

# RAGHAV MALHOTRA

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## EDUCATION

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**University of Warwick, Coventry**  
MRes-PhD Economics

*September 2017 - Present*

**Indian Institute of Science, Bangalore**  
Bachelor of Science(Research),  
Major in Mathematics

*August 2013 - July 2017*

## RESEARCH INTERESTS

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I am interested in studying microeconomic theory and its applications, specifically general equilibrium theory and its intersections with revealed preference theory, labour economics and aggregation.

## WORKING PAPERS

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**Identification of Preferences with Finite Data** (with Herakles Polemarchakis and Felix Kubler)

We give conditions under which an individual's preferences can be identified with finite data. First, we derive conditions that guarantee that a finite number of observations of an individual's binary choices identify preferences over an arbitrarily large subset of the choice space and allow one to predict how the individual shall decide when faced with choices not previously encountered. Second, we extend the argument to observations of individual demand. Finally, we show that finitely many observations of Walrasian equilibrium prices and profiles of individual endowments suffice to identify individual preferences and, as a consequence, equilibrium comparative statics.

**Rationing Via Prices and Segregation: Redistribution in an Automated World** (with Yatish Arya)

We consider a setup general equilibrium setup where some goods are equally endowed across the population (eg. time), whereas some are not. We then go on compare the effects of 3 policies, subsidies, direct transfers and a third policy which we introduce (market segregation). We find if inequality between individuals in the economy is large, and "needs" are consumed in-elastically, our policy outperforms the others we compare against. We also partially characterize situations in which transfers perform the best. However, we prove that generically segregation and transfers should be used together are always welfare improving.

**Variance Based Tests of Aggregate Demand**

In this paper, we consider generalize the Sonnenschein-Debreu-Mantel (SML) framework to one where the analyst can observe both aggregate demand and the variance of demand. We show that the impossibility results of the SML framework do not survive this strengthening of the premise. We go on to prove observable restrictions on data which individual utility maximization place. Then we go on to find that being able to measure the variance of consumption as a function of price allows the analyst to improve estimates of welfare changes which occur due to changes in price. Lastly we consider setups in which only cross sectional data can be observed and show that many of our results survive in even this situation.

## **The Evolution of Skill Use Within and Between Jobs** (With Costas Cavounidis, Vittoria Dicandia and Kevin Lang )

We develop a tractable general equilibrium model that provides a framework for understanding within and between-occupation changes in skill use over time. We apply the model to skill-use measures from the third, fourth and revised fourth editions of the Dictionary of Occupational Titles and data from the 1960, 1970 and 1980 Censuses and March Current Population Surveys. We find that skill-use changes in the 1960s and 1970s are best understood by slower growth in abstract-skill productivity and an elasticity of substitution between abstract and routine-skill use of less than one. The model provides a useful tool for analyzing changes in skill use.

## **When Can Differential Restrictions be Tested? A Unification of the Functional and Revealed Preference Approach**

Historically, testing whether monotonic decision makers (DM) obey certain axioms from choice data has taken 2 rather distinct approaches. The First approach involves observing the entire Demand Function and putting restrictions on its derivatives. The second or revealed preference approach involves constructing algebraic inequalities which are satisfied if and only if choice data could arise from a DM who obeys the axioms of interest. We show, that under slight tweaks of the notions of revealed preference tests and derivative restrictions the 2 approaches are in fact equivalent. That is to say, any revealed preference test can be used to construct derivative restrictions and vice-versa.

## **WORK IN PROGRESS**

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### **Multidimensional Skills, Traps , and Regional Decline**(with Ivan Yotzov)

We develop a heterogeneous firm general equilibrium model where firms have rankings over skills as inputs. We give conditions under which the model suffers from multiple equilibria leading to “hysteresis” or “regional decline”. We argue that these conditions are met in regions which depend on manufacturing industries for employ and not by service heavy regions, which has causing wage polarisation. We then confirm several predictions made by our model in data.

### **General Equilibrium Effects of a Changing Labour Force** (with Costas Cavounidis, Vittoria Dicandia, Cesar Garro Marin, Kevin Lang)

### **Diagnosis: Hierarchies and Information Aggregation in Organizations** (With Robert Akerlof, Hongyi Li)

### **Commitment to Save and Backward Bending Labour Supply** (With With Hasan Alperen Tosun)

## **TECHNICAL STRENGTHS**

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**Software & Tools** Python, C, C++, Javascript

## **ACADEMIC ACHIEVEMENTS**

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Indian National Talent Scholar since 2009

Awarded the Kishore Vaigyanik Protsahan Yojana fellowship by the Department of Science and Technology, Government of India, to pursue higher studies.

## REFERENCES

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**Herakles Polemarchakis**

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