

# APPROACHES TO ASSESSING THE COSTS, BENEFITS AND IMPACTS OF STANDARDS

UNIVERSITY  
of GUELPH

CHANGING LIVES  
IMPROVING LIFE

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# OVERVIEW

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- ✗ Why do we want this information and what information do we need?
- ✗ Analytical challenges
- ✗ Areas of analysis
- ✗ Critique of empirical approaches
- ✗ Conclusions

# KEY MESSAGES

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- ✗ Need to think about what information we need and why
- ✗ Amount of analysis has increased dramatically in recent years
- ✗ Quality of analysis has improved over time....but much remains weak
- ✗ Key weaknesses:
  - + Theoretical underpinnings
  - + Data collection and analysis methods
- ✗ Need more integrated approaches



# WHY DO WE WANT THIS INFORMATION?

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- × Academic research
- × 'Proof of concept'
- × Project design
- × Monitoring and evaluation
- × ????????

# WHAT INFORMATION DO WE NEED?

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- × Broad indicators of impacts
- × Quantitative measures of impacts
- × Factors influencing nature and/or level of impacts
- × Spillover effects
- × ????????

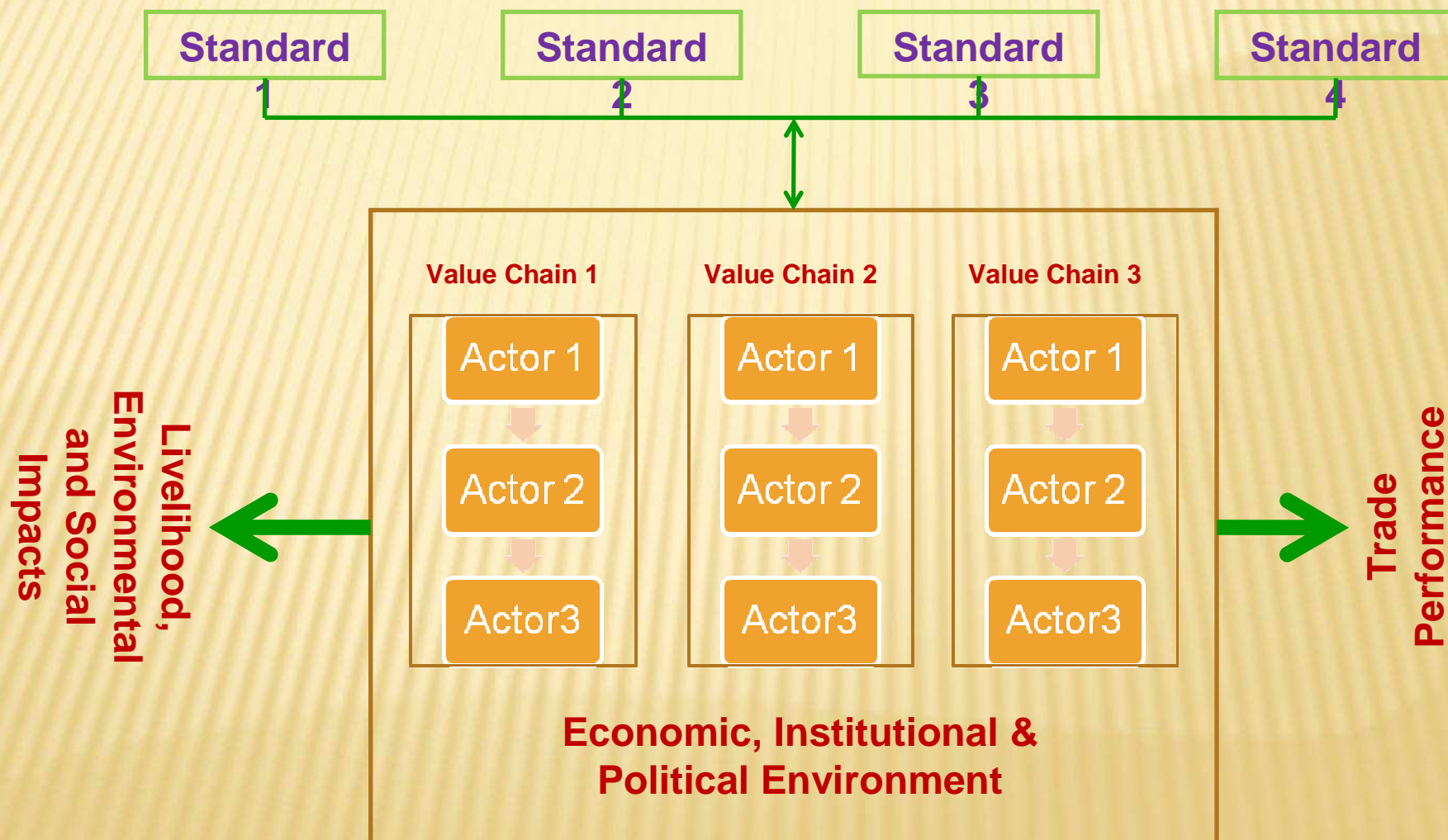
# ANALYTICAL CHALLENGES

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- ✗ Attribution
- ✗ Defining the counterfactual
- ✗ Moving from the qualitative to the quantitative
- ✗ Placing a theoretical framework around empirical findings
- ✗ Generalizing context-specific findings



# IMPACTS OF STANDARDS



# AREAS OF ANALYSIS

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- ✖ Trade performance
- ✖ Value-chain conduct and performance
- ✖ Livelihood, environmental and social impacts
- ✖ Socio-legal analysis



# TRADE PERFORMANCE

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- ✖ Econometric modeling of secondary trade data:
  - + Frequency-based measures
  - + Trade modeling
- ✖ Estimation of tariff-rate equivalents
- ✖ Demand and supply shift analysis
- ✖ Firm-level surveys

