

# **Third Seminar Series Retreat**

**January 23<sup>rd</sup> – 24<sup>th</sup> , 2013**

**Venue: Conference Hall  
Madras School of Economics**



**MADRAS SCHOOL OF ECONOMICS**

## The Third Seminar Series Madras School of Economics 23rd and 24th January 2013

**Day One - 23<sup>rd</sup> January, 2013**

**At 10.00 a.m Director Madras School of Economics. K. R. Shanmugam will welcome the faculty to the Third Seminar Series**

	Time	Name of Presenter	Paper Title	Theme
1	10.00 am	K. R. Shanmugam	Public Expenditure Policy Interaction among the State Governments in India	Public Economics /
2	10.45 am	Saumitra N Bhaduri	Excess Money Growth and Inflation Dynamics: Evidence from Threshold Regression	Monetary Economics
	11.30 am	<b>Tea Break</b>		
3	11.45 am	K.S. Kavi Kumar	Addressing Challenges to Food Security and Livelihoods in South Asia	Long-Term Development/ Agriculture Economics/Migration
4	12.30 am	Brinda Viswanathan	Internal Migration and Female Labor Force Participation in India: Spatial, Social and Temporal Dimensions	
	1.15 pm	<b>Lunch</b>		
5	2.00 pm	R.Arunachalam	Irrigation Management and Non-Farm Employment in Sustaining Growth	R.Arunachalam
6	2.45pm	Anindita Chakrabarti	Factors Determining Health Insurance Penetration in India: An Empirical Analysis	Health Economics
	3.30pm	<b>Tea/Coffee break</b>		

7	3.45pm	Brijesh C Purohit	Demand for Health Care in India
8	4.30 pm	R.Kannan	Asset Liability Actuarial Economics Management in Life Insurance Sector
	5.15pm	<b>Tea Break</b>	
9	5.30pm	Madhuri Saripalle	The Impact of Macro Industrial Economics Economic Variables on Vehicle Sales in India
	6.15 pm	<b>Tea</b>	<b>Wrap up for Day One</b>

**Day Two – 24<sup>th</sup> January, 2013**

	<b>Time</b>	<b>Name of Paper Presenter</b>	<b>Title</b>	<b>Theme</b>
10	10.00am	Sreejata Banerjee	A Study on the Crude Oil Futures Market's Role in Price Discovery and Spot Price Volatility: An Error Correction Model	Financial Economics
11	10.45am	Madhuri Malhotra	Stock Price Reaction around Private Placement Announcements in India	
	11.30am	<b>Tea Break</b>		
12	11.45am	Ekta Selarka	Cash Holdings And Internal Capital Markets	
13	12.30pm	R.Hema	On the Value Chain Approach to study Rice in terms of GHGs, Net Benefits, Technology, Labor & Policy	Energy/Environmental Economics
	1.15 pm	<b>Lunch</b>		

14	2.00pm	Zareena Begum	Analyzing the Pathways to Improve Tiger Conservation in India	
15	2.45pm	Santosh Sahu	Co <sub>2</sub> Emission from Fossil Fuel Consumption and Technology Intensity: A Study of Indian Manufacturing Industries	
	3.30pm	<b>Tea break</b>		
16	3.45 pm	Sukanya Das	Determinants of Household Energy Use in Bhutan	
17	4.30pm	Swaminathan V.	Maximum Likelihood Estimation for Finite Markov Processes in Random Environments	Mathematical Economics
	5.15pm	<b>Tea and Snacks</b>		

**Wrap up of the Third Seminar Series of Madras School of Economics 2013**

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# FACTORS DETERMINING HEALTH INSURANCE PENETRATION IN INDIA: AN EMPIRICAL ANALYSIS

*Anindita Chakrabarti\* and Anand Shankar*

## Abstract

Insufficient participation of the government in the provision of health care services to the people puts tremendous pressure on households financing their health care expenditure. Health insurance can be seen as an effective measure to circumvent this problem. However, penetration of health insurance in India is very low. This paper seeks to explore the effect of household assets, access to media and demographic profile of households in explaining the use of health insurance in India using data from the National Family Health Survey-III. Results suggest that richer households have a higher probability of using health insurance and access to media exerts a positive significant impact on health insurance usage. Particularly vulnerable are those from the Muslim community who generally have a lower likelihood of having any insurance in both urban and rural regions and the marginalized cast groups in the urban region. Non-profit insurance scheme such as community based health insurance has limited success in drawing people from the poorest economic status into their safety nets.

