# A Comparative Study on Rickshaw Fare and Rickshaw Pullers' Income between Trishal and Mymensingh Municipality

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## Abstract

*The paper examines differentiation of fare and income of Rickshaw pullers between Trishal and Mymensingh municipality. Data from both municipalities were used to achieve the objective of the study. An ANOVA model is estimated to measure the differentiation of fare and income. The findings show that the income of rickshaw puller of Trishal is differentiated significantly (about BDT120 lower per day) just for pulling rickshaw in Trishal although per Km. fare is higher (about BDT5) than that of Mymensingh.*

*Keywords:* Fare, Income, Rickshaw, Mymensingh, Auto-rickshaw and Trishal.

## 1.Background of the study

The rickshaws are one of the most important modes of transport in Bangladesh. They continue one-third of the total value added in the transport sector (Rob Gallagher). It is a man driven labour oriented vehicle. It provides transport services for goods and passengers on small scale for short distance without the use of fuel, any kind of natural gas, diesel and petroleum (Julfiker and Mamun, 2010). It provides a means of subsistence for groups of people for whom there is quite literally no alternative (Whitelegg et. al 2003:160).

## 2. Objectives and scope of the study

The main objective of the study is to analyze the economic causes of the rickshaw fare's differences between Trishal and Mymensingh.

### 2.1 Rationale of the study

According to the free market economy, the Rickshaw fare between two places will be the same over time. There is a common saying that the Rickshaw fare in Trishal municipality is higher as compared to other nearest municipality. The rationale of the paper is to judge the above statement as compared to Mymensingh municipality.

## 3. Literature Review

Rob Gallagher (1992) showed that rickshaws contributed 34% of the total value-added by the transport sector to the GDP of Bangladesh and directly supported 4.5% of the country's total population. He estimates more than 75% of rickshaws in Bangladesh are found in urban areas.

Shafia Begum and Binayak sen(2005) analyzed the dynamic effects of the labor intensity. It helps to understand the actual pro-poorness of a growth process. They are designing a better policy environment for the poor.

Mohammad Mamun Morshed Bhuyan and Kazi Julfikar Ali (2010) found negative impact on income of rickshaw puller for introducing mini-bus services. They suggest ensuring better environment for the rickshaw pullers as a comprehensive social development.

Abu Sayem Mohammad Hasan(2013) found that both the income and the expenditure rise over time for establishing university. He showed that the university has positive impact on the standard of living of rickshaw pullers.

All of the above emphasize on more research and development activities.

## 4. Limitations of the study

Though the authors tried their best to bring in perfection but the study suffers from the limitations. The respondents are limited in terms of size and composition which may fail to represent the actual scenario. Moreover, due to lack of adequate textbook and previous study both in Trishal and Mymensingh Municipality, literature review could not be extensive.

## 5. Hypotheses of the study

The main purpose of hypotheses building is to test whether there is a fare and income differentiation in the two studied area. On the basis of fitted regression model following hypothesis is considered to test.

**Null hypothesis** $H_o$: There is no fare and income differentiation between Trishal and Mymensingh, $\beta = 0$

**Alternative hypothesis** $H_1$: There is fare and income differentiation between Trishal and Mymensingh, $\beta \neq 0$

We will test this hypothesis using the usual t-test. We find that estimated $\beta$ is statistically significant then the result will indicate that the mean fare and mean income of two municipalities are different. Thus it will prove that there is a fare and income differentiation between Trishal and Mymensingh.

## 6. Methodology

To explain this study, we use both qualitative and quantitative method. The methodology is the admixture of the theoretical and econometrical in nature. This empirical study used survey data and applied analysis of variance (ANOVA) model to find the fare differentiation and income between Trishal and Mymensingh municipality.

## 6.1 The Data

It involves collection of information from individual rickshaw puller from each area. Data were collected by the authors themselves. A structured interview schedule was used for

collection of data during April to May in 2015. 100 rickshaw pullers were taken into consideration. Out of total 100 samples 50 were from Mymensingh and 50 were from Trishal. For all the samples, simple random sampling technique was used. All the collected information were accumulated and analyzed by Statistical Package on Social Science (SPSS) and then presented in textual and tabular forms to understand the present status of the fare and income of the studied area.