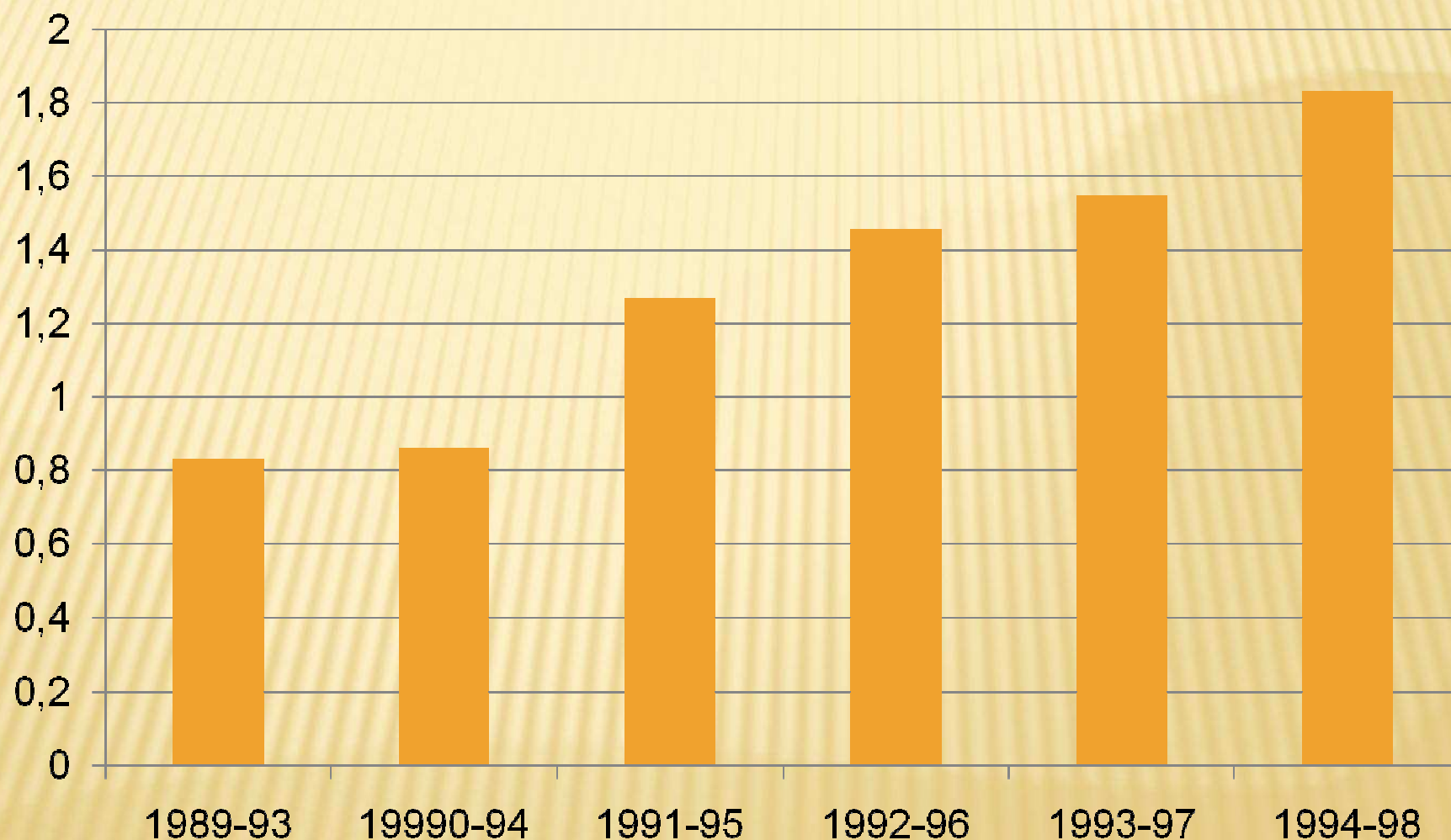
# IMPACT OF EU STANDARD FOR AFLATOXINS ON GROUNDNUT EXPORTS FROM AFRICA

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- ✖ Gravity model of trade data for period 1989-98
- ✖ Exports from nine major African exporters of groundnuts to the EU-15 and Switzerland
- ✖ Simulation to predict impact of differing levels of standard for Aflatoxins in groundnuts
- ✖ 10% stricter standard reduces edible groundnut imports by 11%
- ✖ EU standard reduces level of groundnut imports by 63% compared with Codex standard

Source: Otsuki *et al.*, 2001

## ELASTICITY OF IMPORTS OF EDIBLE GROUNDNUTS WITH RESPECT TO AFLATOXIN STANDARD



Source: Otsuki *et al.*, 2001



## COEFFICIENTS ON SPS AND TBT MEASURES BY AGRI-FOOD COMMODITY

Commodity	Coefficient
Dairy products/eggs	0.61
Products of animal origin	0.82
Live trees/cut flowers	-2.03
Edible fruit/nuts	-0.12
Coffee, tea & spices	0.35
Cereals	1.80
Milling products	0.24
Cocoa	-0.75
Cereal preparations	-0.46
Beverages/spirits	-1.13
Vegetable preparations	-0.72

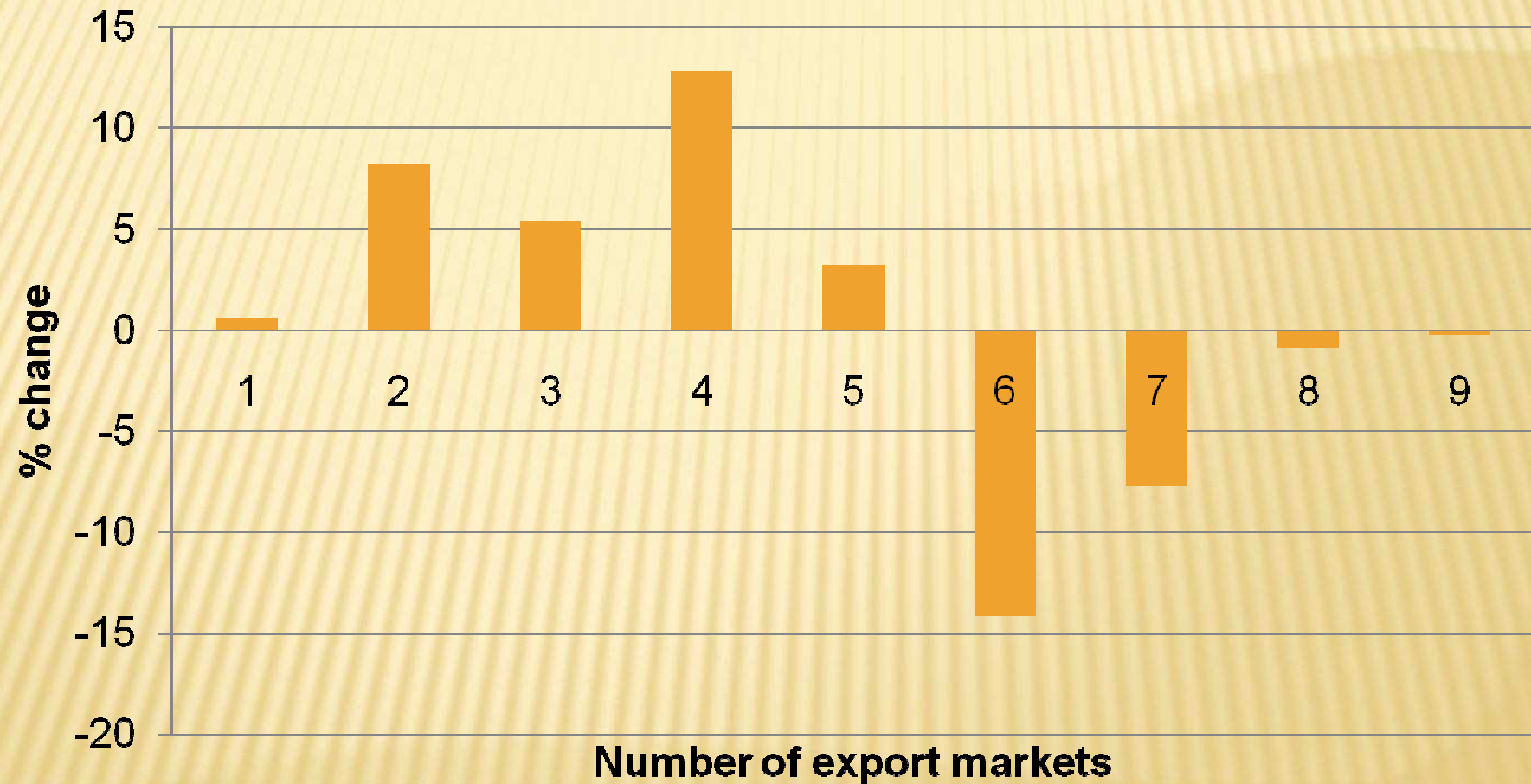
Source: Disidier *et al.*, 2008

# IMPACT OF ISO 9000 CERTIFICATION ON PERFORMANCE OF EXPORTING FIRMS IN PAKISTAN

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- ✖ Data from survey of 157 firms for period 2000 to 2004
- ✖ Textile, leather, agro-food processing and fisheries sectors
- ✖ Propensity matching to allow for self-selection bias associated with certification
- ✖ ISO 9000 certification enhances export performance of late entrants to export markets
- ✖ No impact of ISO 9000 certification on established exporting firms

