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August 2025

**Thesis - Extending Careers beyond 50:
Are Labour-Market Transitions Inevitable?**

----- SECTION I: MACRO ANALYSIS -----

Does passage through the labor market raise

the employment rate of people aged 50+? */

* PART 1 - CLEANING & PREPARING DATA *

clear

use "C:\GUILLAUME\UCLouvain\MASTER ECONOMIE\MEMOIRE\DATA\lfsdb_ag.dta", clear

* 1) We keep individuals between 50 & 64 years old

keep if age >= 50 & age <= 64

* 2) Helpful labels

label var er "Employment rate, age 50-64"

label var sdurwk1_ "Share hired with tenure <1 year"

label var sdurwk2_ "Share hired with tenure <2 years"

label var sdurwk5_ "Share hired with tenure <5 years"

label var fem "Female share"

label var sisced "Education (ISCED share/index)"

label var cnt2 "Country (numeric code)"

```
label var year      "Year"
```

```
*-----*
```

```
* PART 2 - OLS & FE REGRESSIONS *
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*-----*
```

```
* 1) Naïve OLS
```

```
eststo clear
```

```
reg er sdurwk1_
```

```
eststo m0
```

```
* 2) OLS + demographic controls
```

```
reg er sdurwk1_ fem sisced
```

```
eststo m1
```

```
* 3) Country & year fixed effects (clustered by country)
```

```
areg er sdurwk1_ i.year, absorb(cnt2) vce(cluster cnt2)
```

```
eststo m2
```

```
* 4) Main Model - Country & year fixed effects (clustered by country) + controls
```

```
areg er sdurwk1_ fem sisced i.year, absorb(cnt2) vce(cluster cnt2)
```

```
eststo m3
```

```
* 5) Robustness: We use alternative thresholds for job tenure
```

```
areg er sdurwk2_ fem sisced i.year, absorb(cnt2) vce(cluster cnt2)
```

```
eststo m4
```

```
areg er sdurwk5_ fem sisced i.year, absorb(cnt2) vce(cluster cnt2)
```

```
eststo m5
```

```
*-----*
```

```
* PART 3 - TABLES CREATION & EXPORT *
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```
*-----*
```

```
* 1) Main model macro table
```

```

esttab m4 using "fe_reference_model.rtf", replace ///
    title("Table 1 - FE model on employment rate (age 50-64), with controls") ///
    varlabels( ///
        sdurwk1_ "Sdurwk1_" ///
        fem "Female" ///
        sisced "Education" ///
    ) ///
    b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///
    stats(r2 N, labels("R-squared" "Obs.)) ///
    drop(_cons *year*) ///
    compress nonumbers

```

* 2) Comparison Table of the 4 OLS & FE regressions

```

esttab m0 m1 m2 m3 using "macro_regressions_comparison.rtf", replace ///
    title("Table 2 - Effect of recent job entry on senior employment rate (age 50-
64)") ///
    mtitles("OLS" "OLS + control" "FE" "FE + controls") ///
    varlabels( ///
        sdurwk1_ "Sdurwk1_" ///
        fem "Female" ///
        sisced "Education" ///
    ) ///
    b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///
    stats(r2 N, labels("R-squared" "Obs.)) ///
    drop(_cons *year*) ///
    nonumbers compress

```

* 3) Comparison Table : Share hired with tenure <1 year, <2 years & <5 years

```

esttab m3 m4 m5 using "robustness_transitions_clean.rtf", replace ///
    title("Table 3 - Robustness Check: Alternative Definitions of Recent Entry")
///
    keep(sdurwk1_ sdurwk2_ sdurwk5_) ///
    varlabels( ///
        sdurwk1_ "Sdurwk1_" ///
        sdurwk2_ "Sdurwk2_" ///
    )

