

Employment among people with spinal cord injury in 22 countries across the world: Results from the International Spinal Cord Injury (InSCI) Community Survey

Post MW, Reinhardt JD, Avellanet M, Escorpizo R, Engkasan JP, Schwegler U; InSCI, Leiufrud AS.
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2nd Forum of the European Spinal Cord Injury Federation (ESCIF)

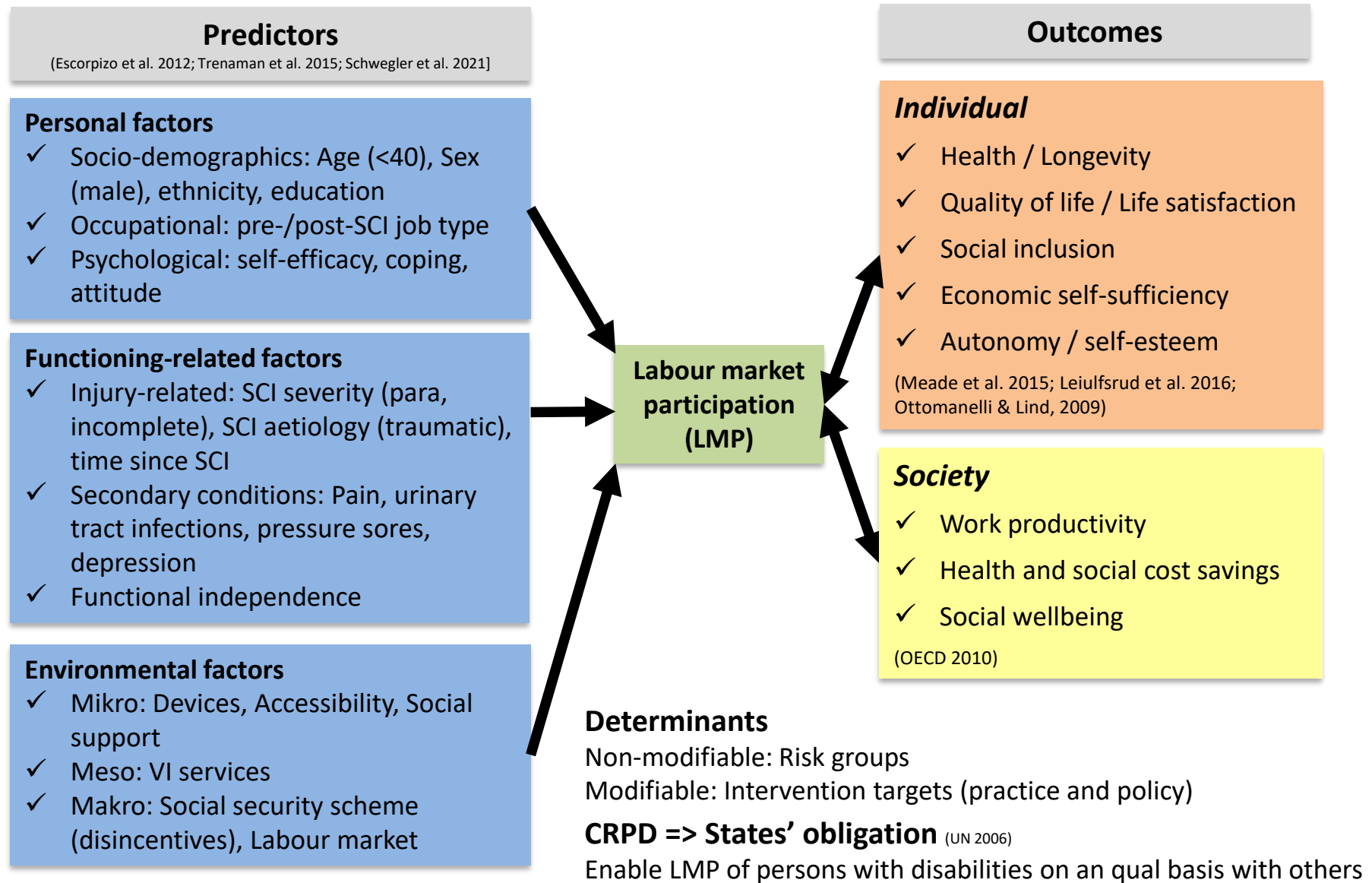
7th of June 2021, Nottwil

Urban Schwegler, Leader “Work and Integration”, Swiss Paraplegic Research, Nottwil

Agenda

- Why an international perspective on labour market participation (LMP)?
- Objective and specific aims
- Approach, Design, Methods
- Key results and discussion
- Conclusion
- The Swiss Case: “Sustainable vocational integration”
- Take home message

Labour market participation of persons with SCI



Labour market participation of persons with SCI

Employment rates

- ✓ International: average 35% (Europe: 51%, North America: 30%) [Bloom et al. 2019; Andersen et al. 2012]
- ⇒ Potential key role of country-specific social policy regulations and labor market dynamics for employment rates → Cross-country comparison studies?

Research gaps

- ✓ Cross-country comparisons on post-SCI employment are missing, with few exceptions [Leiulfsrud et al. 2019]
- ✓ Evidence from comparing single-country studies: Comparisons hampered by
 1. Lack of standardization of employment metrics (paid work, sheltered work, education)
 2. Disparate inclusion / exclusion criteria
 3. Uneven geographical distribution of SCI research (59% North America, 22% Europe, only 1% Africa and South America) [Bloom et al. 2019]

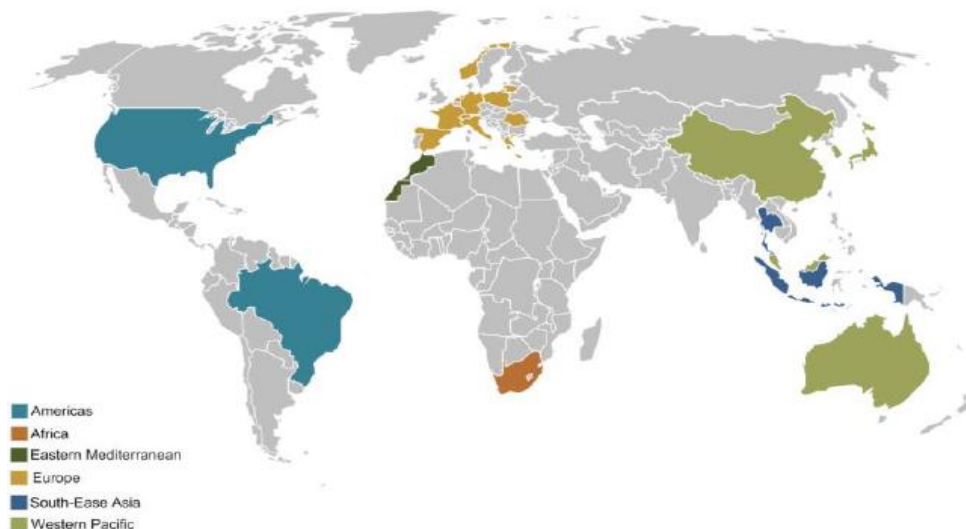
The International SCI community survey

Overall goal

to identify factors that explain the functioning and well-being of people living with SCI within and across countries [Stucki & Bickenbach 2017; Gross-Hemmi et al. 2017]

Overall design

- ✓ Cross-sectional multi-national community survey with repetition after 5 years
- ✓ 22 countries representing all 6 World Health Organization regions [Fekete et al. 2020]



Objective and specific aims

Objective

To describe the employment situation of people with SCI across the countries participating in InSCI with special attention to sex as a determinant of employment.

Sex-related differences could be culture-dependent.

Specific aims

- (1) estimate and compare observed and predicted (adjusted for sample composition) employment rates across the 22 InSCI countries;
- (2) estimate gaps in employment rates among people with SCI and the national general population;
- (3) examine the differences in employment rates and employment gaps between men and women.