# CHANGE IN PROBABILITY SUPPLY MULTIPLE EXPORT MARKETS IF PROBLEMS MEETING STANDARDS



Source: Chen *et al.*, 2006



# AREAS OF ANALYSIS

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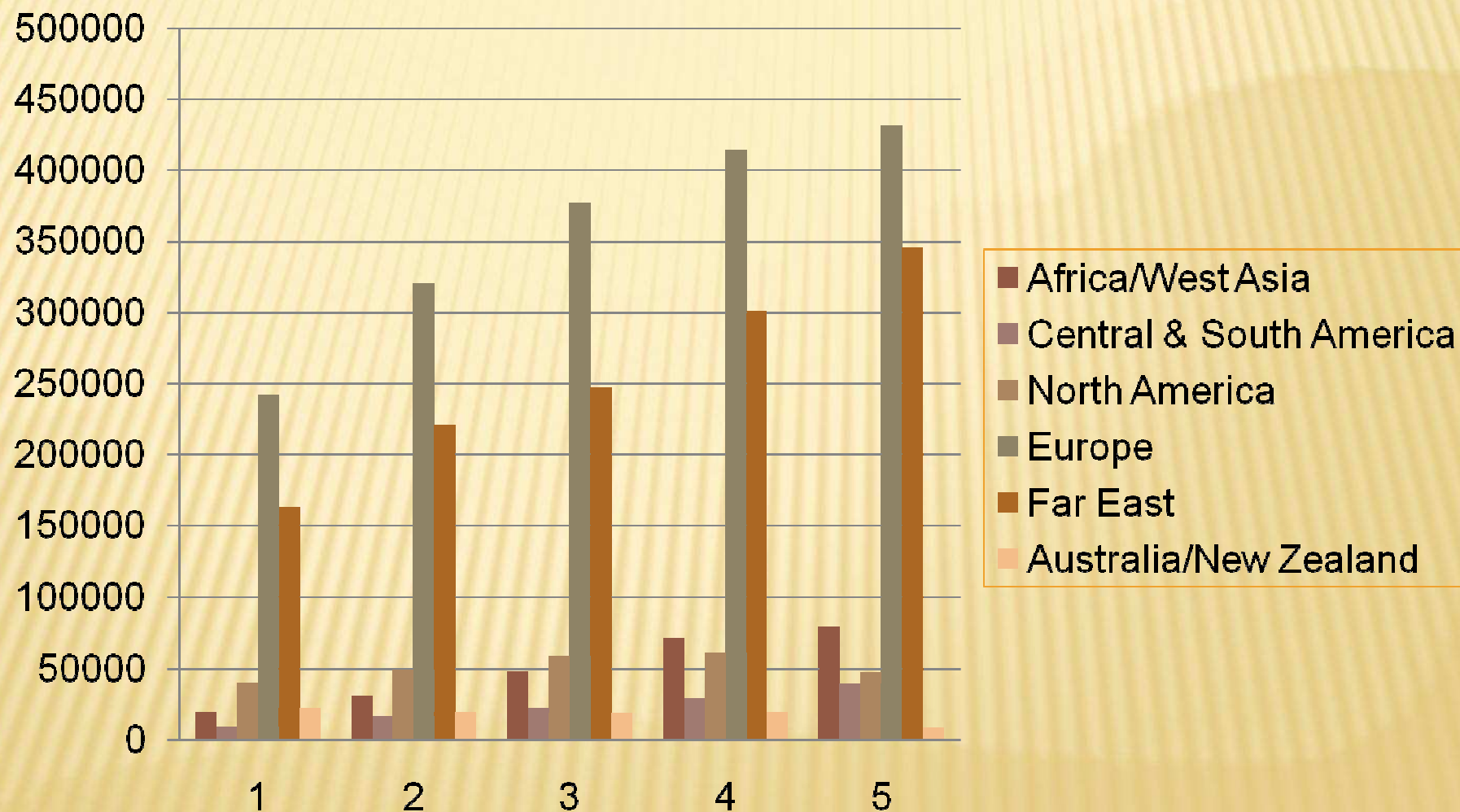
- ✗ Trade performance
- ✗ Value-chain conduct and performance
- ✗ Livelihood, environmental and social impacts
- ✗ Socio-legal analysis

# VALUE CHAIN STRUCTURE AND CONDUCT

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- ✗ Penetration data
- ✗ Sectoral case studies
- ✗ Value chain analysis
- ✗ Farm budgeting analysis
- ✗ Firm-level surveys
- ✗ Consumer demand studies

# NUMBER OF 9001:2000 CERTIFICATES BY REGION, 2003-2007



Source: ISO, 2007



# CASE STUDY ANALYSIS OF KENYAN FRESH PRODUCE SECTOR

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- ✕ Basis:
  - + Secondary data collection and analysis
  - + In-depth firm-level interviews
- ✕ Historical analysis of evolution of fresh produce exports from Kenya
- ✕ Competitive strategy of leading firms
- ✕ Role of private standards in competitiveness and related strategic responses

Source: Jaffee, 2003

# STRATEGIC ANALYSIS FRAMEWORK FOR STANDARDS COMPLIANCE

	Proactive	Reactive
Voice	Speak out/negotiate ahead of time	Speak out/negotiate when required to comply
Compliance	Comply before competitors	Comply when forced to do so
Exit	Exit the market ahead of time	Exit the market once failed to meet compliance challenges

# STRATEGIC ANALYSIS OF STANDARDS COMPLIANCE IN THE FISHERIES SECTOR IN KENYA AND INDIA

Actors	Kenya	India
Government	Delayed reactivity Some (failed) attempt at voice	Some proactivity Voice after compliance achieved
Exporters	Generally reactive compliance Some (failed) attempt at voice Significant levels of exit	Some proactive firms Most firms reactive in compliance Significant levels of exit
Outcome	<i>Loss of market access for protracted period Exports stagnated</i>	<i>Rapid resumption of market access Exports expanded</i>

Source: Henson and Jaffee, 2008



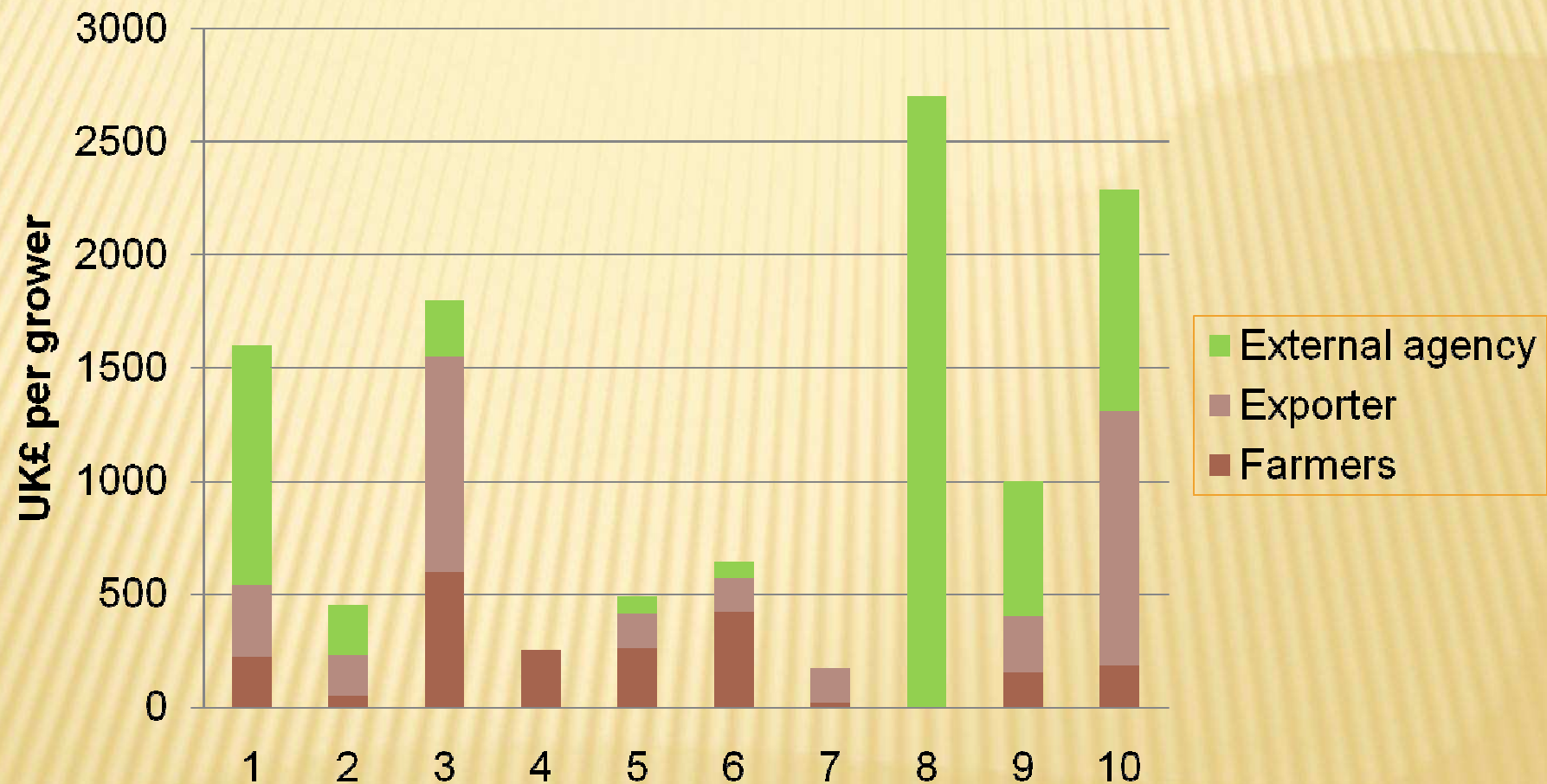
# VALUE CHAIN ANALYSIS OF FOOD SAFETY STANDARDS FOR HIGH-VALUE HORTICULTURAL EXPORT

