

Learning by Exporting

Evidence from a Randomized Trial

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July 2019

The Big Picture

- Total output in an economy

$$Y = \frac{\text{Output}}{\text{Input}} \times \text{Inputs}$$

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- “Total factor productivity” (TFP)
- Decomposition shows that economic growth comes from two broad sources:
 - Input growth
 - Productivity growth



$$TFP = GDP / (L^{.33} * K^{.67})$$

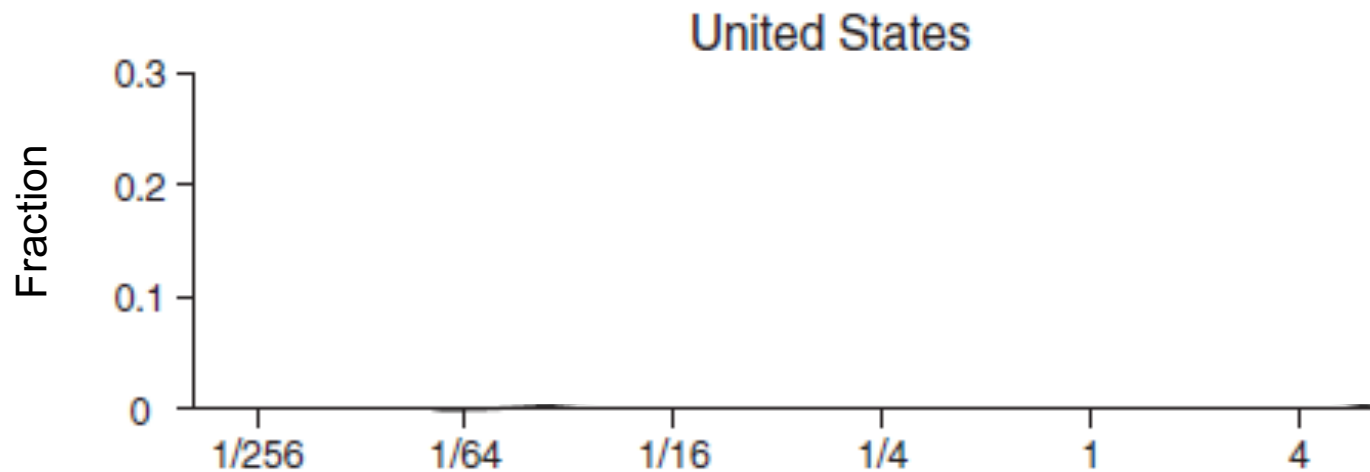
Data source: World Bank Development Indicators



