A Note On Magnitude Of Commuters From Kirtipur

Pashupati Nepal*

INTRODUCTION

Historically, Kirtipur's economy has remained agricultural along with building, woodcarving and weaving as important secondary activities. Before the 1960's Kirtipur was a typical agricultural place with majority of it's population engaged in farming. But this agricultural base was reduced in the 1960's when one-third of Kirtipur's farm-land was purchased compulsory at forty percent of the market price to establish the Tribhuvan University. Tiny holdings and inadequate work for farm labours brought catastrophic conditions of income to fulfill the undue demand for food. Another supplementary source of income was building/construction and handloom industry. In the Malla period (750-1768 A.D), the artisan worked industriously at his workshop. During that period every *Jyapu* and *Udai* household had it's handloom. But in modern time, specially since the Rana dynesty, no atterntion was paid to encourage the woodcarving, building and handloom industry. Consequently, these conditions compelled people to find other jobs to survive.

Over the past thirty years, considerable industrial expansion and construction work has been concentrated in Kathmandu and Patan. The increased demand for labour in these areas could not meet only by the workers who migrated as permanent resident to the city but also by those who travel daily from their surrounded suburban areas and the villages. Since, Kirtipur is relatively close to both these cities, people of this area commute daily to wage earning jobs as masons, carpenters and office workers etc. There is a frequent and well-used bus link between these two places. Thus, though the range of commuting has increased now, commuting from Kirtipur is not, however, a recent phenominon. The increased demand for labour in city can not be met only through city residents or migrants to the industrial or administrative centers. A considerable proportion of labour demand in urban area is met through commuters. The commuting system and their role in the sustenance of Kirtipur as sub-urban or labour-shed area was the major problem addressed by this study. However, one of the specific objectives was to examine the magnitude of commuters, periods and means of commuting from Kirtipur.

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* *Mr. Nepal is Lecturer, Tribhuvan Multiple Campus, Department of Geography, Tansen, Palpa, Nepal.*

CONCEPTUAL FRAMEWORK

Commuter means a person who travels a considerable distance regularly, usually daily, to and from work. The most common form of commuting is between a city work place and a suburban of country home. The separation between workplace and residential area has remained the chief reason for commuting system.

Conceptually, the study implies that the spatial interaction between two regions is the product of regional complementarity and intervening opportunities. Conceptual framework of this study is also derived from central place theory. The theory implies that urban centers serve the surrounding rural region. The study depends upon Kathmandu for high order goods and services. The commuting system between Kirtipur and urban centers is the balance between maximizing the benefit and minimizing the travel time of distance.

METHODOLOGY

Observation forms were distributed to collect the information about the total magnitude, sex, period and means of commuting from Kirtipur. For this purpose, five working days and two-work end days were taken from 7 A.M. to 11 A.M., departure time and 4 P.M. to 7 P.M., arrival time, counting each individual at the nodal point of Kathmandu and Patan and at the back side of CNAS building. Those commuters who left their residents for work earlier than 7 A.M. as well as who returned to home place from work after 7 P.M. had not been enumerated. There were a few minor tracks or bush paths that were not manned by enumerators simply because it was felt that only a small number of commuters traveled along them.

RESULTS AND DISCUSSION

Magnitude Of Commuters

The magnitudes of commuters refer to the total number of the commuters who commute from Kirtipur in a particular time by any means. This indicates not only those commuters who commute for jobs but commuting for education, marketing, visiting, recreation and so on. They usually travel to the city in the morning and return to their residential places in the evening. The daily average volume of commuters in the study seems lower than usual. This is because, at the period of enumeration, most of the campuses and schools were closed.

On Working Days

Table 1 Appendix depicts that the daily average volume of commuters to work on working days is about 3164.6 persons. Out of them,

about 92.5 percent were males while 7.5 percent were female commuters. The peak period of commuting to the city was at the time 9.00 - 9.30 A.M. At that time, the daily average of male and female accounted about 892.8 and 57.4 persons respectively. This comprises about 30 percent in total commuters. The reason for higher number of commuters in this period is that all the governmental offices, educational institutions, companies, construction works begin usualy after 10 'O clock in the morning. The slack period of commuting to the city was at 10.30 - 11.00 in which only 2.6 percent commuters used to commute, in total.

The proportion of commuting to work from Patan and Kalanki route was about 3.9 and 11. 9 percent respectively.

Similarly, the daily average volume of commuters from work was about 2049.2 persons. In total, about 88.7 percent was male whereas 11.3 percent was female. The peak period of commuting from the city was at 5.30 - 6.00 P.M. At that time about 32.1 percent male and female commuters commuted back in total. The slack period of commuting from work was at 4:00 to 4:30 P.M. in which 3.9 percent male and female commuters commuted back from the city.