```

```

        sdurwk5_ "Sdurwk5_" ///
    ) ///

b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///

stats(r2 N, labels("R-squared" "Obs.)) ///

compress

*-----*

        * PART 4 - BELGIUM INTERACTION MODEL *

*-----*

/* 1) We create the belgium interaction term. We want to test whether the effect
      of sudrwk1_ on employment is different for Belgium compared to Europe */
gen belgium = (cnt2 == 2)
gen inter_belgium = sdurwk1_ * belgium

areg er sdurwk1_ inter_belgium fem sisced i.year, absorb(cnt2) vce(cluster cnt2)
eststo belgium_interaction

* 2) Table with Belgium interaction term

esttab belgium_interaction using "table_belgium_interaction.rtf", replace ///
title("Table 4 - Interaction: Effect of Recent Job Entry in Belgium") ///
b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///
varlabels( ///
    sdurwk1_ "Sdurwk1_" ///
    inter_belgique "BE×Sdurwk" ///
    fem "Female" ///
    sisced "Education" ///
) ///

mlabels("") ///

stats(r2 N, labels("R-squared" "Observations")) ///

drop(_cons *year*) ///

compress nonumbers

```

```

*-----*
* PART 5 - FIGURES CREATION & EXPORT *
*-----*

clear

use "C:\GUILLAUME\UCLouvain\MASTER ECONOMIE\MEMOIRE\DATA\lfsdb_ag.dta"
keep if age5 >= 50 & age5 <= 64

* 1) Figure showing employment rate evolution over time - for Europe & Belgium
preserve

gen belgium = (cnt2 == 2)

collapse (mean) er, by(year belgium)

twoway (line er year if belgium == 1, lcolor(blue) lpattern(solid)) ///
      (line er year if belgium == 0, lcolor(red) lpattern(dash)), ///
      title("Evolution of the Employment Rate (Age 50-64): Belgium vs Europe", ///
justification(center)) ///
      xtitle("Year") ytitle("Employment Rate (%)") ///
      legend(label(1 "Belgium") label(2 "Other countries")) ///
      ylabel(, grid) graphregion(color(white))

graph export "employment_rate_belgium_vs_others.png", replace

restore

* 2) Figure showing the share hired with tenure <5 years evolution over time
preserve

gen belgium = (cnt2 == 2)

collapse (mean) sdurwk5_, by(year belgium)

twoway (line sdurwk5_ year if belgium == 1, lcolor(blue) lpattern(solid)) ///

```

```

        (line sdurwk5_ year if belgium == 0, lcolor(red) lpattern(dash)), ///
        title("Evolution of Recent Job Entries (<5 years): Belgium vs Europe",
justification(center)) ///
        xtitle("Year") ytitle("Share of 50-64yo workers (%)") ///
        legend(label(1 "Belgium") label(2 "Other countries")) ///
        ylabel(, grid) graphregion(color(white))

graph export "recent_job_entries_belgium_vs_europe.png", replace

restore

* 3) Figure showing the share hired with tenure <1 year evolution over time
preserve

gen belgium = (cnt2 == 2)

collapse (mean) sdurwk1_, by(year belgium)

twoway (line sdurwk1_ year if belgium == 1, lcolor(blue) lpattern(solid)) ///
        (line sdurwk1_ year if belgium == 0, lcolor(red) lpattern(dash)), ///
        title("Evolution of Recent Job Entries (<1 year): Belgium vs Europe",
justification(center)) ///
        xtitle("Year") ytitle("Share of 50-64yo workers (%)") ///
        legend(label(1 "Belgium") label(2 "Other countries")) ///
        ylabel(, grid) graphregion(color(white))

graph export "recent_job_entries_belgium_vs_europe2.png", replace

restore

* 4) Figure showing correlation between the employment rate & the share of olders
working <1 year & 5 years tenure.

    * 4.1. Figure for <1 year tenure
preserve
keep if age5 >= 50 & age5 <= 64

collapse (mean) er sdurwk1_, by(cnt2)