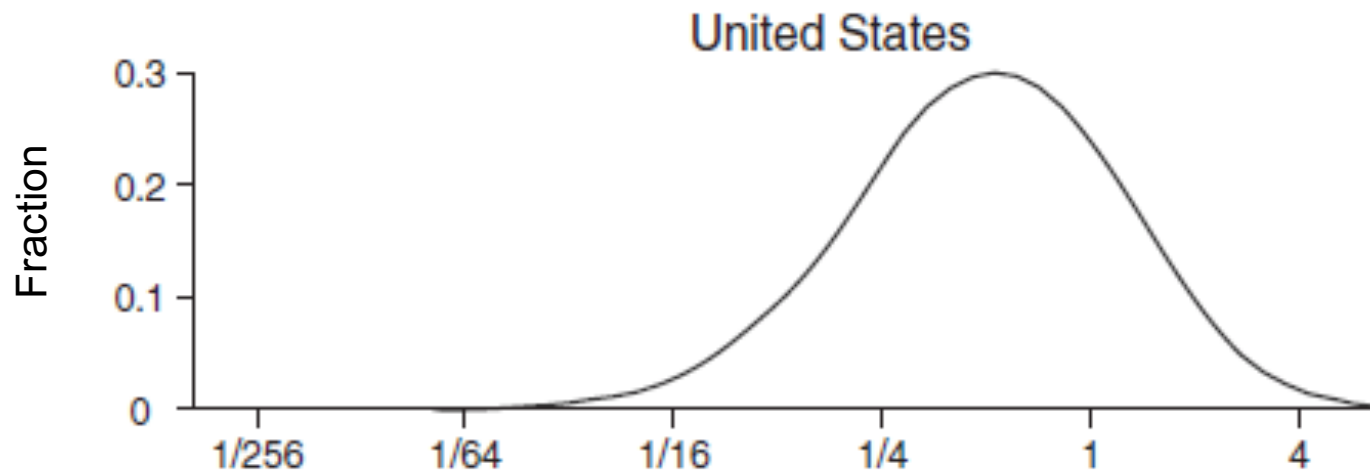
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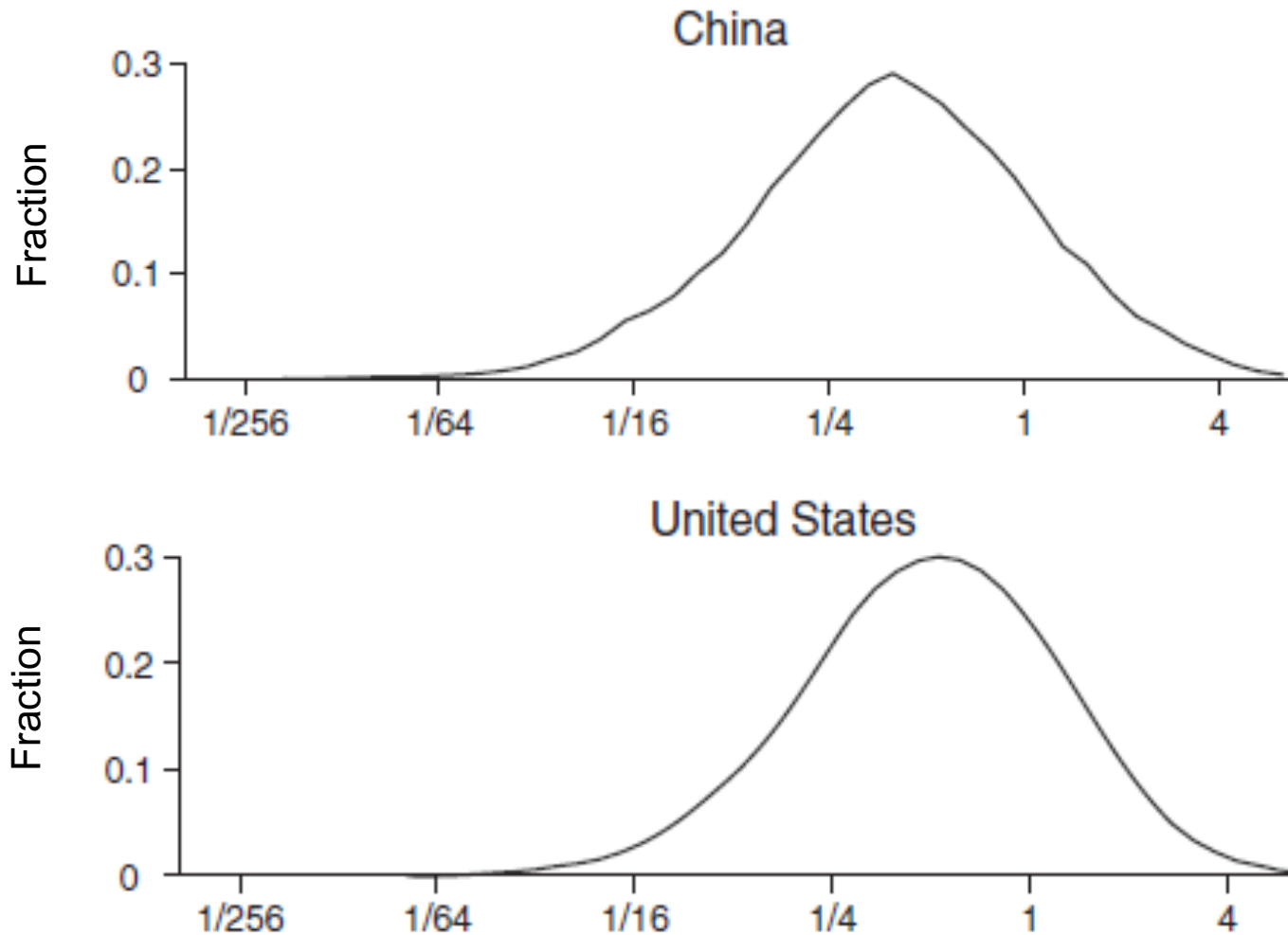
Productivity Varies Tremendously Within Countries



