



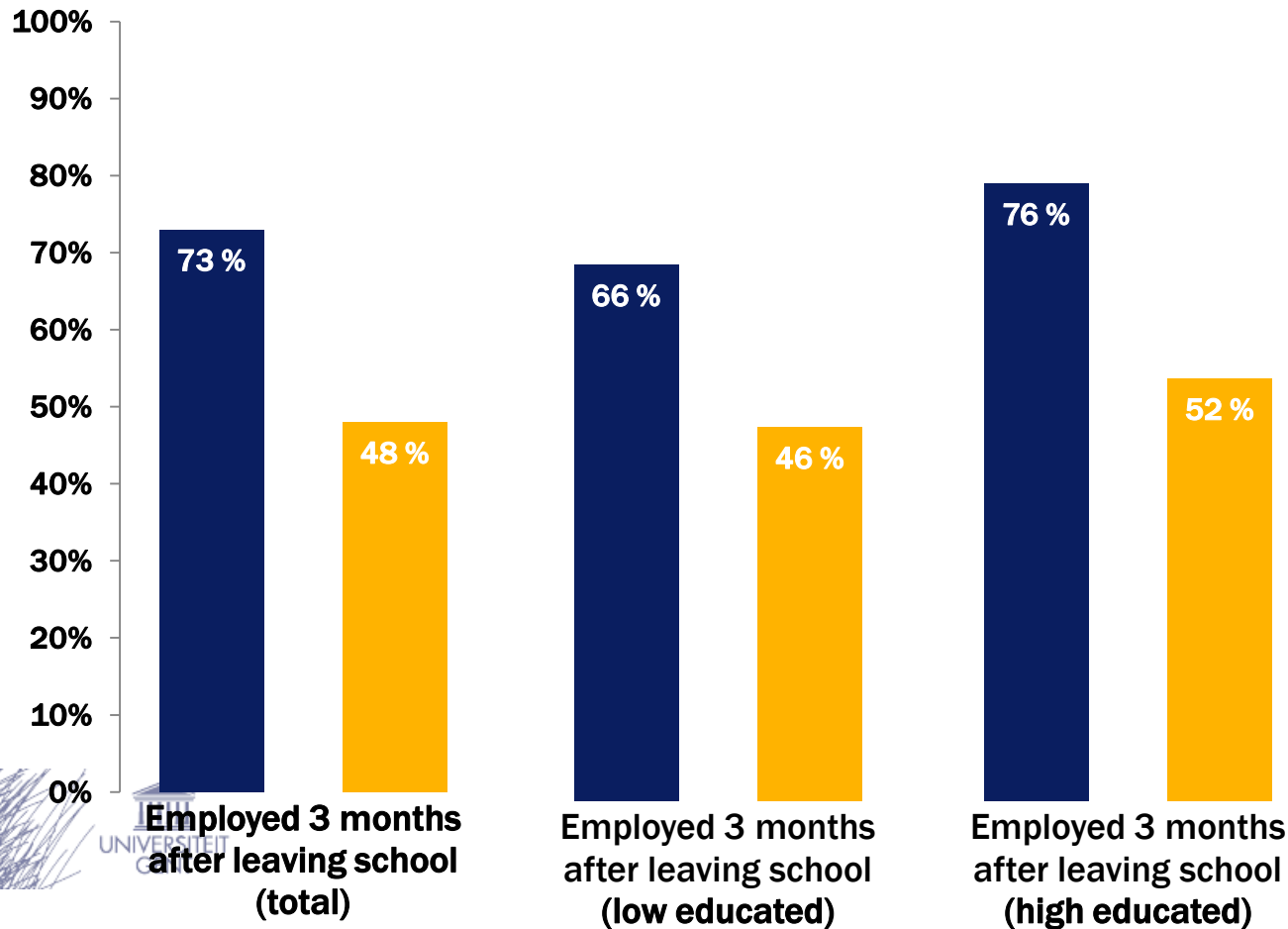
**STIJN BAERT**  
**BART COCKX**

**School results, school decisions and the transition from  
school to work: the