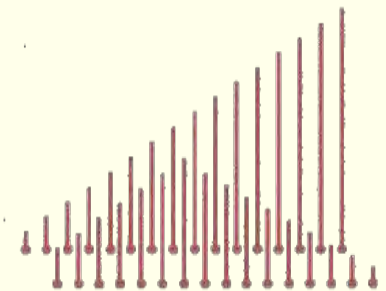# niesr

Beyond school leaving age: labour market histories in the first five years

Understanding and influencing young people's early labour market experiences workshop, *NIESR, 16 November 2012*

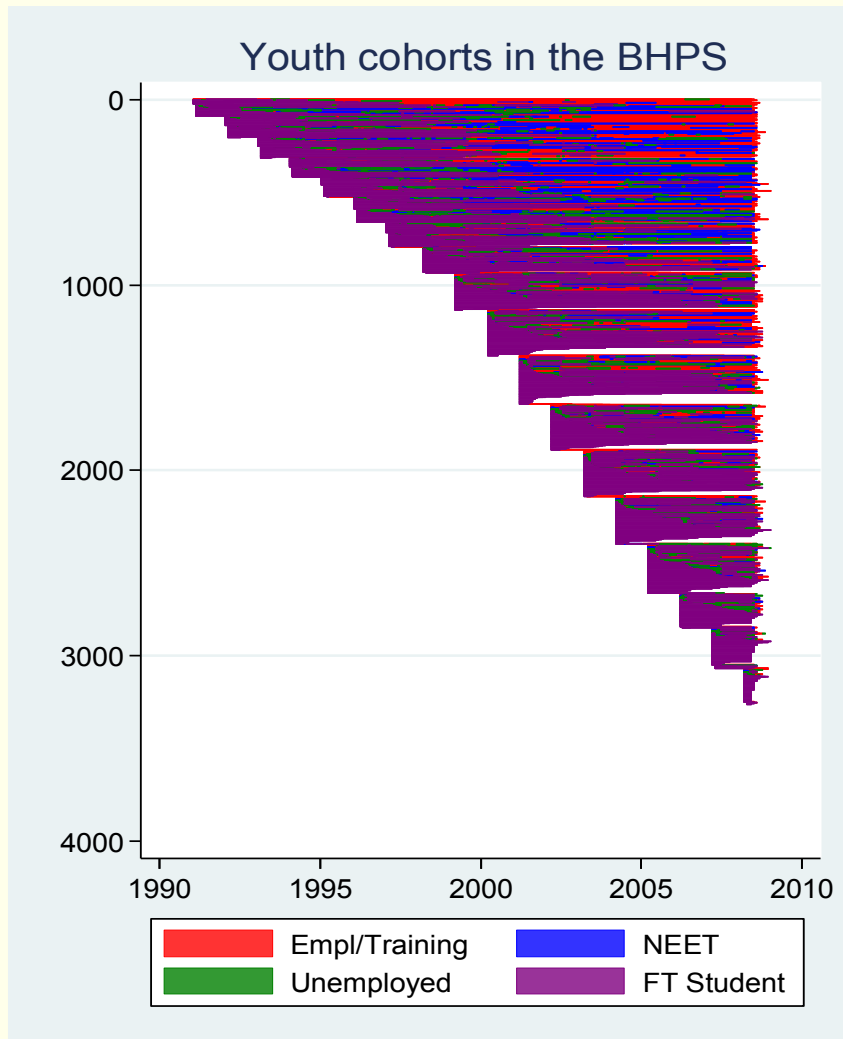## Richard Dorsett

Paolo Lucchino

National Institute of Economic and Social Research

Motivation

- Youth unemployment, and NEEThood more generally, have increasingly attracted policy concern in the UK and abroad.

- However, our understanding of the issue has, in part, been hampered by **data limitations**.

  – The definition of 'NEET' includes a wide variety of labour market experiences, ranging from 'gap years' to deep disconnect from the labour market.

  – Standard statistics generally summarise outcomes at a point in time (e.g. the unemployment rate) or over a specified period (e.g. time spent unemployed in the previous year). These discard important information on labour market dynamics, for example the order in which events occur.

- We address this limitation by using **optimal matching**, a holistic technique that can capture the full richness of an individual's labour market history. This allows an evaluation of an individual's labour market success that goes beyond the consideration of a single event in isolation.

- We use the resulting measures of dissimilarity to create a **typology of labour market trajectories** for young individuals aged between 16 and 21.

- We explore the extent to which baseline characteristics at age 16 can predict which group an individual will belong to.

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The youth in our sample

Youth cohorts in the BHPS
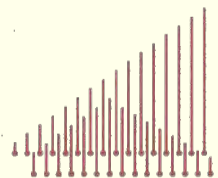
Legend:
- Empl/Training (red)
- NEET (blue)
- Unemployed (green)
- FT Student (purple)

- Over 4,000 individuals are observed to turn 16 between 1991 and 2008 in the nationally representative **British Household Panel Survey (BHPS)** data set.

- We construct **work life histories** following Paull (2002) and Maré (2006)

- Results are based on just under **1,400 individuals observed for five consecutive years from the end of compulsory schooling**. Attrition from the survey does not alter the qualitative findings.

- Labour market status is defined according to individuals' *self-reported main activity*. This comes reasonably close to national statistics on youth labour market outcomes (e.g. NEET)

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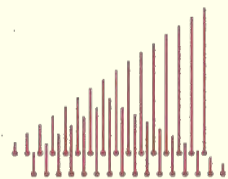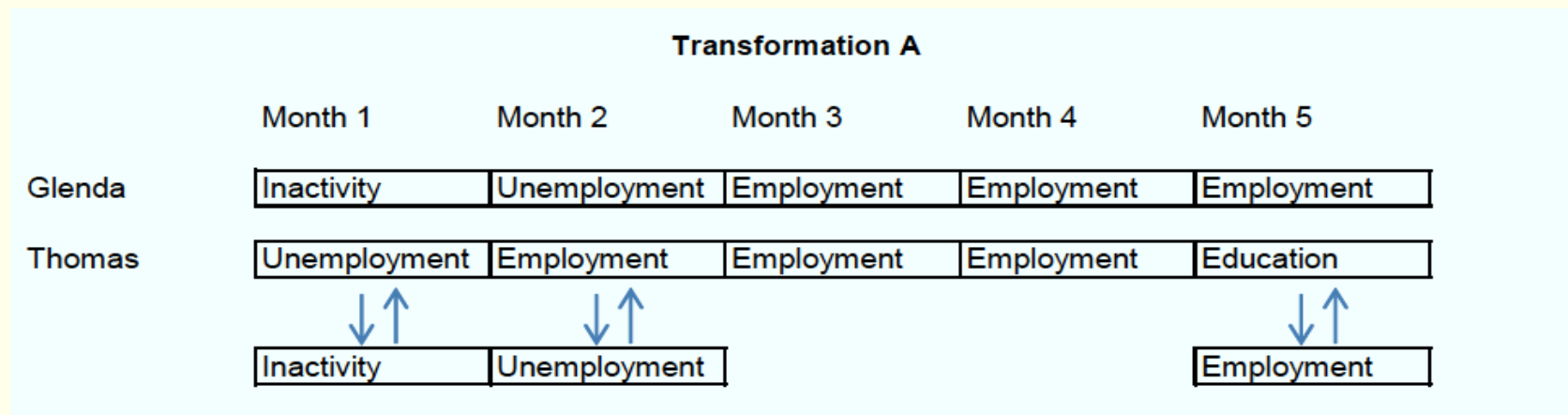
Example labour market trajectory

- We examine the labour market history in the 5 years following the end of compulsory education.

