DISABILITY AND LABOUR MARKET TRAJECTORIES: A SEQUENCE ANALYSIS FROM BELGIUM

Esmeralda Gerritse
Robert Plasman
Ilan Tojerow

INTRODUCTION

- The proportion of working age population receiving work disability benefits has been rapidly increasing in many countries (Curnock et al., 2016)
- Few studies analysed the transitions on the labour market in specific countries (Øyeflaten et al., 2014; Wiberg et al., 2017)
- Our purpose is to analyse the dynamics on the labour market for the case of Belgium and to add a long-term perspective
- Profiling the individuals in each path in order to better target policies

DATABASE

- Sample:

Random selection of around 10.000 individuals from the Belgian population in working age with at least one day in *incapacity to work* and who entered MIW between the years 2005 and 2009

⬇

Followed for a period of 20 quarters,

2 years before, 3 years after

	Subsample	
	N	%
Female	5.159	*53,1*
Age :		
16-29	1.641	*16,9*
30-49	5.900	*60,8*
50-59	1.958	*20,2*
60+	209	*2,1*
In couple	6.209	*63,9*
With children	5.120	*52,7*
Region :		
Brussels	647	*6,7*
Wallonia	3.147	*32,4*
Flanders	5.914	*60,9*
Total	9.708	*100*

DATABASE

- Labour market states hierarchized :

Hierarchy	Subsample	
	N	%
1) <u>Exit</u> : Dead, Retired, Early-retirement	2.627	*1,4*
2) <u>Medical Incapacity to work</u> (MIW) : Primary incapacity, invalidity, work accident, professional sickness, Handicap†	39.431	*20,3*
3) <u>Employment</u> : Independent worker, private sector, public sector, public administration	124.757	*64,3*
4) <u>Unemployment</u> : Exempted unemployed, Unemployed	23.744	*12,2*
5) <u>Other inactivity</u> : Carreer interruption and credit time, social revenue, employment for less than 30% FTE, no registered state, unknown	3.601	*1,8*

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METHODS: SEQUENCE ANALYSIS

- Approach that provides a unitary perspective of the life-course by dealing with *whole trajectories*, allowing to account for *all states of interest* during the period considered (Abbott et Hrycak,1990; Aassve et al., 2007; Studer and Ritschard, 2016)

- Methodology : *Optimal Matching Analysis (OMA)* → *Generalized Hamming*
  - mesures the dissimilarity between pairs of sequences by calculating the cost of transforming one sequence into the other
  - weighted sum of positionwise mismatches between two sequences, sensitive to timing differences

- Procedure :
  - Dissimilarity measure
  - Classification method

METHODS: SEQUENCE ANALYSIS

- Dissimilarity measure : choice of substitution costs
  - *Theory-based costs* = costs determined based on the a priori knowledge of the field

	Employm.	Unemploym	MIW	Other	Exit
Employment	0	2	2,5	2,5	3
Unemployment	2	0	1,5	1,5	3
MIW	2,5	1,5	0	1	3
Other	2,5	1,5	1	0	3
Exit	3	3	3	3	0

METHODS: SEQUENCE ANALYSIS

- Classification method : choice of clustering algorithm
  - *Ward's algorithm* based on hierarchical classification

- Number of clusters : choice of optimal number of clusters
  - *Silhouette average width*

RESULTS : IDENTIFICATION TRAJECTORIES

Three main typologies of labour market trajectories identified :

- *Employment – Short term MIW – Employment*
- *Employment – Long term MIW*
- *Unemployment – Short term MIW –Unemployment*

Medoid representation

Cluster	Percent total	Size	Dispersion		Medoid sequence
			Mean	Max	
1	69%	6.659	5,5	32,2	EEEEEEEEIEEEEEEEEEE
2	18%	1.740	10,4	32,4	EEEEEEEEIIIIIIIIIII
3	13%	1.309	8,2	20,6	CCCCCCCCIIIICCCCCCC

Legend:
E = Employment
C = Unemployment
I = Medical incapacity to work
A = Other inactivity
S = Exit