role of ethnicity and language**

**ESPE 2012 – 23/06/2012**

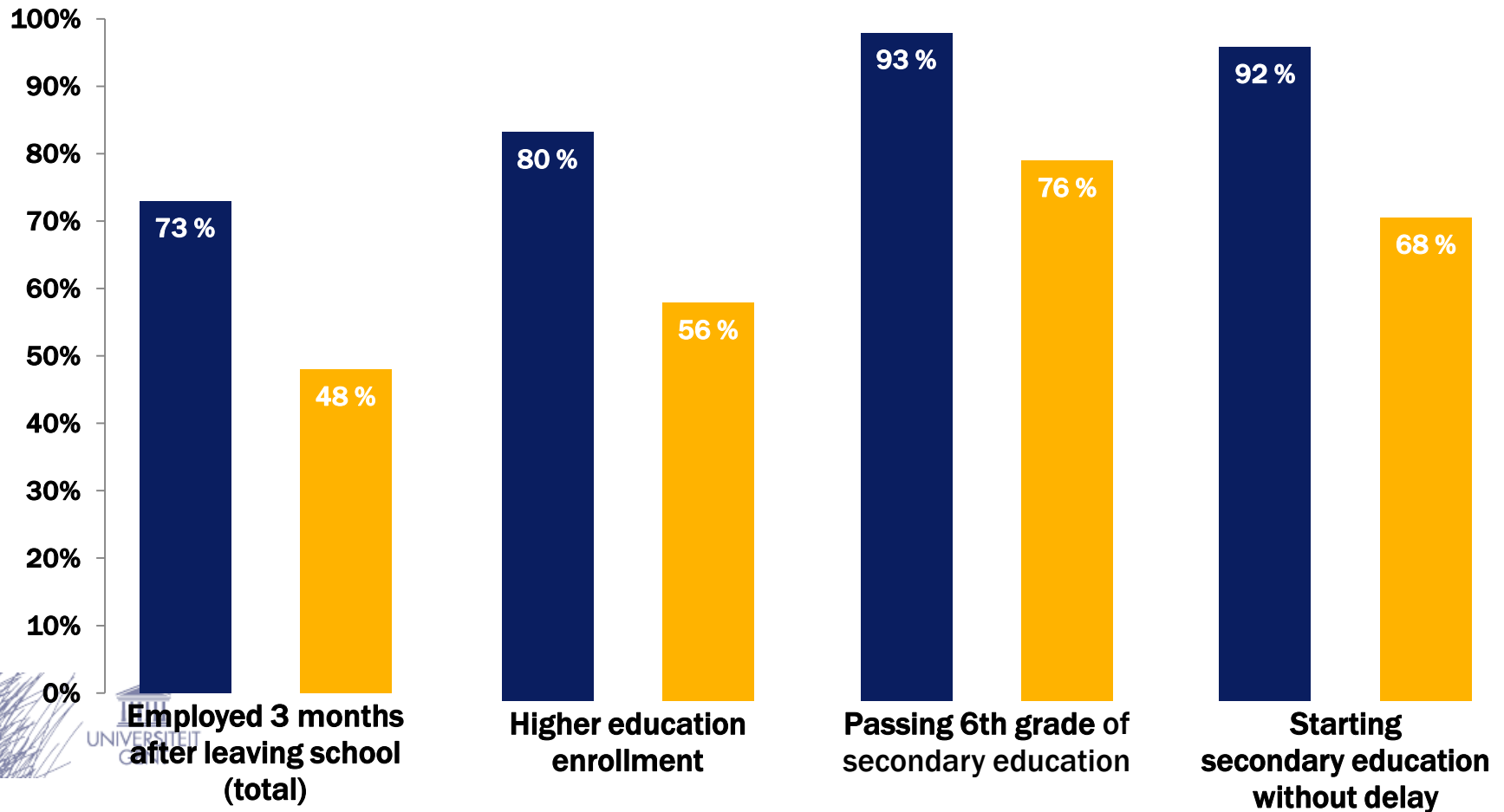
- Foreign Youth
- Flemish Youth

Flanders (Belgium)