InSCI study design and participants

Design

- ✓ Cross-sectional community survey conducted in 22 countries (January 2017 - May 2019)
- ✓ Coordinated by Swiss Paraplegic Research in collaboration with national study centers

Participants

- ✓ Community-dwelling individuals with traumatic or non-traumatic SCI, aged at least 18 years at the time of the survey
- ✓ Minimal sample size of 200 participants per country
- ✓ For this study: Only InSCI participants of working age (18-64 according OECD)

Data collection

- ✓ Participants identified from multiple databases (specialized rehabilitation facilities, patient organizations, government agencies, previous study databases)
- ✓ Predefined sampling frames or convenience sampling
- ✓ Multiple response models: Paper-pencil, interview, online questionnaire

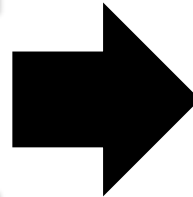
Study variables

Socio-demographic factors

- ✓ Age at survey
- ✓ Sex (male – female)
- ✓ Education (years of formal education before and after SCI onset [ISCED, 1997])

Injury-related factors

- ✓ Age at SCI onset
- ✓ Time since SCI onset
- ✓ SCI severity (Paraplegia – Tetraplegia, Complete – Incomplete)
- ✓ SCI etiology (Traumatic – Non-traumatic)



Employment

“Having paid work for at least 1 hour a week” [ILO, 2019]

Data analysis

1. Predicted and observed employment rates

- ✓ Comparability of the observed employment rates across countries was limited due to big differences in sample composition => Therefore, predicted country-specific employment rates were calculated using a mixed-effects logistic regression with sex, age, education, etiology, type of SCI, and TSI as covariates.
- ✓ For instance, in a country sample with a higher proportion of people with complete tetraplegia we would expect a lower employment rate
- ✓ “How much better or worse the country-specific employment rate is compared with what could be expected based on the sample composition”

2. Gaps in employment rates to general population

- ✓ Difference between the observed employment rates per country sample and figures from the ILO Statistics on the general employment rates, stratified for males and females (2017-2018) [ILO, 2019]

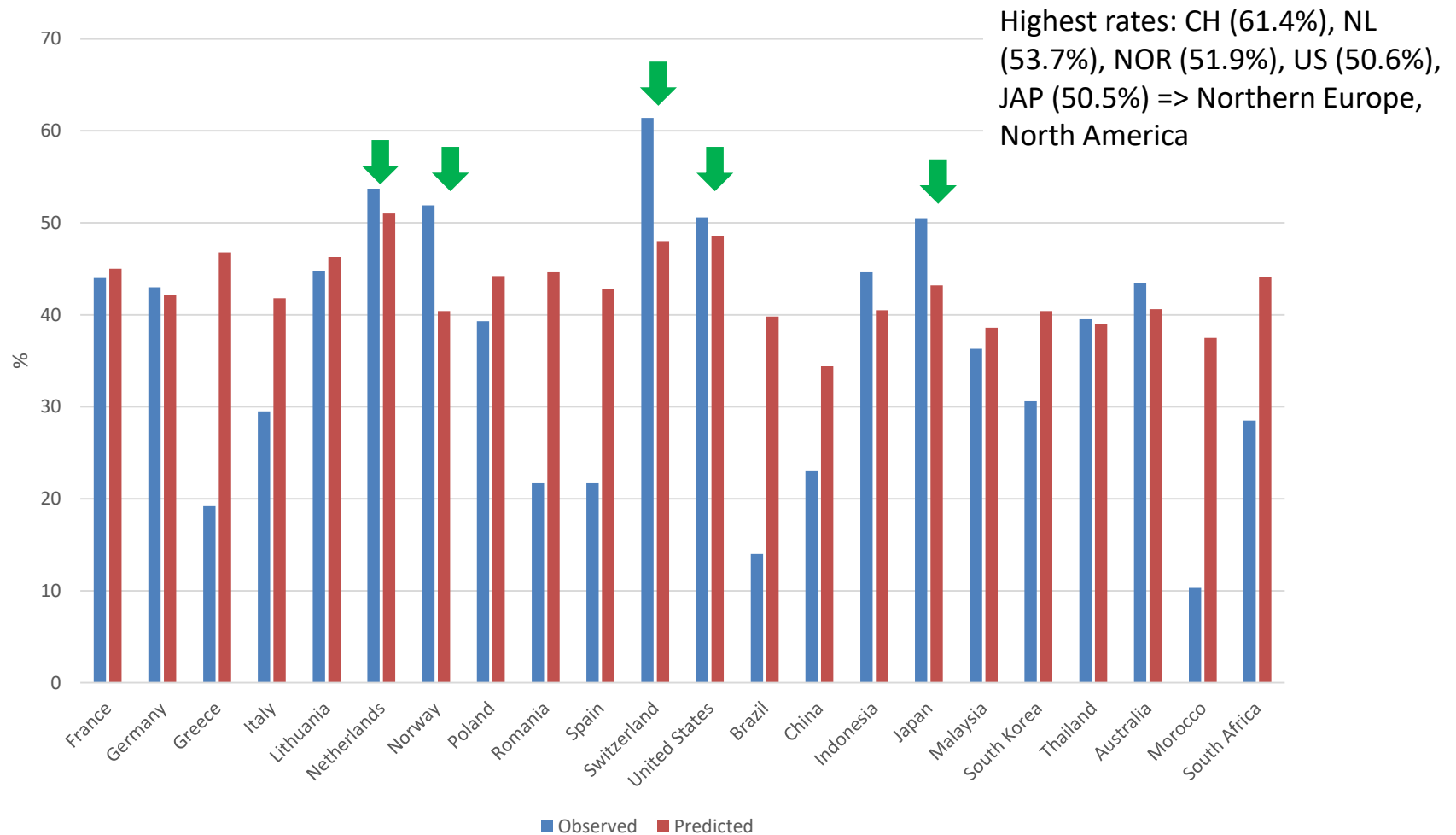
Sample characteristics

Table 1 Sample characteristics (N = 9875)

Country	n	Male Sex	Age at Onset		Age at Study		Time Since Onset		Years of Education		Type of SCI		
		%	Median	IQR	Median	IQR	Median	IQR	Median	IQR	Tetraplegia, %	Complete, %	Traumatic, %
Missing, n	-	12	241	-	0	-	240	-	587	-	184	234	105
Total sample	9875	73.8	31	22-44	47	37-55	10	4-19	12	9-16	36.2	41.3	83.8
Australia	1035	74.5	31	22-44	52	43-59	13	7-24	13	10-16	42.4	36.2	87.2
Brazil	172	80.8	37	24-47	39	28-51	2	1-3	11	8-15	39.5	22.7	76.2
China	1144	71.4	44	34-50	48	39-54	4	2-5	9	6-12	31.5	26.7	70.0
France	328	74.9	26	20-40	48	38-56	15	6-25	14	11-17	33.7	45.2	84.9
Germany	1174	73.0	35	23-48	52	41-58	10	4-19	13	12-16	46.9	36.9	81.6
Greece	178	74.5	27	20-36	45	37-52	14	7-23	12	12-16	31.6	46.0	87.5
Indonesia	182	65.4	30	22-39	43	34-50	12	4-12	9	6-12	9.0	42.8	87.8
Italy	167	75.4	32	24-44	47	37-54	10	5-17	13	8-13	24.5	42.0	76.7
Japan	202	84.6	27	20-41	49	41-56	14	7-26	12	12-16	54	66.8	91.0
Lithuania	213	62.4	25	20-33	42	35-48	16	7-22	13	12-16	30.7	75.9	93.8
Malaysia	281	79.0	27	20-37	36	29-49	5	3-13	11	8-13	29	41.4	86.4
Morocco	369	72.9	27	22-38	35	28-46	4	2-9	9	4-12	26.6	44.4	79.4
Netherlands	165	69.7	37	27-48	54	44-59	10	4-22	15	12-18	36.4	28.0	62.0
Norway	369	68.0	40	27-50	49	37-58	8	4-13	13	11-16	37.8	22.7	74.7
Poland	873	83.6	28	21-38	43	36-53	11	7-19	13	11-15	45.3	47.3	90.8
Romania	209	72.2	27	21-37	36	30-45	6	3-14	12	10-14	30.3	33.2	85.1
South Africa	193	76.2	25	20-31	36	28-47	7	4-14	12	10-14	39.7	53.1	92.2
South Korea	809	76.7	30	23-40	48	39-56	15	7-21	12	12-15	40.9	58.4	92.7
Spain	334	70.7	28	20-39	48	39-55	14	6-24	13	8-18	36.3	49.5	81.6
Switzerland	1022	71.6	29	21-39	51	42-58	17	9-27	14	12-17	30.8	42.4	84.9
Thailand	276	72.8	31	22-43	40	32-54	5	2-12	11	6-14	25.2	45.3	88.0
United States	173	57.8	24	19-41	40	30-53	10	4-19	16	12-18	40.1	30.6	100