- Labour market status is classified as: Employed; in Full-time education; NEET - unemployed; and 'NEET - inactive'.

- We split the conventional definition of NEET into 'NEET – unemployed' and 'NEET - inactive' to better understand whether different reasons for non-employment lead to distinct trajectories.
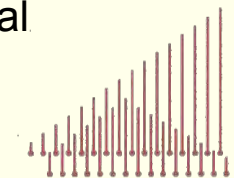
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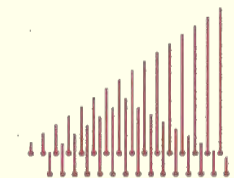
Methodology: optimal matching

- Our aim is to group similar histories together. **Optimal matching** measures 'dissimilarity' by the **number of necessary operations** to transform sequence A into sequence B. Cluster analysis is then used to group similar sequences together.

Transformation A

	Month 1	Month 2	Month 3	Month 4	Month 5
Glenda	Inactivity	Unemployment	Employment	Employment	Employment
Thomas	Unemployment	Employment	Employment	Employment	Education
	Inactivity	Unemployment			Employment

Quintini, G. and T. Manfredi (2009)

- This approach allows to consider the labour market trajectory in its full richness. In contrast to other descriptive statistics, it captures a trajectory's dynamics, including the type, length, order and timing of spells.

- Originates from the study of DNA sequences. **Very flexible technique** – has been applied to: status biographies (employment careers, partnership histories, mental health 'careers' of service use), content of college textbooks, English folk dances, birdsong patterns, local dialects, lynching patterns and more...

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E.g.: FTE with a 'gap year'

All trajectories

10 most frequent trajectories

Share of individuals in each state over time
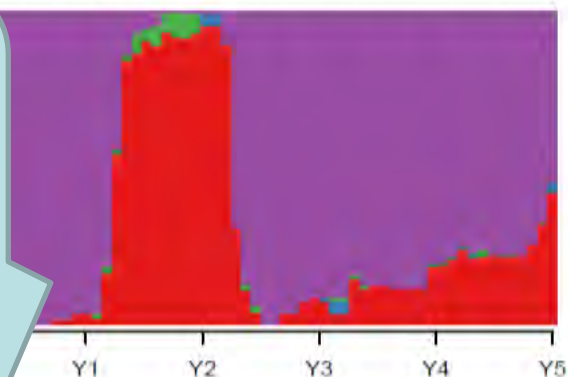
Time spent in each state

Stacking trajectories in a group horizontally gives an immediate picture of the type of histories identified.
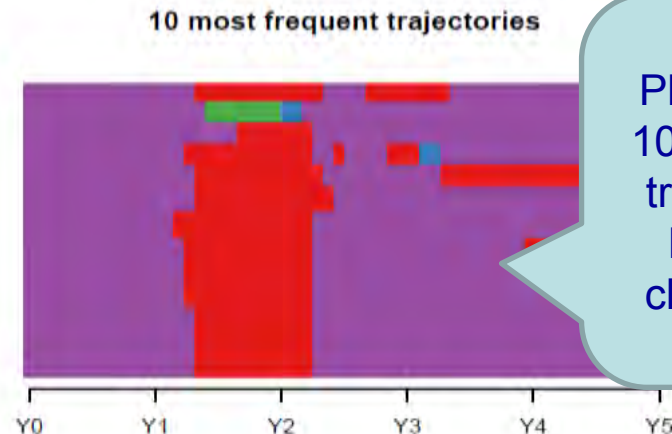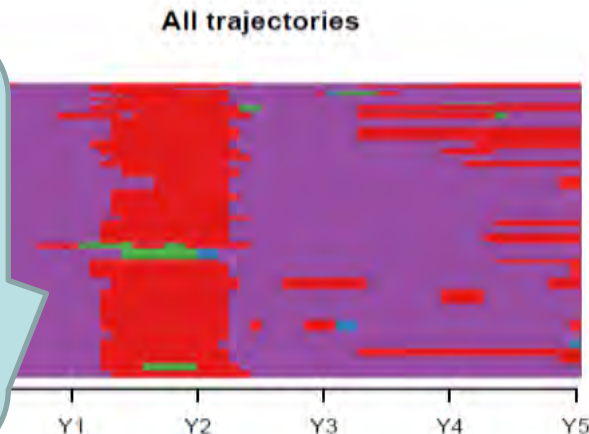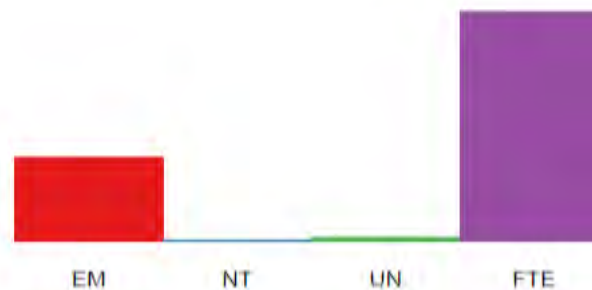
Plotting only the 10 most frequent trajectories can help obtain a cleaner picture.

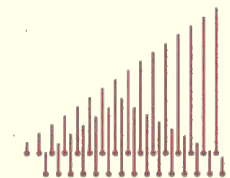The bottom row plots the conventional statistics summarising outcomes at a point-in-time and over a defined period.

Legend: ■ Employed ■ Other NEET ■ Unemployed ■ FT Education

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FTE throughout
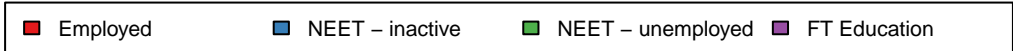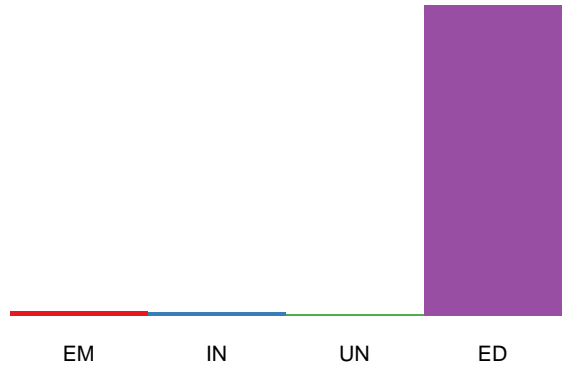
All trajectories
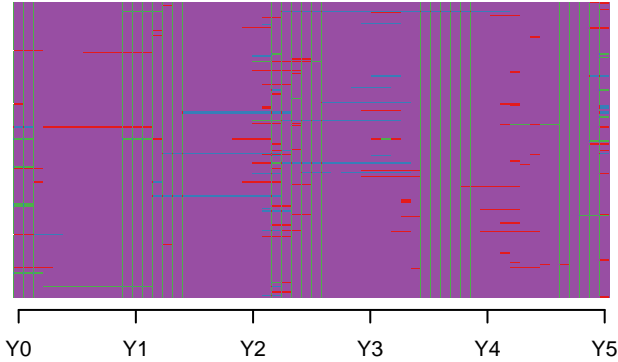
10 most frequent trajectories