## 6.2 Analysis of Variance (ANOVA) Model

To show the fare and income differentiation, we will estimate the following ANOVA model:

$Y = \alpha + \beta D_i + u_i$          (D.N. Gujarati)

Where,

Y= Daily income of Rickshaw pullers

$D_i =1$, if Rickshaw puller is in Mymensingh

$D_i =0$, if Rickshaw puller is in Trishal

$u_i =$ Disturbance term

The model may enable us to find out whether place makes any differences in daily income of Rickshaw pulling.

## 6.3 Assumption of the model

All the other variables rather than fare and income are held constant.

## 6.4 Expected findings of the model

If the above assumptions are satisfied then we will form the model as-

Mean daily income of Rickshaw puller in Triahal, $E(Y/D_i=0)= \alpha$

Mean daily income of Rickshaw puller in Mymensingh, $E(Y/D_i=1)= \alpha+\beta$

That is the intercept term $\alpha$ gives the mean income of Rickshaw puller in Trishal and the slope co-efficient $\beta$ tells by how much the mean income of Rickshaw puller in  Mymensingh

different from the mean income of Rickshaw in Trishal, $\alpha+\beta$ reflecting the mean income of Rickshaw puller in Mymensingh.

## 6.5 Hypothesis of the model

Null hypothesis, $H_0 = \beta_1 = \beta_2 = 0$

Alternative hypothesis, $H_1 =$ Not all slope coefficients are simultaneously zero

## 7. Results and discussion

Estimation of the Analysis of Variance (ANOVA) model

The result corresponding to the regression of ANOVA model is follows:

Table: Estimated results of the ANOVA model

| Variables | Co-efficient | T-values | Significance value (P) | Standard Deviation | F | Significance of F value | $R^2$ |
|---|---|---|---|---|---|---|---|
| Constant | 349.00 | 56.814 | .000 | 43.437 |  | .000 | 0.555 |
| Respondent place | 120.00 | 50.129 | .000 | 66.155 | 2.513E3 |  |  |

Source: Based on Field Survey 2015.

As these estimated result of the ANOVA model show, the estimated mean daily income of Rickshaw puller in Trishal is BDT 349 (= estimated $\alpha$ ) and that of Rickshaw puller in Mymensingh is BDT 469 (= estimated $\alpha+\beta$ ).

Since estimated $\beta$ is statistically significant both at 5% and 10% level of significance, the results indicate that the mean daily income of Rickshaw puller of Trishal and Mymensingh are different. Actually average income of rickshaw puller in Trishal is lower than that of richshaw puller in Mymensingh by BDT 120 (= estimated $\beta$) . Following the assumptions of the model, it may be said that there is fare and income differentiation between Trishal and Mymensingh.

## 9. Findings

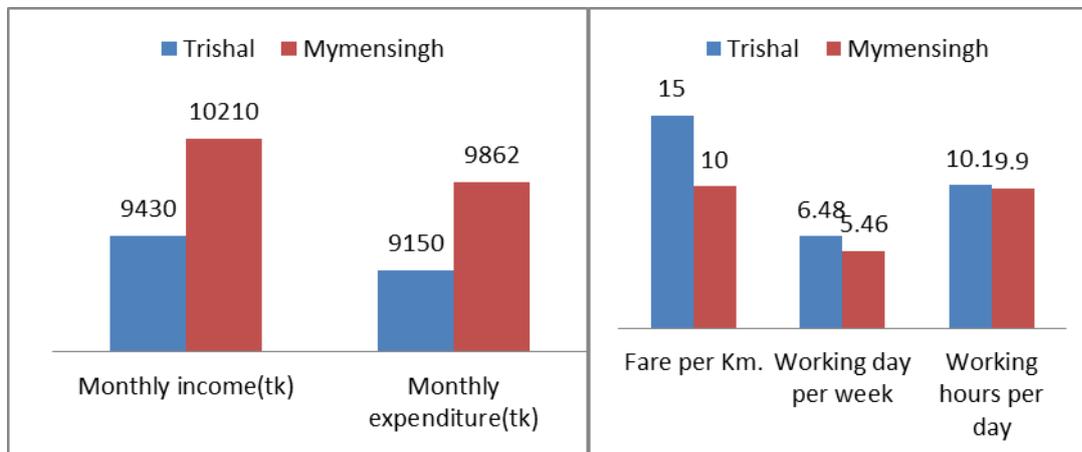In our study, we have found the following mean comparisons-



Figure: Mean comparisons among variables.