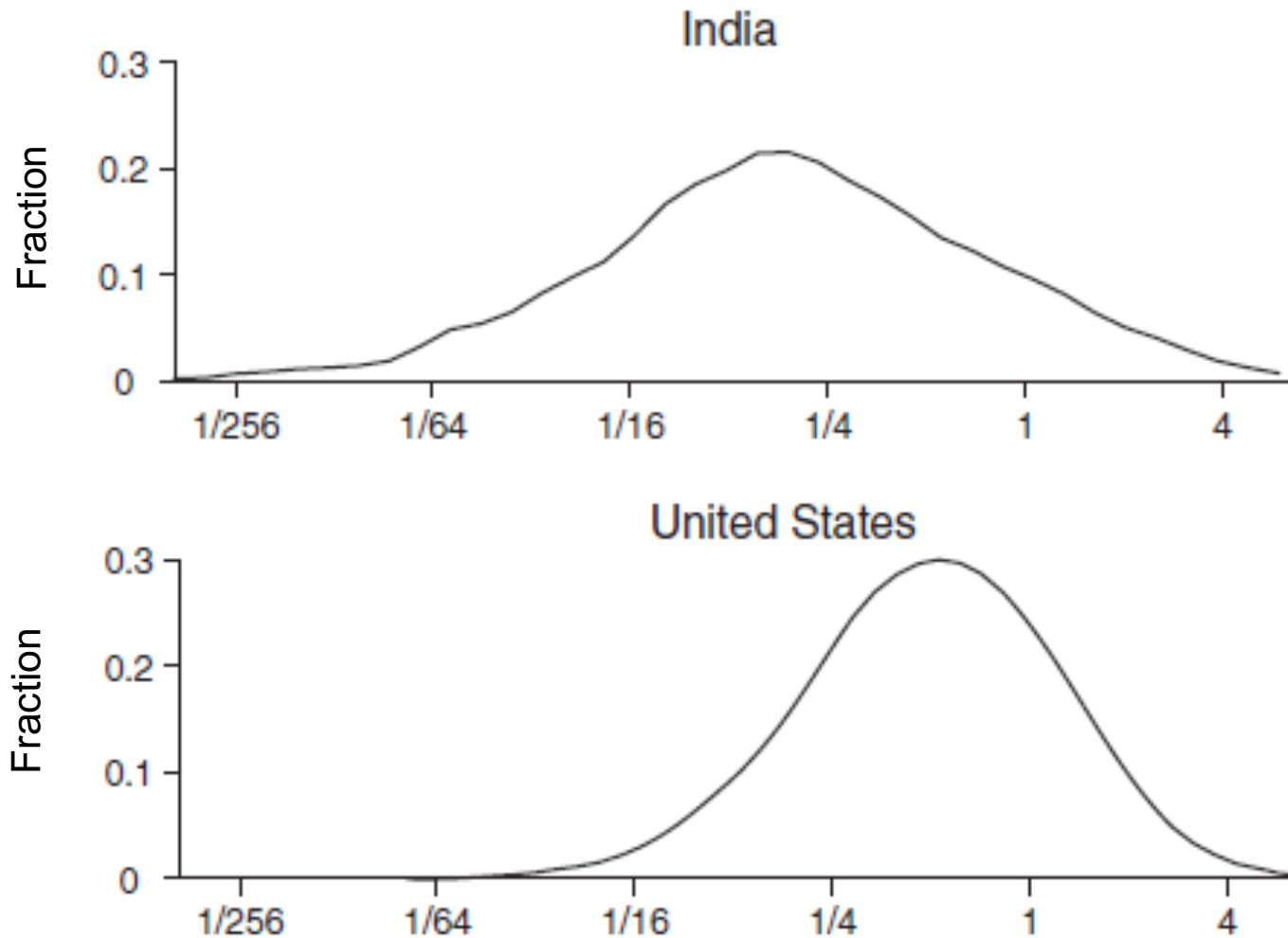
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Constraints to Growth and Productivity

- Many micro studies target “supply-side” frictions
 - Capital
 - Labor
 - Management practices
 - Product market regulation
- What about the role of “demand-side” frictions?
 - Market access through international trade

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Impact of Trade on Productivity

- Widespread evidence that trade reforms improve firm productivity
 - China, India, Hungary, Vietnam, Indonesia, Chile, Argentina, Mozambique, Bangladesh, Egypt, Slovenia, {Ethiopia, Tanzania, Burundi, Zambia, Kenya, Ghana, Cote d'Ivoire, Cameroon, Zimbabwe}
- Across-firm mechanisms
 - Selection
 - Removes misallocation
- Within-firm mechanisms
 - Reduces firm slack
 - Access to larger markets
 - Access to intermediate inputs
 - Access to sophisticated buyers

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The Location

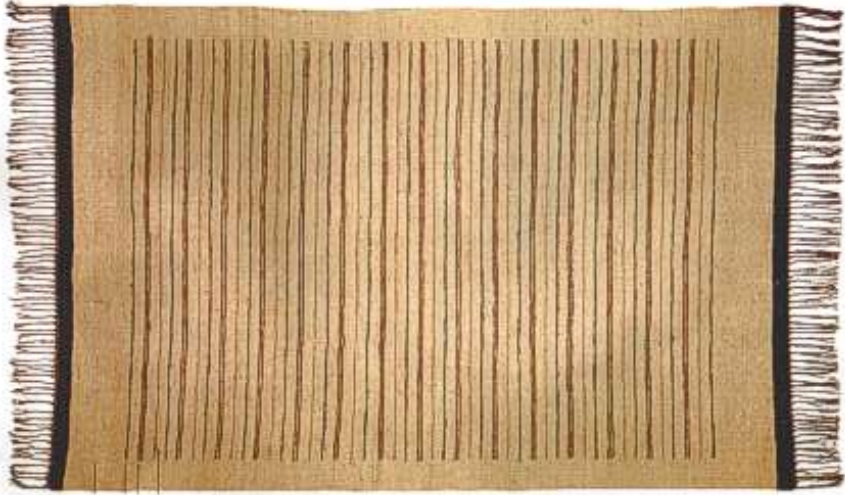
- Handmade flat-weave rug cluster in Fowa, Egypt
 - About 2hrs from Alexandria
 - Population 65,000
- Carpet firms:
 - Most firms are single owner-employee
 - 37 percent literacy
 - \$2100 annual household income
- Methodology
 - **Randomized control trial** to give some firms access to overseas markets



Industry Background

- Handmade craft & rug industries are important sectors for developing countries
 - In 2005, global handmade craft production estimated at \$23.2 billion; in 2008, world rug production \$32 billion [UNCTAD Creative Economy Report \(2010\)](#)
 - Egypt is the 11th largest producer of rugs, 1.3% total mfg output
- Production reaches the market via intermediaries who operate in Fowa, Egypt
- Intermediaries predominantly sell rugs in local market and Cairo/Alexandria
 - At baseline, only 12% of firms had produced rugs for export markets
- Process of sell/exporting via intermediary common in other industries
 - 36% of exporters use intermediaries (62% of exporters with <5 employees)
[World Bank Enterprise Surveys](#)

Rugs and Production Technology



Generating Export Orders

- Partnered with Aid to Artisans (ATA) as they started project in Egypt
- Followed their protocol
 1. Find viable Egyptian products
 2. Market products on Western markets
 3. Send orders through local intermediary
- Very similar to how Export Promotion Agency programs operate ([World Bank 2009](#))
 1. Country image building (advertising, promotional events)
 2. Export support services (technical assistance, logistics, customs, etc)
 3. Marketing (trade fairs, exporter and importer missions)
 4. Market research

Export Orders



Foreign buyers demand higher **quality**

- Designs have more demanding specifications (difficult patterns, thread count, better inputs etc.)