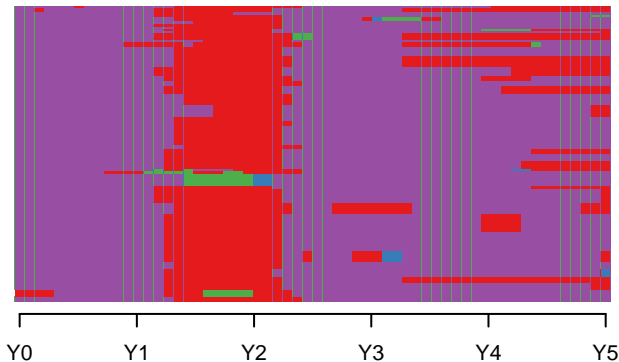**Share of individuals in each state over time**

Time spent in each state

■ Employed   ■ NEET – inactive   ■ NEET – unemployed   ■ FT Education
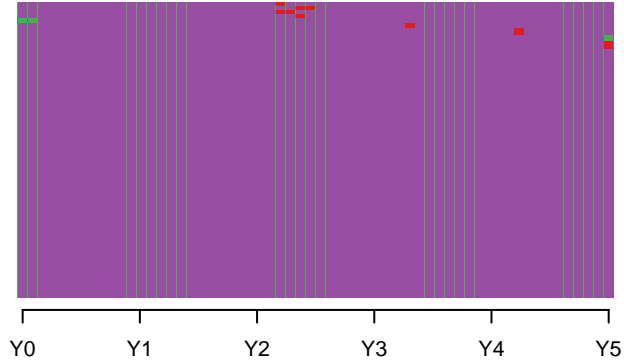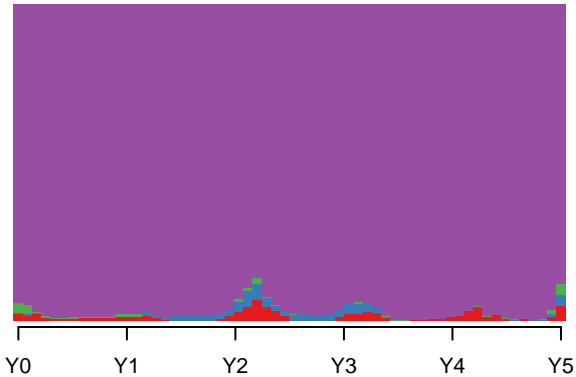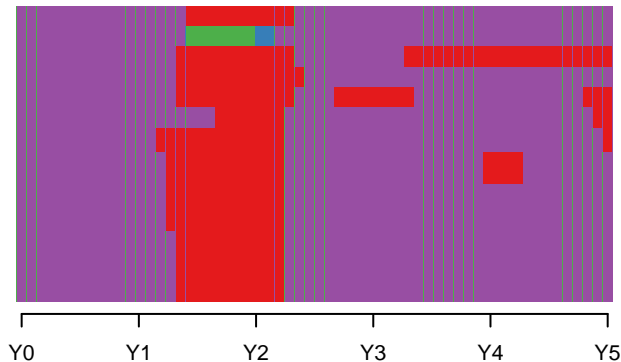
FTE w/ emp spell (1)

All trajectories

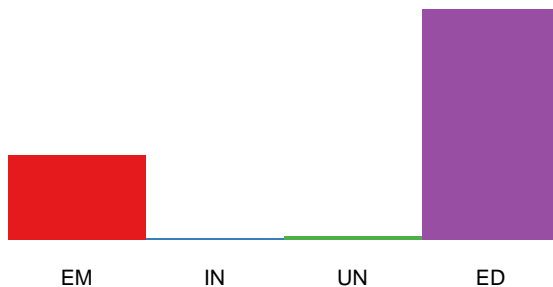**10 most frequent trajectories**

Share of individuals in each state over time

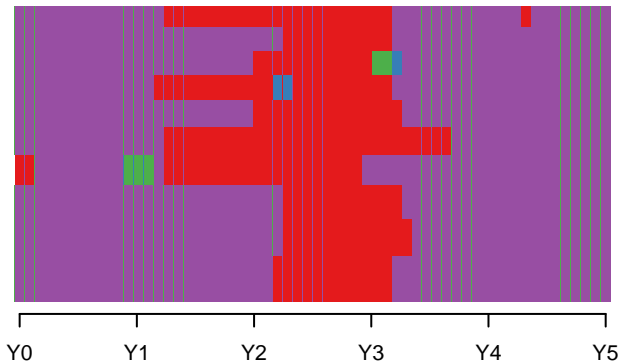**Time spent in each state**

■ Employed	■ NEET – inactive	■ NEET – unemployed	■ FT Education

FTE w/ emp spell (2)

All trajectories
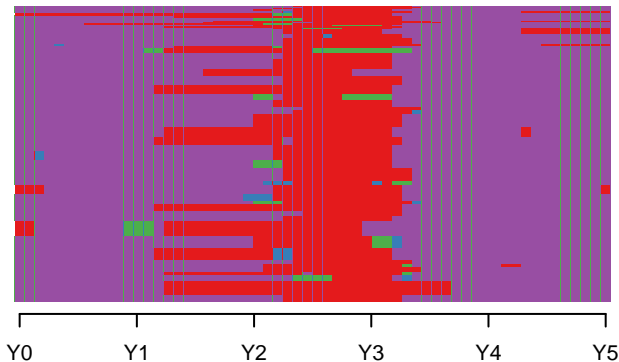
10 most frequent trajectories

Y0 Y1 Y2 Y3 Y4 Y5

Y0 Y1 Y2 Y3 Y4 Y5

Share of individuals in each state over time

Time spent in each state

Y0 Y1 Y2 Y3 Y4 Y5

EM IN UN ED

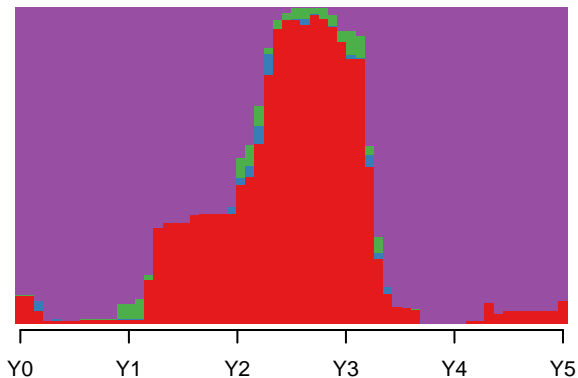■ Employed ■ NEET – inactive ■ NEET – unemployed ■ FT Education
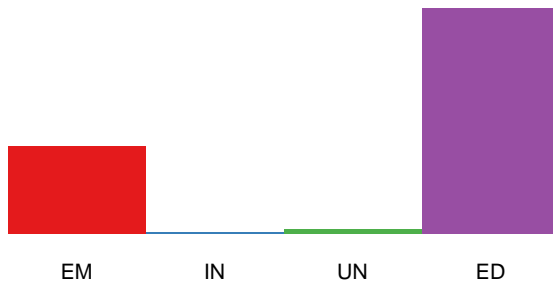
Express (0)

