

Ethnic Divisions and Production in Firms

Jonas Hjort
Columbia Business School

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- Negative effect on decision-making in **public sphere**: public goods provision lower and macroeconomic policies worse in ethnically fragmented societies (Easterly and Levine, 1997; Alesina and La Ferrara, 2005)
- Possibility of additional *direct* effect on productivity in the **private sector** long recognized (communication, complementarity, discrimination, etc).
- But evidence from poor countries largely absent

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1. **The direct effect of the ethnic diversity in a poor country's workforce on productivity**
2. The primary **source of the effect**
3. How **firms respond** and their **ability to limit the impact** on output
4. **How and why the magnitude of the effect varies** within societies of a given level of ethnic heterogeneity

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 - Workers at the plant almost equally drawn from two historically antagonistic ethnic blocs
- Team production in triangular packing units. One upstream “supplier” supplies two downstream “processors” who finalize observed output:

Figure 1: Organization of team production

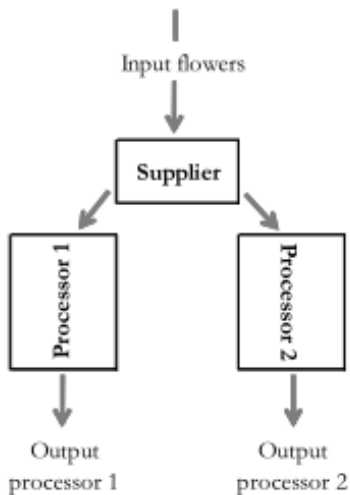
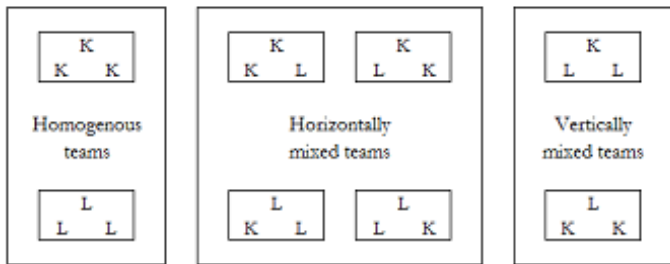


Figure 2: Team ethnicity configuration categories



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 - Supplier influences processors' pay
 - Inefficient behavior costly to the supplier

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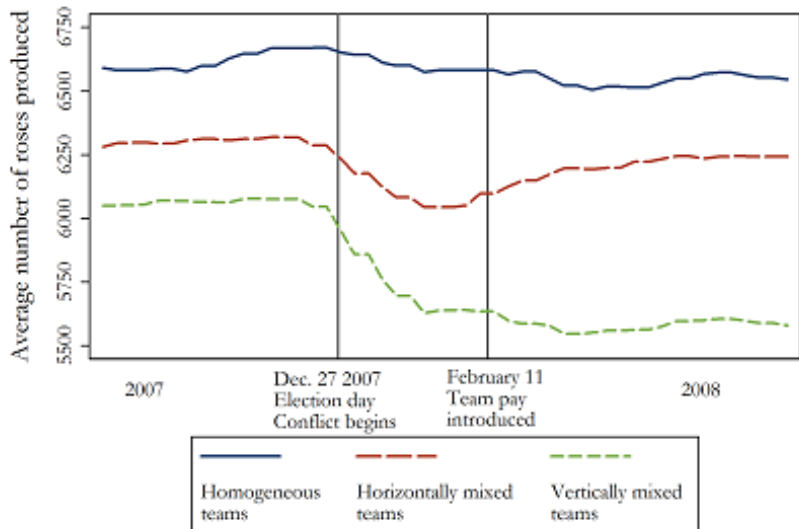
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4. *Explore firm's response and ability to limit impact on output*. Starting Feb 2008: team pay for processors introduced (piece rate for combined output)
5. *Distinguish taste-based discrimination from other diversity effects*. Model predicts (i) differential \downarrow in (horizontally and vertically) mixed teams' output during conflict period, and (ii) differential \uparrow (or smaller \downarrow) in horizontally mixed teams' output during team pay period

Preview of results

Figure 2: Output in homogeneous and mixed teams across time



2.1 The Setting: Kenya: ethnic diversity and floriculture

- Ethnic divisions influencing Kenyan society and politics since independence
 - The Kikuyu the most economically and politically influential tribe. President a Kikuyu since 2002
 - Opposition led by the Luo. Most tribes (politically and “socially”) aligned with one of the two associated camps → categorize a worker according to the tribal coalition (“ethnic group”) to which her tribe belongs (Kikuyu vs Luo)
- Interesting case-study in context of ethnic divisions: floriculture sector
 - Important sector in Kenya: supplies 31% of flowers imported into Europe, employs 50.000 + 500.000 in associated industries
 - Study one large farm, in ethnically mixed area
 - Greenhouse and packhouse (“plant”) work. Focus on plant workers: productivity measurable
- Data sources
 - 2007 and 2008 records of daily output for all packhouse workers, recorded by the plant for pay purposes
 - Survey of workers’ ethnicity, gender, etc:

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- Assignment to teams shown to be quasi-random

3. Taste-based Ethnic Discrimination and Productivity: Theoretical Framework

- In paper, theoretical framework in which suppliers may have "taste for discrimination" - attach lower weight to non-coethnic processors' output. Key predictions include:
 - Pre-conflict period:
 - Suppliers misallocate flowers "vertically" (undersupplying downstream non-coethnics) and "horizontally" (shifting flowers from non-coethnics to coethnics) so that output is lower in mixed teams
 - Conflict period:
 - If taste for discrimination increases during conflict, output in mixed teams falls
 - Team pay period
 - Supplier's incentive for *horizontal* misallocation eliminated. Output in horizontally mixed teams goes up (relative to other teams)

4.1 Empirical Results: Pre-conflict period: the effect of ethnic diversity on productivity

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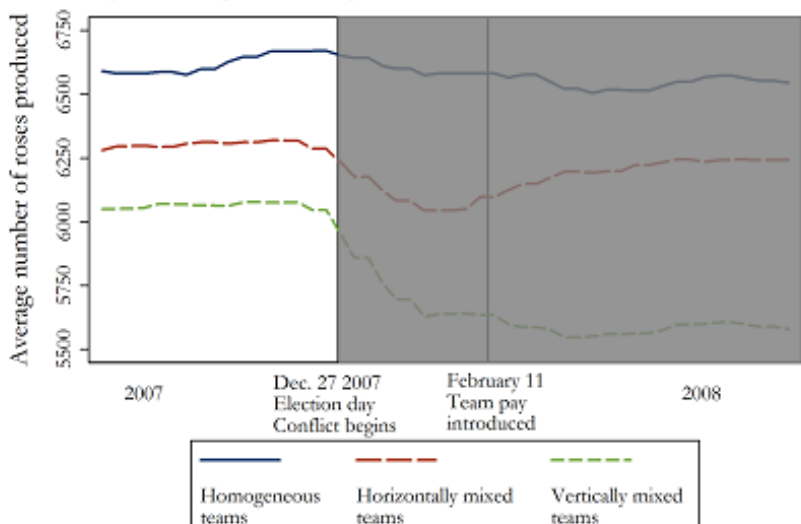
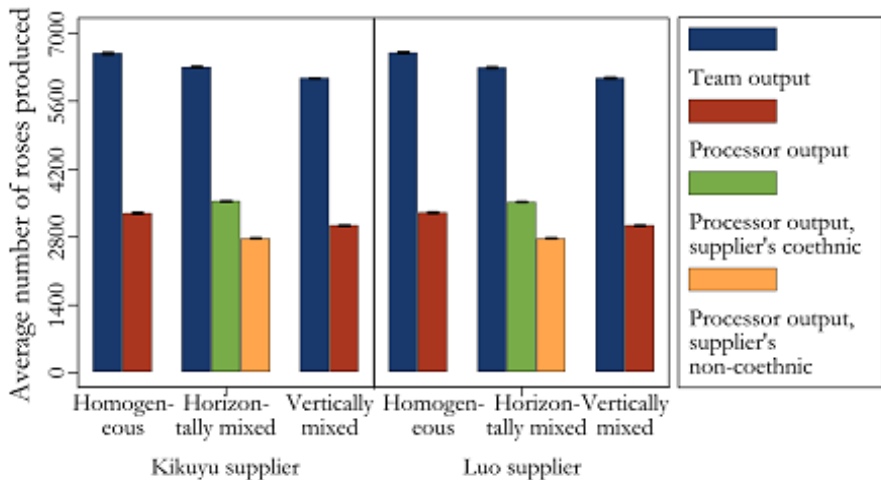


Figure 5: Output by team ethnicity configuration



95% confidence intervals are depicted. In teams with Kikuyu suppliers, average output in teams of different ethnicity configurations is as follows (standard errors in parenthesis). Team output in homogeneous teams: 6586 (12). Processor output in homogeneous teams: 3295 (8). Team output in horizontally mixed teams: 6307 (9). Processor output in horizontally mixed teams, supplier's coethnic: 3539 (8). Processor output in horizontally mixed teams, supplier's non-coethnic: 2777 (7). Team output in vertically mixed teams: 6073 (11). Processor output in vertically mixed teams: 3039 (7). In teams with Luo suppliers, average output in teams of different ethnicity configurations is as follows (standard errors in parenthesis). Team output in homogeneous teams: 6606 (12). Processor output in homogeneous teams: 3304 (6). Team output in horizontally mixed teams: 6290 (7).