- Require higher skill:

Less waviness
Consistent sizes
Softer to touch

Sharp corners
Design accuracy
Etc.

Example of Successful Marketing



Zephyr Rug

Designed by Curtis Fletcher and Emily Greenberg

Inspired by patterns in the sand made by the wind, the Zephyr Rug (2012) brings a modern twist to how something as simple as a g...[more info](#)

Zephyr Rug #29727

\$1,400.00 USD



Item:

Status:

Quantity:

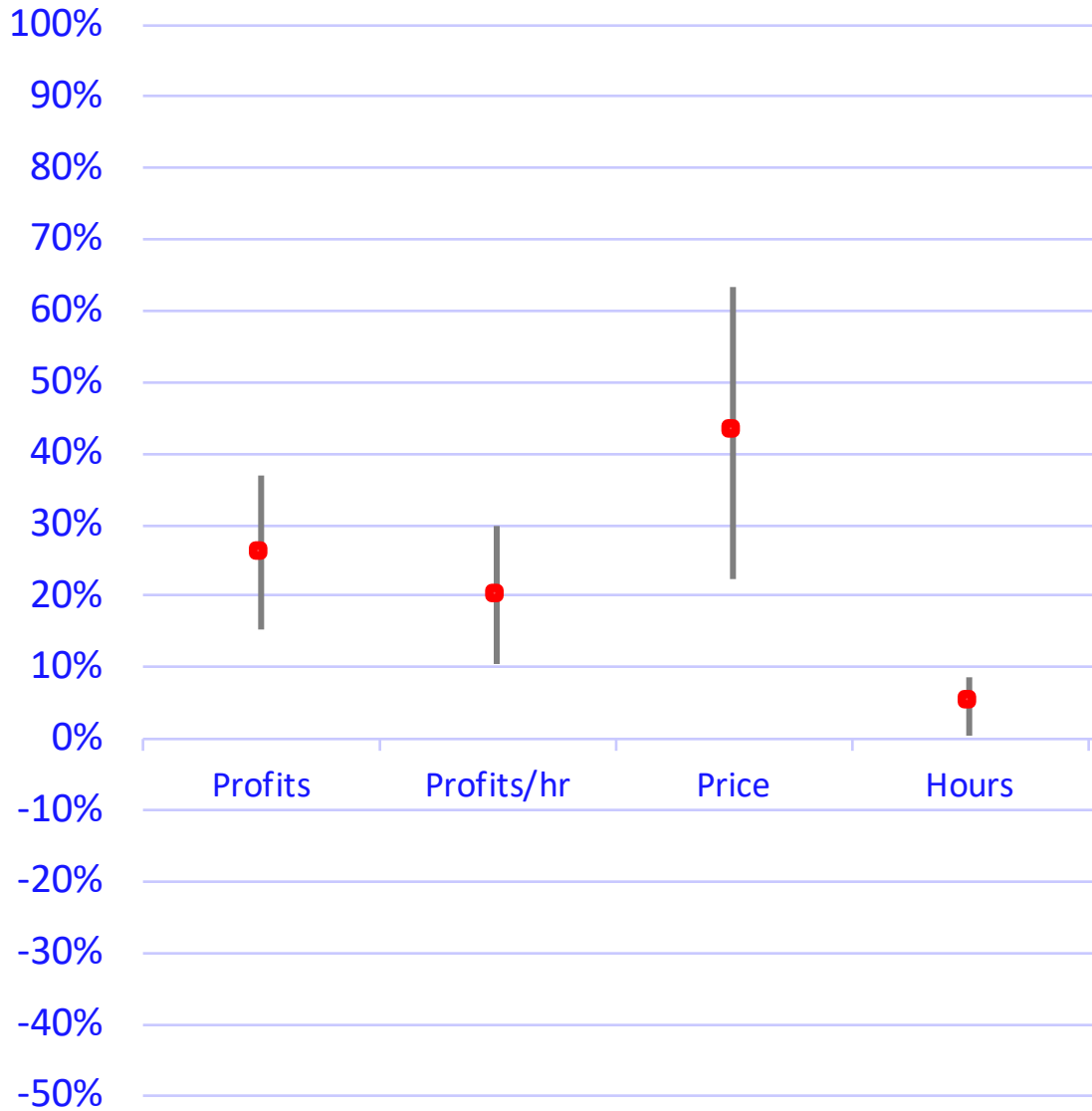
[ADD TO WISH LIST](#)

[ADD TO CART](#)