From the above histogram, we come to know that fare per Km in Trishal is BDT 15 while it is BDT 10 in Mymensingh that represents that fare in Trishal is 25% higher than that of Mymensingh. The monthly mean income of Mymensingh is BDT 10,210 while it is BDT 9,430 in Trishal. It shows that monthly income of Mymensingh's rickshaw pullers is 8.27% higher than that of Trishal. Otherwise, monthly mean expenditure of Mymensingh is BDT 9,862 while it is BDT 9,150 in Trishal. It shows that the monthly expenditure of the rickshaw pullers of Mymensingh is 8.27% higher than that of Trishal. The higher percentage of income (8.27%) will be abolished by expending at a higher rate (7.79%) in Mymensingh. Thus,it shows that the advantages of pulling rickshaw in Mymensingh are not higher than that of Trishal. Now, both are same in real income level.

The figure also shows that rickshaw pulling in Mymensingh is difficult than that of Trishal as Mymensing's rickshaw pullers give more trip in a day. As a result, rickshaw pullers of Mymensingh are kept about 1.52 days per week as leisure while it is about 0.52 in Trishal. The leisure is required to re-energize for further rickshaw pulling.
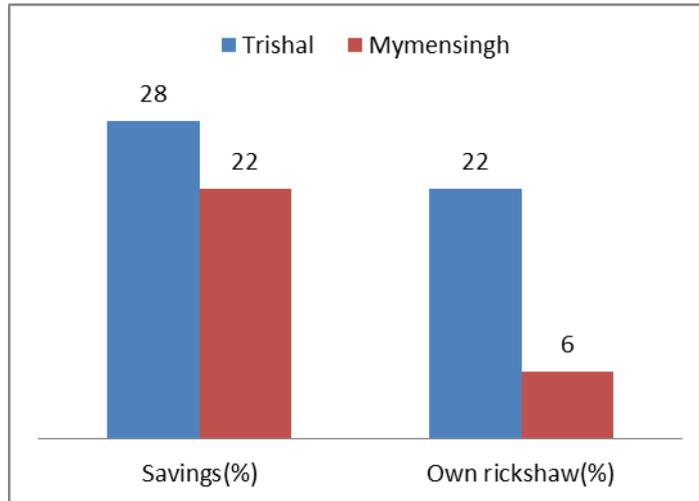
Figure: Mean comparison

The above savings graph tells us savings in Mymensingh is 22% while it is 28% in Trishal. The saving rate is 6% higher in Trishal than that of Mymensingh. It represents the better economic condition of rickshaw pullers in Trishal.

In our above discussion, the fare rate and daily income shows the contradictory picture (higher fare rate -lower income in Trishal and lower fare rate-higher income in Mymensingh).

From the economic terminology we came to know that lower price (fare rate) increases the total revenue. It is true for the Mymensingh but not for the Trishal pourshava.

However, the contradictory outcome may be occurred for the following reasons-

• *Daily income level:* Daily income level of rickshaw pullers in Trishal is lower as compared to Mymensingh. So, rickshaw pullers of Trishal are charged higher fare.

• *Number of trip:* The rickshaw pullers of Trishal have lower trip than that of Mymensingh because Trishal is a less crowded municipality. Thus, rickshaw pullers of Trishal charged hire fare to meet up their livelihood.

• *Supply of rickshaws:* Supply of rickshaw is lower in Trishal as compared to Mymensingh (Total number of licensed rickshaws in Mymensingh is 12,204 and we have not found the exact number in Trishal) (Source: *Municipal Office and Labour Union*).

