The Impact of a Multidimensional Widening Participation Initiative on Student Performance in Ireland

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Overview of presentation

- Widening Participation - The Irish Context
- University College Dublin – New ERA Programme
- Evaluation of the New ERA Programme
- Practical Implications for New ERA
Widening Participation: The Irish Context

- Abolition of undergraduate tuition fees in 1996
- National means tested financial assistance
- Representation of socio-economic groups at university

<table>
<thead>
<tr>
<th>Over represented</th>
<th>Under represented</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Professionals</td>
<td>Intermediate Non Manual</td>
</tr>
<tr>
<td>Lower Professionals</td>
<td>Other Non Manual</td>
</tr>
<tr>
<td>Employer/Managers</td>
<td>Skilled</td>
</tr>
<tr>
<td>Salaried Employees</td>
<td>Semi- Skilled</td>
</tr>
<tr>
<td>Farmers</td>
<td>Unskilled</td>
</tr>
<tr>
<td></td>
<td>Agricultural workers</td>
</tr>
</tbody>
</table>

(Clancy & Wall, Dublin 2000)
Widening Participation: The Irish Context

- White Paper in 1995
  - "...a major policy objective of Government is to promote equality of access to higher education, irrespective of social class, age or disability"

  - Recommended that a percentage of places be reserved for students from disadvantaged backgrounds with differing entry requirements & admissions procedures from the general intake

- Targeted funding from the HEA – 1995/96
Widening Participation: The Irish Context

• Department of Education and Science – Disadvantaged Schools

• Public funded Universities and Institutes of Technology

• Widening participation focus
  – Under represented socio-economic groups (SEGs)
  – Low income
  – Disadvantaged schools
University College Dublin: New ERA Programme

University College Dublin

New ERA established 1997

Aims to encourage and facilitate increased participation in higher education by students who for a variety of economic or social reasons are under-represented in University

- School leavers – 17/18 yrs
- 3 strands
- 19 Schools
- 10 entrants
UCD New ERA Student Support: Pre-Entry

Comprehensive pre-entry programme

- 36 Second Level Schools (12-18)
- 32 Primary Schools (5-12)
- Summer Schools
- Shadowing Day
- Voluntary Tutoring
- Exam Preparation workshops
- School & campus visits
- Undergraduate Ambassador Scheme
UCD New ERA Student Support: Pre Entry

Admissions Scheme – Higher Education Access Route (HEAR)

- 2009 National Scheme
- Collaborative initiative
- Reserved places with reduced entry requirements
- Post-entry support
- Multiple indicator approach
- UCD Strategy
Alternative Entry Mechanism

1. “Merit students” admitted through the standard entry system
   - Same entry grades required as non-New ERA students

2. “Direct students” preferential entry
   - Concession of up to 20% on entry grades required for course
   - Small number of places on each course reserved for Direct students

   • Parallels with Affirmative Action Programs
     - Although preferential treatment based on SES rather than ethnicity

   • Direct students not necessarily of a lower ability than Merit students – choose different courses

   • Both *Merit* and *Direct* students receive the same pre and post entry supports
New ERA Student Support: Post Entry

- **Student Support**
  - Over 600 graduates (2000)
  - 400 undergraduates
  - All undergraduate programmes

- **Financial support**
  - Means tested state grant (€2900-3300)
  - Additional New ERA grant (€2200-3400pa)
  - Book tokens & equipment grants
New ERA Student Support:
Post Entry

- **Academic Support**
  - Additional tuition
  - School based liaison staff
  - Skilled based workshops

- **Social Support**
  - Residential orientation programme
  - Access to reserved rooms on campus
  - Dedicated student adviser
  - Peer mentor scheme (2006)
  - Student career development
New ERA Student Support: Post Entry

Developments

• UCD Horizons
  – Structure

• Time of study
  – Level of financial support

• Developing skills
  – Targeting 1st years

• Students as resources
  – Role Models
  – Career Development
New ERA Eligibility Criteria