■ Foreign Youth  
■ Flemish Youth

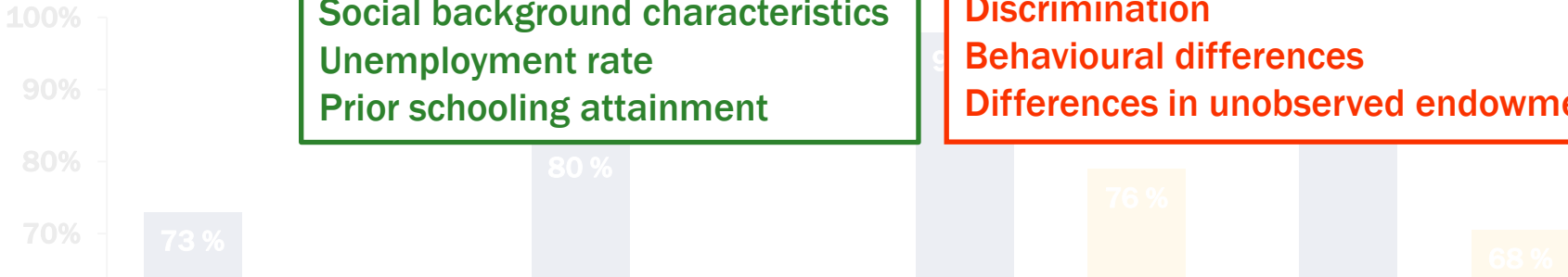
Flanders (Belgium)



**Primary research question 1** Schooling and labour market gaps due to differences in endowments or pure ethnic differences?

Social background characteristics  
Unemployment rate  
Prior schooling attainment

Discrimination  
Behavioural differences  
Differences in unobserved endowments



**Primary research question 2** When do pure ethnic differences emerge? Before, during or after secondary school? At entry in the labour market?



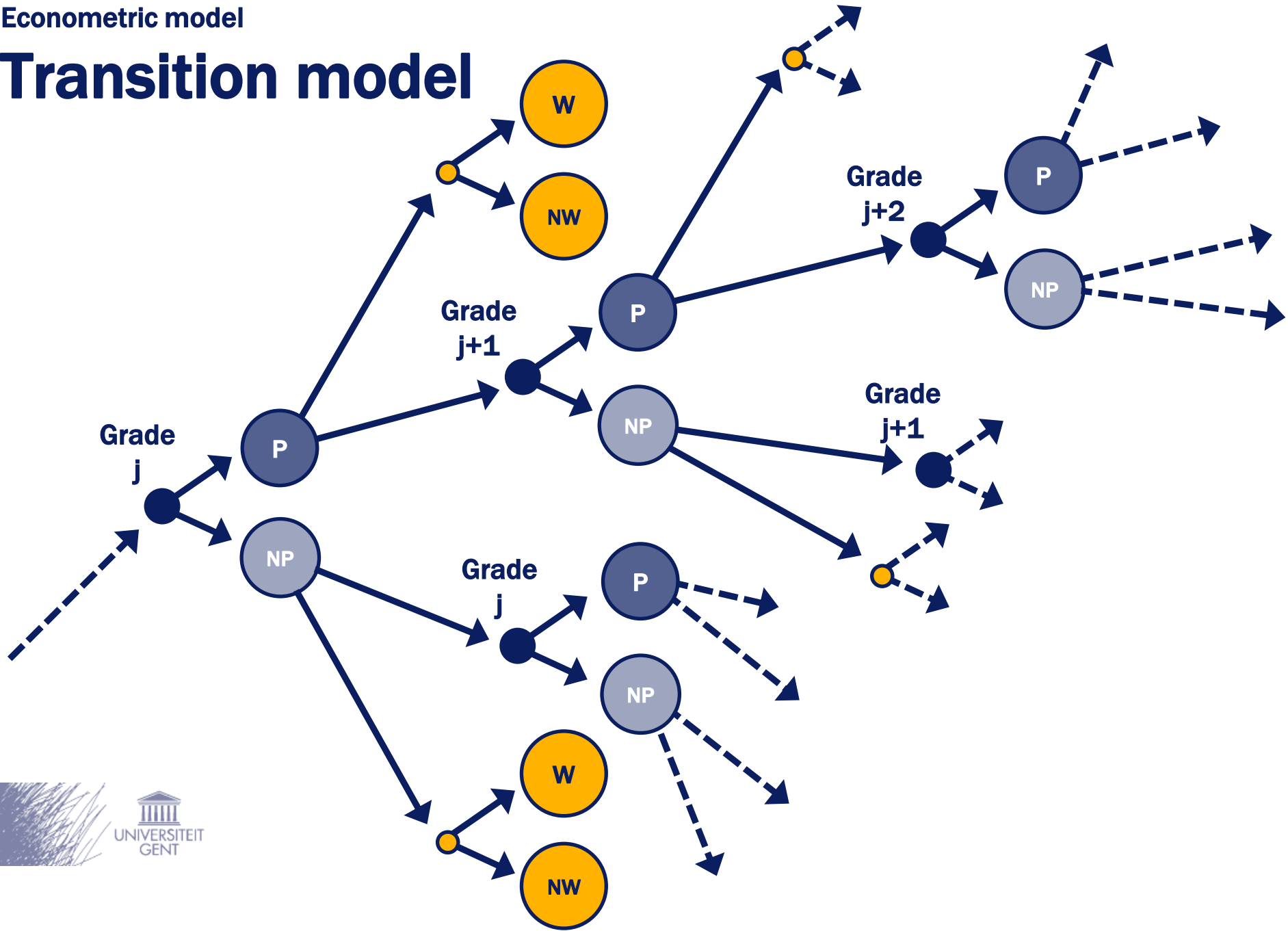
**Secondary research question** Is there an important role for language spoken at home in explaining the presented gaps?