```

```

* We add country labels

label define country_lbl 1 "AT" 2 "BE" 3 "BG" 4 "CH" 5 "CY" 6 "CZ" 7 "DE" 8 "DK" 9
"EE" 10 "ES" ///

11 "FI" 12 "FR" 13 "GR" 14 "HR" 15 "HU" 16 "IE" 17 "IS" 18
"IT" 19 "LT" 20 "LU" ///

21 "LV" 22 "MT" 23 "NL" 24 "NO" 25 "PL" 26 "PT" 27 "RO" 28
"SE" 29 "SI" 30 "SK"

label values cnt2 country_lbl

twoway (scatter er sdurwk1_, mlabel(cnt2)) ///
      (lfit er sdurwk1_), ///
      title("Recent Job Entries (<1y) vs Employment Rate (Age 50-64)") ///
      xtitle("Share of workers aged 50-64 in jobs <1 year (%)") ///
      ytitle("Employment rate of workers aged 50-64 (%)") ///
      legend(off)

graph export "graph_correlation_er_sdurwk1.png", replace

restore

* 4.2. Figure for <5 years tenure

preserve

keep if age5 >= 50 & age5 <= 64

collapse (mean) er sdurwk5_, by(cnt2)

label define country_lbl 1 "AT" 2 "BE" 3 "BG" 4 "CH" 5 "CY" 6 "CZ" 7 "DE" 8 "DK" 9
"EE" 10 "ES" ///

11 "FI" 12 "FR" 13 "GR" 14 "HR" 15 "HU" 16 "IE" 17 "IS" 18
"IT" 19 "LT" 20 "LU" ///

21 "LV" 22 "MT" 23 "NL" 24 "NO" 25 "PL" 26 "PT" 27 "RO" 28
"SE" 29 "SI" 30 "SK"

label values cnt2 country_lbl

twoway (scatter er sdurwk5_, mlabel(cnt2)) ///
      (lfit er sdurwk5_), ///
      title("Recent Job Entries (<5y) vs Employment Rate (Age 50-64)") ///
      xtitle("Share of workers aged 50-64 in jobs <5 years (%)") ///

```

```

        ytitle("Employment rate of workers aged 50-64 (%)") ///
        legend(off)

graph export "graph_correlation_er_sdurwk5.png", replace
restore

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*----- SECTION II: MICRO ANALYSIS -----*
/*          Employment stability and transition profiles :
          voluntary or involuntary mobility?          */

*****

*-----*
          * PART 1 - CLEANING & PREPARING DATA *
*-----*

clear
use "C:\GUILLAUME\UCLouvain\MASTER ECONOMIE\MEMOIRE\DATA\lfsdb_desag.dta", clear

* 1) We keep individuals between 50 & 64 years old
keep if age >= 50 & age <= 64

* 2) We keep employed individuals (ILO definition)
keep if empl_ilo == 1

*-----*
          * PART 2 - VARIABLES CREATION *
*-----*

* 1) Construction of our dependent variable  $Y_2$ 

* (a) Score version from 0 to 2 */

```



```

gen y2_score = 0

* Criterion 1 : +1 if job tenure ≥ 1 year
replace y2_score = y2_score + 1 if durwk_ >= 1 & durwk_ != .

* Criterion 2 : +1 si full time job
replace y2_score = y2_score + 1 if pt_ == 0 & pt_ != .

* (b) Binary Version :  $Y_2 = 1$  if the 2 criterions are met
gen y2_binary = .
replace y2_binary = 1 if y2_score == 2
replace y2_binary = 0 if y2_score < 2 & y2_score != .

* (c) Verification

* Score distribution
tab y2_score

* Binary distribution
tab y2_binary

* 2) Robustness : Criterion 1 becomes +1 if job tenure ≥ 3 ans

* (a) Score version from 0 to 2 */
gen y2_score2 = 0

* Criterion 1 : +1 if job tenure ≥ 1 year
replace y2_score2 = y2_score2 + 1 if durwk_ >= 3 & durwk_ != .

* Criterion 2 : +1 si full time job
replace y2_score2 = y2_score2 + 1 if pt_ == 0 & pt_ != .

* (b) Binary Version :  $Y_2 = 1$  if the 2 criterions are met
gen y2_binary2 = .
replace y2_binary2 = 1 if y2_score2 == 2