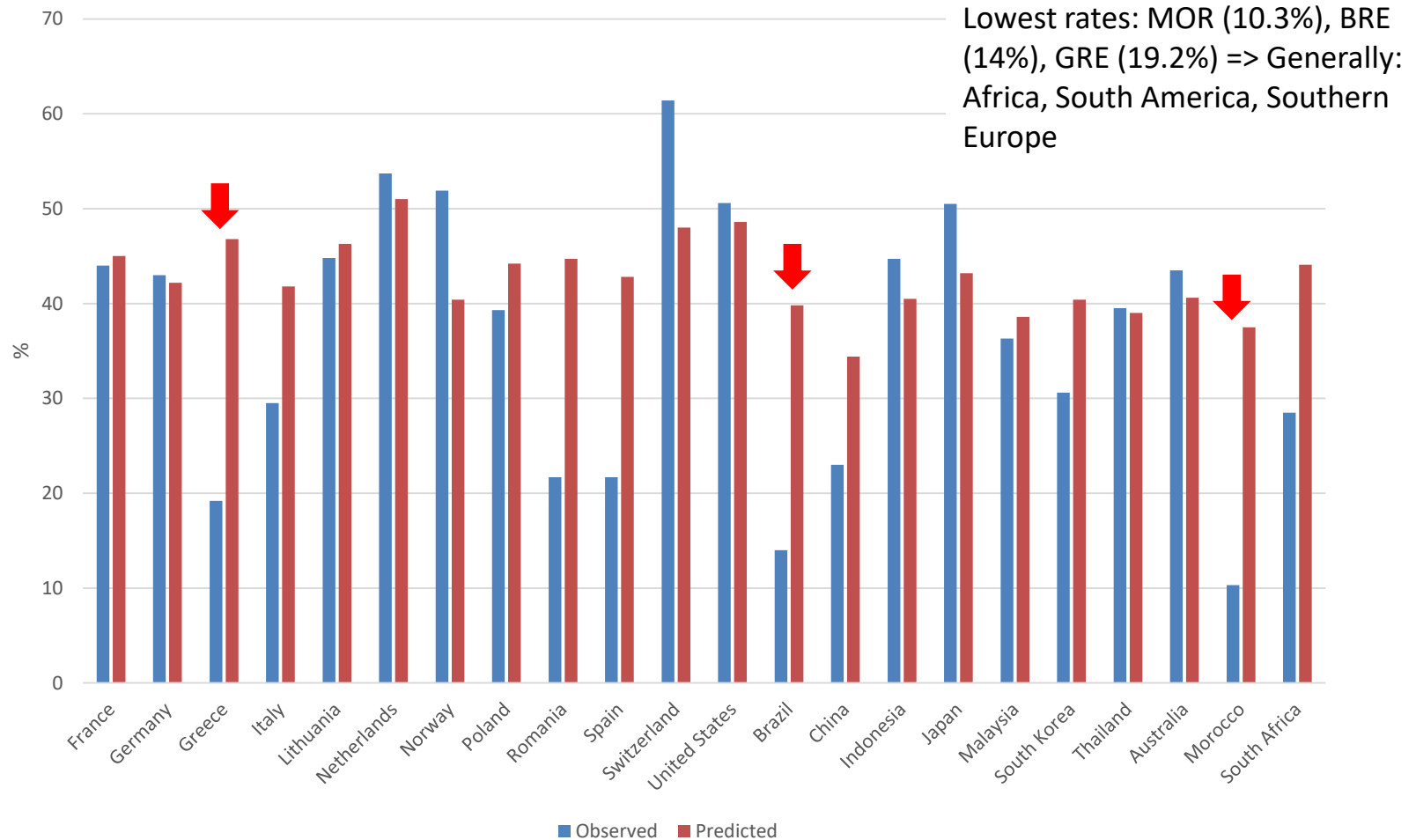
- ✓ Total N = 9,875 participants in working age
- ✓ N per country varied between 165 (Netherlands) to 1,174 (Germany)
- ✓ Big differences in sample composition, e.g. participants with tetraplegia (9%-54%)

Observed and predicted employment rates



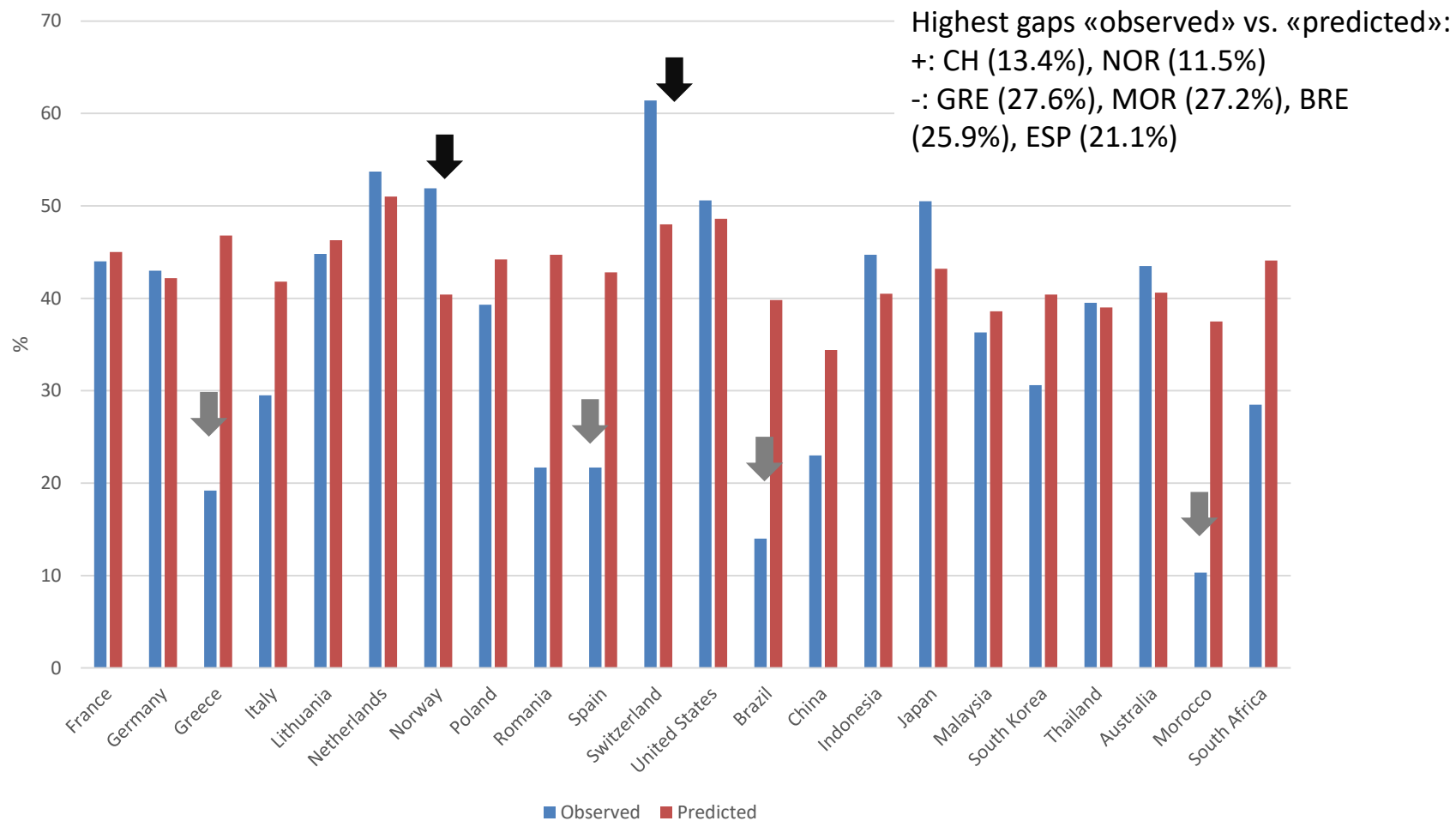
Overall employment rate: 38%, large variation across countries