**Keywords:** *Health Insurance, analysis of health care markets, Health Production*

**JEL Codes:** *D12, I10, I11, I12, I13*

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# **IRRIGATION MANAGEMENT AND NON-FARM EMPLOYMENT IN SUSTAINING GROWTH**

*R.Arunachalam*

## **Abstract**

Tamil Nadu Vision Document 2023, to increase agricultural productivity aims at “Ensuring timely irrigation by intelligent use of available water by adopting effective recharging mechanisms, drip/sprinkler irrigation systems, timely cleaning and deepening of tanks and canals, and adopting appropriate cropping pattern based on water availability”

The growth rate of Gross State domestic Product and Primary sector growth rate are obviously closely related. But the growth rate of agriculture as well as the agricultural GDP is most often volatile. Though in general the average growth rate of the State is affected by all the sub-sectoral growth rates, the GSDP of the state seems to be badly affected during those years when the performance of the primary sector, more particularly that of the agricultural sector are observed to be negative. Therefore, ensuring a fairly steady growth of the primary sector is essential which in turn depends upon the output of agricultural sector and that of irrigation management, a critical input of cropping pattern. But productivity of agricultural sector has to be achieved by giving due importance to labour employment and at the same time migration of labour from rural to urban areas.

At present the development of irrigation sources have reached some stage beyond which it is difficult to proceed further in the face of environmental concerns. However, the demand for irrigation water along with the demand for non-agricultural purposes is growing at an exponential rate leaving large gap between the market forces. Neither the technical or institutional mechanisms available as of now are adequate and nor appropriate to solve the problems of irrigation demand for suitable irrigation management methods so as to achieve appropriate cropping pattern and production.

In Tamil Nadu, over the decades since independence, the composition of irrigation sources namely canal, tank and well irrigation

have undergone pronounced changes, forcing in recent times greater reliance on dug well/ deep bore well irrigation. At this backdrop this study aims at (1) the exploration of the possibility of ensuring irrigation facility of the type and sources in different zones (2) the type of cropping pattern that is best suited to different zones in order to maximize the output and productivity and (3) exploration of the possibility of non-farm employment that can be promoted in different districts as supplementary employment opportunities to agricultural employment.

The present study attempts to throw light on the cropping pattern obtained in different agro-climatic regions of Tamil Nadu as well as the dynamics of irrigations sources. Based on the past trend on cropping pattern attempts can be made to decide an appropriate cropping pattern so as to ensure sustainable production and productivity. Besides the study also explores the possibility of strengthening the non-agricultural employment opportunities in different districts to encourage rural gainful employment opportunities. Based on secondary data it is observed paddy cultivation dominates the irrigated area followed by pulses and groundnut. The analysis of work force participation reveals that the percentage of cultivators keeps declining along with agricultural labour force, household workers and non-agricultural workers between 1960 and 2001. At the same time, the percentage of other workers and that of agricultural labour force have recorded pronounced increase. This implies the declining agricultural farm employment and the possibility of increasing non-farm employment.

**Keywords:** *Irrigation, non-farm employment, growth*

**JEL Codes:** *Q 12, Q 15*

# DEMAND FOR HEALTH CARE IN INDIA

*Brijesh C Purohit<sup>†</sup>*

## Abstract

In a developing country like India, allocation of scarce fiscal resources has to be based on a clear understanding of: how investments in the health sector are going to affect demand. The three aspects, namely, overall health care demand, consumer decisions to use public and/or private care and role of price/quality influencing poor/ rich consumer's decisions, are critical to assessing the equity implications of alternative policies. Our paper addresses these aspects through examining the pattern of health care demand in India. We use data from the National Family Health Survey (NFHS 3) to model the health care choices that individuals make when sick or injured. We then consider what these behavioral characteristics imply for public policy.

We focus our analysis to study disparities between rural and urban areas and extend this analysis from National All India Level to five Indian states which represent three levels of per capita incomes including an all India average, rich and poorer state. Overall our results provide evidence that health care demand both in rural and urban areas is a commodity which emerges as an essential need and choices between public or private provider are guided by income and quality variables mainly in regard to public health care denoting thus a situation of very limited alternatives in terms of availing private providers. These results emphasize that existing public health care facilities are not serving the avowed objective of providing care to the poor in a satisfactory manner even in rural areas also. Thus any financing strategy to improve health system and reduce disparities across rich-poor states and rural-urban areas should also take into account not only overcoming inadequacy but also inefficiency in allocation and utilization of health care inputs.