# Roadmap

1. Introduction
2. Econometric model
3. Data
4. Results
5. Conclusion

# Transition model



# Dynamic discrete choice model

- Modelling the sequential and dynamic aspect of economic decisions
- Endogenizing school career (results + outcomes) and transition to work
- Solving the **dynamic selection problem** (educational selectivity)
  - Unobserved factors (motivation, ability ...) influence the selection of youngsters into higher education grades.
  - Those with “good” unobserved factors will stay in school school (sample selectivity) and will realize good schooling outcomes (endogeneity of prior schooling attainments).
  - Solution (1): Start modelling before school leaving occurs
  - Solution (2): Include unobserved heterogeneity
  - Solution (3) Estimate model separately for Flemish and foreign population

# Dynamic discrete choice model

- Initial condition: on time or not on time at start of primary education
- Years of schooling delay at the start of secondary education.
- Subsequently, model pass/fail, continue/stop schooling and work/not work as sequence of logits:

$$\sum_{k=1}^K p_k \frac{\exp(X_i \beta + U_t \gamma + V_{it} \delta + v_k \varepsilon + v_k V_{it} \zeta)}{1 + \exp(X_i \beta + U_t \gamma + V_{it} \delta + v_k \varepsilon + v_k V_{it} \zeta)}$$

- $X_i$ : social background characteristics
- $U_t$ : unemployment rate
- $V_{it}$ : years of (prior) schooling delay
- $v_k$  : unobserved factor ( $\varepsilon, \zeta$ : outcome specific)



# Data

- Retrospective survey of a representative sample of three cohorts born in 1976, 1978 and 1980 interviewed at the age of 23 (“SONAR”)
- Detailed schooling registrations and first labour market experience
- Follow-up at age of 26 and 29 not used in base model to avoid drop-out selectivity
- 7256 “Flemish” and 439 “foreign” youth
- “Foreign” = nationality of grand-mother is *not* West European, British, Scandinavian, North-American or Australian

# Data

- **Endogenous variables via calendar info:**
  - School results (pass or fail/delay) and school decisions (continue or stop)
  - Labour market status 3 months (employed or not) after leaving school
- **Exogenous variables:**
  - Time-varying unemployment rate for aged 15-24 in Flanders
  - Social background characteristics
    - Gender (dummy)
    - Mother's education level
    - Father's education level
    - Number of siblings
    - Birthday
    - Usage of Dutch at home (dummy)