Observed and predicted employment rates



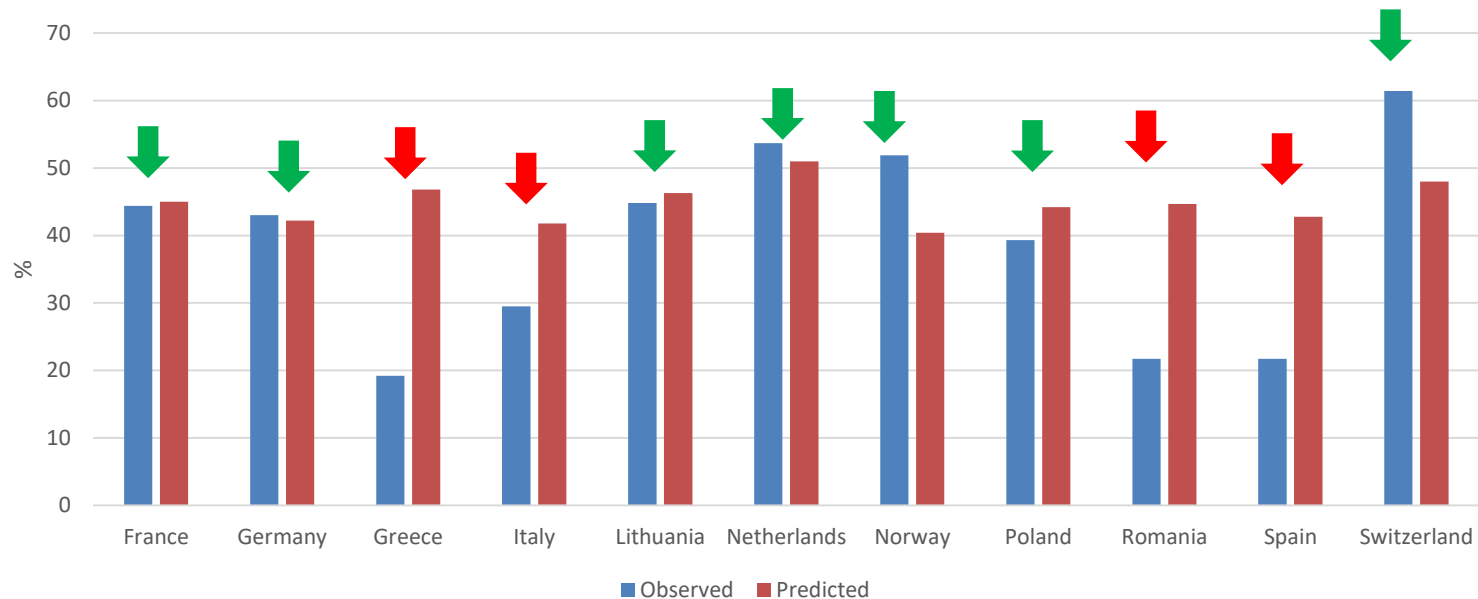
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Observed and predicted employment rates



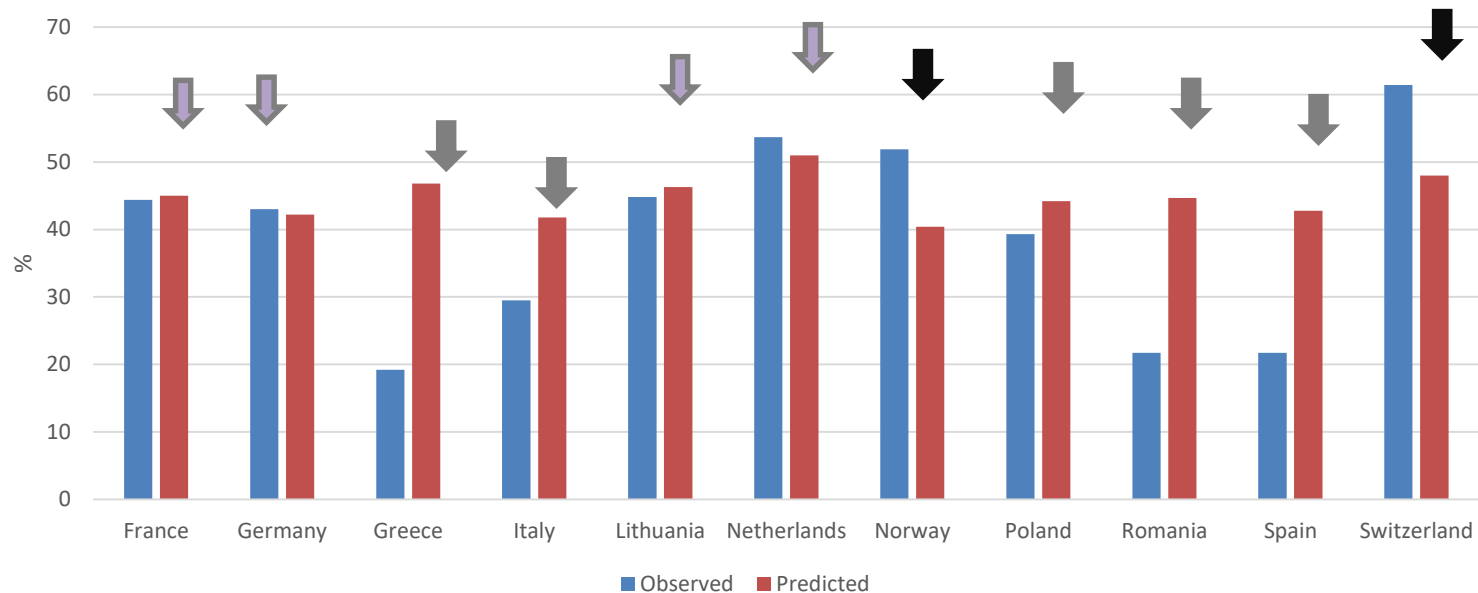
Overall employment rate: 38%, large variation across countries

Observed and predicted employment rates “Europe”



- ✓ Higher rates in North, West, and Middle European countries: NOR, NL, LIT, FRA, GER, CH (43-61.4%)
- ✓ Lower rates in South-Eastern Europe (SPA, ITA, GRE, ROM) (19.2-29.5%)

Observed and predicted employment rates “Europe”



- ✓ Higher observed than predicted: CH, NOR
- ✓ Lower observed than predicted: SPA, GRE, ROM, ITA
- ✓ Equal «observed» vs. «predicted»: FRA, GER, LIT, NL, POL

Differences “Observed vs. predicted employment rates”

Variation across countries (when holding sample composition constant) could perhaps be explained by...