```

```

replace y2_binary2 = 0 if y2_score2 < 2 & y2_score2 != .

* (c) Verification

* Score distribution
tab y2_score2

* Binary distribution
tab y2_binary2

/* 3) Construction of our explanatory variable X : Passage through the labor market
Alternative definition depending on the job tenure treshold (< 5, < 3 ou < 1
years)
→ Three binary variables : x_market5 (reference), x_market3, x_market1
(robustness) */

* (a) First step : variables creation
gen x_market5 = .
gen x_market3 = .
gen x_market1 = .

* (b) Second step : Passage through the market = 1 if job started recently
replace x_market5 = 1 if durwk_ < 5 & durwk_ != .
replace x_market3 = 1 if durwk_ < 3 & durwk_ != .
replace x_market1 = 1 if durwk_ < 1 & durwk_ != .

* (c) Third step : If not = 0 (long-term employment = no recent passage)
replace x_market5 = 0 if durwk_ >= 5 & durwk_ != .
replace x_market3 = 0 if durwk_ >= 3 & durwk_ != .
replace x_market1 = 0 if durwk_ >= 1 & durwk_ != .

* (d) Fourth step : Verification
tab x_market5
tab x_market3
tab x_market1

```

```

*-----*
* PART 3 - LOGIT, OLS & INTERACTIONS MODELS *
*-----*

* 1) 2 reference models

* (a) Logit (y2_binary, marginal effect)
eststo logit_ref: logit y2_binary x_market5 fem age i.sisced plmexp_ic imm1 i.cnt2
i.year, vce(robust)
margins, dydx(x_market5)

* (b) OLS (y2_score)
eststo ols_ref: reg y2_score x_market5 fem age i.sisced plmexp_ic imm1 i.cnt2
i.year, vce(robust)

* 2) Robustness models on Y (job tenure = 3 years)

* (a) Logit (y2_binary2)
eststo logit_yR: logit y2_binary2 x_market5 fem age i.sisced plmexp_ic imm1 i.cnt2
i.year, vce(robust)
margins, dydx(x_market5)

* (b) OLS (y2_score2)
eststo ols_yR: reg y2_score2 x_market5 fem age i.sisced plmexp_ic imm1 i.cnt2
i.year, vce(robust)

* 3) Robustness models on X (treshold 3 years then 1 year)

* (a) Logit_x3 (y2_binary - x_market3)
eststo logit_x3: logit y2_binary x_market3 fem age i.sisced plmexp_ic imm1 i.cnt2
i.year, vce(robust)
margins, dydx(x_market3)

* (b) Logit_x1 (y2_binary - x_market1)
eststo logit_x1: logit y2_binary x_market1 fem age i.sisced plmexp_ic imm1 i.cnt2
i.year, vce(robust)