# Goodness of Fit

- Separate estimation for “Flemish” and “foreign” youth

<b>Goodness of fit</b>				
	<b>Flemish youth</b>		<b>Foreign youth</b>	
	<b>Observed proportion</b>	<b>Simulated proportion</b>	<b>Observed proportion</b>	<b>Simulated proportion</b>
<b>Starting primary education without delay</b>	0.99	0.99	0.95	0.92
<b>Starting secondary education without delay</b>	0.92	0.92	0.68	0.69
<b>Passing 6<sup>th</sup> grade of secondary education</b>	0.94	0.93	0.76	0.71
<b>Higher education enrolment</b>	0.80	0.80	0.56	0.54
<b>Employed 3 months after leaving school</b>				
- low or high educated	0.73	0.72	0.48	0.49
- low educated	0.66	0.64	0.46	0.46
- high educated	0.76	0.76	0.52	0.55

# Role of ethnicity: simulations

Primary research question 1

Schooling and labour market gaps due to differences in

- Observed differences determined by a combination of observed endowments and “ethnicity”:

Social background characteristics  
 Unemployment rate  
 Prior s

Discrimination  
 Behavioural differences

$$\Delta prob = E_{Z_{Fl}} Prob(Z_{Fl} \hat{\theta}_{Fl}) - E_{Z_{Fo}} Prob(Z_{Fo} \hat{\theta}_{Fo})$$

- Decomposition by “counterfactual simulations”:

Primary research question 2

When do pure ethnic differences emerge? Before, during or after secondary school? At entry in the labour market?

Difference due to observed endowments = ENDOWMENT GAP

$$\Delta prob = E_{Z_{Fl}} Prob(Z_{Fl} \hat{\theta}_{Fl}) - E_{Z_{Fo}} Prob(Z_{Fo} \hat{\theta}_{Fl}) + E_{Z_{Fo}} [Prob(Z_{Fo} \hat{\theta}_{Fl}) - Prob(Z_{Fo} \hat{\theta}_{Fo})]$$