All trajectories

10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state
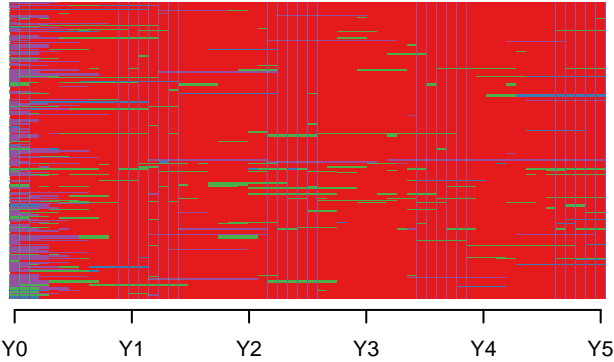
Employed   NEET – inactive   NEET – unemployed   FT Education
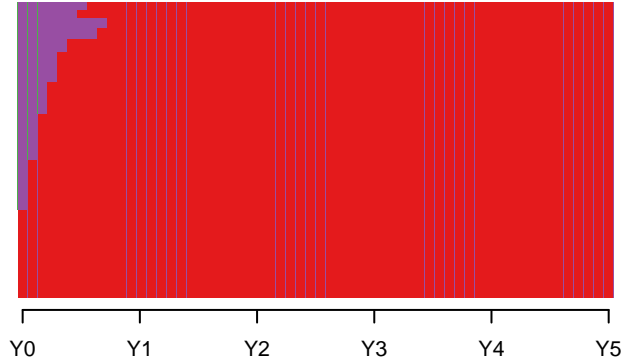
Express (1)

All trajectories

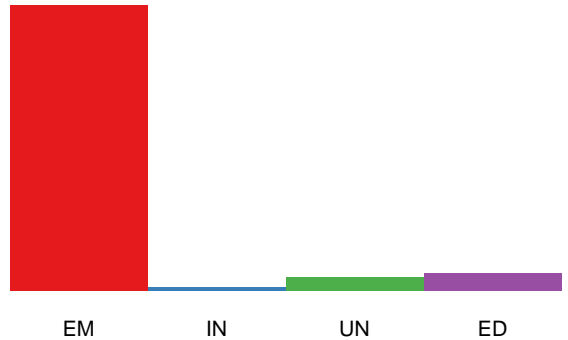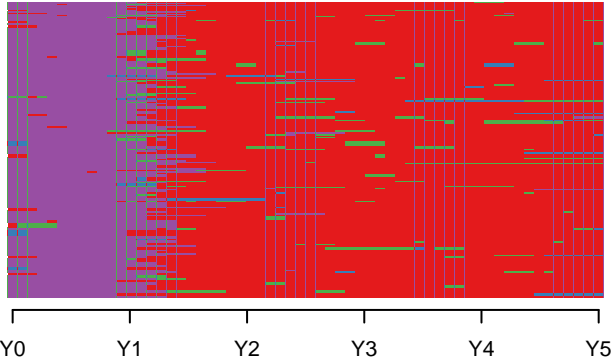**10 most frequent trajectories**

Share of individuals in each state over time

Time spent in each state

Legend: ■ Employed ■ NEET – inactive ■ NEET – unemployed ■ FT Education

Express (2)

All trajectories
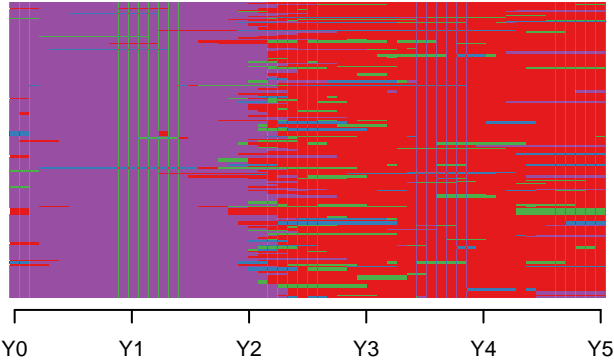
10 most frequent trajectories

Y0 Y1 Y2 Y3 Y4 Y5

Y0 Y1 Y2 Y3 Y4 Y5

Share of individuals in each state over time

Time spent in each state

Y0 Y1 Y2 Y3 Y4 Y5

EM IN UN ED

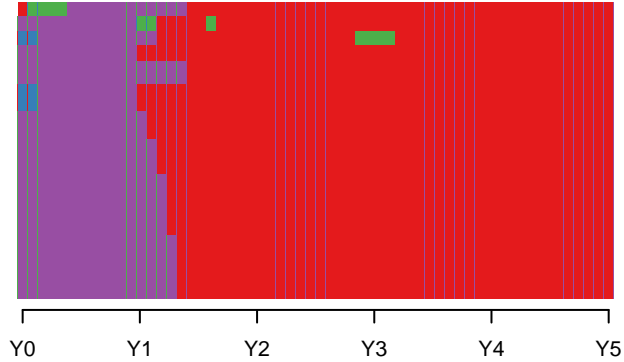■ Employed ■ NEET – inactive ■ NEET – unemployed ■ FT Education

Express (3)

All trajectories

10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state

Legend: ■ Employed ■ NEET – inactive ■ NEET – unemployed ■ FT Education
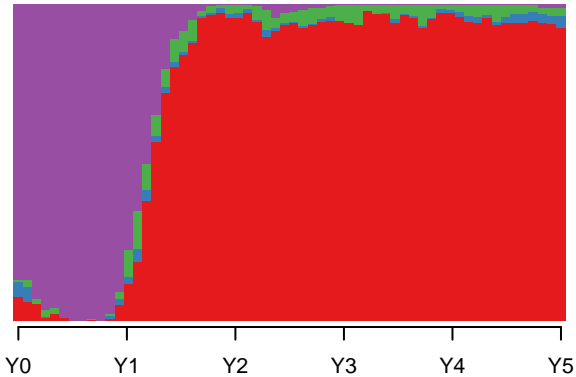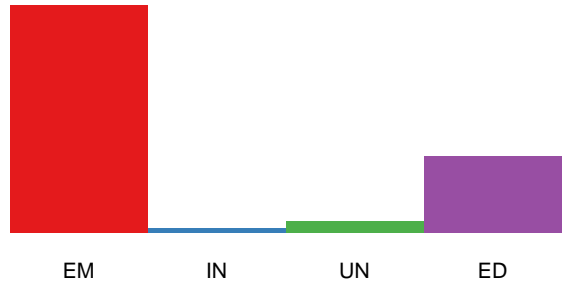
Express (4)

All trajectories
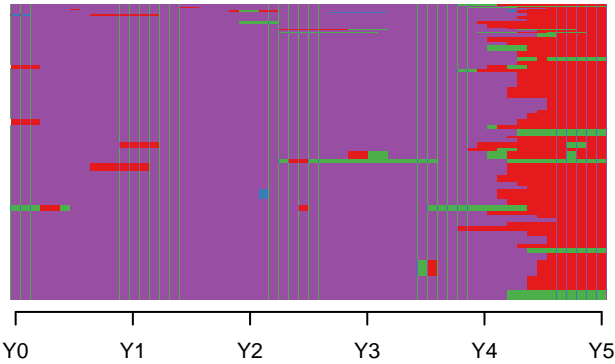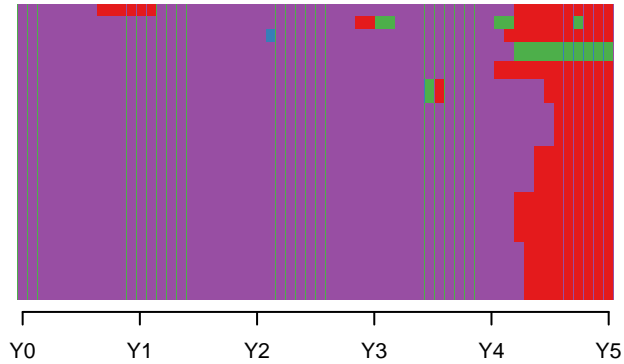
10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state

Y0   Y1   Y2   Y3   Y4   Y5

EM   IN   UN   ED

- ■ Employed
- ■ NEET – inactive
- ■ NEET – unemployed
- ■ FT Education

Planned interruption?

