Gender Diversity and Innovative Performance
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Motivation

- Measurement of the progress and business benefits of diversity initiatives
  - Central to the business case of diversity
  - Evaluate diversity policies and choose the right targets

- Obstacles:
  - Complex interplay of causes and effects
  - Need of an adequate measurement protocol
Challenges in addressing workplace diversity

- Commitment of leadership
- Difficulty measuring results
- Discriminatory attitudes and behaviours
- Financial resources
- Lack of information
- Specific skills or expertise required
- Time
- Other

Source: European Business Test Panel (798 resp.)

Contribution

- Econometric modelling to quantify the impact of gender diversity on innovative performance in S&T teams
  - Construct a database (Air Liquide, EDF, Schlumberger, Shell)
  - How does the make-up of the R&D teams, and specifically gender diversity within teams, impacts R&D performance

- Illustrate how a simple protocol can be used for:
  - evaluating the impact of diversity on performance
  - measuring progress in implementing diversity
  - choosing the right targets
Data

• Panel
  o Air Liquide, EDF, Shell, Schlumberger
  o Year 2004
  o 1506 individuals
  o 26% of women
  o 272 projects

Data (2)

• Make-up of the teams in terms of
  o Gender
    • Gender diversity = proportion of women per team
  o Age
  o Nationality
  o Grade and seniority
  o Time spent on the project per agent
• **Innovative performance indicators (annual):**
  - At the individual level: bonuses for successful research achievements or rating
  - At the team level: rating of either the projects or the teams
  - Indicators combining project data:
    - real costs vs anticipated costs of the R&D project
    - priority deliverables delivered before or behind schedule

Descriptive statistics on the panel
1. **Concentration:** men work in teams where the proportion of women is 23%, women work in teams where the proportion of women is 35%

![Bar chart showing the proportion of men and women in teams]

2. **Female managers run female teams**

![Bar chart showing the proportion of women in teams led by male and female managers]
3. The leaky pipeline

- Women are over-represented on projects that are not directly linked to ground R&D: product commercialisation & client support (40%); support to R&D (50%)

4. A clear domain effect

- Women are over-represented on projects that are not directly linked to ground R&D: product commercialisation & client support (40%); support to R&D (50%)

- 21% of women on projects labelled « challenges »
Gender Diversity and Individual Performance

Model

- Individual characteristics
  - Gender
  - Age /Seniority
  - Job group
  - Nationality

- Context: the team
  - Gender Diversity
  - Age diversity
  - Job group diversity

Change in individual performance

1506 individuals
Results

- Gender diversity has a positive impact on individual performance…
  - ...assessed by the annual ratings
    - an increase of 10% in the gender diversity within teams would increase by 3% the probability of achieving the highest individual performance rating
  - ...assessed in terms of the ratio “research bonus to salary”
    - Following an increase of 10% in the gender diversity within teams, team members would increase their research bonus by 0.7% because their performances would have improved over the year

Gender Diversity and Collective Performance
Model

• 2 runs:

1. (69 projects) Performance = the three level measure with 3 describing the highest achievement

2. (209 projects) Two indicators (I1) the realized costs of the project as compared to the anticipated costs, and (I2) whether the date of delivery of priority deliverables was before or behind schedule

Results

• Gender Diversity has a **positive impact** on project performance

  o More gender diversity increases the probability that priority deliverables are achieved before schedule

  o Similarly it would raise the probability that real costs will be smaller than anticipated costs
Results

• **Domain effect**: Women are over-represented on projects that are likely to have low R&D performance (as product commercialisation or client support)

• On a restrained sample of challenging projects clearly related to R&D, the positive impact of gender diversity is even greater

⇒ **the impact of gender diversity on performance is likely to be under-estimated in general**

Conclusion

• A business case for implementing gender diversity can be empirically made

• On our sample, individual and collective performance would be increased by more gender diversity
Conclusion (2)

- Domain effect
- A bias likely to have a measurable cost in terms of performance
- Allowing more women to enter key fields is likely to have positive impact on individual and collective performance

Further developments

- Add indicators on HR diversity management, wider set of explanatory variables (marital status, children, education, mobility, …)
- European panel
- Company panel
  - Several years of data: evolution of diversity implementation and of its success; improve the results
  - Drivers of performance
  - Management tool
Protocol

- Information needed from the companies:
  - Panel organised by project
  - Indicators of performance (collective, individual) – note: individuals are kept anonymous
  - Workforce profiling (gender, age, ethnicity, position, at minimum)
  - Diversity policy implemented

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Innovative Performance

Other sources of diversity (culture, age, status…)
Gender diversity
Individuals’ characteristics
Project features
HR management

Methodology: econometric modelling

Variation in Performance

Other sources of diversity (culture, age, status…)
Gender diversity
Individuals’ characteristics
Project features
HR management
Methodology (2)

- Better performing firms are more likely to have a policy of diversity

  ![Performance vs Gender diversity](image)

- Need to disentangle these simultaneous effects and isolate the impact of diversity on performance

  → Study at the team level

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![Bar chart showing gender distribution across various domains](image)