Difference due to parameters = PURE ETHNIC GAP

Secondary research question

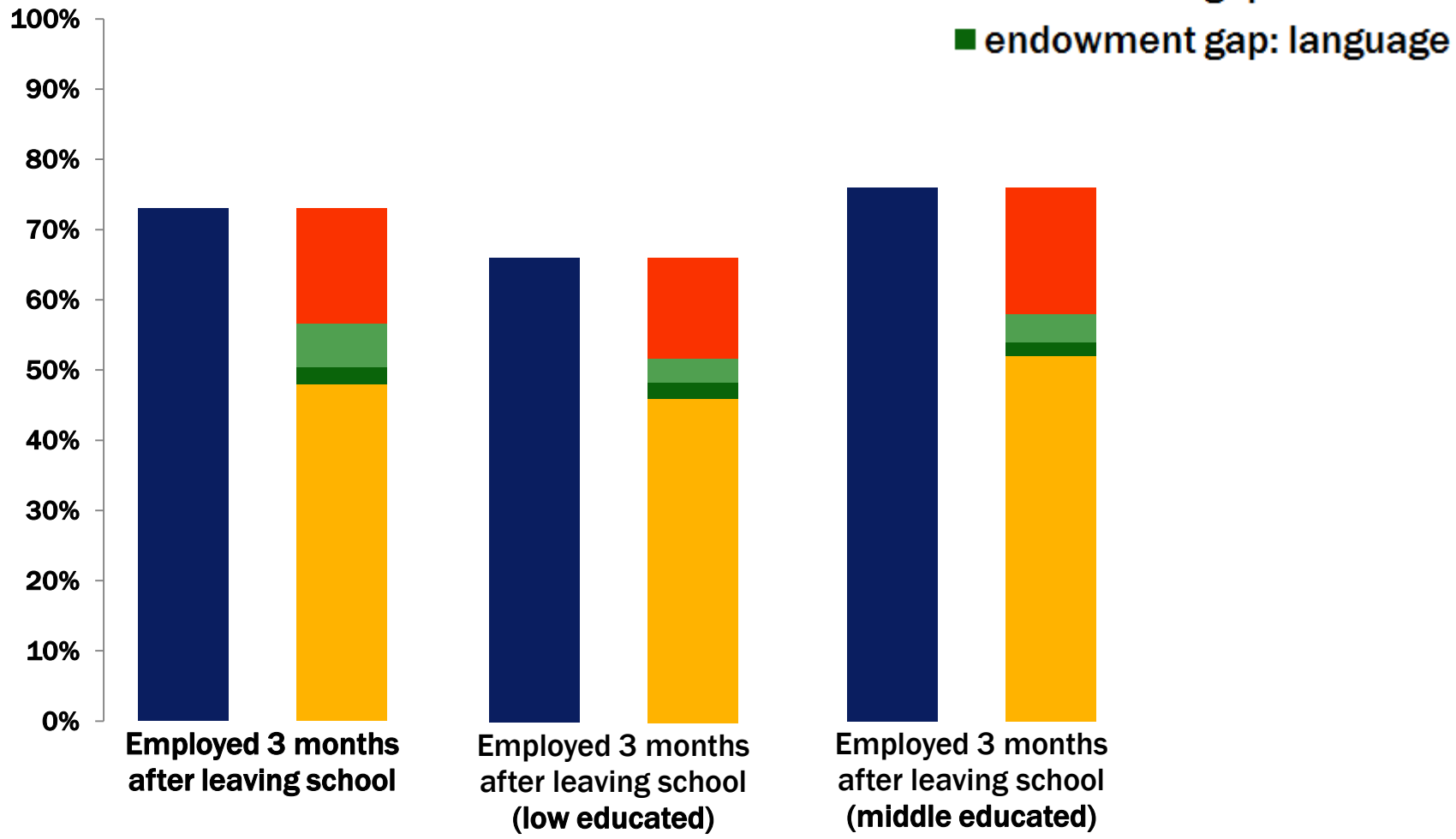
# Role of ethnicity: simulations

<b>The role of ethnicity: simulation results</b>			
	<b>Total gap</b>	<b>Endowment gap</b>	<b>Pure ethnic gap</b>
<b>Starting primary education without delay</b>	0.07	<b>0.01</b>	<b>0.06** (0.03)</b>
<b>Starting secondary education without delay</b>	0.23	<b>0.08</b>	<b>0.13*** (0.03)</b>
<b>Passing 6<sup>th</sup> grade of secondary education</b>	0.17	<b>0.08</b>	<b>0.09*** (0.03)</b>
<b>Higher education enrolment</b>	0.22	<b>0.19</b>	<b>0.03 (0.03)</b>
<b>Employed 3 months after leaving school</b>			
- low or high educated	0.23	<b>0.07</b>	<b>0.16*** (0.03)</b>
- low educated	0.18	<b>0.04</b>	<b>0.14*** (0.04)</b>
- high educated	0.21	<b>0.03</b>	<b>0.18*** (0.05)</b>

# Role of language

<b>The role of ethnicity: simulation results</b>		
	<b>Total gap</b>	<b>Language gap</b>
<b>Starting primary education without delay</b>	0.07	<b>0.02 (0.01)</b>
<b>Starting secondary education without delay</b>	0.23	<b>0.00 (0.01)</b>
<b>Passing 6<sup>th</sup> grade of secondary education</b>	0.17	<b>0.01 (0.01)</b>
<b>Higher education enrolment</b>	0.22	<b>0.02 (0.02)</b>
<b>Employed 3 months after leaving school</b>		
- low or high educated	0.23	<b>0.02 (0.02)</b>
- low educated	0.18	<b>0.02 (0.02)</b>
- high educated	0.21	<b>0.02 (0.02)</b>

