

6.15 Research & Development (R&D) spending and Graduates' Unemployment; Suggestions to gain economic stability through R&D of Public Quoted Companies in Sri Lanka

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ABSTRACT

It is the latest global trend to invest in Research and Development (R&D) activities which is essential for the development of innovative knowledge, leading to greater productivity and economic success. Hence R&D spending in terms of GDP has become a major development indicator and has a significant correlation between economic growth. This trend leads to have a higher demand for graduates, those who are expertise in doing research. The modern trend of the world, especially Developing Countries like Republic of Korea, China, Singapore, India, have gone to invest a vast amount of money on R&D rather than investing in other investment opportunities [Wickramasinghe, 2005]. But most of the South Asian countries, including Sri Lanka (except India) are still not interested in investing in R&D at national level necessity. As per literature, it is the world trend to grant a higher tax relief to the private sector companies, which take a major role in economic growth, to encourage its contribution to R&D spending, Sri Lanka is not exceptional [Inland Revenue business Tax Policy, 2002 and 2004]. In case of applying for the international patents, foreign companies play the major role, but Sri Lankan companies lack in this context [Wickramasinghe, 2005]. Official statistics on R&D in Sri Lanka is not available and this means that Sri Lanka has not so far realized the importance and has not yet encouraged investing on it. Therefore, this has become one of the major reasons for graduates' unemployment in Sri Lanka, so far has not been discovered.

The objective of this study is to evaluate the nature of R&D expenditure of Public Quoted Companies in Sri Lanka, which are considered as the engine of the economic growth and suggest a mechanism to reduce graduates unemployment through improving R&D. This study based on the cluster sampling method and size of the sample was 30%. Data analysis revealed that 2% of companies spend on R&D out of 70 Public Quoted Companies in Sri Lanka. Majority of them belong to the plantation industry category, but it only includes development cost on re-plantation rather than doing scientific researches.

If Sri Lankan Public Quoted Companies could remarkably improve their R&D spending more, Sri Lanka will be able to gain sustainable economic growth through graduated youth with low unemployment.

References

- [1]. Wickramasinghe C.N., 2005, *Readiness of Sri Lanka to be Global Knowledge Society*,
Available at:
www.egovonline.net/egovasia/egov_asia_pdf/28th_April/County_Case_studies_Session2/Wickramasinghe.pdf
Accessed on 15th August 2006
- [2]. Inland Revenue Business Tax Policy, *Regulatory Impact assessment for Research and development Tax Credit for Large Companies, 2002 and Regulatory Impact assessments Improvements to Research and Development Tax Credit, 2004*
Available at:
www.hmrc.gov.uk/ria/randd_largecompanies.pdf
www.hmrc.gov.uk/budget2004/radtc.pdf
Accessed on 18th August 2006



(6)

when $k = k'$, under the assumption $R \gg a$. Here c given by $cka = 1$.

If $ka \gg 1$,

$$V_{k,k'}(R) = \frac{2V_{0,0} a^3}{3\pi R^2}$$

(A)

When $k = k'$

$$V_{k,k'}(R) = \frac{2V_{0,0} a^3}{\pi R^2} \left\{ \left[\frac{\cos 2k'R \cos 2k'a}{(2k'a)^2} - \frac{\cos 2kR \cos 2ka}{(2ka)^2} \right] - \left[\frac{\cos 2k'R \sin 2k'a}{(2k'a)^3} - \frac{\cos 2kR \sin 2ka}{(2ka)^3} \right] \right\}$$

(B)

where $K' = k' - k$ and $K = k' + k$

(A) and (B) agrees with numerical calculations very nicely, which is depicted by the figures attached, in case of realistic potentials. In the figure 1, the diagonal potential (1 – 1), (6 – 6) agree exactly the form, mathematically established, and figure 2 in case of non-diagonal potentials.

References

- 1) L. D. Faddeev, Soviet Phys, JETP 12 (1961)L. D. Faddeev, Mathematical aspects of the Three–body problem in Quantum Scattering Theory (Davey, New York, 1965)
- 2) J. P. Farrel, Jr. , C. M. Vincent and N. Anstern, Ann. Phys. (N. Y.) 96 (1976), 333
- 3) M. Yahiro, M. Nakuno, Y. Iseri and M. Kamimura, Prog. Theor. Phys. 67 (1982), 1467
- 4) T. Sawada and K. Thushima Prog. Theor. Phys 79, 1378
- 5) R. A. D. Piyadasa, M. Yahiro, M. Kamimura and M. Kawai, Prog. Theor. Phys. 81, No. 5 (1989)
- 6) R. A. D. Piayadasa, M. Kawai, M. Kamimura and M. Yahiro, Phys. Rev. C. 60 No. 4 (1999) 044611 – 1 – 9
- 7) N. Anstern, M, Kawai and M. Yahiro, Phys. Rev. C 53, 314 (1996)
- 8) R. A. D. Piyadasa, Ph. D thesis, Kyushu University, 1989
- 9) A. C. W. L. de Alwis, M. Phil thesis, University of Kelaniya 1992 (unpublished)