All trajectories
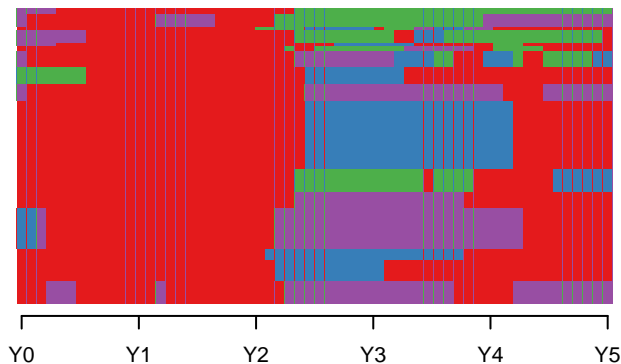
10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state

EM   IN   UN   ED

■ Employed   ■ NEET – inactive   ■ NEET – unemployed   ■ FT Education
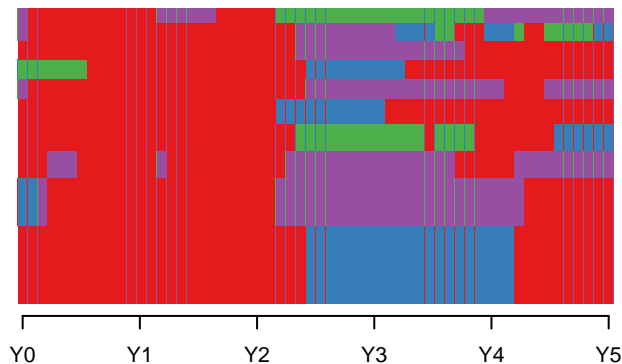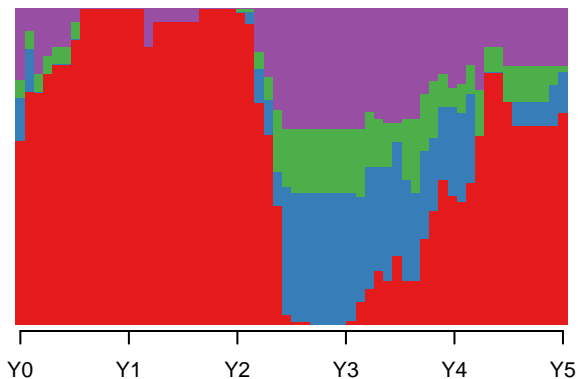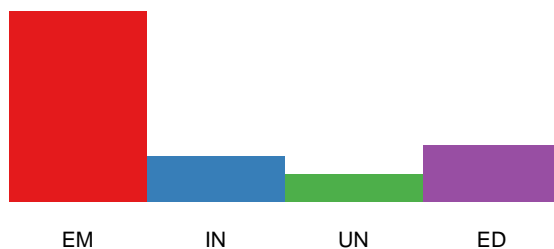
Partial recovery

All trajectories
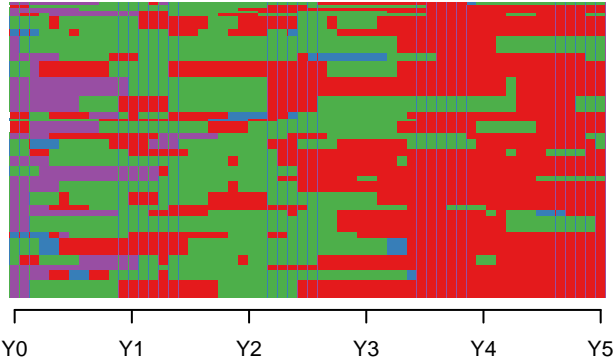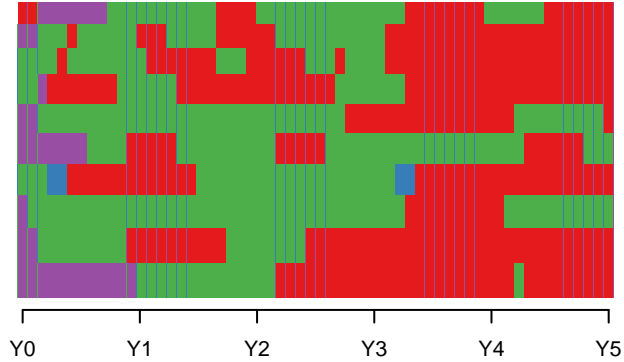
10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state

Legend: Employed | NEET – inactive | NEET – unemployed | FT Education
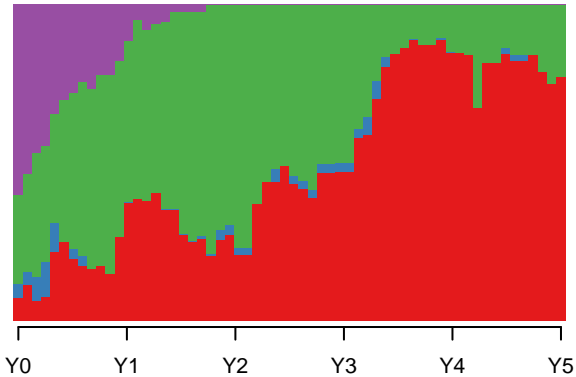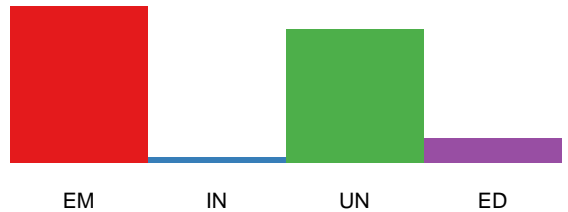
Long−term worklessness
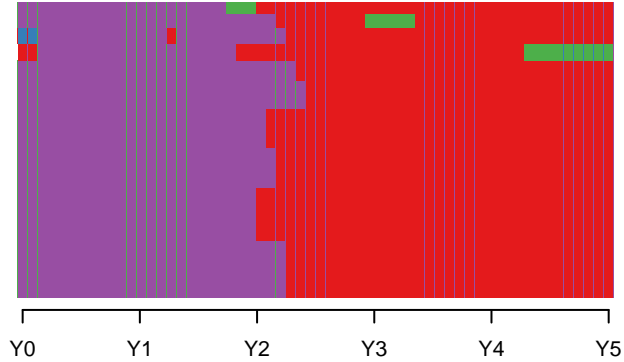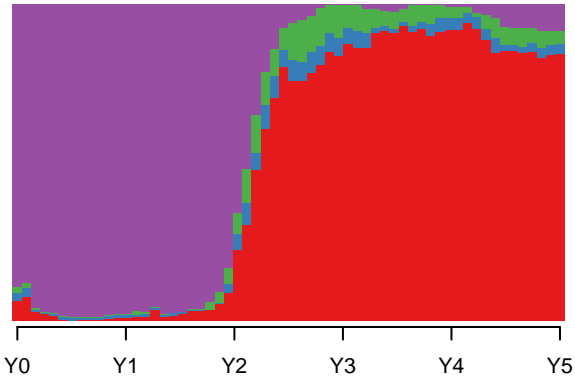
All trajectories
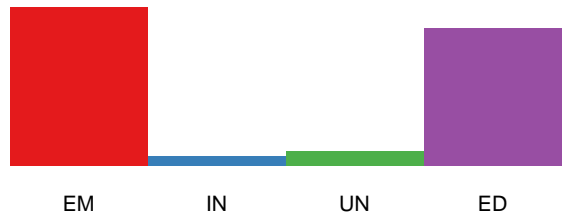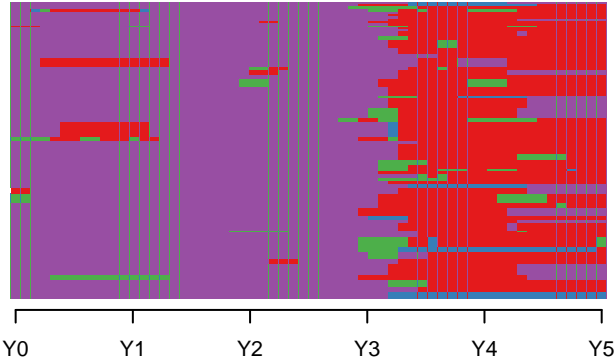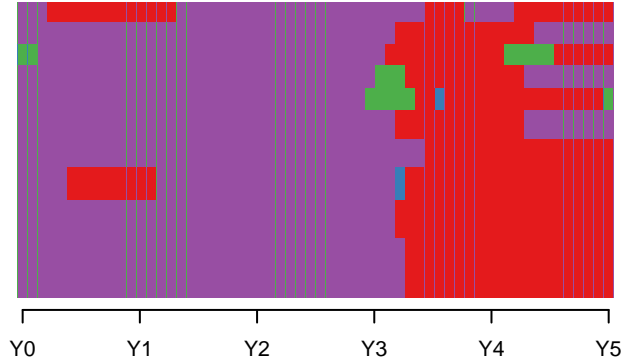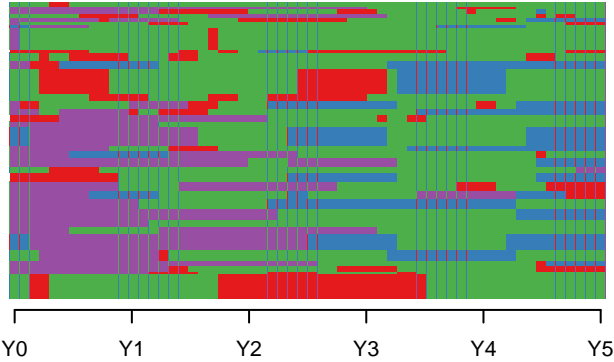
10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state

