### Rubina Verma

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<b>Current Position</b> 2008-	Department of Business Administration, ITAM Assistant Professor
Education	
2002-2008	University of Southern California, Los Angeles, CA
	Ph.D. in Economics
	Dissertation Title: Growth, Trade and Structural Change in Low Income
	Industrializing Economies
2002-2005	University of Southern California, Los Angeles, CA
	M.A. in Economics
2000-2002	Delhi School of Economics, Delhi University, Delhi, India
	M.A. in Economics
1997-2000	Miranda House, Delhi University, Delhi, India
	B.A. (Honours) in Economics

### Research

#### **Published Work**

Can Total Factor Productivity Explain Value Added Growth in Services? *Published, Journal of Development Economics, Volume 99, Issue 1, September 2012, Pgs 163-177* Structural Transformation and Jobless Growth in the Indian Economy In *The Oxford Handbook of the Indian Economy; ed. Oxford University Press, 2012* The Service Sector Revolution in India: A Quantitative Analysis In *The Rise of China and India: Impacts, Prospects and Implications, UNU-WIDER Studies in Development Economics and Politics, editors Palgrave Macmillan, October 2010* 

# **Working Papers**

Trade, Reform, and Structural Transformation in South Korea (Joint with Caroline Betts and Rahul Giri, under review) Export Intensity and Firm Productivity (Joint with Bruce McWilliams) Markets or Exports? Understanding Innovation in Emerging Markets (Joint with Bruce McWilliams) Informality and Jobless Growth in India (Joint with Rahul Giri)

# **Fellowships and Awards**

2012-	National Researchers System, Mexico (Sistema Nacional de Investigadores)
2012-2011	Outstanding Teaching Award, Department of Business Administration, ITAM
2007-2008	Final Year Dissertation Fellowship, USC College of Letters, Arts
	and Sciences
2005-2006	Outstanding Teaching Assistant, Department of Economics, USC

2004-2005 Outstanding Teaching Assistant, Department of Economics, US
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2002-2007 Graduate Assistantship 2002-2007

# Conferences

2013	Latin American and Caribbean Economic Association, Mexico City, Mexico
	International Atlantic Economic Society, Philadelphia, USA
	Structural Change, Dynamics and Economic Growth, Livorno, Italy
2011	Midwest Macroeconomics Meetings, Nashville, USA
2010	XX Coloquio Mexicano de Economía Matemática y Econometría, Universidad de Guanajuato, Mexico
2008	Midwest Macroeconomics Meetings, Philadelphia, USA
2007	United Nations University- World Institute for Development Economics Research, Helsinki, Finland
2007	Canadian Economic Association, Halifax, Canada
2006	Dynamics, Economic Growth, and International Trade, Jerusalem, Israel

### Seminars

2012	Eardham University	Mour Vorle	IIC A
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# **Teaching Experience**

# ITAM

2013-2011	Coordinator- International Business
2013	International Business (B.A.)
2012	International Business (B.A.), Global Environment of Business (B.A.), International Trade (MBA)
2011	International Trade (MBA), International Business (B.A.)
	Business Forecasting (B.A.)
2010-2009	International Business (B.A.), Business Forecasting (B.A.)

# **Teaching Assistant**

# **Economics Department, USC**

2007	Intermediate Macroeconomic Theory
2005-2006	Principles of Macroeconomics
2004	Intermediate Macroeconomic Theory
2003-2004	Principles of Macroeconomics
2002	Principles of Microeconomics

# Center for Excellence in Teaching, USC

- 2006 Mentor Teaching Assistant
- 2007 Mentor Teaching Assistant

### **Professional Service**

Referee Economic Inquiry, International Review of Economics and Finance

### **Research Experience**

2004 Summer Intern, The Milken Institute, Los Angeles, CA

### Languages

English (Fluent), Hindi (Native), Spanish (Good)

#### Membership

American Economic Association, Latin American and Caribbean Economic Association

### Citizenship

Indian

### **Abstracts of Research Papers**

#### **Working Papers**

### Trade, Reform, and Structural Transformation in South Korea

A two country, three sector hybrid model of structural change with distortionary government policies is used to quantify the impact of international trade and trade reform for industrialization. The model features Armington motivated trade in agriculture and industry, and a novel representation of trade reform as a time sequence of import tariffs, export subsidies and lump sum government transfers of net tariff revenue. We calibrate our economy to data on South Korea and the OECD, inputting time series of country and sector specific labor productivity, tariffs and export subsidies which determine evolution of the effective pattern of comparative advantage. The model's predicted reallocations of Korean labor from agriculture into industry and services from 1963 through 2000 are quantitatively similar to those in the data. Incorporating trade and measured Korean trade reform are both important for the accuracy of this predicted structural change, although international real income differences under non-homothetic preferences primarily determine trade and specialization patterns rather than comparative advantage. Counterfactually eliminating a) international trade b) international labor productivity differentials c) post 1967 Korean tariff reform and d) post 1967 industrial export subsidy reform increase the model's SSE by 91 percent, 56 percent, 27 percent, and 62 percent respectively.