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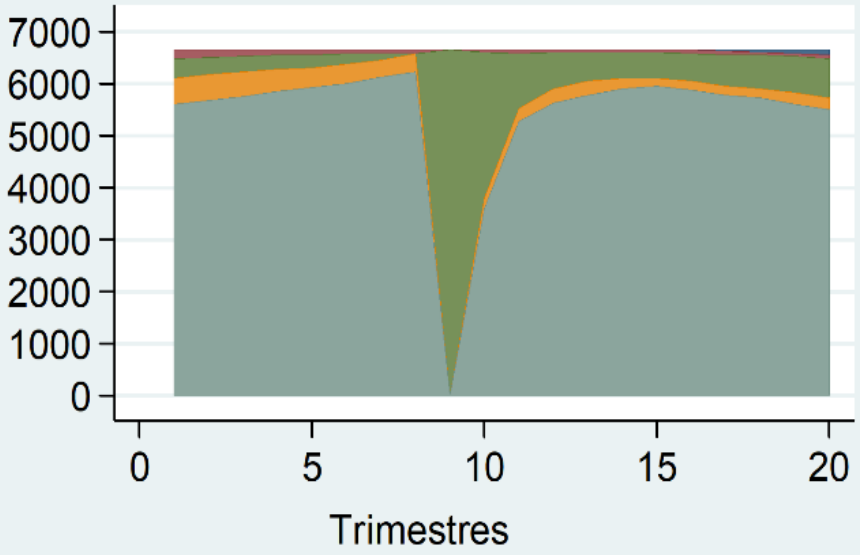
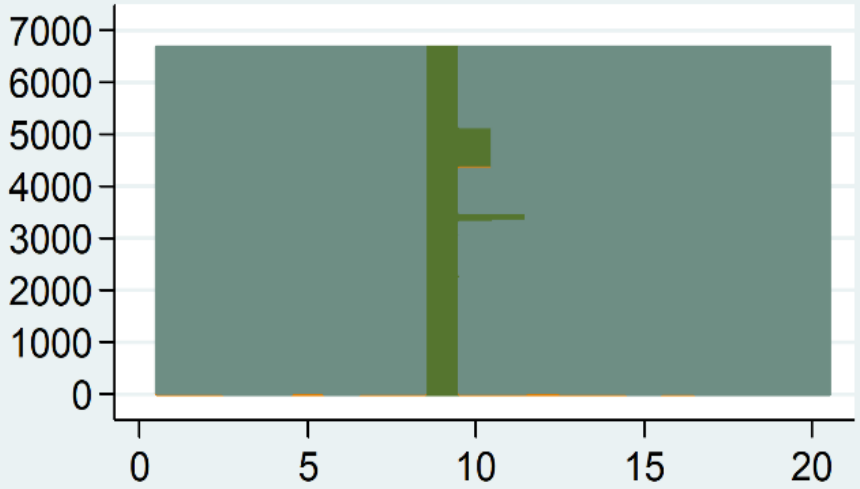
RESULTS : IDENTIFICATION TRAJECTORIES