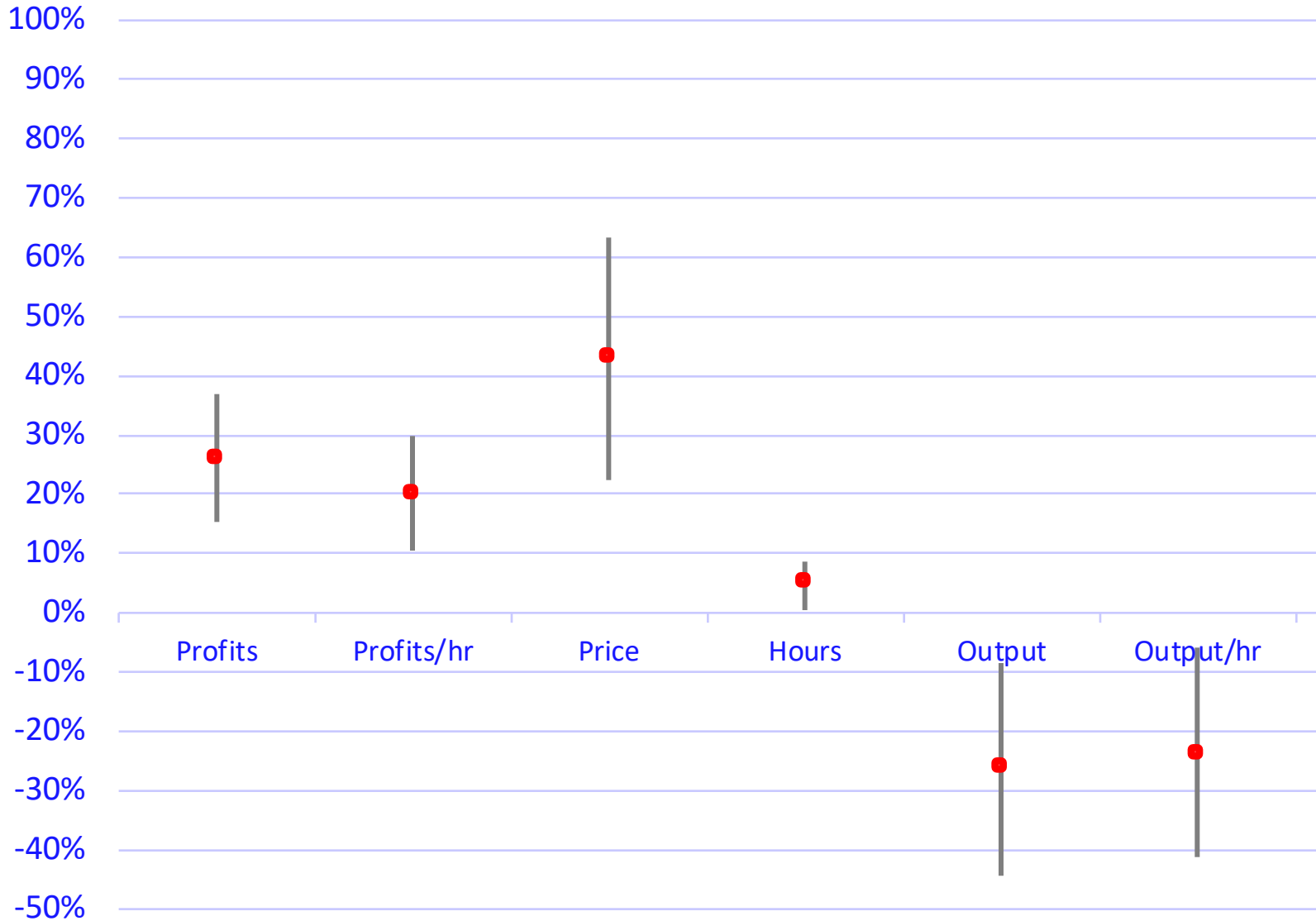
Experimental Design

- Treatment:
 - Egypt-based intermediary offers an initial order to each treatment firm
 - An order of 110m² (about 11 weeks of work)
- Post-Treatment orders:
 - Intermediary may optimally allocate future orders within treatment group (based on firm quality, reliability, etc.)
 - Mimics a normal buyer-seller relationship
- 219 small firms, with 74 in treatment group chosen at random

