 2 hour	1	2	15	27	26	71
Above 2 hour	-	-	7	15	12	34
Total:	54	113	318	280	294	1059

NUMBER OF JOURNIES BY WAGON ACCORDING TO FARE PAID:

F A R E

.50	9	59	140	125	97	430
.75	1	4	83	53	28	169
1.00	1	6	16	36	29	88
1.20	2	12	37	36	11	98
1.25	4	9	15	29	10	67
1.50	-	5	6	7	8	26
1.75	-	3	4	2	4	13
1.80	-	-	1	4	-	5
2.00	2	2	2	14	4	24
2.50	-	-	-	1	-	1

Total:- 19 100 304 307 191 921

Anneuxre - A(Contd)

	19 & above	18-17	16-10	9-5	4-1	Total
<u>NUMBER OF JOURNIES BY BUS</u>						
<u>ACCORDING TO FARE PAID:</u>						
<u>F A R E</u>						
.35	-	27	43	41	50	161
.50	2	6	54	51	139	252
.60	-	2	13	22	25	62
.70	-	3	4	13	8	28
.75	-	2	16	33	42	93
1.00	-	-	8	27	24	59
1.20	-	-	-	6	4	10
1.25	-	-	-	11	6	17
1.50	-	2	2	8	-	12
2.00	-	-	-	1	-	1
3.00	-	-	-	1	1	1
Total:	2	42	139	214	290	696

JOURNEY TO WORK SURVEY OF GOVERNMENT EMPLOYEES

For Office Use

[]
1-4

1. Name
[]

2. Age (Years)
[]
5-6

3. Sex:
Male Female
1 2
7

4. Designation:
[]

5. Grade
[]
8-9

For Office Use
[]
10-11

6. Department:
[]

7. Section:
[]

8. Location of Office/Place of Duty:
[]

9. Residential Address:
[]
12-13

10. Approximate distance between Place of Work and Residence:....Miles
[]
14-15

11. Personal Conveyance owned/possessed (Whether in use or not?)
Car [] 18 M/cy, Scooter [] 19 Cycle [] 20 NONE [] 21

12. Mode of travel used, fare paid and time spent for:

(a) Travel from office to residence on last working day: Dated - - 1979:

(i) Mode of travel used		(ii) Fare Paid		(iii) Travel time from door to door incld. waiting and travelling.
Private	For Hire	Rs.	Ps.	
<input type="checkbox"/> Walk 22	<input type="checkbox"/> Taxi/Rickshaw 27-31			<input type="checkbox"/> Upto ½ hour
<input type="checkbox"/> Cycle 23	<input type="checkbox"/> Wagon 32-36			<input type="checkbox"/> ½ - 1 hour
<input type="checkbox"/> M/Cy, Scooter 24	<input type="checkbox"/> Bus 37-41			<input type="checkbox"/> 1 - 1½ hour
<input type="checkbox"/> Car incld. Staff Car 25	<input type="checkbox"/> Other Public or Contract Carrier 42-46			<input type="checkbox"/> 1½ - 2 hour
<input type="checkbox"/> Other Private Carrier 26				<input type="checkbox"/> 47 Above 2 hour

(b) Travel from residence to office today; Dated: - - 1979.

(i) Mode of travel used		(ii) Fare Paid		(iii) Travel time from door to door incld. waiting and travelling.
Private	For Hire	Rs.	Ps.	
<input type="checkbox"/> Walk 48	<input type="checkbox"/> Taxi/Rickshaw 53-57			<input type="checkbox"/> Upto ½ hour
<input type="checkbox"/> Cycle 49	<input type="checkbox"/> Wagon 58-62			<input type="checkbox"/> ½ - 1 hour
<input type="checkbox"/> M/cy, Scooter 50	<input type="checkbox"/> Bus 63-67			<input type="checkbox"/> 1 - 1½ hour
<input type="checkbox"/> Car incld. Staff Car. 51	<input type="checkbox"/> Other Public or Contract Carrier 68-72			<input type="checkbox"/> 1½ - 2 hour
<input type="checkbox"/> Other Private carrier 52	DATED: [] 1979			<input type="checkbox"/> Above 2 hour