4.2 Empirical Results: Conflict period: groups' relations and the effect of ethnic diversity on productivity

- Dec 27 2007 election pitched the two ethnic blocs against each other
 - Announced victory for incumbent Kikuyu leader Mwai Kibaki disputed. National political crisis and violence in some areas erupted
 - Crisis ebbed after power-sharing agreement on April 3, 2008. By then 1,200+ killed and 500,000+ displaced (Gibson and Long, 2009)
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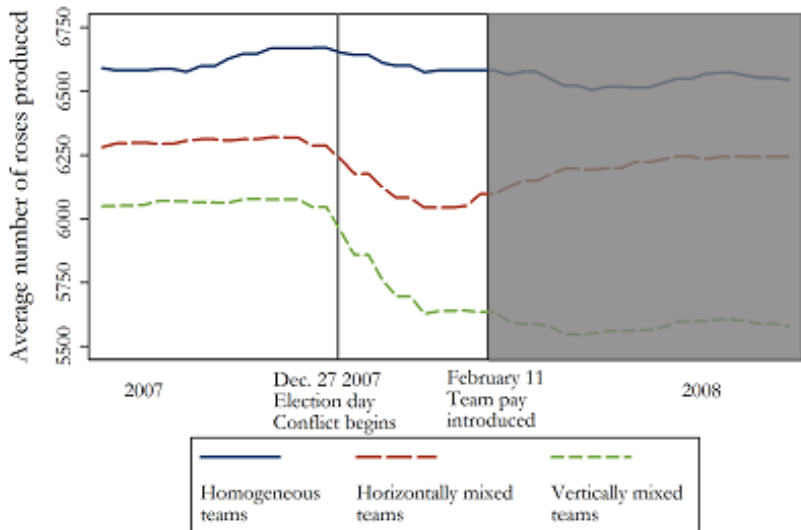
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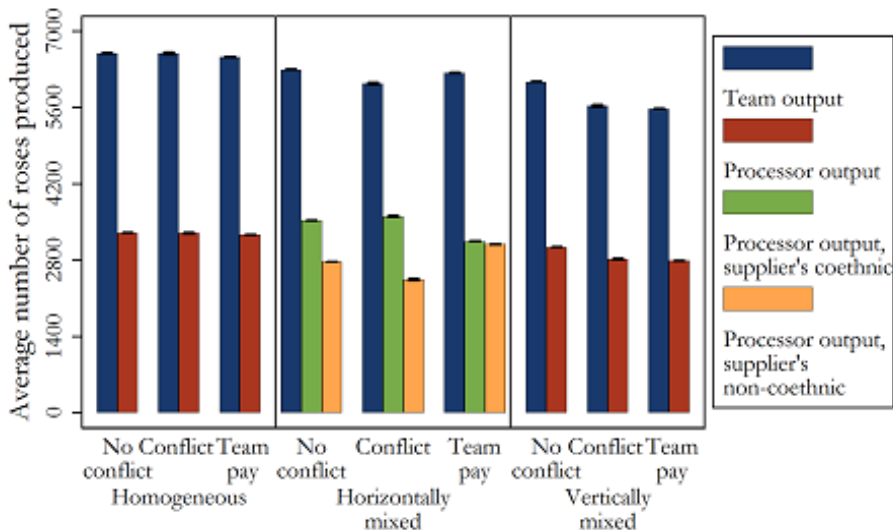
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 - $Q_{HM} \uparrow$ if positive effect of reducing horizontal misallocation $>$ negative freeriding effect
- To test, consider period after change in pay system a single team pay period

Figure 8: Output by team ethnicity configuration
Before and after conflict, and under team pay



95% confidence intervals are depicted but narrow and thus hard to see. 'Conflict' signifies the first 6 weeks of 2008 when ethnically-based violence was taking place but processors were still paid individual wages. 'Team pay' signifies the remainder

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- In combination, evidence from pre-conflict, conflict and team pay periods suggests non-taste-based explanation for lower output in mixed teams unlikely

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- Analysis also points to a "hidden" effect of conflict episodes with real and potentially large economic costs: greater taste for ethnic discrimination. Especially among younger workers and those more personally affected by the conflict

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- But taste for ethnic discrimination not fixed: responds to macro-level political environment, etc
 - One of several reasons why some diverse societies are more productive than others (form of production, e.g. degree of specialization / # of linkages, etc will also matter)

Thanks!