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- ✗ Incentives for leading firms to implement standards:
  - + Risk management
  - + Product differentiation
- ✗ Impact on transaction costs:
  - + Reallocation along value chains
  - + Changes in overall level of transaction costs across value chain
- ✗ Scope for upgrading at different levels of value chain
- ✗ Implications for inclusion of small-scale producers

Source: Dolan and Humphrey, 2001

# COSTS OF IMPLEMENTING GLOBALGAP BY SMALL-HOLDERS IN KENYAN GREEN BEAN PRODUCTION



Source: Graffham *et al.*, 2007

# SURVEY OF FRESH PRODUCE EXPORTERS IN SUB-SAHARAN AFRICA

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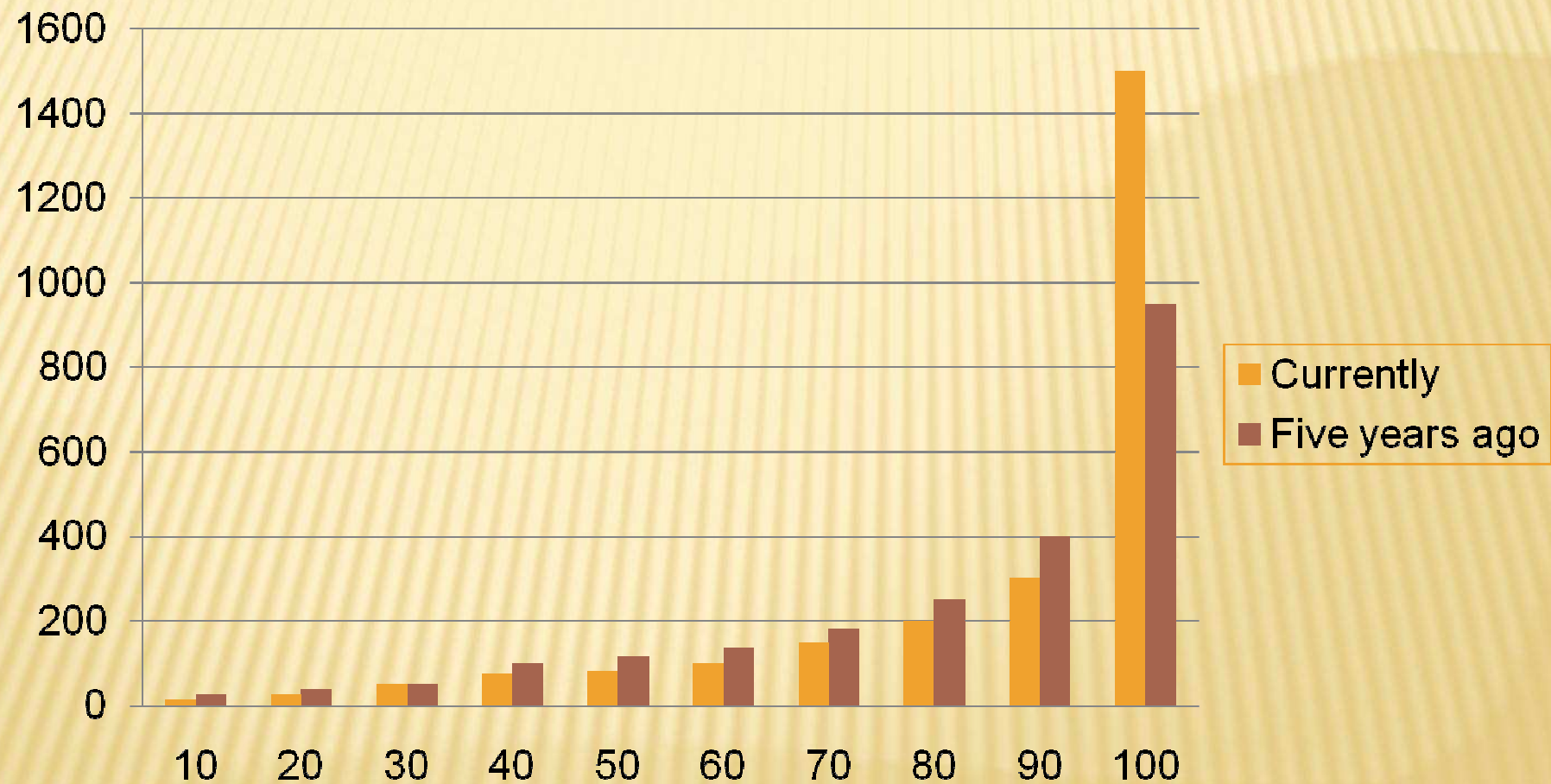
- ✗ Internet-based survey of 174 exporters across 10 countries
- ✗ Focus on procurement decisions across:
  - + Own production
  - + Intermediaries
  - + Large-scale out-growers
  - + Medium and large-scale out-growers
- ✗ Theoretical model - Minimise procurement costs subject to:
  - + Performance with respect to supply requirements
  - + One-off and on-going costs



