# Appendix

**A. List of Publications:**

1. Deb, U., Roy, A. T. & R. Mazumder (2013), Measuring Total Factor Productivity Growth and Technical Efficiency in Selected Tea Gardens of South Assam, Vol. XXIV, 43-62, ISSN: 0976-7530.

2. Deb, U., Roy, A. T. & R. Mazumder (2011). Factor productivity growth of small scale industries in India across phases of liberalization during 1981-97: A study of selected states, *Pursuits,* **4(1):** (103-114), (ISSN: 0976-4593).

3. Deb, U., Roy, A. T. & R. Mazumder (2012). Total factor productivity growth in selected tea gardens of Assam, *Source,* **2(1),** (ISSN: 2250-0642).

4. Roy, A. T., Deb, U. & R. Mazumder (2013), "The willingness to pay for improved solid waste disposal system: A case study in Silchar municipal area", *Samabayika, A Journal of Assam University Cooperative Society,*(ISSN: 0975-7244).

5. Roy, A. T., & U. Deb (2013), "Households' willingness to pay for improved waste management in Silchar municipal area: A case study in Cachar district, Assam", *IOSR Journal of Humanities and Social Science,* **6(5):** 21-31, (ISSN: 2279-0837).

6. Roy, A. T., Deb, U. & R. Mazumder (2013), "Sustainable urban waste management in Silchar municipal area: An application of contingent valuation method in Cachar district of Assam", *International Journal of Humanities and Social Science Invention*, **2(1):**25-33, (ISSN: Online-2319-7722 & Print- 2319-7714).

7. Gupta, M., Roy, A. T., Deb, U. and R. Mazumder (2013), "Determinants of Technical Efficiency of Paddy Cultivators: A Study of Hailakandi District in Assam", *IOSR-JHSS,* 9(1). (e-ISSN: 2279-0837, p-ISSN: 2279-0845).

8. Roy, A. T., Deb, U. and M. Gupta (2011-12), "Present Status of Human Development: An Empirical Rural-Urban Study in Karimganj District, *Annual Journal of Women's College, Silchar,* **5.** (ISSN: 0975-3338).

9. Roy,A.T., Deb, U., Seal, S. and M. Gupta (2013), "Present Status of Tribal Development: A Study in Karimganj District of Assam", in P. C. Dutta and K. Singha (eds): *Ethnicity, Resources and Institutions for Development of North Eastern States of India,* Akansha Publishing House, New Delhi. (ISBN: 978-81-8370-349-9).

**B. Presentation of Research Papers in Seminars and Conferences/Participations in Workshops:**

| Sl. N0. | Conference/Seminar/ Workshop | Organized by | Presentation/Participation | Research Paper |
|---|---|---|---|---|
| 1. | National Workshop (Econometric Application on Cross Section and Time Series Analysis) | Dept. of Economics of Assam University sponsored by ICSSR | | Participation |
| 2. | National Seminar | Radhamadhab College,Silchar and Assam College Teachers' Association | Presentation | Measuring Total Factor Productivity Growth and Technical Efficiency in Selected Tea Garden of South Assam. |
| 3. | Conference | North Eastern Economic Association | Presentation | Total Factor Productivity Growth in Selected Tea Gardens of Assam. |
| 4. | National Seminar | Dept. of Commerce of G.C.College, Silchar and Lalit Jain Commerce College | Presentation | Study of Labor Market in India: Wage Discrimination Especially in Unorganized Sector with Reference to Pre and Post Liberalization Period. |
| 5. | National Seminar | Women's College, Silchar and R.K.Degree College (S.M.University, Silchar) | Presentation | Present Status of Human Development: An Empirical Rural-Urban Study in |

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| | | | | Karimganj District. |
| 6. | National Seminar | Dept. of Statistics, S.S.College, Hailakandi and Assam Science Society, Hailakandi Branch | Presentation | Present Status of Tribal Development: A Study in Karimganj District. |
| 8. | National Seminar | Nehru College, Pailapool, Cachar: Assam | Presentation | Decentralizatio n and Political Power: A Case Study of the Panchayats in Cachar District |
| 9. | Conference | North Eastern Economic Association | Presentation | Total Factor Productivity Growth and the Rate of Technical Progress in Selected Tea Gardens of Assam |

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# Measuring Total Factor Productivity Growth and Technical Efficiency in Selected Tea Gardens of South Assam

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## Abstract

The present study measures TFPG on the one hand and technical efficiency on the other on the basis of garden level panel data of 13 selected tea gardens of Barak valley for a period of ten years (2001-10). Selected non input factors are modelled to explain firm level technical efficiency. TFPG is measured using the Solow divisia index and the Törnqvist divisia index. Technical efficiency is found by estimating a Cobb- Douglas stochastic production frontier with inefficiency effects. TFPG is found to be negative. The wages to workers has grown at a very rapid pace, out pacing the rate of output growth. Almost all companies exhibit negative TFPG every year with a very few exceptions. Cultivated area coefficient is statistically insignificant. Same is the case of, fertilizers and pesticides. Labour is the only significant factor in explaining output. Among the inefficiency effects variables, experience of the garden and employee"s welfare expenses have a negative influence on firm level technical efficiency. However MC, the degree of managerial control has a negative influence on firm level technical inefficiency or a positive influence on firm level technical efficiency.

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# TOTAL FACTOR PRODUCTIVITY GROWTH IN SELECTED TEA GARDENS OF ASSAM

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**Abstract**

*The present study measures total factor productivity growth of 15 selected tea gardens of upper Assam for the period 2000 to 2009 on the basis of garden level panel data on plantation sector inputs and output. TFPG is measured using the Solow divisia index. A Cobb-Douglas production function is estimated in order to find the output elasticities with respect to inputs. Area under cultivation and implements are the only two significant factors that explain output. From bivariate correlation analysis it is clear that pesticides and fertilizers, mature cultivation and labour are pair wise highly positively correlated. The study concludes that inputs have grown at a very high rate, outpacing the rate of output growth. Almost all gardens exhibit negative TFPG each year with a few exceptions. A study on technical efficiency and its determinants needs to be conducted at the garden level in order to examine further the phenomenon of over use of resources in some gardens in contrast to others. Trends in labour productivity and its determining factors also need to be examined before making a conclusive statement on the reason behind poor performance of these gardens in terms of growth of total factor productivity.*