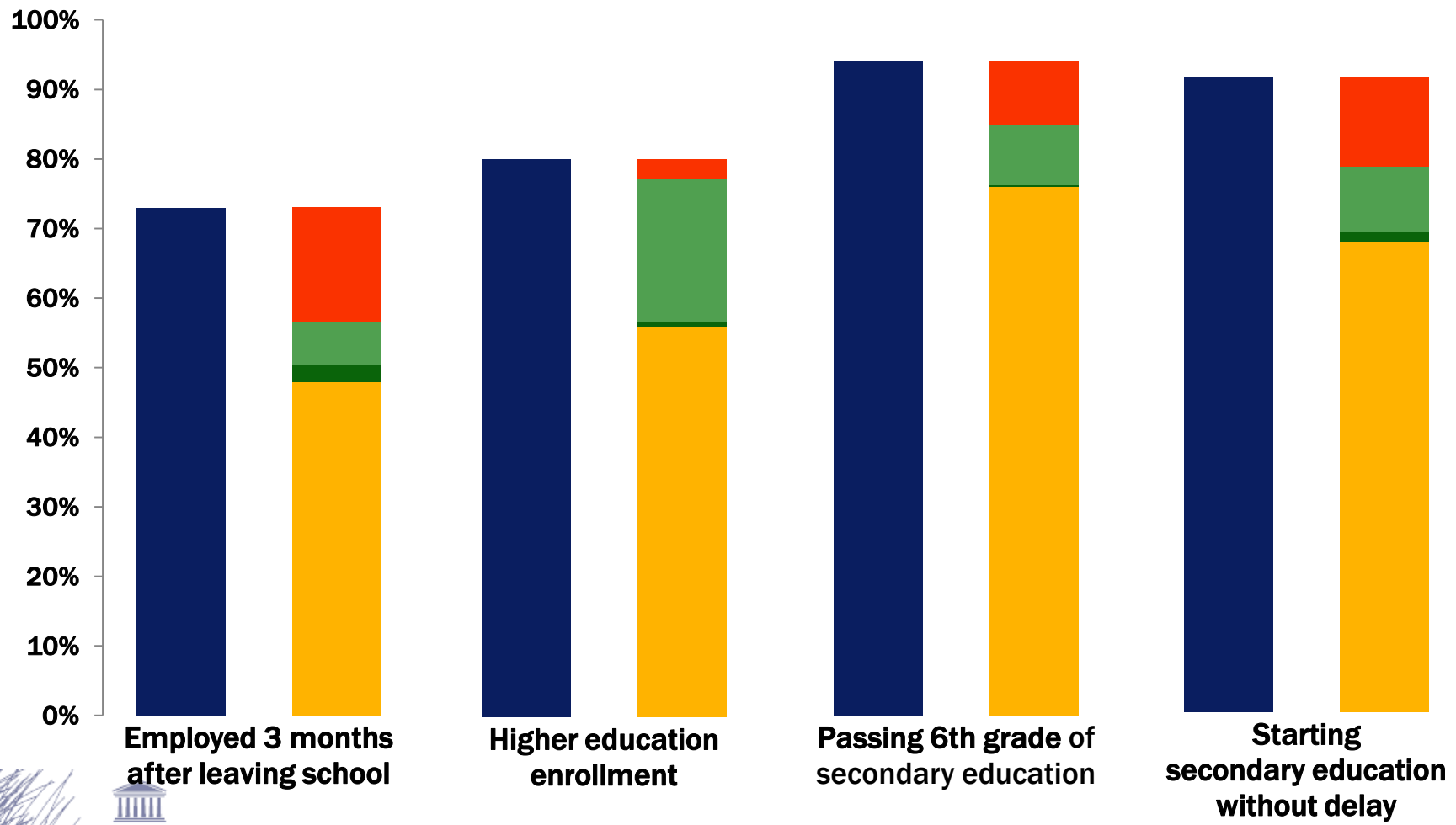
# Conclusion



**Policy relevance: Labour market discrimination potentially apparent**  
**Policy relevance: Role for language in closing the (labour market) gap**

# Conclusion

- pure ethnic gap
- endowment gap: rest
- endowment gap: language



**Policy relevance: Pure ethnicity effects are important in explaining education gaps**