Employed   NEET − inactive   NEET − unemployed   FT Education
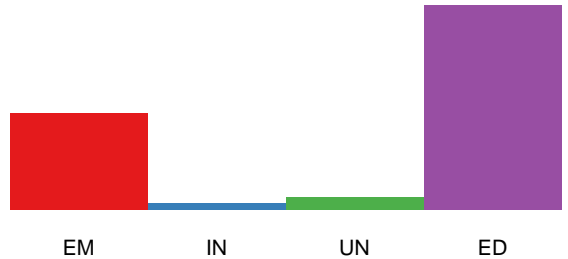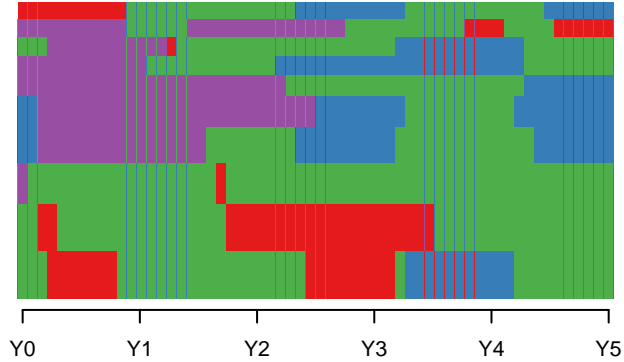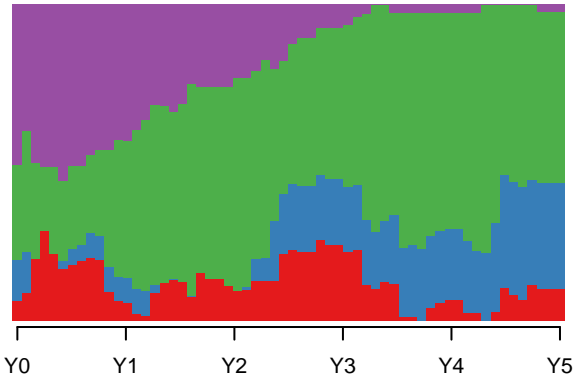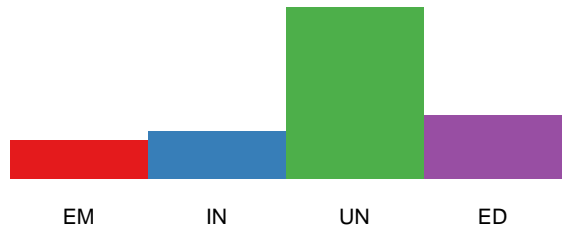
NEET from 16

All trajectories
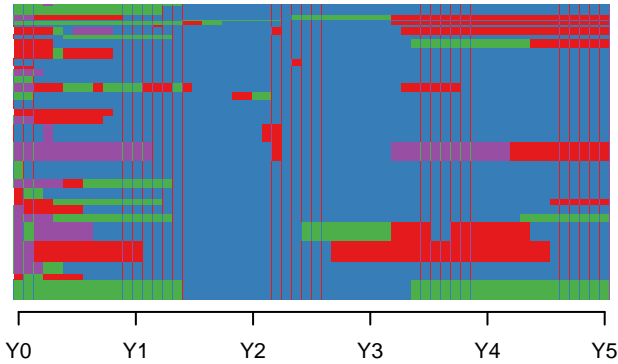
10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state

EM   IN   UN   ED

- Employed
- NEET – inactive
- NEET – unemployed
- FT Education
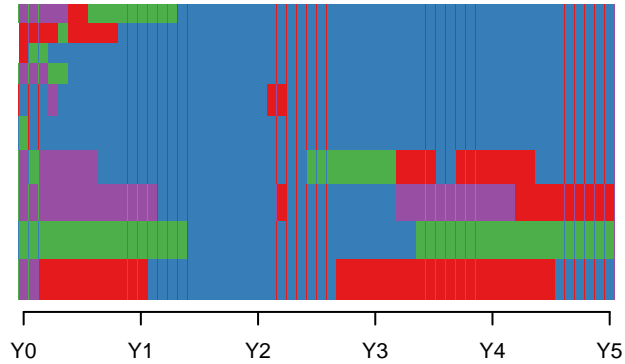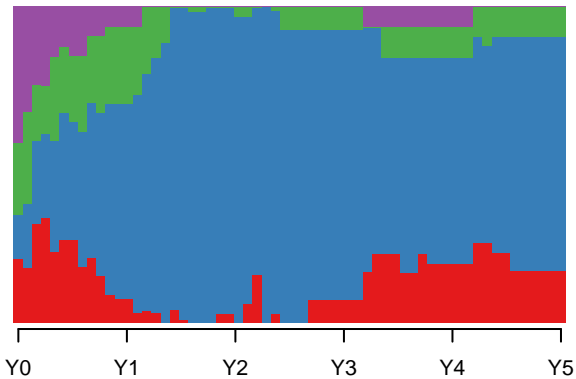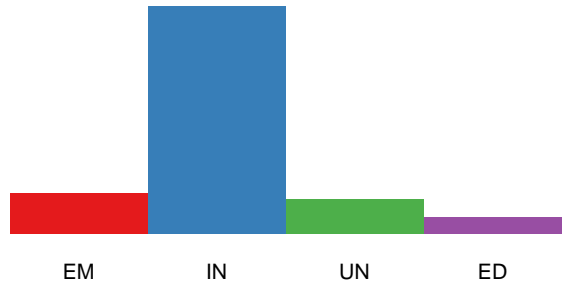
NEET from 18