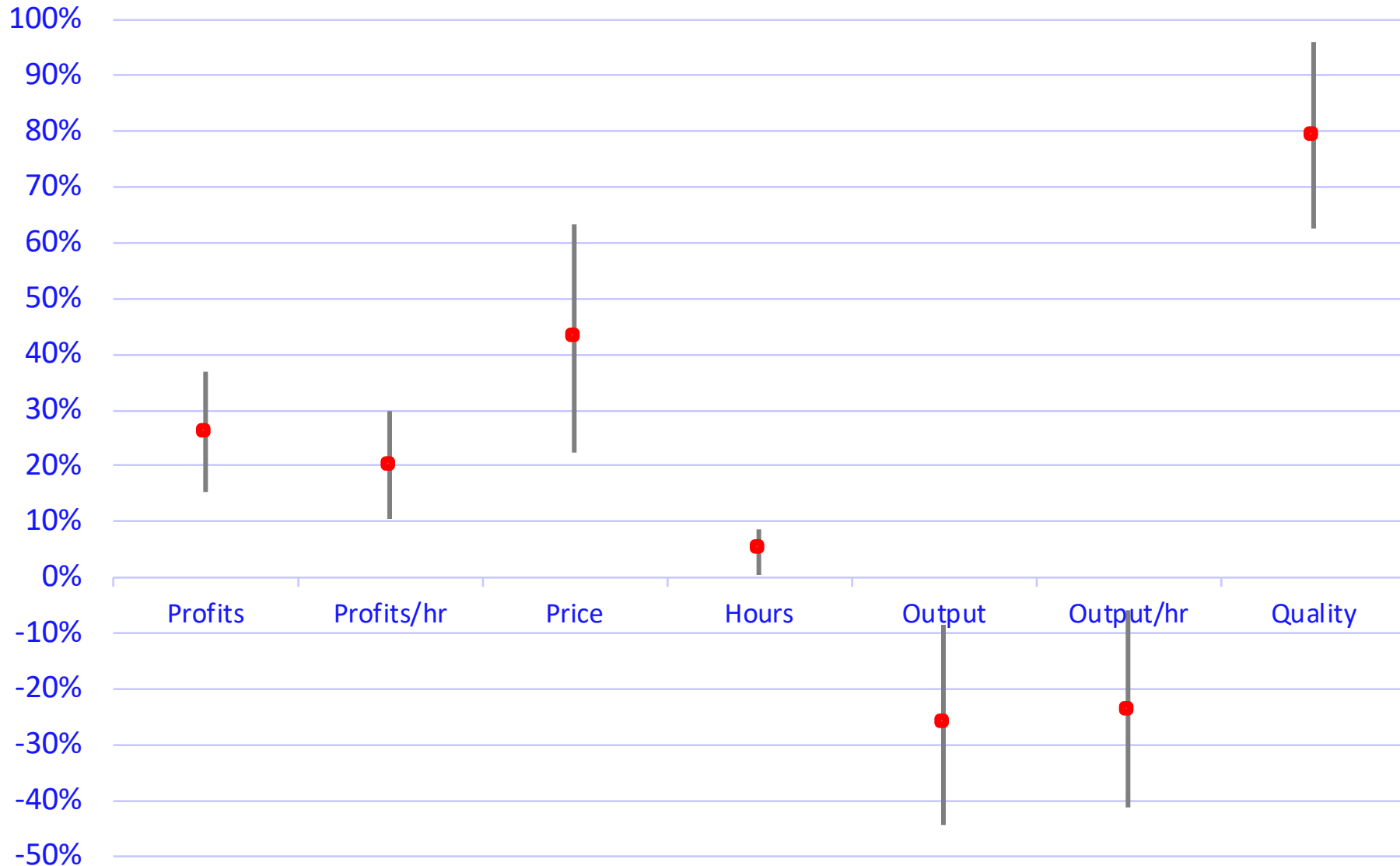
Treated Firms have Higher Profits and Work More...



But...Lower Output and Productivity (?)

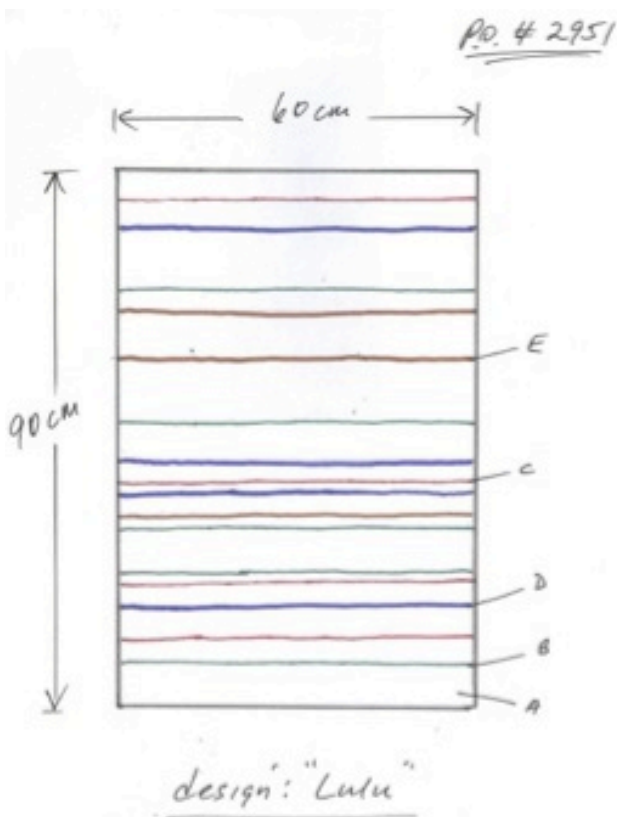


Treatment Firms Make Rugs with: More Demanding Specifications and at Higher Quality Levels



Rug Specifications

- Example of codifiable specifications:



samples

Delivery deadline: 10 Oct. 2011

Purchase Order No. 2951
Order Date: 22 Aug. 2011

QUALITY: Plain Cotton flatweave
DESIGN: Lulu
COLOR: V3

SIZE	Rug No.
60cm x 90cm	7828
60cm x 90cm	7829

2 pcs.

Colors:

A = V3
B = V103
C = V195
D = V122
E = V139

⇒ Plain ends (bound)
No fringe.

Artwork attached
for design and
color placement.