# **Export Intensity and Firm Productivity**

To identify the premium from exporting, researchers typically estimate a fixed difference in productivity between exporters and non-exporters, ignoring how productivity can differ between firms exporting at different intensities. Using World Bank Enterprise Survey data of emerging markets, we do a systematic analysis of the productivity and export relationship across the spectrum of export intensity. We find that pure (100%) exporters are distinctly lower in productivity, on average, than regular exporters, i.e., firms that both sell domestically and export, and that among regular exporters, there is a U relationship between productivity and export intensity. Firms exporting at low (10% of output or less) and high (90% of output or more) intensities are significantly more productive than their non-exporting and pure exporting neighbors, indicating that participating in a second market even at a marginal level implies distinctly different firm productivity. We theoretically explain observed behavior by introducing heterogeneous costs for serving both domestic and export markets into a Melitz model. A simulation of the model yields estimates of export intensity patterns similar to that observed in real world data. The consistency between the empirical results and the model provides support for a modification of the self-selection hypothesis. While standard models assume low costs for selling domestically and high costs for exporting, the widespread presence of relatively less productive pure exporters in emerging markets suggests that the reverse can also be true. Thus the selfselection of productive firms should be into *both* export and domestic markets, rather than just exporting.

#### Markets or Exports? Understanding Innovation in Emerging Markets

The innovation and trade literature is ripe with examples extolling the virtues of exports in driving firm innovation. A leading explanation suggests that innovation among exporting firms is driven by the transfer of technologies from foreign firms to domestic firms. In this paper we question both of these assumptions, in particular for product innovations. We analyze World Bank Business Environment and Enterprise Performance data of 30,000 firms in low and medium income countries. This data contains information of firms' recent adoption of both new products and new technologies, as well as their participation in export sales and sales to other markets. This analysis reveals that the relationship between innovation and participation in export markets is an inverted U, where firms that export all of their products are little different in their innovation behavior from those that sell only to the domestic market. More interestingly, this inverted-U relationship extends to firm participation in other markets as well, all of which indicates that firm innovation is positively driven by participation in multiple markets. Firms are the most innovative when they straddle different markets, while participation in a single market (even if it is exports) may deter innovation. We compare and contrast the innovative behavior of these domestic firms with the innovative behavior of foreign owned firms, which provides additional insights into the determinants of innovation.

### Informality and Jobless Growth in India

The Indian growth experience after liberalization is often cited as being remarkable in which recorded growth rates of gross domestic product have ranged between 8-10 percent, a drastic change as compared to the pre-1990 period. However, this has not been marked by an equivalent increase in formal employment in India and this phenomenon has been referred to as 'jobless growth' in the Indian economy. A complete analysis of Indian employment reveals that while formal employment has shown little growth, informal employment has grown relatively faster. A sector wise decomposition of employment reveals that there the share of the informal sector in employment in industry and services has increased rapidly. Additionally, even in the formal sector there has been relatively more growth in informal rather than formal employment. We address two main questions-What factors are responsible for increasing informality, even in the formal sector in India? Second, is this trend of increasing informality of employment in India different from what other rapidly growing economies are experiencing or have experienced in the past?

#### **Published Work**

# Can Total Factor Productivity Explain Value Added Growth in Services?

This paper accounts for the rapid growth of the service sector observed in India during 1980-2005. A sectoral growth accounting exercise shows that total factor productivity (TFP) growth was the fastest for services; moreover this TFP increase was significant in accounting for the service sector value added growth. A growth model with agriculture, industry and services as three principal sectors is calibrated to Indian data using sectoral TFP growth rates. The model performs well in accounting for the evolution of value added shares and the growth rates of these shares from 1980-2005. The performance of the model improves significantly when the post 1991 increase in service sector TFP growth is accounted for. It is argued that market-based liberalization policies led to the services' productivity increase. A modified version of the model is used to qualitatively assess the impact of a sector specific tax policy on sectoral labor and output reallocations.

#### Structural Transformation and Jobless Growth in the Indian Economy

Historical growth patterns of contemporary advanced nations highlight the manufacturing sector to be the forerunner of economic growth. In contrast, India has witnessed a very significant role played by the service sector which accounted for a large and rapidly growing share of gross domestic product during the 1970-2007 period. The analysis in this chapter describes this atypical

pattern of sectoral growth being witnessed by India. In the first part of our analysis, we present and describe empirical facts on the three principal sectors of the Indian economy- agriculture, industry and services during the sample period. Combining sectoral output, employment, education and factor income data, a growth accounting exercise is conducted which reveals that the principal factor driving growth in Indian services is attributable to rapid growth in total factor productivity (TFP) in this sector. In the second part a general equilibrium growth model with three sectors is developed and calibrated to Indian data during the 1970-2007 period. The results suggest that the model can replicate the evolution of value added shares over the sample period and can also quantitatively match the growth rates of the value added shares of these sectors. Therefore, the model is a suitable candidate to describe the process of structural transformation of the Indian economy. We further explain how the described model can be used to conduct counterfactual experiments, illustrating two examples of such exercises that elicit the importance of differential TFP growth rates in the Indian growth experience. Furthermore, an analytical discussion of how we can relax certain assumptions in the basic set up is also discussed. Some examples of how calibrated growth models such as the one described here can be employed for future research are suggested.

#### The Service Sector Revolution in India: A Quantitative Analysis

Following the trade liberalization in 1991, the Indian economy witnessed a high growth rate of service sector output while that of industry was relatively muted. As a result, the sectoral composition of GDP resembles that of a rich country while its per capita income still remains that of a poor country. In this paper, I identify the service sector as important in two respects: it witnesses unusually high TFP growth, as compared to the other sectors, and experiences rapid expansion in exports and imports of services, especially after liberalization. I develop a three-sector open economy growth model with two important inputs: productivity growth in each sector and trade in the industrial and services sectors. I focus on two steady state years, 1980 and 2003, and assume trade to be balanced in these two years. The model is calibrated to Indian data and can account for the levels as well as the change in composition of domestic output and in factor allocations across the sectors for the two steady states. A counterfactual experiment suggests that growth in productivity has a relatively more important role than growth in trade in accounting for the growth in the share of services value added in aggregate GDP.