All trajectories
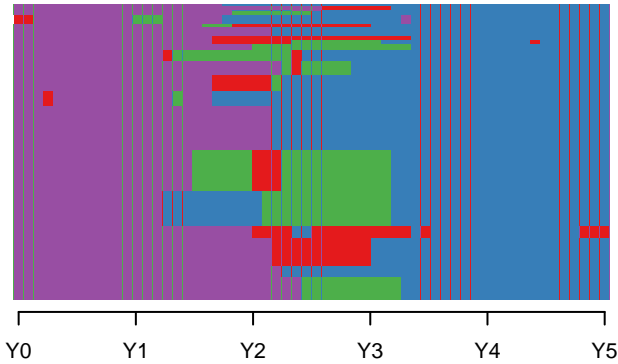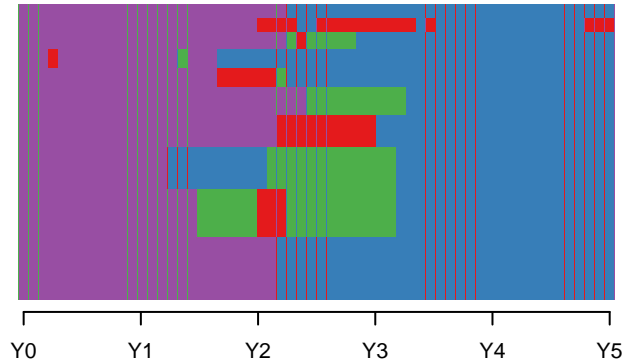
10 most frequent trajectories

Share of individuals in each state over time

Time spent in each state
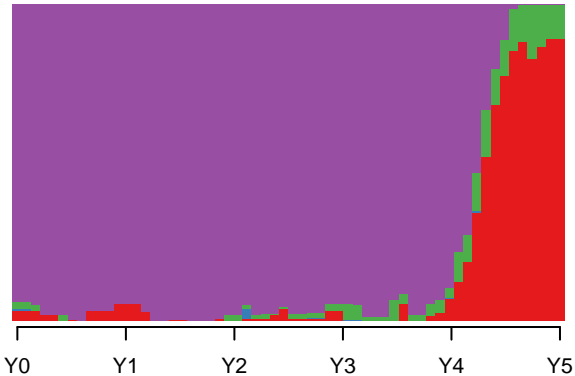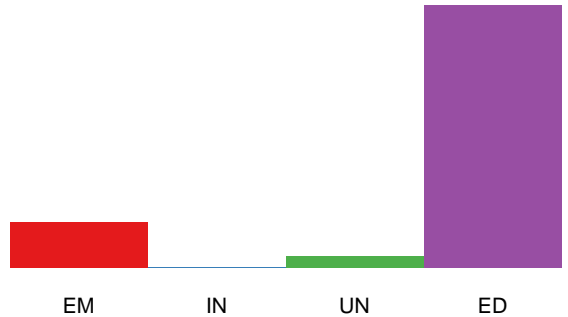
| Employed | NEET – inactive | NEET – unemployed | FT Education |
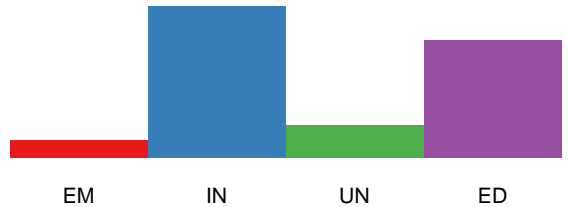
Withdrawals from the labour market

All trajectories
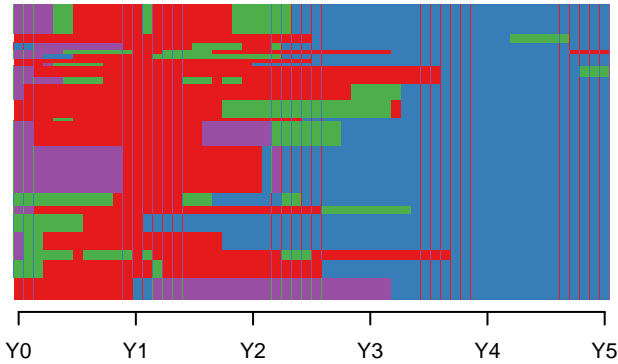
10 most frequent trajectories

Y0 Y1 Y2 Y3 Y4 Y5

Y0 Y1 Y2 Y3 Y4 Y5

Share of individuals in each state over time

Time spent in each state

Y0 Y1 Y2 Y3 Y4 Y5

EM IN UN ED

■ Employed　■ NEET – inactive　■ NEET – unemployed　■ FT Education
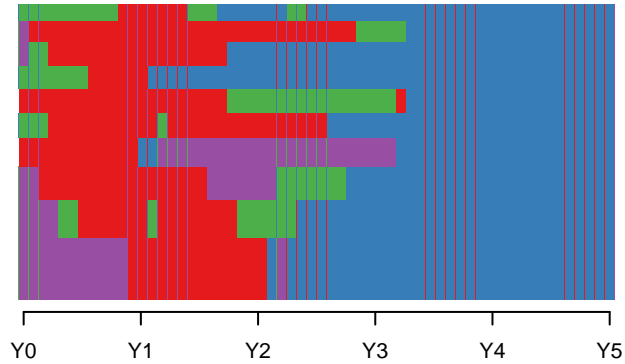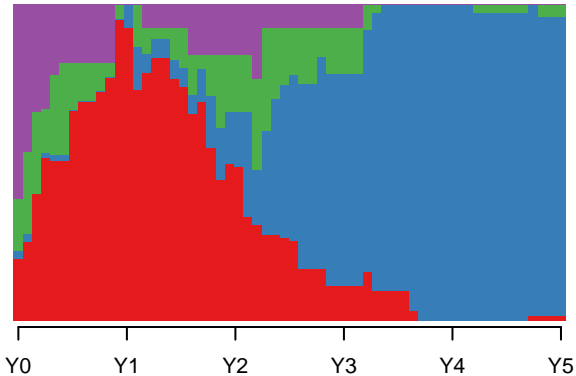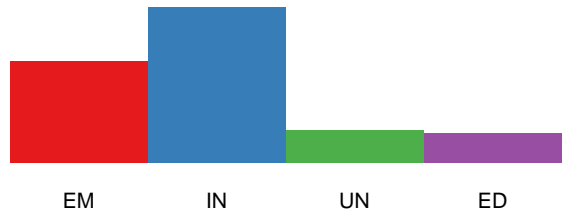
Size of the groups and outcomes

Table 1: Trajectory groups and relative size				
Description of trajectory	Accumulating human capital	Successful school to work transition	Possible cause for concern	Estimated number each year ('000s)
FTE throughout	24.4%			190
FTE with employment spell	7.8%			60
Express		56.4%		430
Planned interruption?			1.0%	10
Partial recovery			2.9%	20
Long-term worklessness			2.6%	20
NEET from 16			2.1%	20
NEET from 18			1.3%	10
Withdrawals from the labour market			1.3%	10
Total	**32.3%**	**56.4%**	**11.3%**	**760**

- Approximate numbers entering each trajectory are based on ONS mid-2010 Population estimates of individuals aged 16.