- *Condition of road:* Most of the roads in Trishal are bad as compared to Mymensingh. So they cannot carry passengers properly and timely. Thus, they want higher amount of fare.

- *Substitutive form of rickshaws*: There is dynamic substitutive form of rickshaws in Mymensingh as compared to Trishal. As a result, rickshaw puller charged higher amount of fare.

- *Establishment of Nazrul University*: Our study found that before establishing the University the fare rate in Trishal is slightly lower than Mymensingh. For the establishment of the university, there is created huge excess demand. Because Trishal is a small pourashsva. Thus, rickshaw pullers charged higher amount of fare as demand of rickshaw service is increased.

On the contrary, Mymensingh is a big municipality. There is no such type of any factor that is caused for sudden huge excess demand. Rather, introduction of modern modes of transportation causes many rickshaw pullers to leave their profession in Mymensingh.

- *Socio economic condition:* Rickshaw pullers in Trishal demand more fare as their economic condition is better as compared to Mymensingh (Land and rickshaw ownership status is higher in Trishal than Mymensingh). Most of the rickshaw pullers in Trishal have consumed own produced rice. Thus, the better economic condition (as compared to Mymensingh) intents them to stay in Trishal. They are pulling rickshaws to meet up extra cost rather grain. Thus, their *reserved* fare is higher. If passengers do not give higher fare they do not provide services. Rickshaw pullers of Trishal have no desire to go outside for rickshaw pulling. Moreover, if they want to go to Mymensingh for higher income then their transportation cost will abolishes their advantage.

## 10. Concluding remarks

Thus the null hypothesis is rejected. So, alternative hypothesis is accepted. There is fare and income differentiation between Trishal and Mymensingh paurashava.This result implies that

per Km. fare is about BDT5 higher than that of Mymensingh. It is the cause of lower supply of rickshaw pullers in Trishal. This result also implies that per day income of Trishal is BDT120 lower than that of Mymensingh. Trishal is a less crowded municipality as compared to Mymensingh municipality. Thus, it has lower trip than that of Mymensingh. However, the study found that the rickshaw pullers' income is reducing day by day. It occurs for lack of passengers and due to the development of modern vehicles (i,e,. auto rickshaw). The modern vehicles are easily carrying huge passengers and take little time to communicate.

So we should save both rickshaws and rickshaw pullers as rickshaw is environment friendly mode of transportation and it generates huge amount of employment. Besides, it is the part of our culture and tradition.

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## *Acronyms*

Km = Kilometer
BDT = Bangladeshi Taka
ANOVA = Analysis of Variance

## *Appendix*

## 1. ANOVA

### T-Test

**One-Sample Statistics**

|  | N | Mean | Std. Deviation | Std. Error Mean |
|---|---|---|---|---|
| DailyIncomeM | 50 | 469.00 | 66.155 | 9.356 |
| DailyIncomeT | 50 | 349.00 | 43.437 | 6.143 |

**One-Sample Test**

|  | Test Value = 0 | | | | | |
|---|---|---|---|---|---|---|
|  |  |  |  |  | 95% Confidence Interval of the Difference | |
|  | t | df | Sig. (2-tailed) | Mean Difference | Lower | Upper |
| DailyIncomeM | 50.129 | 49 | .000 | 469.000 | 450.20 | 487.80 |
| DailyIncomeT | 56.814 | 49 | .000 | 349.000 | 336.66 | 361.34 |

## Univariate Analysis of Variance

**Tests of Between-Subjects Effects**

Dependent Variable:DailyIncomeM

| Source | Type III Sum of Squares | df | Mean Square | F | Sig. |
|---|---|---|---|---|---|
| Corrected Model | .000[a] | 0 | . | . | . |
| Intercept | 1.100E7 | 1 | 1.100E7 | 2.513E3 | .000 |
| Error | 214450.000 | 49 | 4376.531 |  |  |
| Total | 1.121E7 | 50 |  |  |  |
| Corrected Total | 214450.000 | 49 |  |  |  |

a. R Squared = .000 (Adjusted R Squared = .000)