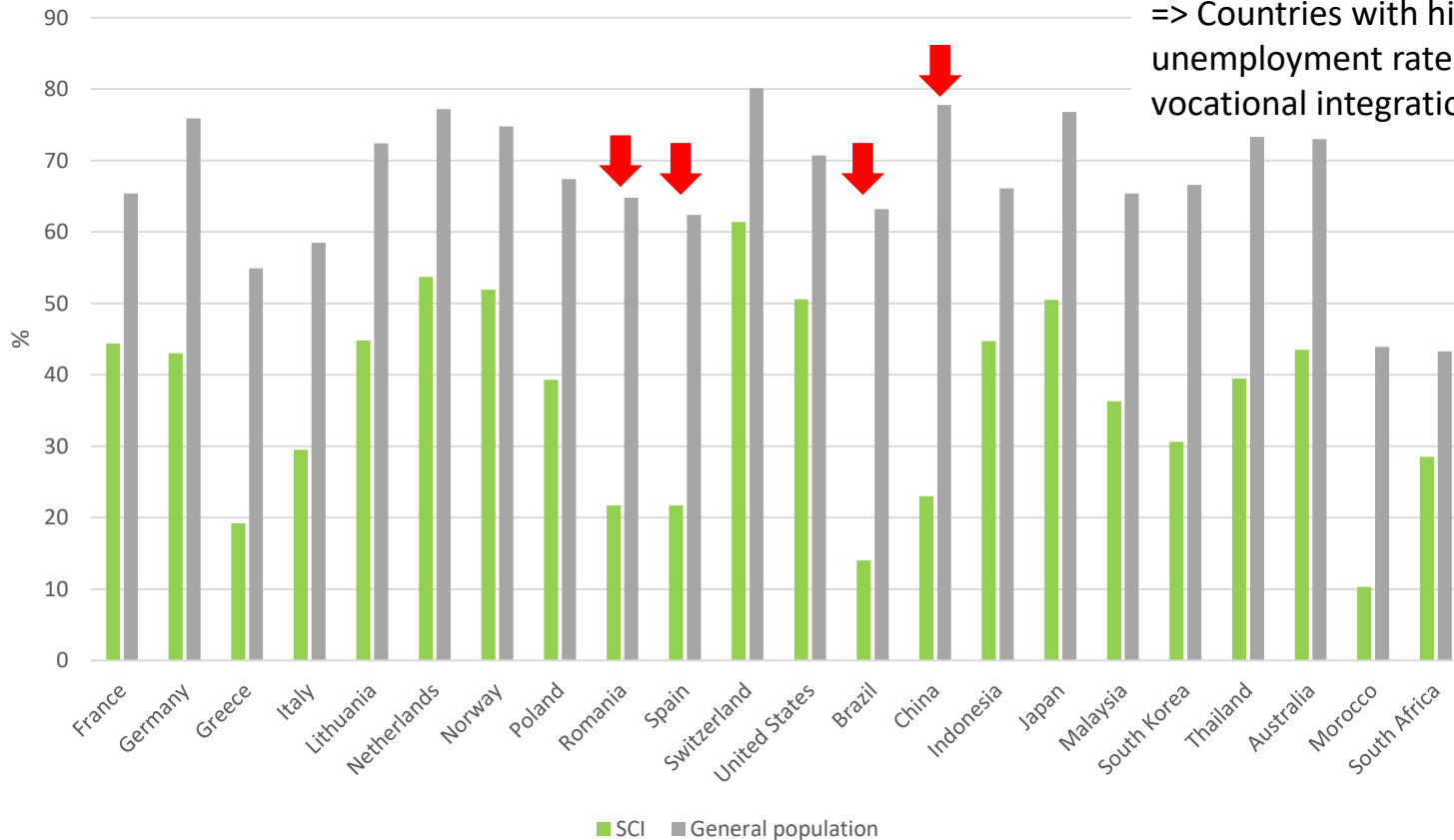
- a. unobserved differences in sample characteristic, such as pre-injury employment status or the presence of an employed partner
 - b. But more likely by system-level factors
 - ✓ National labor market dynamics (economic situation), policies (for PwD) and structures (job sectors)
 - ✓ Availability and accessibility of medical and vocational integration services
 - ✓ Social security system: Financial (dis-)incentives
 - ✓ Societal attitudes towards LMP of PwD
- ...that interrelate with psychological personal factors (e.g. goals, perspectives and attitudes related to work)

Employment gaps to general population

Highest gaps:

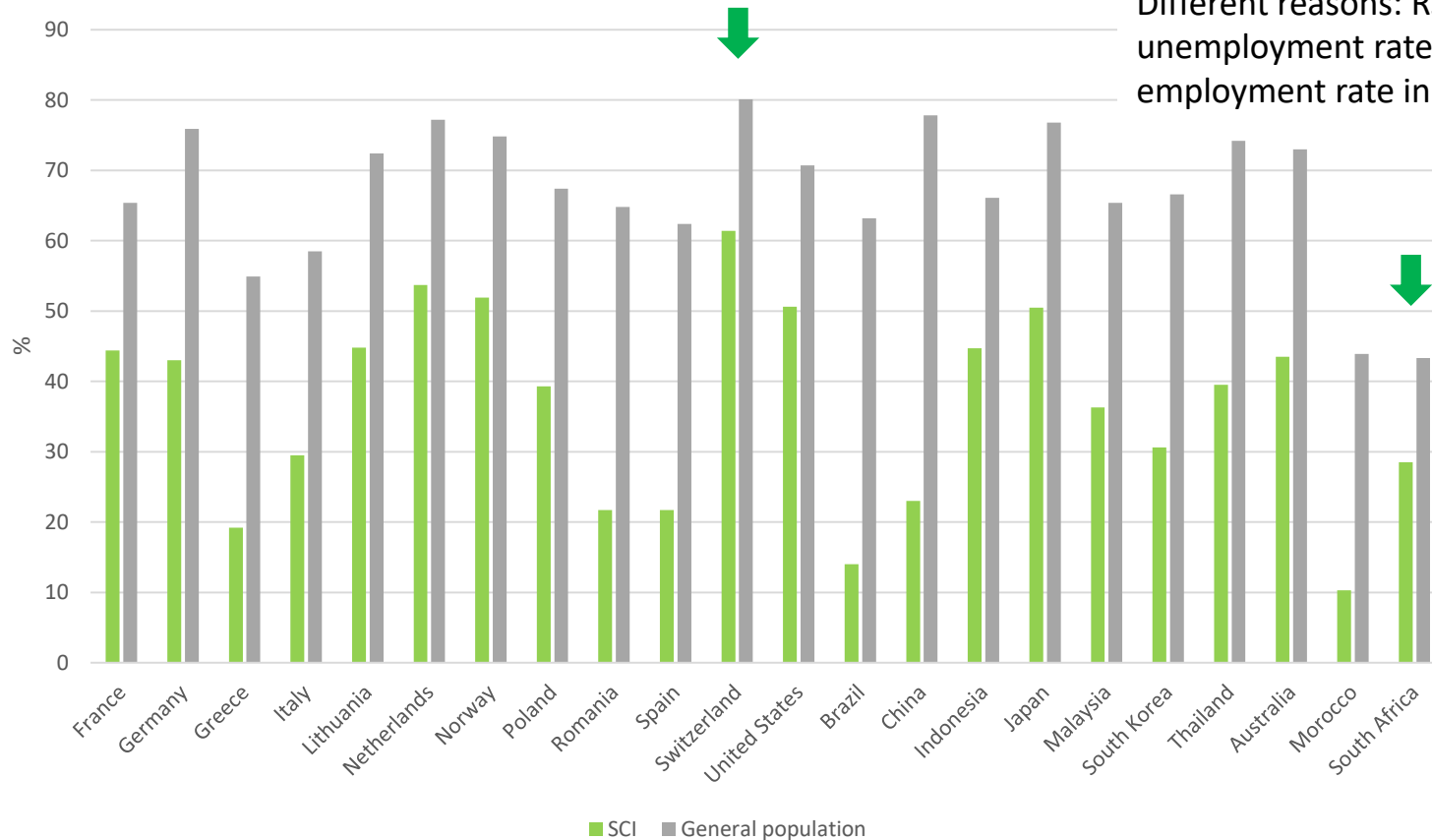
CHI (54.8%), BRA (49.2%), ROM (43.1%), SPA (40.7%)

=> Countries with high AND low unemployment rate in GP (lack of vocational integration services?)