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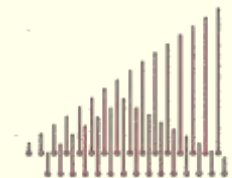
Predicting outcomes (1)

Table 3 : Age 16 predictors of future trajectory outcomes		Human capital		Express		Possible cause for concern	
Sex (ref: males)							
	Female	-0.005		-0.057	*	0.062	***
		[0.024]		[0.027]		[0.016]	
Ethnicity (ref: white)							
	Non-white	0.21	***	-0.157	**	-0.053	*
		[0.060]		[0.061]		[0.023]	
Parental qualifications (ref: Low)							
	High (degree)	0.292	***	-0.184	***	-0.108	***
		[0.044]		[0.048]		[0.028]	
	Medium (>GCSE A-C)	0.111	***	-0.04		-0.071	***
		[0.031]		[0.035]		[0.021]	
Housing tenure (ref: owned)							
	Social rented	-0.133	***	0.08	*	0.052	*
		[0.035]		[0.039]		[0.022]	
	Private rented	-0.225	***	0.243	***	-0.019	
		[0.054]		[0.062]		[0.035]	
Year of birth (time trend)		-0.002		-0.001		0.003	
		[0.003]		[0.004]		[0.002]	
Month of birth (ref: May-Aug)							
	Jan-Apr	-0.043		0.056		-0.012	
		[0.029]		[0.032]		[0.019]	
	Sept-Dec	-0.045		0.079	*	-0.033	
		[0.030]		[0.033]		[0.018]	
Change in probability of entering the named trajectory when exhibiting a given characteristic compared to							

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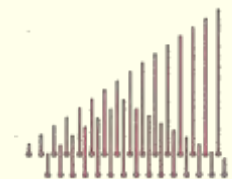
Predicting outcomes (2)

Table 3 : Age 16 predictors of future trajectory outcomes						
		Human capital		Express		Possible cause for concern
Health (ref: no limitations)						
	Health limits daily activities	-0.145	**	0.175	**	-0.03	
		[0.054]		[0.059]		[0.026]	
School attainment (ref: GCSE A-C)						
	GCSE D-G	-0.24	***	0.148	***	0.092	***
		[0.034]		[0.040]		[0.027]	
	No qualifications	-0.183	***	0.034		0.149	***
		[0.040]		[0.047]		[0.035]	
Educational grant (ref: none)						
	In receipt	-0.033		0.017		0.016	
		[0.058]		[0.063]		[0.033]	
Local area claimant count rate dev (16-24)		-0.009		0		0.01	*
		[0.007]		[0.008]		[0.004]	
Parental employment (ref: not employed)						
	In employment	-0.017		0.054		-0.037	
		[0.033]		[0.036]		[0.019]	
Sibling labour force status (ref: no siblings)						
	Employed	-0.125	***	0.123	***	0.002	
		[0.030]		[0.033]		[0.019]	
	NEET	-0.162	*	0.103		0.059	
		[0.067]		[0.072]		[0.039]	
	In FTE	0.029		0		-0.029	
		[0.035]		[0.039]		[0.023]	
Count of 'negative' GHQ responses		0.016	**	-0.022	***	0.007	*
		[0.005]		[0.006]		[0.003]	
Change in probability of entering the named trajectory when exhibiting a given characteristic compared to the reference value						

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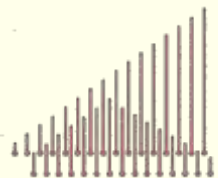
Combining risk factors

Sex	Parental qualifications	GCSE Grades	Parent employed	Human capital trajectory	Express school to work	Possible cause for concern trajectory
Male	High	A-C	Yes	55%	44%	1%
Male	Low	None	No	7%	49%	31%
Female	Low	None	No	10%	42%	51%

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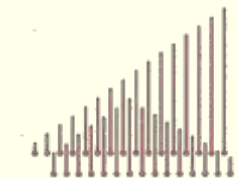
Conclusion

- A group of **10% of young people are most likely to warrant policy attention**. This group can be divided into a number of categories, including:
  - long-term NEEThood from the age of 16 and 18;
  - long-term worklessness straddling unemployment and inactivity;
  - individuals experiencing some employment but developing only limited labour market attachment; and
  - individuals who appear to withdraw from the labour market following an apparently successful entry into employment.
- Unsuccessful outcomes often start at **key decision points** in a youth's educational career

- The importance of **school attainment** (grades), **family background** (parental qualifications, parental and sibling labour market status), and **gender** emerge as the strongest age-16 predictors of labour market trajectories.

- These results ring true with other evidence highlighting the significant, and possibly increasing, level of **socio-economic polarisation** of the transition from school-to-work.
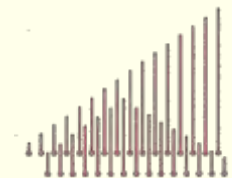
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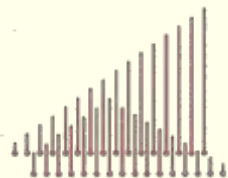# Thank you!

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Annex: Descriptive statistics

Table 2 : Share of individuals in each group exhibiting given characteristics									
	1	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**Total**
Ethnic minority	9%	4%	0%	4%	2%	0%	15%	0%	6%
Female	47%	45%	58%	30%	64%	91%	81%	100%	48%
Has children at 21	1%	7%	39%	4%	18%	83%	82%	100%	9%
Health limits daily activities	2%	6%	0%	0%	12%	8%	12%	4%	5%
GCSE A-C	92%	73%	55%	51%	19%	43%	37%	37%	76%
GCSE D-G	3%	17%	37%	25%	40%	14%	37%	25%	14%
No qualifications	5%	10%	8%	24%	41%	43%	25%	38%	10%
Receipt Educational Grant	3%	5%	4%	13%	12%	0%	3%	1%	5%
Parental qualifications high	31%	10%	0%	10%	0%	0%	0%	0%	16%
Parental qualifications medium	59%	61%	49%	55%	16%	33%	48%	27%	58%
Parental qualifications low	10%	28%	51%	35%	84%	67%	52%	73%	25%
Owned housing	92%	76%	91%	71%	19%	44%	57%	17%	78%
Social rented	7%	20%	9%	25%	80%	56%	36%	75%	18%
Private rented	1%	5%	0%	4%	1%	0%	7%	9%	3%
No sibling	63%	57%	49%	45%	69%	52%	65%	61%	59%
Employed sibling	12%	26%	42%	28%	14%	27%	12%	29%	21%
NEET sibling	1%	4%	0%	27%	17%	7%	5%	10%	4%
Sibling FT student	24%	13%	8%	1%	0%	14%	18%	0%	16%
Observations	419	743	15	28	30	23	21	18	1297

(1) Accumulating human capital; (2) Express; (3) Planned interruption?; (4) Partial recovery;

(5) Long-term worklessness; (6) NEET from 16; (7) NEET from 18; (8) Withdrawals from the labour market.

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