1. **Family Income:**
   - Low household income – same criteria for receipt of regular state grant

2. **Social Class:**
   - Under-represented social groups (unskilled manual workers, semi-skilled manual workers, other non-manual workers, intermediate non-manual, skilled manual and agricultural workers)

3. **Parental Education:**
   - Parents did not attend university

4. **Attend DEIS School:**
   - Attended disadvantaged school linked to program prior to entering university
Growth of New ERA Over time

- Growth in number of New ERA students over time

Figure 3.1: Description of the New ERA sample

- Growth in number of New ERA students over time
Characteristics of New ERA students

Gender

- Higher proportion of female New ERA students
Characteristics of New ERA students
Parental Socio-Economic Status

- Higher proportion of New ERA students in lower SES groups

<table>
<thead>
<tr>
<th>Category</th>
<th>Direct %</th>
<th>Merit %</th>
<th>Non-New ERA %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Farmers &amp; Agricultural Workers</td>
<td>1.15</td>
<td>1.41</td>
<td>11.80</td>
</tr>
<tr>
<td>Professionals and Managers</td>
<td>0</td>
<td>0</td>
<td>62.65</td>
</tr>
<tr>
<td>Salaried Employees</td>
<td>25.29</td>
<td>19.72</td>
<td>16.24</td>
</tr>
<tr>
<td>Intermediate and Other Non-Manual</td>
<td>22.98</td>
<td>23.94</td>
<td>2.91</td>
</tr>
<tr>
<td>Skilled &amp; Semi-skilled Non-Manual</td>
<td>36.78</td>
<td>33.80</td>
<td>5.88</td>
</tr>
<tr>
<td>Non-skilled Manual</td>
<td>13.79</td>
<td>21.13</td>
<td>0.52</td>
</tr>
</tbody>
</table>

Figure 3.3. Socio-demographics: socio-economic status
Characteristics of New ERA students

University Faculty

- Arts largest faculty
- Greater proportion of Direct students in Commerce & Medicine
- Greater proportion of Merit students in Science
Evaluation of New ERA

- Funded by Higher Education Authority through the Strategic Innovation Fund (SIF)

- Aim of SIF to support innovation & enhance quality and effectiveness in higher education institutions

- Evaluation began in 2008 covers the period 1999-2007

- Evaluation conducted by researchers at the UCD Geary Institute including Dr. Kevin Denny (PI), Dr. Orla Doyle, Patricia O’Reilly & Vincent O’Sullivan
Aims of Evaluation:

- **To evaluate a multi-dimensional access program based at UCD using a quasi-experimental design**
  - First year retention rates
  - First year exam performance
  - Graduation rates & time to graduation
  - Final degree classification  
    \[ \text{[conditional on enrolment]} \]

- **Does it work for some groups more than others?**
  - Merit versus Direct students
  - High ability versus low ability students
  - Females versus males

- **Why does it work?**
  - Impact of variations in financial aid package

- **Implications of expanding the program**
Literature

- Concentration on evaluation of financial aid programs
  - Overall positive effects on enrolment: ~5% increase for reduction of $1000 in costs (Cornwell et al. 2006; Kane, 2003; Dynarski, 2003; Deming and Dynarski, 2009) & completion rates (Scott-Clayton, 2009; Dynarski, 2008)

- Academic support programs also effective for retention & academic performance (Lesik, 2006; Scrivener et al. 2008)

- Few rigorous studies evaluating effectiveness of multi-dimensional access programs
  - Angrist, Lang, Oreopoulos (2009)
    - RCT evaluation of STAR project @ Canadian University
    - ↓ 1st year withdrawal by 10% and + effect on GPA
    - Effects greater for combined package & girls only
    - RCT evaluation of low-income parents @ US college
    - Financial aid & counselling positive effect on multiple outcomes
Our Contribution:

• Literature primarily North American context
  – Ireland
    • No university fees
    • Low intergenerational mobility (Chevalier et al. 2009)
    • High rate of return to education

• We use natural experiment which exploits the time variation in the expansion of New ERA across high schools
Entry to a particular course/university in Ireland is based on school grades in final exam taken at age 18 (6 exams worth a total of 100 points each).