The proportion of commuting back from Patan and Kalanki trails was about 2.9 and 5.0 percent respectively.

On Weekend Days

The weekend daily average volume of commuters to work was about 1298 persons, comprising 85.4 percent male and 14.6 percent female (Table 2 Appendix). The peak period of commuting to work was 9.00 to 9.30 A.M. in which about 24.1 percent commuters commuted, in total. The slack period of commuting to work was at 7.30 to 8.00 A.M. in which only about 6.8 percent commuters commuted, in total.

The proportion of commuting to work on weekend days from Patan and Kalanki route was about 3.5 and 6.2 percent respectively.

Similarly, the weekend daily average volume of commuters was about 618.5 persons comprising about 83.6 and 16.4 percent male and female respectively. The peak period of returning from work was 6.30 to 7.00 P.M. in which about 22.8 percent male and female commuters came back from work. The slack period of returning was 4.30 to 5.00 P.M. constituting about 12.5 percent male and female in total.

The proportion of returning from Patan and Kalanki route was about 4.4 and 5.3 percent respectively.

In the observation period there was no difference between working and weekend days from the viewpoint of daily peak period of commuting.

Means of Commuting

Development of socio-economic condition of any area depends upon the availability of transportation facility, which encourages to movement of

people between and among the area (Mayers 1969). The volume of commuters indicates the moverment of people by any sort of means to and from the city in the study.

On working days

Table 3 Appendix depicts that out of the total volume of commuters, about 3164.6 persons commuted to work on working days by different kinds of vehicle in a daily average. Out of them, more than 2/3 percentage, 68.1 percent , of commuters commuted by public bus, 11.4 percent on cycles and 11.0 percent were pedestrians.

The daily average of commuters, who came back from work by any sort of vehicle, was 2049.2 persons in total. About 54.4 percent commuters used public buses, 24.1 percent came by foot and 11.6 percent were bicycling while meraly 2.9 percent commuters used taxies.

On weekend Days

On weekend days, the daily average number of commuters to work by any sort of means was about 1298.0 persons (Table 4 Appendix). Out of them, 45.0 percent commuters used public buses, 20.6 percent were pedestrians and 16.4 percent used cycles.

Similarly, the weekend daily average number of commuters from work was about 618.5 persons. Out of them, public buses comprised about 58.0 percent, cycle 14.8 percent and those commuters who came by foot were about 11.9 percent.

CONCLUSION

Over the past four decades, considerable expansion in industrial and construction activity has taken place in Kathmandu and Patan. To fulfill the increased demand for labour in these areas, increasing number of people travel daily from their surrounding villages and suburban areas to their towns. Kirtipur is relatively close to both cities. So, a large proportion of the Kirtipur population commutes to the city. Commuting has been played vital and positive role to maintain the economic base of Kirtipur. Thus, Kirtipur gains money by providing it's labour force to the city. Simultaneously, the commuters from Kirtipur working especially in construction can play a great role in displaying immigrants if they are properly trained and if positive encouragement is provided by government policies. Public transportation is the major means for commuting but it did not seem sufficient. So, a better system of public transit between Kirtipur and Kathmandu as well as Patan also needs priority attention as this can ease commuting. The study indicates that commuting was sex selective. Hence, a great endevour should be made to eradicate female illiteracy because literate people use to commute more than illiterates.

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Appendix

Table 1
Volume Of Commuters On Working Days

TO

Time/Days/Sex	7.00-7.30 M	7.00-7.30 F	7.30-8.00 M	7.30-8.00 F	8.00-8.30 M	8.00-8.30 F	8.30-9.00 M	8.30-9.00 F	9.00-9.30 M	9.00-9.30 F	9.30-10.00 M	9.30-10.00 F	10.00-10.30 M	10.00-10.30 F	10.30-11.00 M	10.30-11.00 F	Total M	Total F	Grand Total
Sunday	88	21	171	29	426	34	721	49	886	52	393	43	127	19	49	16	2861	263	3124
Monday	65	12	200	18	419	27	762	36	856	64	401	26	99	23	69	7	2871	213	3084
Tuesday	73	11	189	22	411	19	743	46	849	58	381	38	113	17	58	14	2817	225	3042
Wednesday	85	17	193	26	436	31	800	53	932	62	407	32	111	11	82	19	3046	251	3297
Thursday	93	9	177	24	443	29	769	57	941	51	387	31	129	21	104	11	3043	233	3276
Total	404	70	930	119	2135	140	3795	241	4464	287	1969	170	579	91	362	67	14638	1185	15823
Average	80.8	14	186	23.8	427	28	759	48.2	892.8	57.4	393.8	34	115.8	18.2	72.4	13.4	2927.6	237	3164.6
Percent	2.6	0.4	5.9	0.8	13.5	0.9	24	1.5	28.2	1.8	12.4	1.1	3.7	0.6	2.2	0.4	92.5	7.5	100