- ✓ Substantial gaps (14.8% - 54.8%) between employment rates in SCI and GP (even in high-income countries)
- ✓ High unemployment rates in GP triggers high unemployment rate in SCI population

Employment gaps to general population



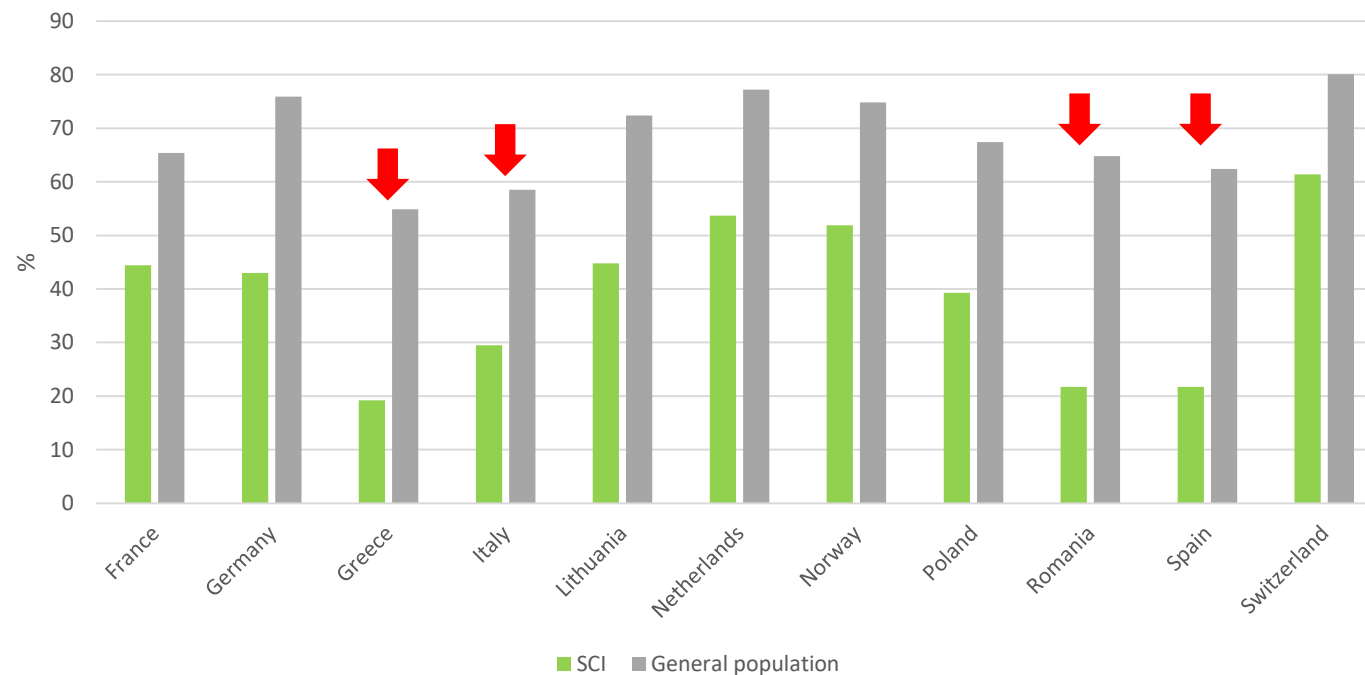
Lowest gaps:

RSA (14.8%), CH (18.7%)

Different reasons: RSA (high unemployment rate in GP), CH (high employment rate in SCI)

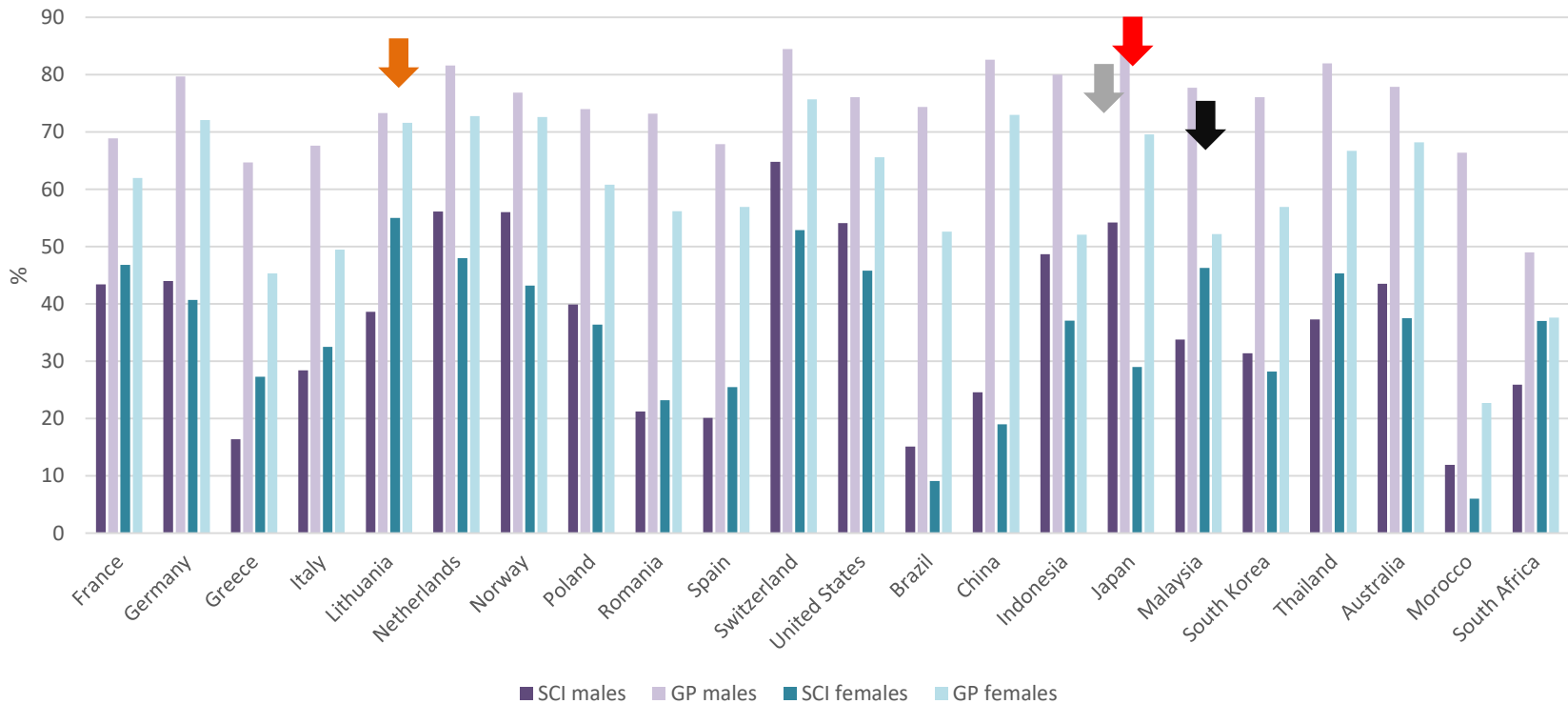
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Employment gaps to general population “Europe”



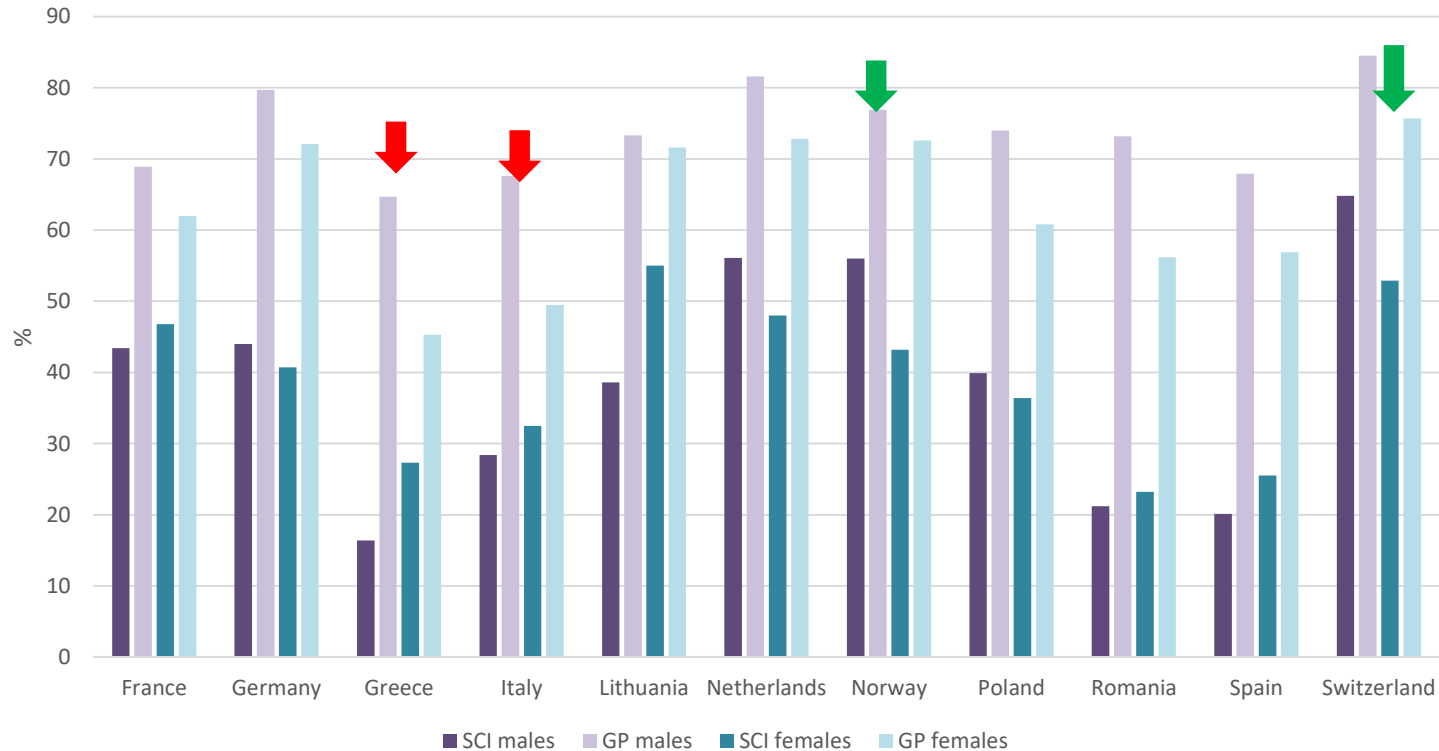
Higher employment gaps in South-Eastern Europe: SPA, ITA, GRE, ROM