All students rank the courses/university they wish to attend.

Places are allocated on a partial supply & demand basis.
- E.g. Medicine
  - Supply fixed of 100 places
  - Applicants ranked by grades
  - Usual grades needed for Medicine ~570 points
  - Top 100 get accepted including any “Merit” students
  - Very small number of additional places reserved for “Direct Students”

- Arts and Science have greatest number of New ERA students (~370 and 325 points required)
Data

- Pooled administrative data of entrants 1999-2004
  - High school grades
  - High school attended
  - Individual factors: age, gender
  - Family background: social class
  - Financial grant status
  - Faculty & course of study
  - Grades in each year of university & graduation

- Some school-level data
  - No school ‘quality’ data available
  - Unemployment rate & educational attainment in school neighbourhood (Census data)
Evaluation Design

• Effect of New ERA = Difference between student performance with program and without program

• Need to find the counterfactual – what would have happened in the absence of the New ERA program?

‘The evaluation problem’

• Need comparison group: a group of students who are otherwise similar

• If the 2 groups are systematically different comparing the outcomes of both groups will be misleading
Method: Natural Experiment

- RCTs can generate a comparison group who are similar to treatment group except they do not receive the program.
- We use a *natural experiment* to generate a comparison group.
- **Our Natural Experiment:** Gradual expansion of New ERA program.
Expansion of the New ERA initiative

- Take advantage of the non-systematic growth in linked schools over time
  - ~20 in 1999
  - ~ over 300 schools in 2008

- Compare New ERA students to students who met all eligibility criteria, except their school was not linked to New ERA at time of entry

- Only difference is that one group were eligible for the program and the other group was not
Identification Strategy

- Random selection of schools into the program
- Date of entry not dependant on school characteristics

Yes...

1. No self-selection of schools into the program

2. Little heterogeneity in the schools linked to New ERA
   - Government’s Official List of Disadvantaged Schools - not a ranking, all schools receive same level of funding

3. Expansion of program depended on funding from Govt. Philanthropy & EU – exogenous source of variation

4. Introduction of national access scheme in 2001
   - Exogenous policy that greatly expanded no. of link schools
## Identification Strategy

<table>
<thead>
<tr>
<th>Year of linkage to NE</th>
<th>Number of schools joining</th>
<th>Proportion in locality unemployed in 1996</th>
<th>Proportion in locality leaving education before age 18 in 1996</th>
</tr>
</thead>
<tbody>
<tr>
<td>1999 or before</td>
<td>21</td>
<td>0.11 (0.03)</td>
<td>0.90 (0.06)</td>
</tr>
<tr>
<td>2000</td>
<td>6</td>
<td>0.06 (0.02)</td>
<td>0.87 (0.08)</td>
</tr>
<tr>
<td><strong>2001</strong></td>
<td><strong>125</strong></td>
<td><strong>0.09 (0.04)</strong></td>
<td><strong>0.86 (0.09)</strong></td>
</tr>
<tr>
<td>2002</td>
<td>30</td>
<td>0.09 (0.03)</td>
<td>0.88 (0.06)</td>
</tr>
<tr>
<td>2003</td>
<td>68</td>
<td>0.08 (0.03)</td>
<td>0.87 (0.05)</td>
</tr>
<tr>
<td>2004 or later</td>
<td>60</td>
<td>0.09 (0.03)</td>
<td>0.89 (0.06)</td>
</tr>
</tbody>
</table>
Treatment & Comparison Groups

• **Comparison group:**
  - Students who attended disadvantaged schools subsequently linked to New ERA
  - Students in receipt of the local authority grant
  - Certain socio-economic groups
    - Skilled manual, Semi-skilled manual; Unskilled Non Manual; Semi Skilled Non Manual; Other Non-Manual; agricultural workers
  - N ~300-385 comparison group students