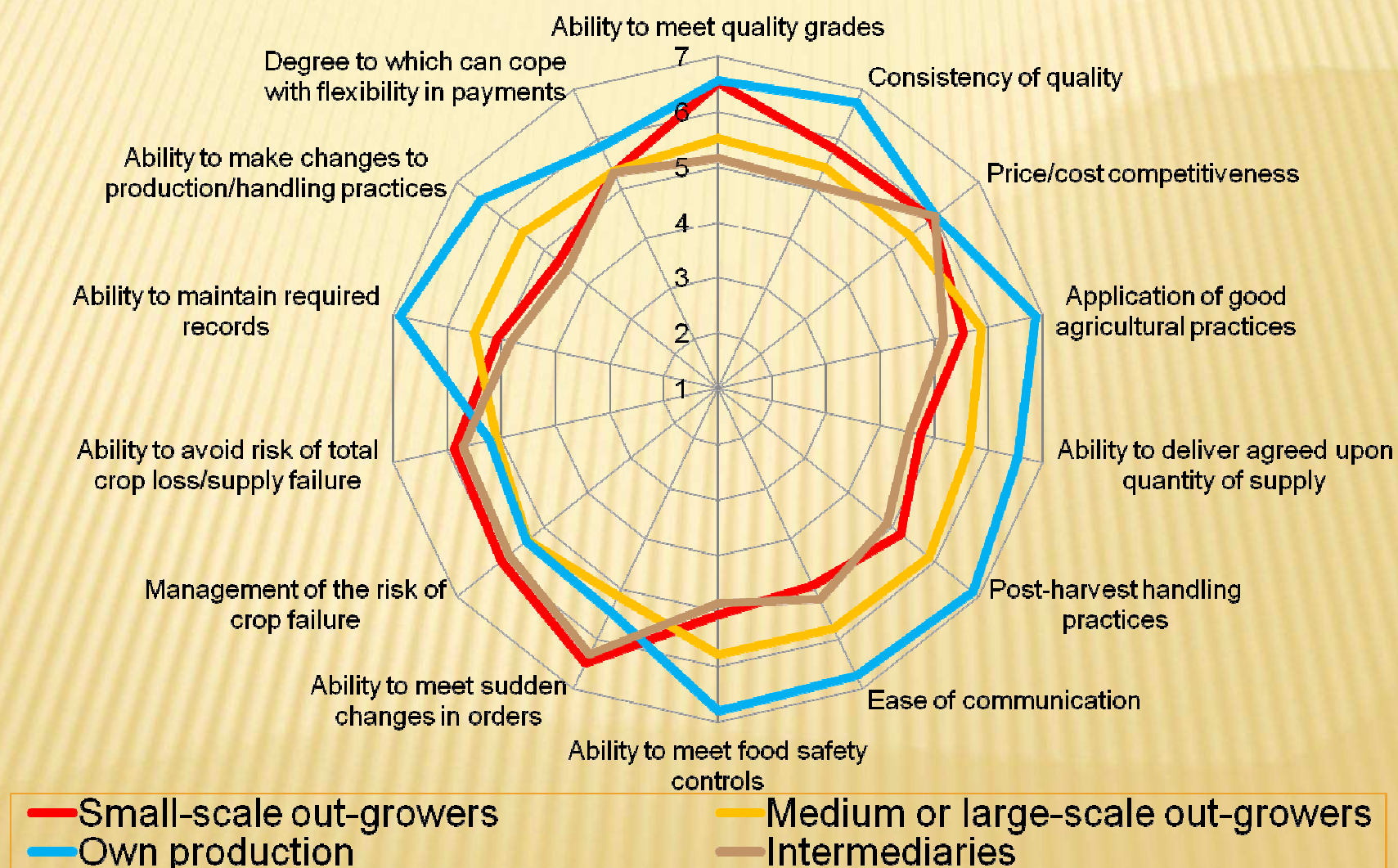
## CHANGES IN USE OF ALTERNATIVE SUPPLY SYSTEMS

Supply Chain	Mean %	
	Currently	Five Years Ago
Traders, wholesalers and other intermediaries	9.4%	14.9%
Direct from small-scale growers of less than 5 acres	36.4%	39.2%
Direct from medium or large-scale producers	17.0%	15.4%
Production on own/leased farm	34.4%	27.9%
Other exporters	0.9%	0.9%
Other	1.9%	4.1%