Employment rates / gaps males & females



- ✓ Small overall difference between men (38.7%) and women (35.7%), but substantial variation across countries
- ✓ In 13 countries higher employment rates for males (mostly in JAP 25.2%), in 9 for females (mostly in LIT (16.4%))
- ✓ Employment gaps to GP more often higher among males than females (e.g. MAL 43.9% vs 5.9%)
- ✓ But also countries where gaps were higher for females: (e.g. JAP 40.6% vs. 29.7%)

Employment rates / gaps males & females Europe



✓ South Eastern countries (GRE, ITA)

Markedly lower employment rates for females in GP => Higher employment gaps for males than for females => Males in physical jobs before SCI with a higher possibility for not returning to work post-SCI

✓ Northern countries (NOR, CH)

No big differences in employment rates in GP => Higher or less lower employment gaps for females than for males

Conclusions

- ✓ Employment rates of people with SCI vary across countries but **are well below the general population** (*low and high-resources countries*)
- ✓ Differences between observed and predicted employment rates in many countries suggest that **labor market, social security and vocational integration policies** have a considerable impact on LMP
- ✓ Sex-related differences in employment rates:
Lower employment rate for women in GP, smaller employment gaps in SCI
“Double disadvantage” (especially in low resource countries): a. Being woman (lower employment rate in GP), b. being disabled (lower employment rate than GP also for men with a disability)

=> CRPD requirement (equal opportunities for work) not fulfilled in many countries

The Swiss Case: “Sustainable vocational integration”



Sustainable work integration of persons with SCI

Sustainable work integration of persons with SCI in Switzerland is a big challenge (Trezza et al. 2018; Reinhardt et al. 2016)

Return-to-work rate: 80% (2012)

Employment rate: 53% (2012), 61% (2017)

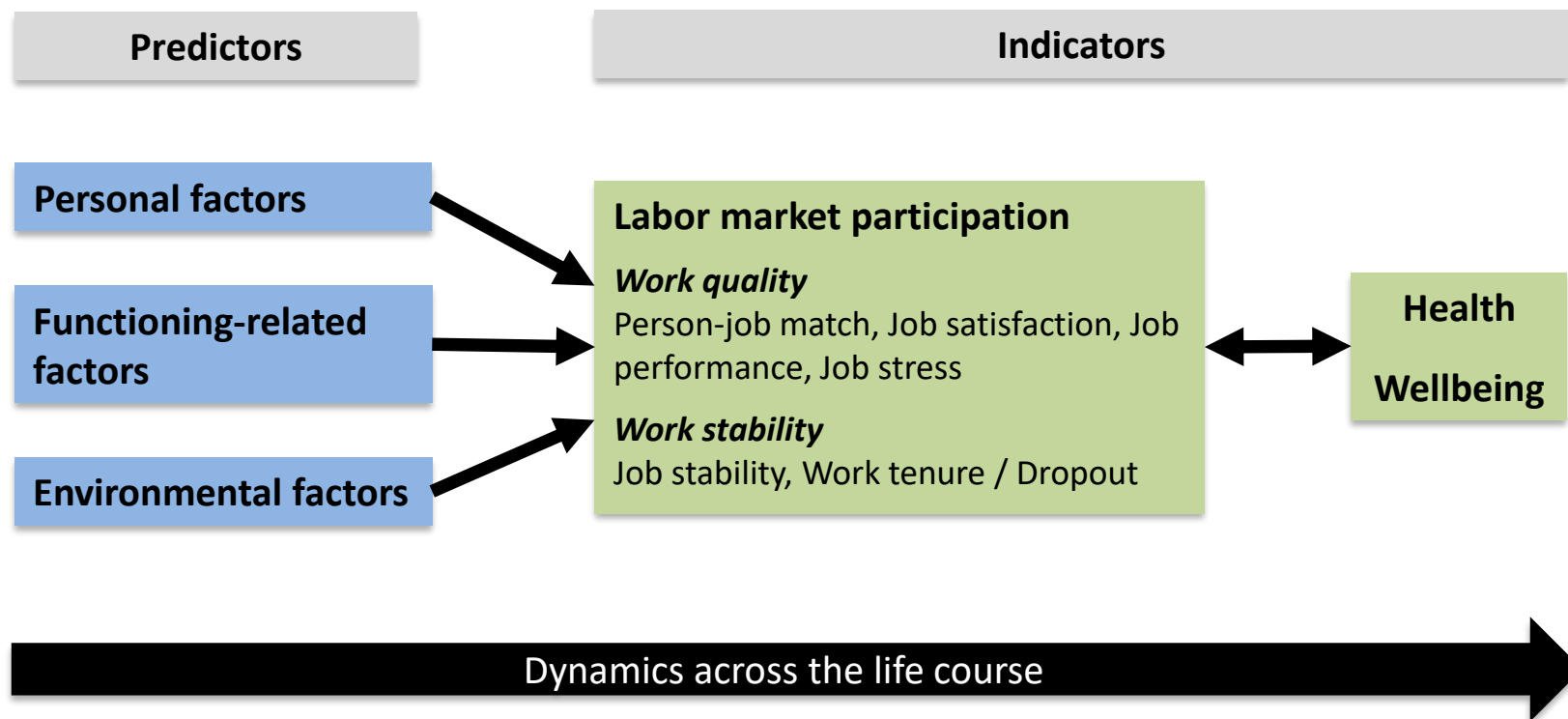
⇒ **DROPOUT < 25%**

maybe due to lack of post-rehab
“integration” measures (e.g. job coaching)
in the past