• **Treatment group:**
  - Direct and Merit New ERA students between 1999 and 2004
  - 332 NE students (173 Direct & 149 Merit)
Evaluation Results

• Estimate a simple ‘differences’ model controlling for
  – Faculty of study; Year of entry; School grades

• Linear probability models for binary outcomes and ordered
  probit for categorical outcomes

• Outcomes
  – First year: retention rate; exam performance; progression to 2nd yr
  – Final year: graduation rate; time to graduation; degree classification
  – Impact of variation in financial aid package on student performance
  – Likely consequences of the new National HEAR scheme

• Sub-divide the sample into:
  – Direct and Merit students
  – High (>400) and Low (<400) grade students
  – Gender
• **Result:** Participation in New ERA has positive effect on increasing first year retention rates
  - 8.1% for low point Merit students & 4.5% high point Direct students
• **Result:** New ERA has a positive effect on improving first year exam results by shifting students up the grade distribution.
**Result:** New ERA has a positive effect on improving first year exam results for high point students by shifting students up the grade distribution.
Probability of Graduating

- **Result**: Participating in New ERA increases the probability of graduating from university.
Probability of Graduating on Time

- **Result:** New ERA has no effect on the probability of graduating on time
Result: New ERA has relatively little effect on the final degree classification – for those who pass
## First Year Results: By Gender

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Merit</td>
</tr>
<tr>
<td><strong>Retention rate</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Male</td>
<td>0.073</td>
<td>0.050*</td>
</tr>
<tr>
<td>Female</td>
<td>(0.045)</td>
<td>(0.027)</td>
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<tr>
<td><strong>First Year Exams</strong></td>
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<td></td>
</tr>
<tr>
<td>1.1</td>
<td>-0.003</td>
<td>0.032</td>
</tr>
<tr>
<td></td>
<td>(0.006)</td>
<td>(0.028)</td>
</tr>
<tr>
<td>2.1</td>
<td>-0.021</td>
<td>0.067</td>
</tr>
<tr>
<td></td>
<td>(0.047)</td>
<td>(0.043)</td>
</tr>
<tr>
<td>2.2</td>
<td>-0.015</td>
<td><strong>0.033</strong></td>
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<tr>
<td></td>
<td>(0.034)</td>
<td>(0.019)</td>
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<tr>
<td>Pass/3rd</td>
<td>0.004</td>
<td>-0.048</td>
</tr>
<tr>
<td></td>
<td>(0.009)</td>
<td>(0.034)</td>
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<tr>
<td>Pass in Autumn</td>
<td>0.021</td>
<td>-0.042</td>
</tr>
<tr>
<td></td>
<td>(0.047)</td>
<td>(0.028)</td>
</tr>
<tr>
<td>Fail</td>
<td>0.014</td>
<td>-0.043</td>
</tr>
<tr>
<td></td>
<td>(0.032)</td>
<td>(0.026)</td>
</tr>
</tbody>
</table>
## Final Year Results: By Gender

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th></th>
<th>Female</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Direct</td>
<td>Merit</td>
<td>Direct</td>
<td>Merit</td>
</tr>
<tr>
<td>Probability of graduating</td>
<td>0.185*</td>
<td>0.066</td>
<td>0.122</td>
<td>0.119***</td>
</tr>
<tr>
<td></td>
<td>(0.102)</td>
<td>(0.081)</td>
<td>(0.082)</td>
<td>(0.046)</td>
</tr>
<tr>
<td>Final degree classification</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.1</td>
<td>-0.041*</td>
<td>0.119</td>
<td>0.028</td>
<td>0.006</td>
</tr>
<tr>
<td></td>
<td>(0.022)</td>
<td>(0.102)</td>
<td>(0.031)</td>
<td>(0.016)</td>
</tr>
<tr>
<td>2.1</td>
<td>-0.201**</td>
<td>0.112*</td>
<td>0.090</td>
<td>0.014</td>
</tr>
<tr>
<td></td>
<td>(0.082)</td>
<td>(0.062)</td>
<td>(0.079)</td>
<td>(0.037)</td>
</tr>
<tr>
<td>2.2</td>
<td>0.006</td>
<td>-0.136</td>
<td>-0.042</td>
<td>-0.007</td>
</tr>
<tr>
<td></td>
<td>(0.048)</td>
<td>(0.116)</td>
<td>(0.050)</td>
<td>(0.018)</td>
</tr>
<tr>
<td>Pass/3rd</td>
<td>0.236*</td>
<td>-0.095**</td>
<td>-0.076</td>
<td>-0.013</td>
</tr>
<tr>
<td></td>
<td>(0.124)</td>
<td>(0.047)</td>
<td>(0.060)</td>
<td>(0.035)</td>
</tr>
</tbody>
</table>