Graphic representation : *Employment – Short term MIW – Employment*





Legend :
- Exit
- Other inactivity
- MIW
- Unemployment Employment

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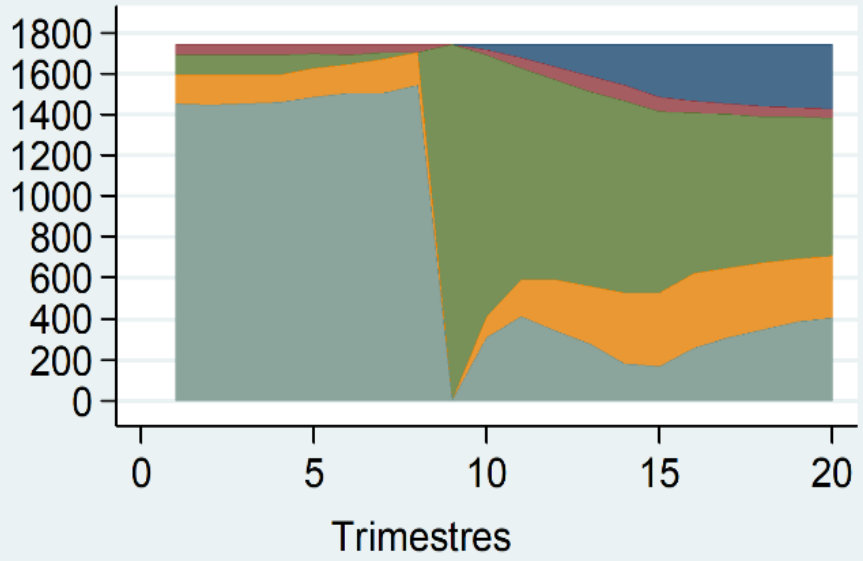
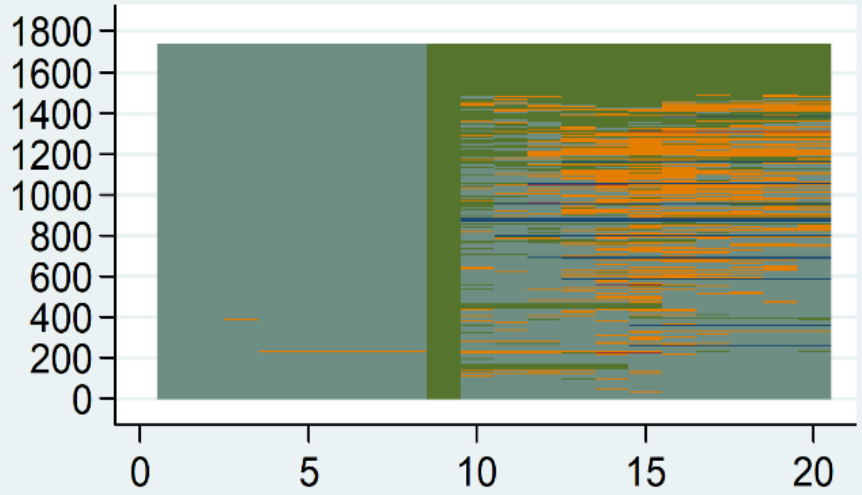
RESULTS : IDENTIFICATION TRAJECTORIES

Graphic representation : *Employment – Long term MIW*

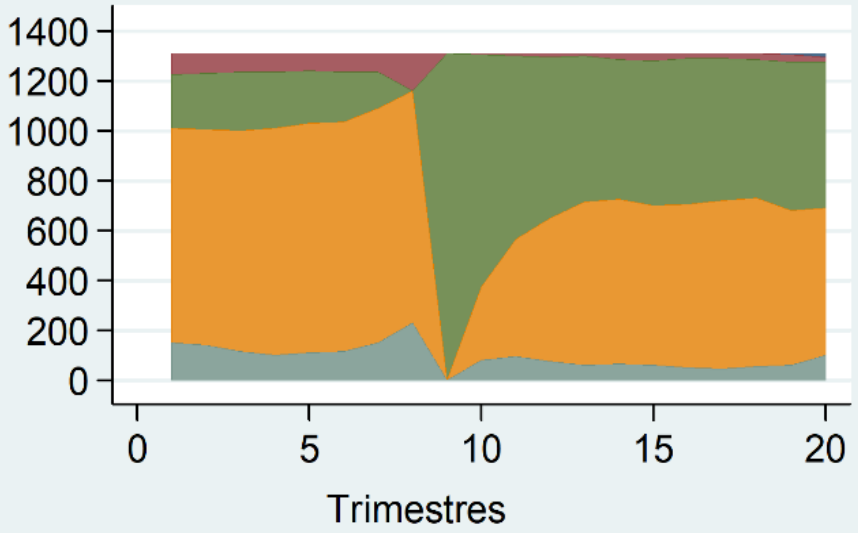


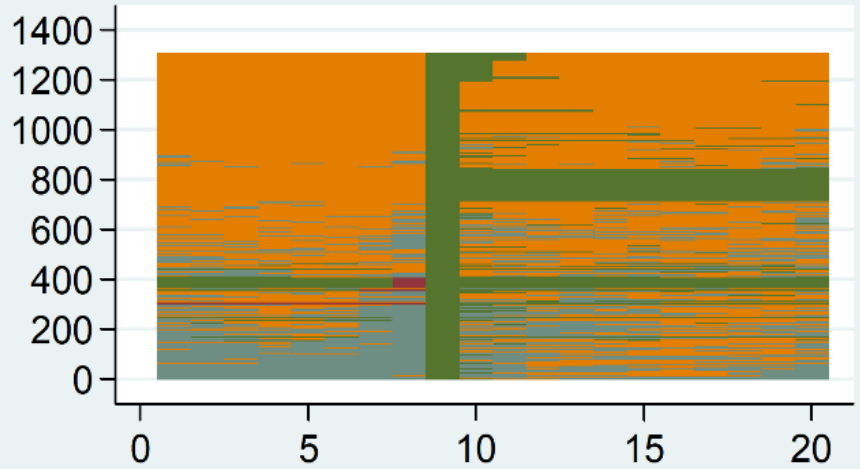


Legend :
- Exit
- Other inactivity
- MIW
- Unemployment
- Employment

RESULTS : IDENTIFICATION TRAJECTORIES

Graphic representation : Unemployment – Short term MIW – Unemployment





Legend :
- Exit
- Other inactivity
- MIW
- Unemployment
- Employment

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RESULTS : SOCIO-DEMOGRAPHIC FACTORS