After Adjusting for Rug Types: Treatment Firms have Higher Productivity



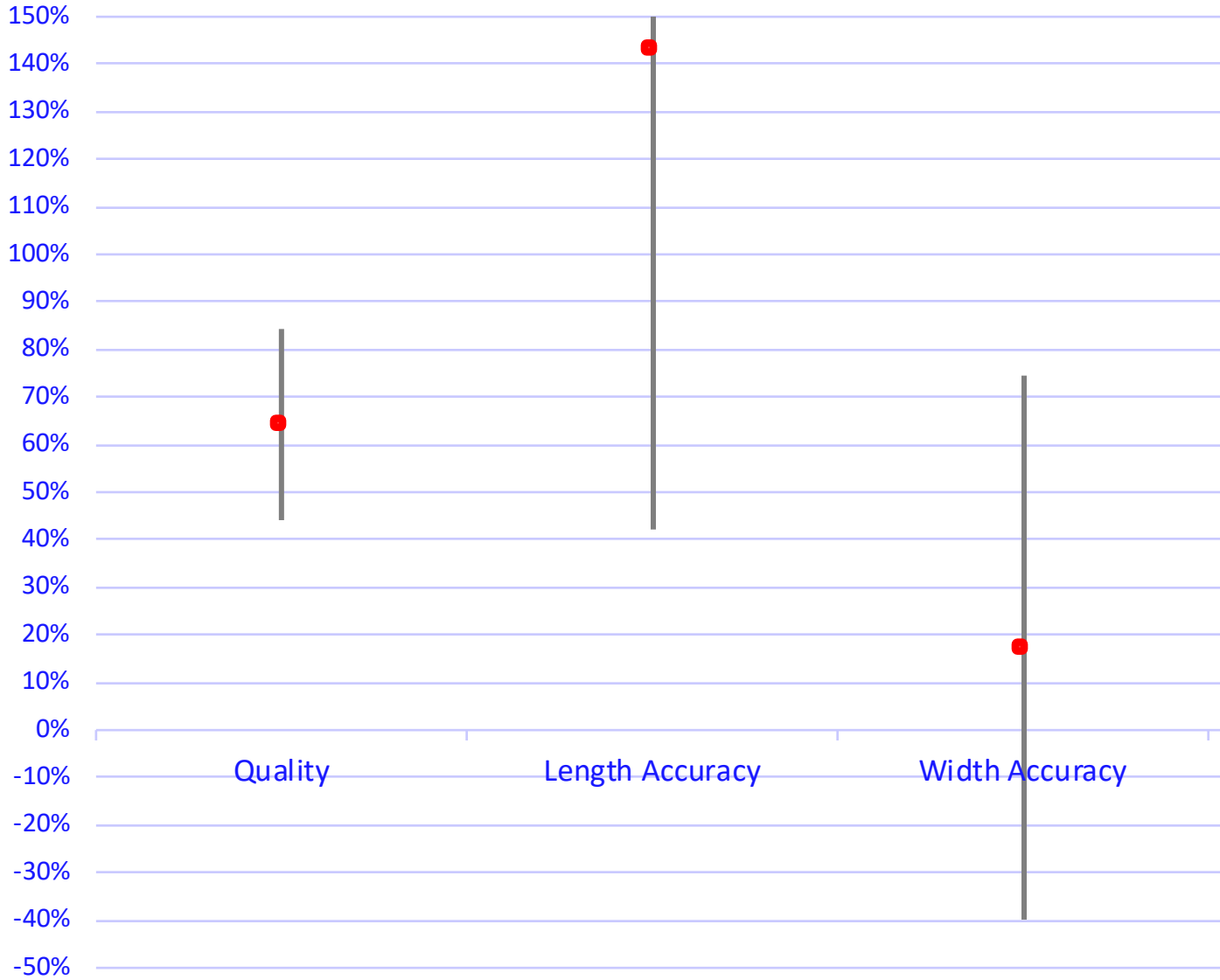
Production Lab

- Mfg an identical domestic rug using identical inputs and the same loom
 - Well-known design in domestic market
 - 140cm by 70cm, 1750 grams
 - Master artisan assigned difficulty rating of 3