**Result:** New ERA has differing effects on gender depending on the outcome.
Impact of Variation in Treatment: Financial Aid Package

• Data does not permit analysis of different components of New ERA

• But possible to analyse financial aid package due to variations in amount overtime

• Average total financial package in
  – 2000, 2001 & 2003 was €6313 in 2008 prices
  – 1999, 2002 & 2004 was €5407 in 2008 prices

  – Fluctuations due to
    • Changes in regular state aid
    • Changes in financial package due to EU grant levels
Impact of Financial Aid Package

- **Analysis:** Compares student outcomes in high-value years to low-value years

- **Result:** Outcomes for high-value package students not statistically different from outcomes for lower-value package students
  - Increasing package from €5407 to €6313 (€906) did not lead to changes in student achievements

![Figure 5.8: Impact of variation in financial aid on first year exam performance](image-url)
Likely Consequences of the National HEAR scheme

• Prior to 2010 only eligible students in DEIS schools could apply

• National HEAR scheme 2010:
  – Eligible students from non-DEIS schools can apply to HEAR
  – Support low SES students from non-disadvantaged schools

• Analyse consequence of this
  – Compare New ERA students to UCD students with similar socio-demographic profile who attended non-disadvantaged schools i.e. change the control group
**Likely Consequences of the National HEAR scheme**

- **Result:** New ERA students outperform disadvantaged students from non-DEIS schools.
  - New ERA has a greater effect on university achievement for access students than the benefits that accrue from attending a non-disadvantaged school
  - Suggests the new national HEAR scheme may be advantageous

Figure 5.9: Effect of New ERA relative to being in a non-link school on first year exam performance
Summary

- **Retention**: Positive effect
  - But high retention rate in general ~94%

- **Exam Performance**: Positive effect for high ability students only
  - New ERA complement rather than substitute

- **Graduation**: Positive large effect on graduation rates but only male effect on final degree classification
  - New ERA has persistent effect throughout university

- **Gender effects**: New ERA has differing effects depending on outcome
Summary (2)

• **Direct & Merit Paths**: Similar effects
  – Affirmation action does not compromise academic standards

• **Financial Aid**: Variations in financial aid does not have an effect on student performance
  – Combination of supports most effective

• **New HEAR**: New ERA students outperform similar socio-demographic students from non-DEIS schools

• The program has well determined & significant benefits – effective at reducing social inequality
Potential Limitations

• Self selection of control group: Positive unobservables? i.e. more motivated
  – *Underestimate treatment effect*

• Assume school level inputs are constant overtime
  – Data on school quality not available
  – Violation may bias results
  – *But short time period 1999-2004: unlikely that quality & distribution of inputs changed*

• Do not control for school-level fixed effects
  – *Similar results when include school effects, albeit with less precision*
Practical Implications of the Results

- Exam performance under 400 points
  - Re-Focus support
  - Early Warning system
  - Additional one to one meetings & support

- Version of Peer Assisted Learning

- Mechanism

- Target 1st year students
  - Difficult subject areas
  - Small groups
Discussion Questions

• Have you similar initiatives in the USA?

• Have they been evaluated?

• Do third level institutions collaborate in areas of retention or widening participation?
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