FROM

Time/Days/Sex	4.00-4.30 M	4.00-4.30 F	4.30-5.00 M	4.30-5.00 F	5.00-5.30 M	5.00-5.30 F	5.30-6.00 M	5.30-6.00 F	6.00-6.30 M	6.00-6.30 F	6.30-7.00 M	6.30-7.00 F	Total M	Total F	Grand Total
Sunday	53	16	169	63	149	16	598	75	549	39	294	28	1812	237	2049
Monday	62	21	181	53	157	22	617	61	573	53	274	39	1864	249	2113
Tuesday	49	13	174	43	185	29	573	69	538	59	257	33	1776	246	2022
Wednesday	74	23	187	37	168	22	603	64	662	48	287	43	1881	237	2118
Thursday	68	17	155	35	153	14	585	49	543	41	247	37	1751	193	1944
Total	306	90	866	231	812	103	2976	318	2765	240	1359	180	9084	1162	10246
Average	61.2	18	173.2	46.2	162.4	20.6	595.2	63.6	553	48.0	271.8	36.0	1816.8	232.4	2049.2
Percent	3.0	0.9	8.5	2.2	7.9	1.0	29.0	3.1	27.0	2.3	13.3	1.8	88.7	11.3	100.0

M = Male,   F = Female

Source : Field Survey, 1989

Table 2
Volume Of Commuters On Weekend Days

TO

Time/Days/Sex	7.00-7.30		7.30-8.00		8.00-8.30		8.30-9.00		9.00-9.30		9.30-10.00		10.00-10.30		10.30-11.00	Total	Grand Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F			
Saturday	136	37	61	14	102	21	140	22	255	56	163	16	142	23	77		
Saturday	105	17	81	21	131	14	121	11	270	46	177	9	157	29	99		
Total	241	54	142	35	233	35	261	33	525	102	340	25	299	52	176		
Average	120.5	27	71	17.5	116.5	17.5	130.5	16.5	262.5	51.0	170.0	12.5	149.5	26.0	88.0		
Percent	9.3	2.1	5.5	1.3	9.0	1.3	10.0	1.3	20.2	3.9	13.1	1.0	11.5	2.0	2.0		

FROM

Time/Days/Sex	4.00-4.30		4.30-5.00		5.00-5.30		5.30-6.00		6.00-6.30		6.30-7.00		Total		Grand Total
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	
Saturday	71	12	58	10	80	14	93	19	74	13	109	25	485	93	578
Saturday	82	16	73	14	77	11	110	24	88	16	119	29	549	110	659
Total	153	28	131	24	157	25	203	43	162	29	228	54	1034	203	1237
Average	76.5	14.0	65.5	12	78.5	12.5	101.5	21.5	81.0	14.5	114.0	27	517.0	101.5	618.5
Percent	12.4	2.3	10.6	1.9	12.7	2.0	16.4	3.5	13.1	2.3	18.4	4.4	83.6	16.4	100.0

M = Male,   F = Female

Source : Field Survey, 1989

Table 3
Means Of Commuting On Working Days

	Days	Bus	Cycle	Motor Cycle	Taxi	Foot	Other (Tractor, Tempo etc.)	Total
	Sun.	2189	348	117	69	318	83	3124
T	Mon	2021	379	139	68	348	129	3084
	Tues.	2093	343	113	63	339	91	3042
O	Wed	2247	357	116	73	367	137	3297
	Thurs.	2235	369	127	57	374	114	3276
	Total	10785	1796	612	330	1746	554	15823
	Average	2157.0	359.2	122.4	66.0	349.2	110.8	3164.6
	Percent	68.1	11.4	3.9	2.1	11.0	3.5	100.0
F	Sun.	1057	243	73	63	521	72	2049
R	Mon	1120	211	63	51	568	80	2113
O	Tues.	1145	201	76	49	473	58	2022
M	Wed	1039	265	82	77	556	79	2118
	Thurs.	1097	279	79	53	364	52	1944
	Total	5577	1191	373	293	2471	341	10246
	Average	115.4	238.2	74.6	58.6	494.2	68.2	2049.2
	Percent	54.4	11.6	3.6	2.9	24.1	3.4	100.0

Source : Field Survey, 1989.