## DECILE DISTRIBUTION OF NUMBER OF SMALL-HOLDERS FROM WHICH DIRECTLY SOURCE

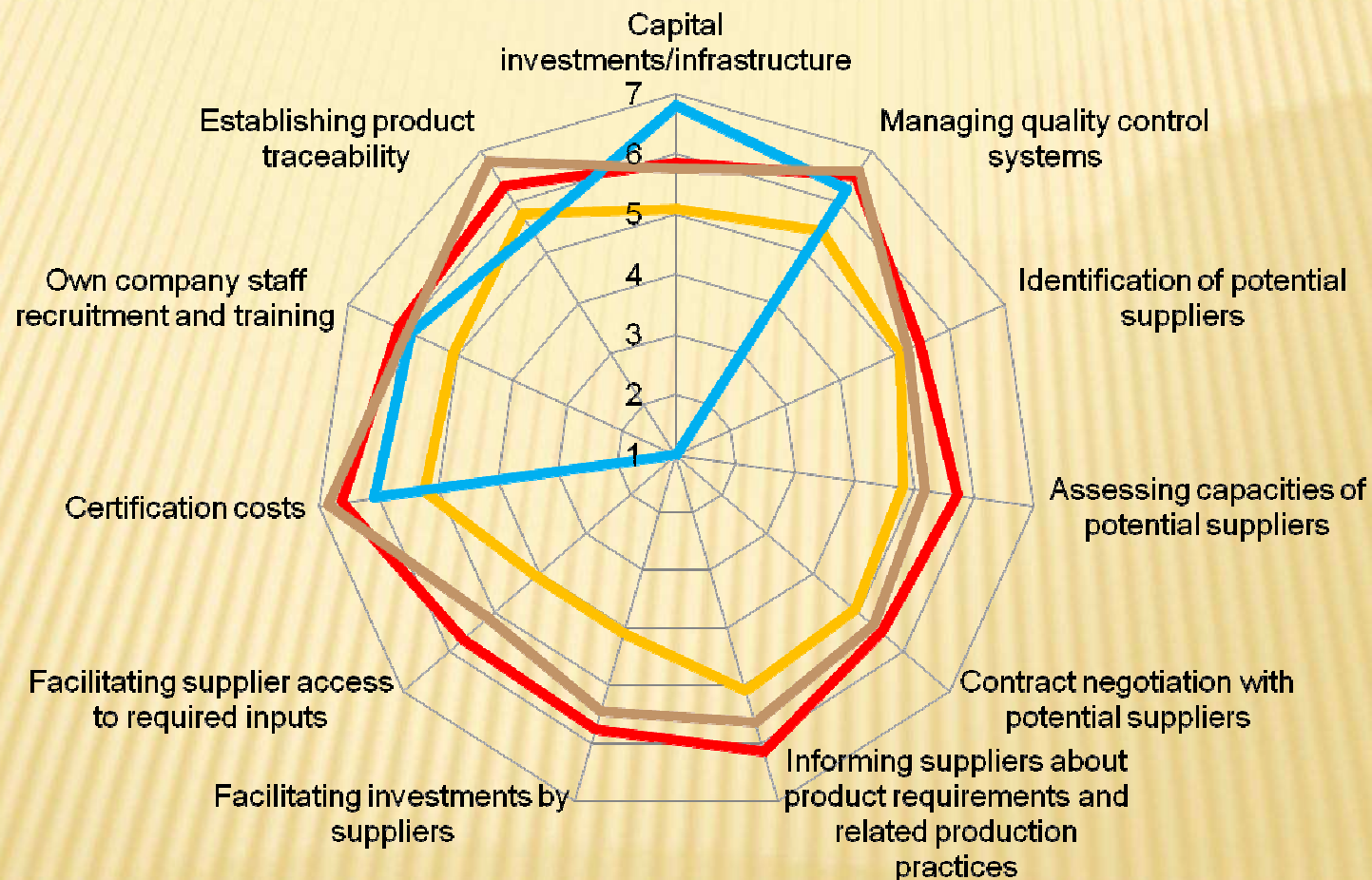


# PERFORMANCE OF ALTERNATIVE SUPPLY CHAINS RELATIVE TO REQUIREMENTS





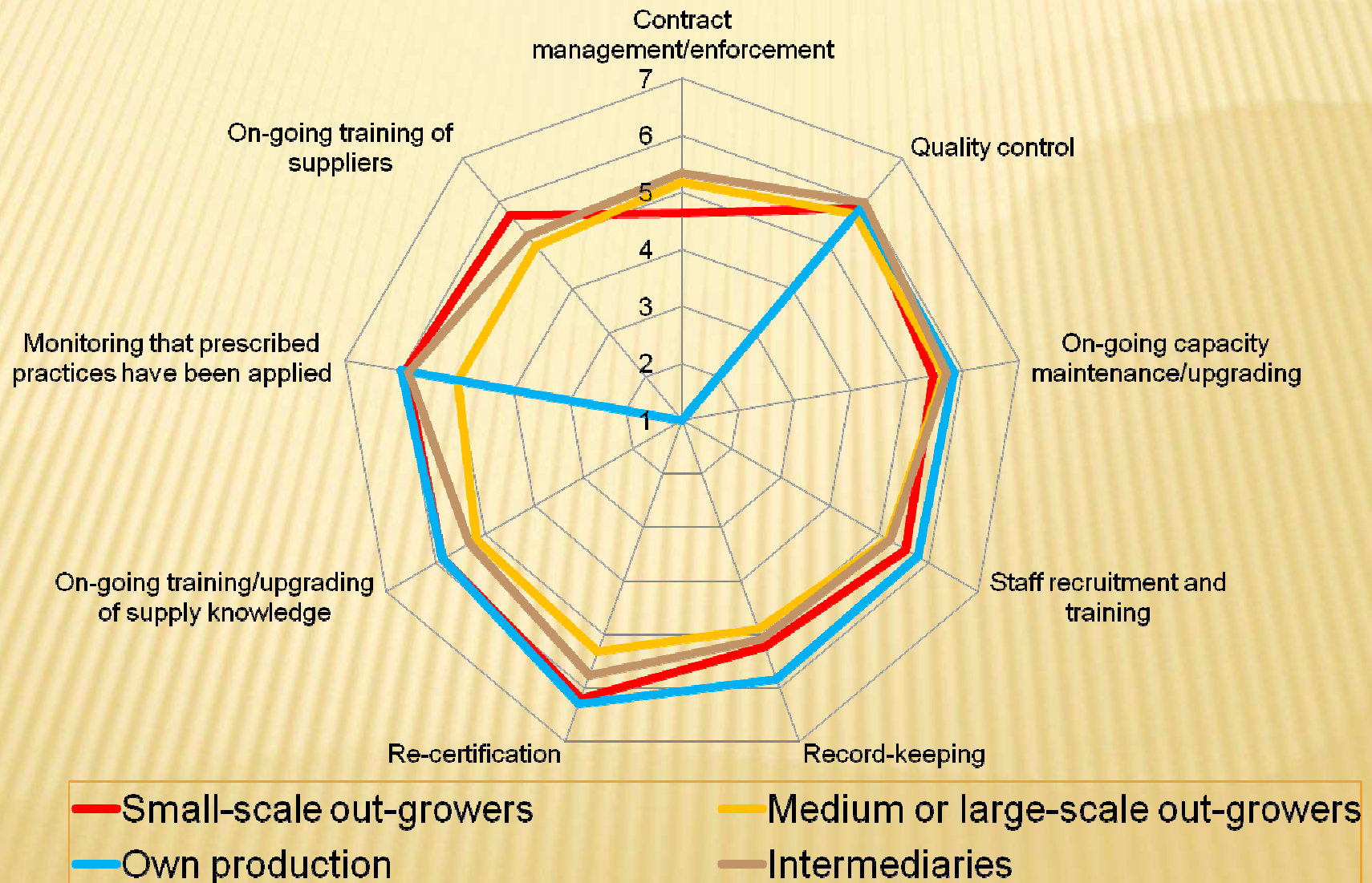
# ONE-OFF COSTS OF SMALL AND MEDIUM/LARGE SCALE OUT-GROWER SUPPLY AND OWN-PRODUCTION



— Small-scale out-growers  
— Own production

— Medium or large-scale out-growers  
— Intermediaries

# ON-GOING COSTS OF SMALL AND MEDIUM/LARGE OUT-GROWER SUPPLY AND OWN-PRODUCTION



# CONSUMER VALUATION OF FAIR TRADE AS A PRODUCT ATTRIBUTE OF COFFEE IN CANADA

Attribute		Part Worth	Importance
Production method	Organic	0.455***	13.65%
	Non-organic	-0.455***	
Roast	Medium	0.016	7.92%
	Dark	-0.016	
Bean	Ground	0.037	8.29%
	Whole	-0.037	
Claim	None	-1.162***	37.07%
	Labelled Fair Trade	0.068	
	Certified Fair Trade	1.095***	
Origin	Colombian	0.053***	11.25%
	Guatemalan	-0.038***	
	Blend	-0.013	



## VARIATION IN VALUE OF FAIR TRADE LABEL ACROSS CONSUMER SEGMENTS



# AREAS OF ANALYSIS

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- ✗ Trade performance
- ✗ Value-chain
- ✗ Livelihood, environmental and social impacts
- ✗ Socio-legal analysis

# **LIVELIHOOD, ENVIRONMENTAL AND SOCIAL IMPACTS**

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- ✗ Farm-level surveys:
  - + Farm budgeting
  - + Econometric analysis
- ✗ Participatory rural appraisal methods
- ✗ Case studies
- ✗ Multi-criteria analysis



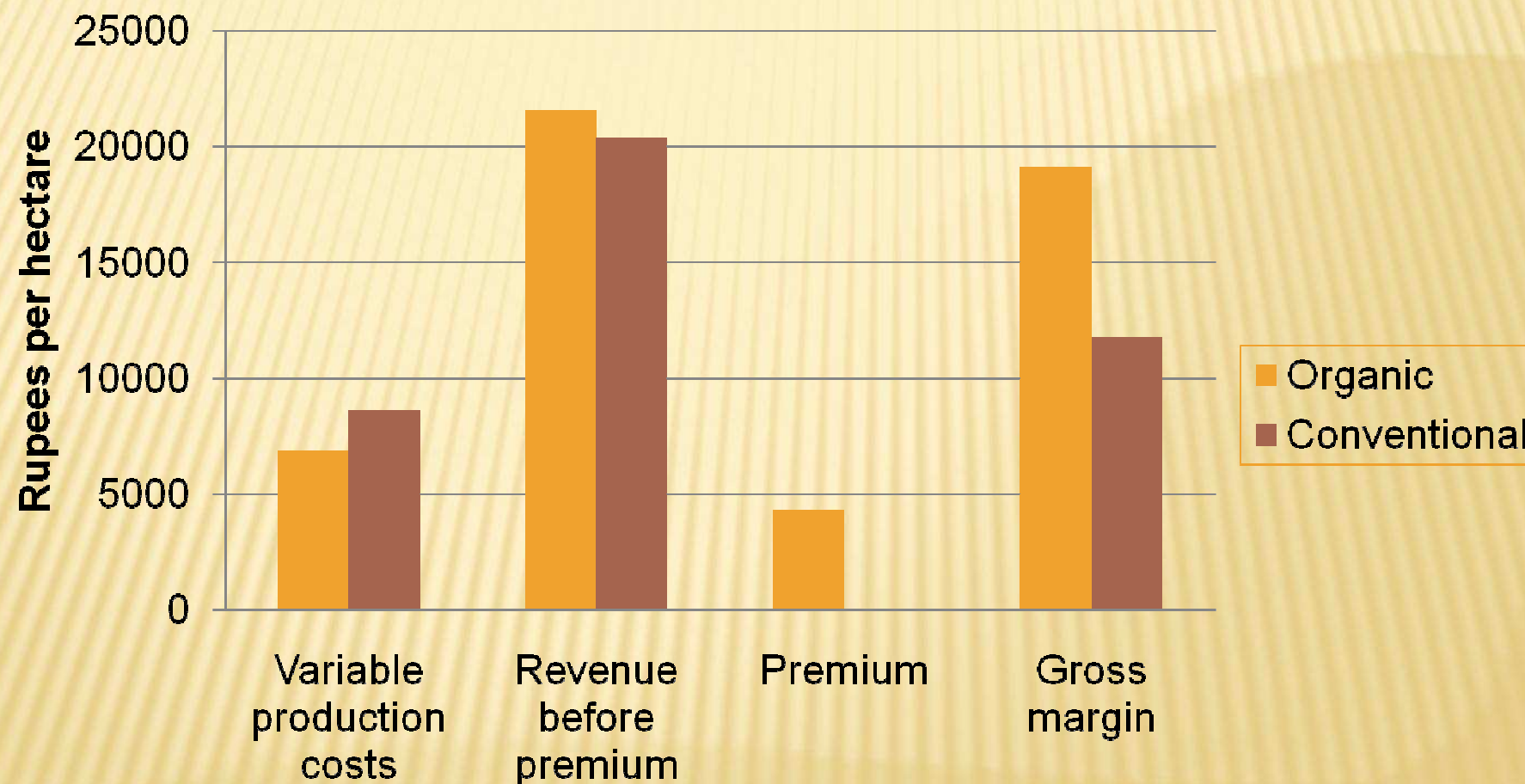
# FARM BUDGETING ANALYSIS OF RETURNS TO ORGANIC COTTON PRODUCTION IN INDIA

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- ✖ Study of one organic cotton scheme in Madhya Pradesh:
  - + 1500 small and medium-sized farms
  - + Production since 1991
- ✖ Data collection over two cropping seasons:
  - + Farm budgets
  - + Soil analysis
- ✖ Random selection of 10 out of 75 villages:
  - + Six certified organic farmers per village
  - + Six conventional farmers per village