Analysis of the association with socio-demographic factors through a logistic model using odds ratios :

$$CLUSTER_k = \beta_1\, SEXE + \beta_2\, AGE + \beta_3\, COUPLE + \beta_4\, ENFANTS + \beta_5\, REGION + \varepsilon$$

	Return to employment		Permanence in MIW		Return to unemployment	
	OR	95% CI	OR	95% CI	OR	95% CI
Female	0,61***	0,59 - 0,62	1,18***	1,16 - 1,21	1,95***	1,90 - 2,01
Age :						
30-49	0,84***	0,82 - 0,87	1,13***	1,09 - 1,17	1,14***	1,10 - 1,19
50-59	0,45***	0,44 - 0,47	2,11***	2,03 - 2,20	1,14***	1,39 - 1,52
>= 60	0,13***	0,12 - 0,14	8,34***	7,78 - 8,95	1,00	0,89 - 1,12
In couple	1,99***	1,94 - 2,04	1,03***	1,01 - 1,06	0,29***	0,28 - 0,30
With children	1,02**	1,01 - 1,05	0,79***	0,77 - 0,81	1,23***	1,19 - 1,27
Region :						
Wallonia	1,18***	1,13 - 1,23	0,83***	0,79 - 0,87	0,94**	0,90 - 0,99
Flanders	2,11***	2,03 - 2,19	0,68***	0,65 - 0,72	0,42***	0,40 - 0,44
Number of obs.	6.659		1.740		1.309	

- Reference category: man, age 16-29, without partner, without children, from the Brussels region

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RESULTS : SOCIO-DEMOGRAPHIC FACTORS

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Region :		
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Number of obs.	6.659	

- Employment – Short term MIW – Employment

- Higher probability to follow this path for
  - men
  - the 16–29 years old
  - individuals in couple
  - those living outside the region of Brussels

RESULTS : SOCIO-DEMOGRAPHIC FACTORS

	Permanence in MIW	
	OR	95% CI
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Age :		
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Region :		
Wallonia	0,83***	0,79 - 0,87
Flanders	0,68***	0,65 - 0,72
Number of obs.	1.740	

- Employment – Long term MIW

- Higher probability to follow this path for
  - women
  - the 60+ years old
  - individuals without children
  - those living in the region of Brussels

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RESULTS : SOCIO-DEMOGRAPHIC FACTORS

	Return to unemployment	
	OR	95% CI
Female	1,95***	1,90 - 2,01
Age :		
30-49	1,14***	1,10 - 1,19
50-59	1,14***	1,39 - 1,52
>= 60	1,00	0,89 - 1,12
In couple	0,29***	0,28 - 0,30
With children	1,23***	1,19 - 1,27
Region :		
Wallonia	0,94**	0,90 - 0,99
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Number of obs.	1.309	

- Unemploym. – Short term MIW – Unemploym.

- Higher probability to follow this path for
  - women
  - the 30–59 years old
  - individuals being single
  - individuals with children
  - those living in the region of Brussels

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IN SYNTHESIS

- Research question :

  Which are the most frequent trajectories on the labour market for individuals having experiences a period in medical incapacity to work? Which are the influencing factors?

- Method : Sequence analysis and logistic regression

- Results : Three main trajectories
  - Employment – Short term MIW – Employment
  - Employment – Long term MIW
  - Unemployment – Short term MIW – Unemployment

- Factors : sex, age, couple, children, region significant

CONCLUSIONS

- Majority of individuals experiences short-term spells, while only a small proportion become long-term disabled
- The individuals who remain in disability for more years rarely recover afterwards
- Professional programs aimed at helping the MIW individuals to (re)enter the labour market should focus on the most fragile categories identified

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Thank you for the attention

More info:
Esmeralda.gerritse@ulb.ac.be