**Keywords:** *Rural, urban, healthcare demand, public-private*

**JEL code:** *I 14*

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# INTERNAL MIGRATION AND FEMALE LABOUR FORCE PARTICIPATION IN INDIA: SPATIAL, SOCIAL AND TEMPORAL DIMENSIONS

*Brinda Viswanathan<sup>†</sup> \* and K. Shanthi*

## Abstract

Gendered aspects of internal migration in India have largely focused on hardships faced by women who stay back in the rural areas while men migrate alone to urban areas. With trade liberalization, there has been an increase in female migration and some studies have looked at the welfare impact and empowerment aspects of such women. There are however very few studies that look into aspects of female migration when men migrate with their families in search of employment, though the women usually are the first ones to enter the labour market perhaps due to lower reservation wages. Several of these women continue to be economically active in order to augment the household's income even after their husband's job search is over.

Most of these earlier studies on female migration use primary surveys which limits the nature of enquiry to local issues and contexts. This study is among the very few that have used the large scale sample survey data collected by National Sample Survey Organisation (NSSO) for India in 1999-2000.

This study based for internal migration finds that in a country where female labour force participation is low, migrant women constitute a substantial proportion among them. Though women do not cite employment as a reason for migration but there is a substantial increase in labour force participation rate after migration even in regions which have otherwise low female participation rates. The southern and western regions of India show a higher share of migrant female labour force and the share of migration for employment has increased among recent migrants in these regions alongside new entrants from Eastern India.

**Keywords:** *Female Labour Force Participation, Migration, Regions, India*  
**JEL Codes:** *J1, O1, O5, R1*

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# CASH HOLDINGS AND INTERNAL CAPITAL MARKETS

*Renuka Sane and Ekta Selarka<sup>§</sup>*

## Abstract

We analyze the effect on investment behaviour of firms that are affiliated to business groups versus stand-alone firms around the 2008 financial crisis. In an economic downturn cash reserves can be valuable if the firm has good investment opportunities but low current cash flow owing to the business cycle. Negative shocks to the supply of external finance will eventually hamper investment in those firms that are most dependent on external finance. Firms affiliated to business groups have access to internal capital markets, which allow them to overcome obstacles of missing or inefficient markets and weak institutions, and argued as a substitute for costly external finance.

We expect group affiliates should be able to undertake investments regardless of cash holdings. Using a data of publicly listed firms on National Stock Exchange, we test the hypothesis that while investment should not differ between high and low-cash group affiliated firms, it should differ significantly between high and low-cash non-affiliated firms. We also employ periods of Asian crisis and financial crisis of 2007-08 to utilize the natural experiment setup when cash rich firms can be expected to outperform subsequently.

**Keywords:** *Cash holding, corporate governance, group ownership, India, emerging markets, firm value*

**JEL Codes:** *G32 G34*

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# ON THE VALUE CHAIN APPROACH TO STUDY RICE IN TERMS OF GHGS, NET BENEFITS, TECHNOLOGY, LABOUR & POLICY

*R.Hema*<sup>\*\*</sup>

## **Abstract**

In 2005, the GHG emissions from agriculture accounted for only about 12 percent of total global emissions. However, the emissions from this sector are expected to go up by more than 50 percent by 2030. As GHG emissions from other sectors get stabilized or reduced, the share of agriculture would go up significantly. Tackling GHG emissions from agriculture would be particularly challenging in India, given that more than 50 percent of the population depends on it for livelihood while its contribution to GDP is only about 15 percent. Additionally, most, if not all, of agriculture is in the informal sector. This means policies to mitigate GHG emissions could affect those who derive their livelihood from this sector in indirect and complex ways that may not be immediately evident. The issue becomes further complicated by the fact that more than 50 percent of India's poor live in rural areas.

In this context, if we want to move towards an agricultural regime in India that helps reduce its GHG emissions and at the same time addresses issues of financial viability and livelihood opportunities, we need to have a holistic understanding of the technological changes induced by climate change policies and their implications for long-term financial/economic viability in agriculture, for the quantity and quality of employment opportunities and for the social and economic institutions they engender.

Towards this a pilot study has been undertaken for rice in India. An important objective is to develop a combination of methodologies that would enable a holistic understanding of the various economic and social implications of shifting towards a low carbon growth path in agriculture and that could help inform policy. Two methodological tools – Value Chain Analysis and Life Cycle Analysis –are used in parallel to assess the

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financial/economic and the GHG emissions aspects respectively. Multi-Criteria Mapping would be undertaken to structure information about social agents' perceptions and judgements about a series of options and numerical scores would be developed to reflect the weights of different social agents across a set of appraisal criteria.