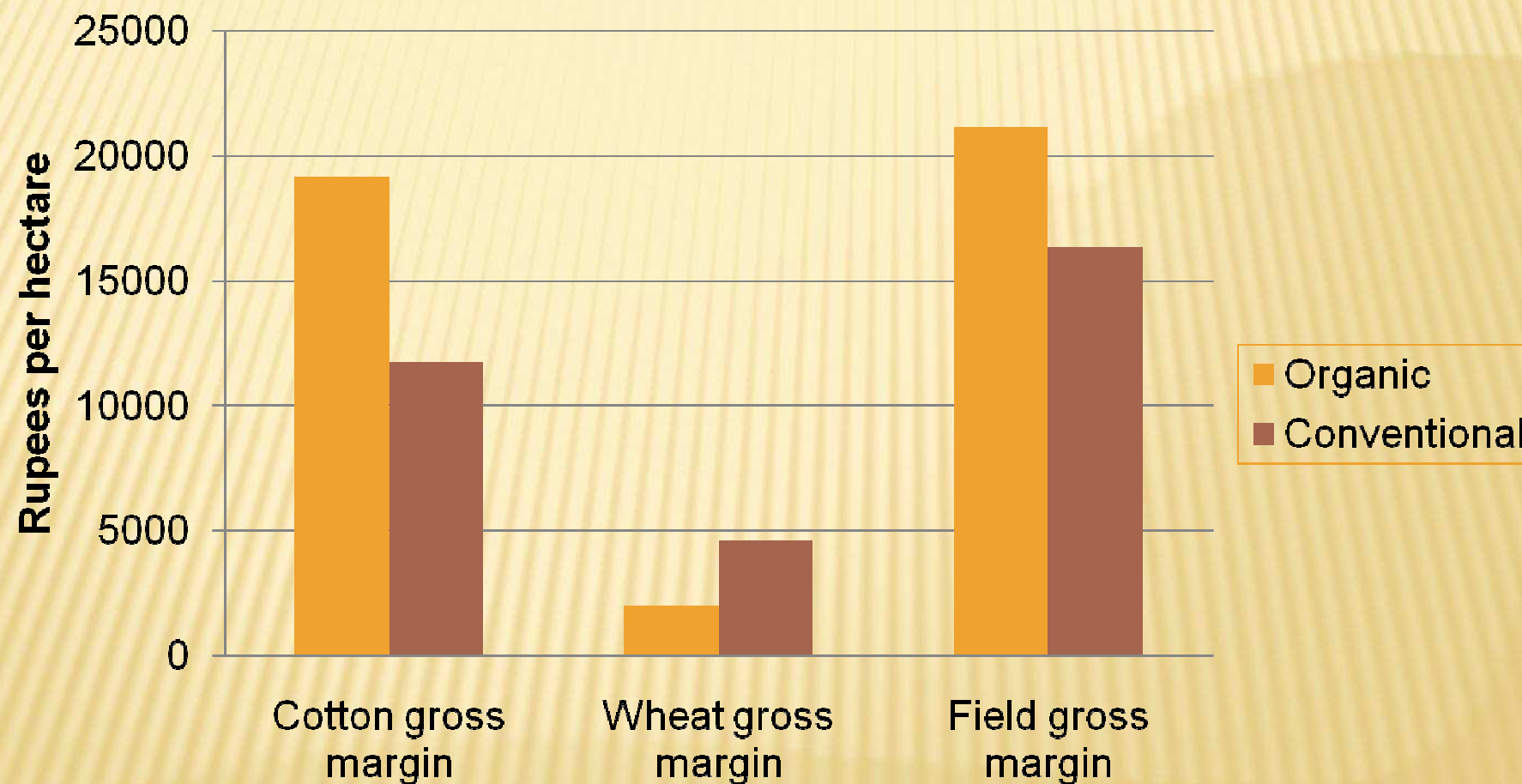
Source: Eyhorn *et al.*, 2007

# FARM BUDGETING ANALYSIS OF RETURNS TO ORGANIC COTTON PRODUCTION IN INDIA



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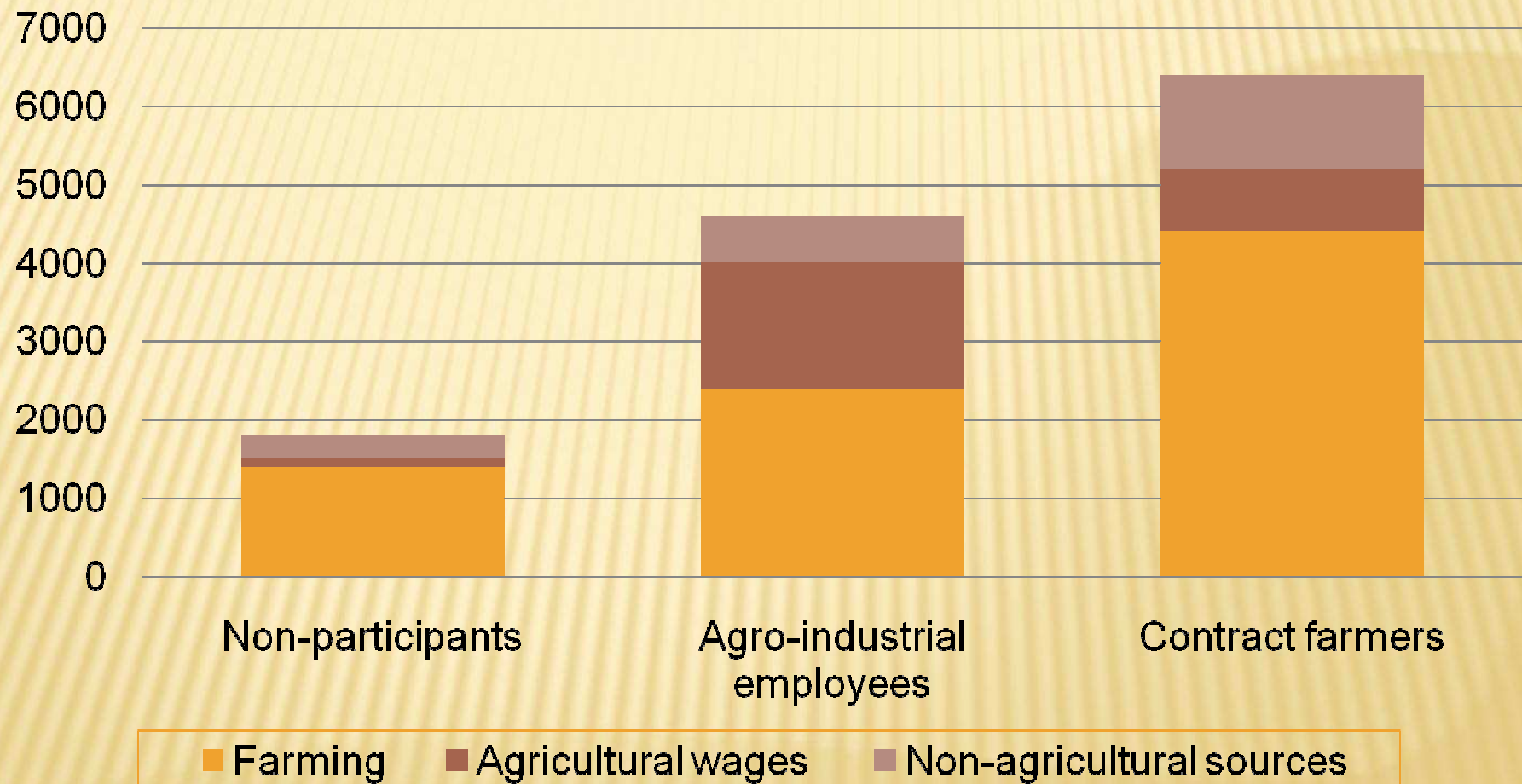