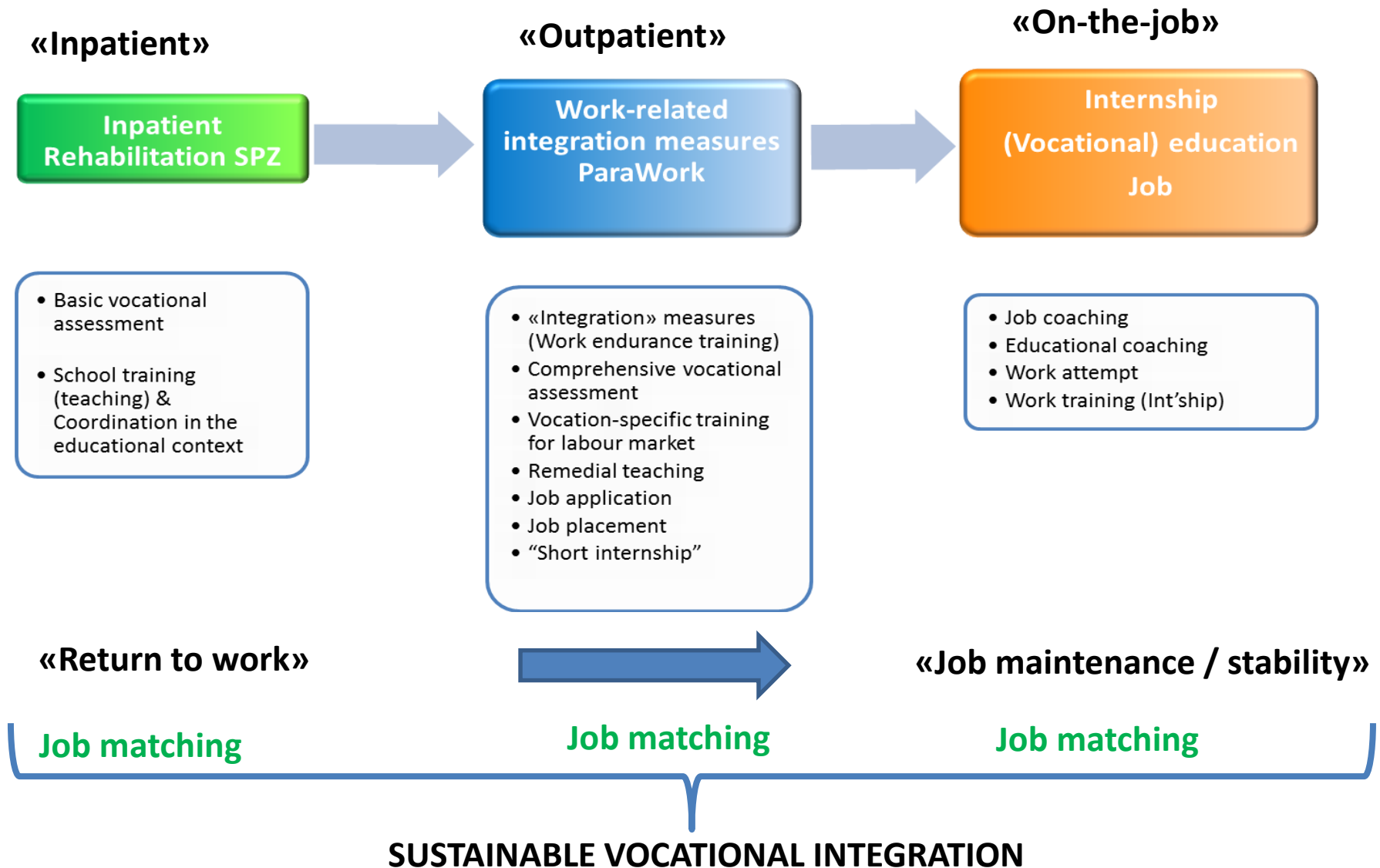


Work and Integration: Swiss Paraplegic Research

To **understand** sustainable labor market participation over the life course of persons with spinal cord injury (SCI) in order to **develop** evidence-based strategies at the level of practice and policy that promote sustainable working lives.



ParaWork: Swiss Paraplegic Centre

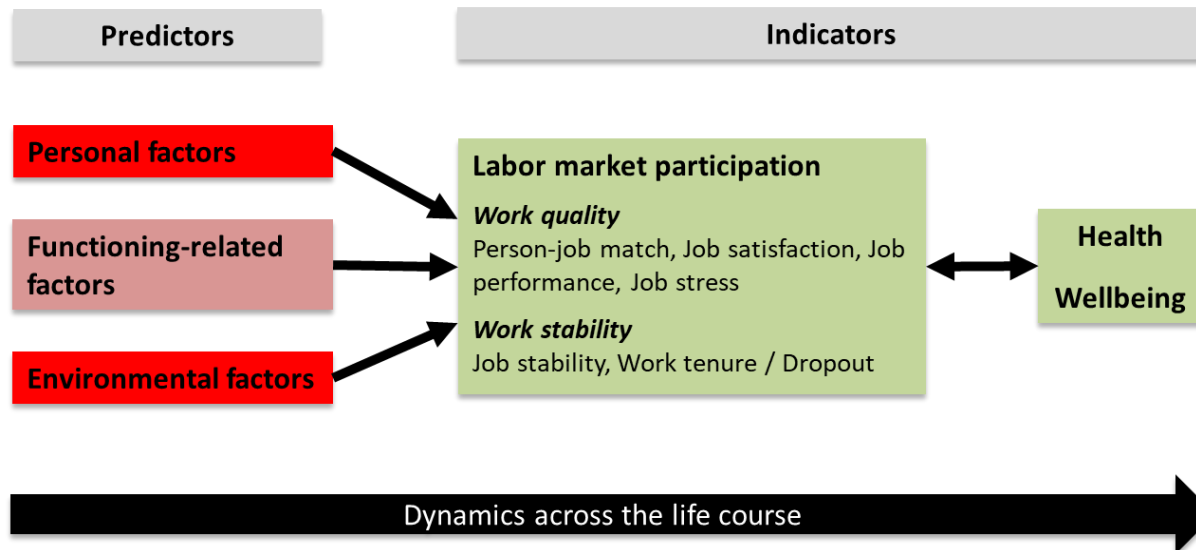


Evidence from CH

Schwegler et al. 2021 *Spinal Cord*

1. Longitudinal determinants of LMP

- ✓ Main determinants of LMP: Static (sex, nationality, SCI severity), temporal (age), dynamic (education level, functional independence, chronic pain), and policy-related (disability pension level) factors
- ✓ Counterfactual (what-if) predictions: Highest improvement of employment rates for strategies that increase functional independence (up to 6%), foster education (5%), reduce pain (2%), or promote a shift to partial disability pensions (15%)



Selected evidence from CH

Marti et al. 2017; Trezzini et al. 2019

Importance of environmental and person factors for successful LMP

- ✓ **Community transition:** time to adapt (“learning to live”) after discharge from first rehabilitation
- ✓ **Psychological factors at work:** Person-job match, Employment identity, Value of and attitude towards work
- ✓ **Social security regulations** (financial disincentives: increasing work / changing work status => less pension)
- ✓ **Career development possibilities and educational opportunities:** “Return to previous employer is not necessarily more sustainable than starting with a new employer”

The Swiss case: Advantages and disadvantages

Advantages

- ✓ Goodwill by employers
- ✓ Educational opportunities
- ✓ Societal attitude towards SCI => Propaganda Swiss Paraplegic Foundation
- ✓ Good rehab services (community preparation, integrated vocational integration services)
- ✓ Good vocational integration services (Comprehensive, SCI specialized, need-driven, paid by disability insurer) => “lifelong” care
- ✓ Evidence-based monitoring and improvement of vocational integration services (Swiss Paraplegic Research / Center)

Disadvantages

- ✓ Financial disincentives vs. investment in vocational integration (social security law)

Take home message

1. Importance of system-level factors

- Social security system (financial (dis)incentives by pension, promotion of vocational services; Labor market policies; Attitudes towards LMP of PwD

2. Importance of vocational integration services / education

- Vocational integration services: SCI specialized, lifelong”, comprehensive (personal, functioning, environment), goal oriented (sustainable integration)
- Educational opportunities

3. Personal factors interact with system-level factors

“To be recognized as a full working member of society with the possibility of career development increase motivation for return to work” => Value one sees in one’s work

4. Research on sustainable integration of persons with disabilities

- ✓ Prognostic models: Longitudinal (mixed-methods) life course research
- ✓ International comparison of models: Learning for and from
- ✓ Counterfactuals: Policy-driven results, i.e. tangible numbers informing directly about promises of policy strategies => Targeted knowledge translation

Take home message

Sustainable vocational integration can only be achieved if (a) *jobs are being offered to PwD* and (b) *these jobs match* the persons abilities / needs / interests

⇒ **Beneficial for individuals (wellbeing/health) AND society (costs)**

1. Convincing governments that ensuring work opportunities for persons with SCI is not only a requirement by the CRPD but also in the interest of the society
2. Empowering individuals to see the value in work (contribution to society as full member)

=> **Recognizing that these two aspects interrelate and that creating meaningful work opportunities empower PwD to contribute (System / Person)**





Thanks for your attention!

Urban Schwegler / Stefan Staubli

Swiss Paraplegic Research

Guido A. Zächstrasse 4, 6207 Nottwil

urban.schwegler@paraplegie.ch