This paper presents the methodology that would be used for the Value Chain Analysis in this study. It discusses how this analysis developed in the eighties and briefly describes why and how it has been used in a lot of studies during the nineties and after. The advantages of using this methodology for the context of this study are spelled out.

**Keywords:** *Value Chain, Agriculture, Energy and Environment, Technology Change and Impact*

**JEL Codes:** *I32, O13, O31, O33*

# ADDRESSING LONG-TERM CHALLENGES TO FOOD SECURITY AND RURAL LIVELIHOODS IN SOUTH ASIA

*K.S. Kavi Kumar<sup>††</sup>, Kamal Karunagoda, Enamul Haque, L. Venkatachalam and Girish Nath Bahal*

## Abstract

Notwithstanding its impressive economic growth, food insecurity in South Asia continues to be a stark reality for a large number of households. Despite several successful policy interventions by Governments, the number of mal-nourished children and adults remain alarmingly high in the region – higher than those in Sub-Saharan Africa. Agriculture continues to be a very important livelihood option for a vast majority of rural population, even though the sector's contribution to the economy is shrinking. Against the backdrop of increasing divide between farm and non-farm income levels, this paper examines the potential long-term challenges that further aggravate the food insecurity in the region. Discussing the threats posed by changing demographic structure and urbanization, changing climate, increasing land and water scarcities for food production and food price volatility, the paper suggests several interventions that could improve the food security situation in future. Among other things, the paper suggests strong emphasis on rice research; support for smallholder farmers for addressing risk and uncertainty and information deficit; improving agricultural and rural investment; land reforms; and women empowerment.

**Keywords:** *Food Security; Agriculture; Smallholder Farmers; Climate Change; South Asia*

**JEL Codes:** *Q16, Q18, Q54, R11*

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# ASSET LIABILITY MANAGEMENT IN INDIAN LIFE INSURANCE INDUSTRY--LESSONS AND FUTURE CHALLENGES

*R.Kannan<sup>††</sup>*

## **Abstract**

Asset liability management has become an important ingredient of risk management. Among various segments of financial sector, ALM assumes more importance for life insurance industry in view of inherent risks associated with product pricing and liability valuation. In this paper an attempt is made to gauge ALM risks present in Life insurance industry in India. Consequent to the implementation of Solvency II, economic capital has become the central focus of risk management and risk based supervision. Accordingly, in this paper the implication of ALM risk for economic capital is also assessed and the paper suggests various methods to address ALM risk and hence the implication for optimal management of economic capital.

**Keywords:** *Asset Liability, Management, Life Insurance*

**JEL Codes:**

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# STOCK PRICE REACTION AROUND PRIVATE PLACEMENT ANNOUNCEMENTS IN INDIA

*Dr. Madhuri Malhotra<sup>§§</sup>, Bhawesh Sah and Lakshmi Elangovan*

## Abstract

The relationship between announcement of seasoned capital issues and stock prices has been the subject of much empirical discussion within the finance literature. Private placement is one of the methods to raise funds by the firms. A great deal of theoretical and empirical analysis has been devoted to understand the relation between announcements of private placement of issue and stock returns. There are studies which have examined the stock price reaction around private placement announcements in different countries. However, very few studies have been carried out to examine the price reaction around private placements announcements in different industrial sectors. This study attempts to examine the stock price reaction around private placement announcements in manufacturing and services sector in India. Standard event study methodology has been used to examine stock price reaction around private placement announcement in India. The results of the study indicate a positive abnormal return around the private placement announcements in India. Overall, the results of the study support signaling hypothesis and are consistent with findings in the Japan, Greece, Singapore and Hong Kong.

**Keywords:** *Private Placements; Stock returns; Semi Strong form efficiency*

**JEL Codes:** *G14; G32*

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# THE IMPACT OF MACRO ECONOMIC VARIABLES ON VEHICLE SALES IN INDIA

*Madhuri Saripalle* \*\*\*

## Abstract

Vehicle production across the world has increased significantly in the past few years, barring the economic crisis period. In India, automobile sales have been growing at a much faster rate, owing to a number of macro economic factors. Besides facilitating everyday life, the usage of vehicles also contributes towards the rate of national energy consumption as well as the value of Gross Domestic Product (GDP). This paper analyses the impact of important macro economic variables on four-wheeler vehicle sales in India. Quarterly data for a period of June 2002-March 2010 is used for analyzing the impact of several macro economic variables like GDP, inflation, interest rates and fuel prices. Preliminary results show that gross domestic product (GDP), inflation (CPI,) and loan rate (LR) have significant long term correlation with automobile sales in India. These findings assume importance in the context of the fact that automobile sales are considered as an important indicator of a country's economic growth and performance.