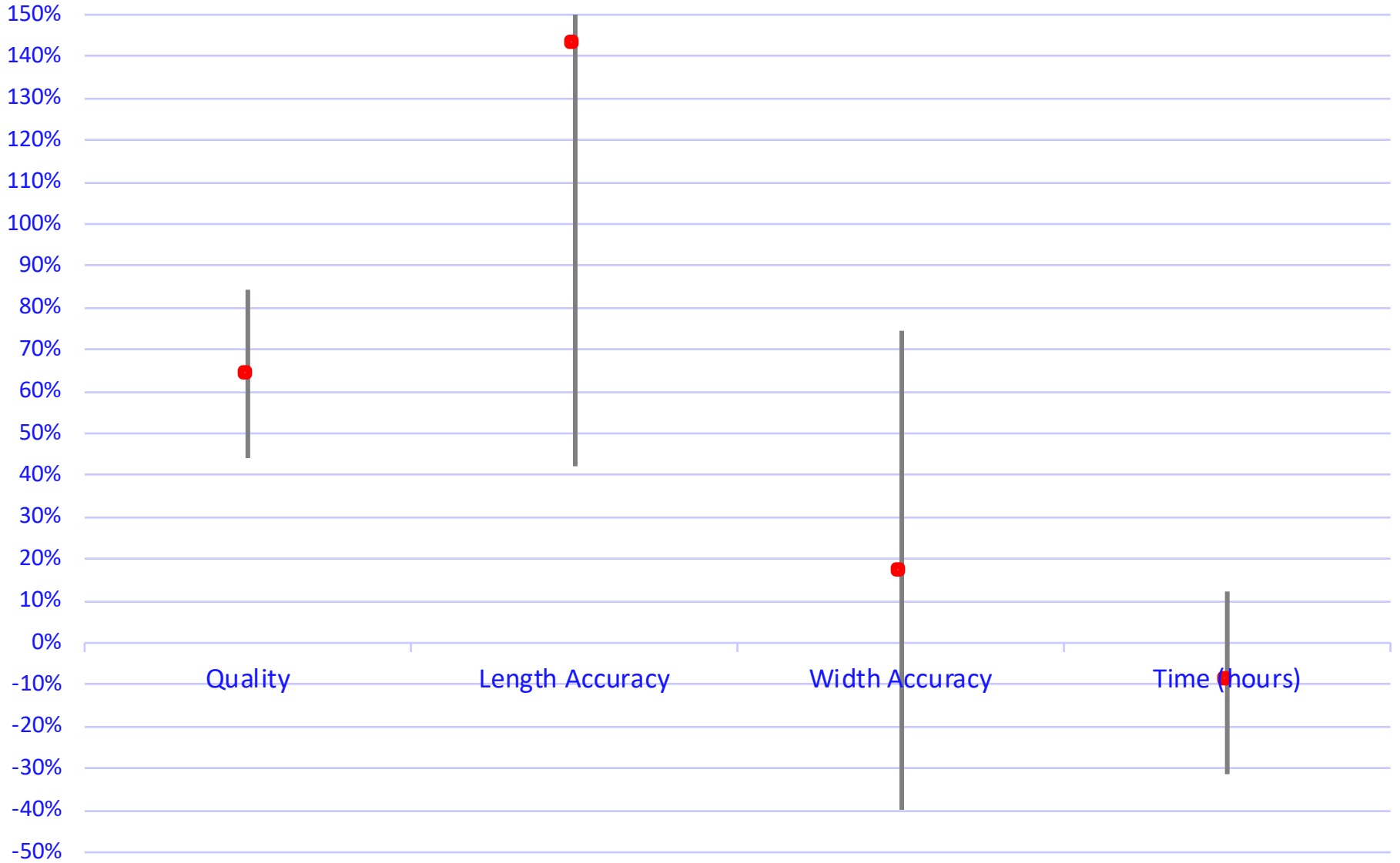


- Rug quality scored by master artisan & Prof Handicraft Science at Domietta Uni
- Measured rug length, width, and weight
- Recorded time to manufacture rug

Lab Results



Lab Results



Knowledge Transfers

- Document knowledge transfers between buyers, intermediary and firms:
- Buyers → Intermediary
- Example 1: Buyer telling the intermediary how to make flatter carpets:



Knowledge Transfers

- Document knowledge transfers between buyers, intermediary and firms:
- **Buyers → Intermediary**
- Example 2: Buyer telling intermediary what “high-quality” entails:



Knowledge Transfers

- Record information flows:
 - Intermediary → firm

- What details were discussed?
 - 91.1% of discussions involved intermediary providing “information on techniques to improve quality” (as opposed to only pointing out flaws)

 - E.g., intermediary explained optimal way to weave weft thread through warp to achieve correct rug firmness, how to hold weft to reduce waviness etc.

	(1)	
Number of Visits	11.0 (2.57)	
Length of Visit (in minutes)	27.6 (4.88)	
Discussed technique?	90.3%	
	Discussed Metric?	Discussed Technique?
	(1A)	(1B)
Corners	31.8%	100.0%
Waviness	20.5%	100.0%
Weight	54.5%	92.9%
Touch	11.4%	100.0%
Packedness	20.5%	93.8%
Warp Thread Tightness	47.7%	78.9%
Firmness	31.8%	100.0%
Design Accuracy	50.0%	96.2%
Warp Thread Packedness	22.7%	75.0%
Observations	44	

Getting Buyers' Interest is Hard!

- In a new experiment, we've been trying to understand frictions in securing overseas orders
- Purchased a database with the ~8000 carpet retailers in the U.S.
- Emailed 200 randomly with an offer for a **free** trial rug. Zero response.
- Then switched to making 522 (random) phone calls
 - 232 didn't go through (no answer, wrong number)
 - 127 said they didn't sell rugs
 - Of the remaining 163, only 8 retailers expressed interest
 - Of these 8, only 2 provided addresses. The others said to send email
 - Sent emails to 4 of these 6, and have yet to hear back

Policy Takeaways

- International trade can improve firm productivity
 - Access to larger markets, more sophisticated buyers
 - Market access either directly or indirectly through value chains
- International trade costs go well beyond “standard” tariffs/transport costs
 - Customs facilitation, regulatory standards
 - Reducing information and matching frictions
 - Access to trade financing instruments
- Limitations of this study
 - Very small firms
 - Scope for technological upgrading is limited
- Future work ... Conduct a randomized trial of market access on large firms

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End

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