# IMPACT ON HOUSEHOLD INCOME OF PARTICIPATION THE SENEGALESE FRENCH BEAN EXPORT SECTOR

- ✗ Survey of 300 households in green bean production areas
- ✗ Three types of respondent:
  - + Non-participants
  - + Contract farmers
  - + Agro-industrial employees
- ✗ Incomes of participants 60% to 110% greater than non-participants
- ✗ Simulated scenarios:
  - + No French bean production for export
  - + No large-scale production

Source: Maertens and Swinnen, 2008

# INCOME OF PARTICIPANTS AND NON-PARTICIPANTS IN FRENCH BEAN PRODUCTION IN SENEGAL



Source: Maertens and Swinnen, 2008

# PARTICIPATORY RURAL APPRAISAL OF FAIR TRADE COFFEE IN NICARAGUA

## Now: Fair Trade



## Two years ago: Local Market



Source: Utting-Chamorro, 2005



# COMPARATIVE ANALYSIS OF FAIR TRADE COFFEE COOPERATIVES IN LATIN AMERICA

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- ✗ Case study approach
- ✗ Seven cooperatives in Mexico, Guatemala and El Salvador
- ✗ Price impacts:
  - + Premium over world price
  - + Stability
- ✗ Strengthening of producer organisations
- ✗ Support for social programmes
- ✗ Increased household income/capital

Source: Raynolds *et al.*, 2004

# COSA ANALYSIS OF 'SUSTAINABILITY INITIATIVES' IN COFFEE SECTOR

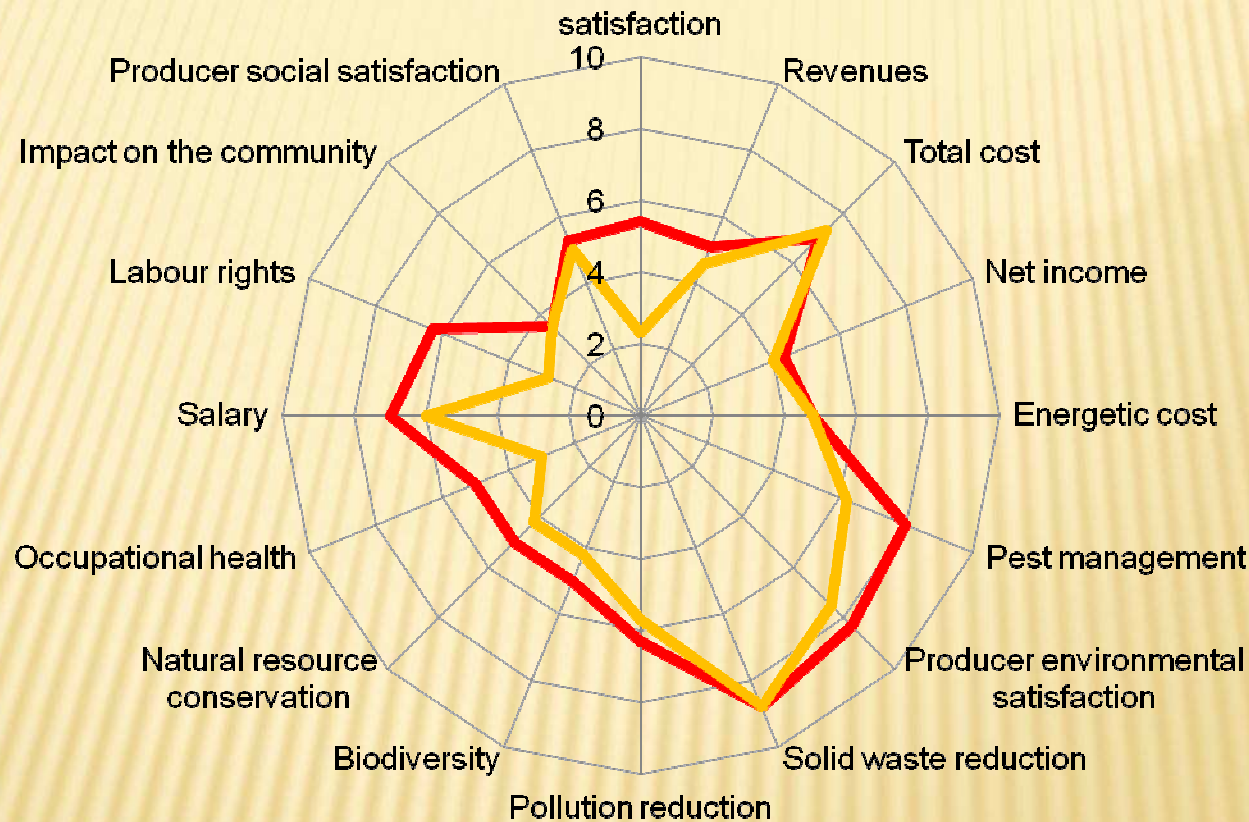
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- ✗ Annual field visits to farms over minimum of three years
- ✗ Comparisons across 'sustainability initiatives' and countries
- ✗ Standards set of multiple quantitative indicators for each of three Outcomes:
  - + Economic outcomes
  - + Environmental outcomes
  - + Social outcomes
- ✗ Use of multi-criteria analysis

Source: Giovannucci and Potts, 2008



# COSA ANALYSIS OF 'SUSTAINABILITY INITIATIVES' IN COFFEE SECTOR



— Certified farms

— Conventional farms

Source: Giovannucci and Potts, 2008



# AREAS OF ANALYSIS

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- ✖ Trade performance
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# SOCIO-LEGAL ANALYSIS

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- ✗ Focus on private versus public governance of value chains
- ✗ Concept of 'private regulation'
- ✗ Implications :
  - + Competition
  - + Vertical power relations
  - + Transparency
  - + Democracy
  - + International governance institutions
- ✗ Inter-relations between public and private regulation

# OVERVIEW OF METHODS

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- ✗ Qualitative/semi-quantitative:

- + Case studies
- + Rapid rural appraisal
- + Value chain analysis

- ✗ Quantitative:

- + Farm budgeting
- + Econometric modeling
- + Multi-criteria analysis



# CHALLENGES

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- ✗ Understanding the process as well as outcomes
- ✗ Multiple rather than single impact measures....
- ✗ .....but have to deal with trade-offs
- ✗ .....and non-monetary outcomes
- ✗ Over and under-attribution
- ✗ Dealing with the counterfactual
- ✗ Theoretical underpinning
- ✗ Need to generalise across standards and value chains....
- ✗ ....and take account of changes over time

## METHODOLOGICAL ADVANCES.....?

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- ✗ Cost-benefit analysis
- ✗ Cost-effectiveness analysis
- ✗ Multiple-criteria analysis:
  - + Multiple-attribute value theory methods
  - + Outranking methods
- ✗ Asset indices (with thresholds)
- ✗ Value chain analysis

# NEED TO GENERALISE.....

		Value Chain				
		1	2	3	4	5
Standard	A					
	B					
	C					
	D					



# CONCLUSIONS

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- ✗ Come a long way.....
- ✗ ....but still have a long way to go
- ✗ Need to pick-up on theoretical and empirical advances
- ✗ Need more integrated approaches
- ✗ Must begin to generalise our findings....
- ✗ ....requiring 'common' methods and sharing of research