Table 4
Means Of Commuting On Weekend Days

	Days	Bus	Cycle	Motor Cycle	Taxi	Foot	Other (Tractor, Tempo etc.)	Total
T	Sat.	574	208	81	65	272	84	1284
	Sat.	624	217	69	37	263	102	1312
O	Total	1198	425	150	102	535	186	2596
	Average	599	212.5	75	51	267.5	93	1298
	Percent	46.1	16.4	5.8	4.0	20.6	7.1	100.0
F	Sat.	315	97	37	43	65	21	578
R	Sat.	402	86	23	37	83	28	659
O	Total	717	183	60	80	148	49	1237
M	Average	358.5	91.5	30	40	74	24.5	618.5
	Percent	58.0	14.8	4.9	6.5	11.9	3.9	100.0

Source : Field Survey, 1989.

Book Review

Ulaganathanr Sankar (2001) *Environmental Economics*, Oxford University Press, New Delhi, pp 469 including Annotated Bibliography and Name and Subject Indix, price 595 IRs.

The book under review, edited by Ulaganathan Sankar, is a collection of seminal writings in the field of environmental economics covering a wide range of topics such as externalities, non-renewable resources, valuation techniques, sustainability, poverty and environmental resource base, and environmental policy.

Environmental Economics is one of the fastest growing branches in economics. Several factors are responsible for the rapid growth of the subject. First, there is consensus that many environmental goods, which were once regarded as free goods, have now become scarce resources and unless immediate action for prevention of depletion and degradation of these rescurces is taken, sustainable growth may not be feasible. Second, scientific and engineering approaches to environmental problems can help in understanding the two-way linkages between ecological and economic systems, in identifying the causes of environmental degradation and in obtaining physical measurements of environmental damages, while for many decision-making problems an economic approach is needed to obtain money values of the damages. Third, there has been a gradual shift in many developed countries from command and control type of policy approach to environmental protection to a policy regime which relies largely on economic/market based instruments to achieve environmental policy goals. The reason for the shift is the realisation that economic/market based instruments are incentive based and that they provide an opportunity to economic agents to use their private information, which is seldom available to the regulator, in their search for least cost option for compliance with the regulations. Fourth the governments also face budget constraints and require cost benifit analysis of envirnmental policy options with regard to changes in environniental legislations, resetting environmental standards and introduction of new policy instruments for environmental protection. The impact of the proposed policy changes on costs, outputs, prices and export prospects at the industry level and their overall impact at the economy level must be assessed. Fifth, in reaching binding international agreements on global environmental issues, economic analysis is needed to asses the likely impact of different policy options on the distribution of costs and benifits among the member nations and in devising mechanisms for sharing the costs and benifits in an equitable manner.

The book, Environmental Economics, makes use of ideas and tools developed in other branches of economics: micro-economics — consumer behaviour, firm behaviour, market structure, economics of time and space,

economics of information and uncertainty; welfare economics—externalities, public goods, efficiency and equity concept, public economics —design of taxes and subsidies, public goods, institutional economics — design of institutions for management of local and global commons; international economics — trade and environment, international agreements on global environmental issues; quantitative economics - optimal control theory, input - output model, game theory and econometrics. The contributors in Environment Economics have also made significant contributions to valuation techniques, design of new policy instruments for pollution control and management of commons.

The book is intended for master's students and researchers who would be interested in reading a few classic articles in the field of environmental economics and finding references to the literature. The book has given the priority in the selection of journal articles, book extracts to a few but important topics such as externalities, depletion of non-renewable resources, management of local commons, valuation techniques, sustainability and policy issues with a development perspective and provides an annotated bibliography containing brief abstracts of related articles, books and reports on the choosen topics in environmental economics. The book also contains the classic papers by Harold Hotelling on the economics of exhaustible resources, William J. Baumol and Wallace E. Oates on externalities and Garrett Hardin on the degradation of commons, and Nobel Laureates Ronald H. Coase on the problem of social cost. Other contributors include reputed scholars such as Partha Dasgupta on poverty and environmental resource base, Anthonry Fisher on Hotellings' "Economics of Exhaustible Resources": Fifty Years Later, and William D. Nordhaus on to slow or not to slow : the economics of the greenhouse effect.

The readers will find an exhaustive annotated bibliography which seems to have been prepared specially to fulfil the needs of students and researchers in developing countries. Policy makers and government agencies will also find the book an invaluable resource.

Central Department of Economics   Professor Vishnu Prasad Sharma
Tribhuvan University
Kirtipur, Kathmandu