**Keywords:** *Automobile sales, macroeconomic variables, fuel efficiency, India*

**JEL Codes:** *Q*

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# CO<sub>2</sub> EMISSION FROM FOSSIL FUEL CONSUMPTION AND TECHNOLOGY INTENSITY: A STUDY OF INDIAN MANUFACTURING INDUSTRIES<sup>†††</sup>

Santosh Kumar Sahu<sup>†††</sup> and K. Narayanan<sup>§§§</sup>

## Abstract

Industrial energy efficiency has emerged as one of the key issues in India. The increasing demand for energy that leads to growing challenge of climate change has resulted major issues. It is obvious that high-energy intensity leads to high carbon intensity of the economy. In this connection, this paper is an attempt to compute CO<sub>2</sub> emission from fossil fuel consumption for firms in Indian manufacturing from 2000-2011 by adopting the IPCC reference approach. The contribution of this paper lies in estimating CO<sub>2</sub> emission at the firm level and analyzing the factors that explain inter-firm variation in CO<sub>2</sub> emission. The results indicate that there are differences in firm-level emission intensity and they, in turn, are systematically related to identifiable firm specific characteristics. This study found size, age, energy and technology intensity as the major determinants of CO<sub>2</sub> emission of Indian manufacturing firms. In addition, capital and labour intensity of the firms are also related to the firms' CO<sub>2</sub> emission intensity. We conclude the short run policy implications should be aimed at encouraging firms to invest more in R&D and technology sourcing and at long run firm should be able to adapt cleaner energy to reduce CO<sub>2</sub> emission from the fuel consumption.

**Keywords:** *CO<sub>2</sub> emission, Fossil Fuels, Technology intensity, Panel data, Indian manufacturing*

**JEL Codes:** *Q4, B23*

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# EXCESS MONEY GROWTH AND INFLATION DYNAMICS: EVIDENCE FROM THRESHOLD REGRESSION

*Saumitra N Bhaduri\*\*\*\* and S. Raja Sethu Durai*

## Abstract

We test the effect of excess money growth on inflation using Threshold Regression technique developed by Hansen (2000). The empirical test is conducted using annual data from India for the period from 1953-54 to 2007-08. The results clearly exhibits that the relationship is not linear and without a strong credit growth, excess money growth has lesser inflationary effects.

**Keywords:** *Excess Money Growth, Quantity Theory of Money, Inflation and Threshold Regression*

**JEL Codes:** *E31, E51*

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# PUBLIC EXPENDITURE POLICY INTERACTION AMONG THE STATE GOVERNMENTS IN INDIA

*K. R. Shanmugam<sup>††††</sup>, and J. Prachitha*

## Abstract

Although various theoretical as well as empirical studies have emerged to analyze the inter-jurisdictional expenditure competition, most of them concern with developed nations. This study analyzes the public spending policy interdependence among 19 major State governments in India during 2000-01 to 2008-09. It uses 10 expenditure categories of State governments including per capita revenue expenditure on education, health and water supply. For each expenditure category, the expenditure reaction function is specified separately and estimated using the single equation panel data methodologies. The results provide strong evidence for the existence of interstate competition in choosing the public spending levels in most cases. The reaction function slopes upwards in all except for education expenditure, indicating that spending levels by neighboring states are "strategic complements". These results imply that the best strategy that a State had for an increase (decrease) in the average spending levels of the neighboring States was to increase (decrease) its own spending level. In the case of education, the reaction function slopes downward, indicating that spending levels on education by neighboring states are "strategic substitutes".

**Keywords:** *Expenditure competition, Spill over effects, Panel data methodology.*

**JEL Codes:** *H72, H73*

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# A STUDY ON THE CRUDE OIL FUTURES MARKET'S ROLE IN PRICE DISCOVERY AND SPOT PRICE VOLATILITY: AN ERROR CORRECTION MODEL AND COINTEGRATION

*Sreejata Banerjee<sup>+++</sup>*

## **Abstract**

India as the fifth largest consumer of crude oil, imports 70% of its total oil consumption. In 2008–09 the current account deficit rose to 9.7% of GDP. In 2002 the dismantling of the administered pricing mechanism that protected domestic consumers fueled inflation. Commodity futures market facilitates price discovery, but oil futures trading in India was introduced much later in February 2005. The study provides argument in support of oil marketing companies to hedge their risk in the futures market

The ECM is applied on crude oil spot and futures daily closing price in Multi Commodity Exchange (MCX) between February 2005 and December 2010. The Engel Granger process is used to test for cointegration of all the contracts in the period of study. The causality runs from the futures to the spot market providing evidence of the price discovery function. The futures market predominantly aids the price discovery mechanism in the spot market.

Secondly the impact of crude oil futures trading on the spot price volatility is examined. This indicates whether the future market stabilizes the spot market. The GARCH(1.1) model is used to forecast spot price volatility. We find that the futures market impacts the fluctuations of spot market.

**Keywords:** *Price Discovery, Spot Price Volatility, Error Correction Model, Cointegration*

**JEL Codes:** *G13*

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# DETERMINANTS OF HOUSEHOLD ENERGY USE IN BHUTAN

*Sukanya Das<sup>§§§§</sup>, Dil Bahadur Raut<sup>b</sup> and Bhagirath Behera<sup>c</sup>*

## Abstract

Using the Bhutan Living Standard Survey (BLSS) data for the year 2007 & 2003, this paper makes an attempt to identify and analyse the factors that are likely to influence the household decisions to choose a particular energy source: electricity, LPG, kerosene, fuelwood for cooking, heating and lighting. The selection of fuels depends mainly on the level of income and other socio-economic characteristics of the household. The paper finds that the consumption of the clean fuel shows an increasing trend from 2003 to 2007 in 2007. Ordinary Least square(OLS) and Multinomial Logit model have been used for estimating the energy choice decisions. Results show that education, household size and income of the households positively influence the choice of energy use because for the high income household the opportunity cost of collecting firewood is high as compared to rural poor households. The study also shows that the regarding the choice of fuel for cooking female headed households have a significant effect over the choice of cleaner fuels.

**Keywords:** *Energy-use pattern, households, Bhutan*

**JEL Codes:** *Q48*

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# MAXIMUM LIKELIHOOD ESTIMATION FOR FINITE MARKOV PROCESSES IN RANDOM ENVIRONMENTS

*Swaminathan, V.* \*\*\*\*\*

## Abstract

In this paper, the statistical inference for finite Markov processes in random environments is considered. The maximum likelihood estimators of the associated intensity rates are derived and their asymptotic properties are established. The application of this theory in Finance will be discussed.

**Keywords:** *Finite Markov Processes in Random Environments, Intensity Rates, Maximum Likelihood Estimators.*

**JEL Codes:** *C58*

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# ANALYZING THE PATHWAYS TO IMPROVE TIGER CONSERVATION IN INDIA

Zareena Begum. I<sup>++++</sup> and Amanat K. Gill

## Abstract

Despite substantial conservation investments by governments and international agencies, the existence of tigers in the wild is still threatened. The main threats to the survival of wild tigers are poaching, prey depletion and habitat degradation and fragmentation. All international trade in tiger parts has been prohibited since 1975, with China introducing a domestic ban in 1993. The domestic trade ban in China was followed by the establishment of captive tiger breeding farms in East Asia. China has considered partially lifting the trade ban to permit sales from tiger farms. This has been a matter of much debate with the proponents to the trade ban opposing it on the grounds that it result in an increase in the illegal killing of tigers and would also result in an increase in demand for tiger products, while the proponents to tiger farming favouring a supply side approach to conservation with products from tiger farms meeting all the demand. In this research paper, using a mathematical bio-economic model, it is seen that it is possible to protect wild tigers by permitting the sale of products from tiger farms, but it has to be complemented by increased enforcement and granting licenses to sellers. India has mainly targeted tiger conservation with the establishment of tiger reserves all over the country, but this has resulted in the displacement of local communities from land that was traditionally theirs. Community based conservation seeks to conserve wildlife by giving local people a stake in its conservation and thus, providing an incentive to conserve it. In this research paper, a bio-economic model is used, it is seen that giving local communities a stake in conservation of tigers like a share of tourism revenues aids conservation, as it would result in an increase in anti-poaching effort undertaken by the local communities, but this is contingent upon the additional revenue being higher than the cost of intrusion.

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