```

```
margins, dydx(x_market1)
```

```
* (c) Ols_x3 (y2_score - x_market3)
```

```
eststo ols_x3: reg y2_score x_market3 fem age i.sisced plmexp_ic imm1 i.cnt2  
i.year, vce(robust)
```

```
* (d) Ols_x1 (y2_score - x_market1)
```

```
eststo ols_x1: reg y2_score x_market1 fem age i.sisced plmexp_ic imm1 i.cnt2  
i.year, vce(robust)
```

```
* 4) Interactions (Differentiated effects)
```

```
* (a) Gender
```

```
logit y2_binary i.fem##c.x_market5 age i.sisced plmexp_ic imm1 i.cnt2 i.year,  
vce(robust)
```

```
estpost margins fem, dydx(x_market5)
```

```
eststo fem_marg
```

```
* (b) Education Level
```

```
logit y2_binary i.sisced##c.x_market5 age fem plmexp_ic imm1 i.cnt2 i.year,  
vce(robust)
```

```
estpost margins sisced, dydx(x_market5)
```

```
eststo edu_marg
```

```
* (c) Age group (1. 50-54, 2. 55-59, 3. 60-64)
```

```
gen agegrp = .
```

```
replace agegrp = 1 if age >= 50 & age <= 54
```

```
replace agegrp = 2 if age >= 55 & age <= 59
```

```
replace agegrp = 3 if age >= 60 & age <= 64
```

```
label define agegrp 1 "50-54" 2 "55-59" 3 "60-64"
```

```
label values agegrp agegrp
```

```
logit y2_binary i.agegrp##c.x_market5 fem i.sisced plmexp_ic imm1 i.cnt2 i.year,  
vce(robust)
```

```
estpost margins agegrp, dydx(x_market5)
```

```

eststo age_marg

* (d) Immigration

logit y2_binary i.imm1_##c.x_market5 fem age i.sisced plmexp_ic i.cnt2 i.year,
vce(robust)

estpost margins imm1_, dydx(x_market5)

eststo imm_marg

*-----*

* PART 4 - TABLES CREATION & EXPORT *

*-----*

* 1) Table 1 - 2 reference models (logit & OLS)

esttab logit_ref ols_ref using "table1_reference_models.rtf", replace ///

    title("Table 1 - Effect of labor market transition on employment stability (EU
sample)") ///

    mtitles("Logit (Y = 1 if stable)" "OLS (Y = stability score)") ///

    varlabels( ///
        x_market5 "LMT5" ///
        fem "Female" ///
        age "Age" ///
        1.sisced "Low sec" ///
        2.sisced "Up sec" ///
        3.sisced "Tertiary" ///
        plmexp_ic "Pot Exp" ///
        imm1 "Immigrant" ///
    ) ///

b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///

stats(N, labels("Observation")) ///

drop(_cons *cnt2* *year*) ///

compress ///

nonumbers ///

addnotes("Standard errors in parentheses.", ///
    "*** p < 0.01, ** p < 0.05, * p < 0.10.", ///
    "The Logit model uses a binary outcome: 1 if full-time and tenure ≥ 1
year.", ///

```

```

        "The OLS model uses a score ranging from 0 to 2 (stability index).",
///

        "Sample restricted to individuals aged 50-64 currently employed in the
EU-LFS.")

* 2) Table 2 - Logit models: robustness checks

esttab logit_ref logit_yR logit_x3 logit_x1 using "table2_logit_robustness.rtf",
replace ///

        title("Table 2 - Robustness checks: Logit models (binary employment
stability)") ///

        mtitles("Ref. model" "Y: ≥3y stability" "X: <3y transition" "X: <1y
transition") ///

        varlabels( ///

                x_market5 "Labor market transition (x<5y)" ///

                x_market3 "Labor market transition (x<3y)" ///

                x_market1 "Labor market transition (x<1y)" ///

                fem "Female" ///

                age "Age" ///

                1.sisced "Lower secondary" ///

                2.sisced "Upper secondary" ///

                3.sisced "Tertiary education" ///

                plmexp_ic "Potential experience" ///

                imm1 "Immigrant (non-EU)" ///

        ) ///

        b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///

        stats(N, labels("Observation")) ///

        drop(_cons *cnt2* *year*) ///

        compress ///

        nonumbers ///

        addnotes( ///

                "Standard errors in parentheses.", ///

                "*** p < 0.01, ** p < 0.05, * p < 0.10.", ///

                "Outcome: binary variable (1 if full-time and tenure ≥ 1 year, or ≥ 3 years
in Y robustness).", ///

                "Sample: employed individuals aged 50-64 in EU-LFS.", ///

                "Some models may omit x<1y transition due to lack of variance." ///

        )

```

```

* 3) Table 3 - OLS models: robustness checks

esttab ols_ref ols_yR ols_x3 ols_x1 using "table3_ols_robustness2.rtf", replace ///

    title("Table 3 - Robustness checks: OLS models (stability score)") ///

    mtitles("Ref. model" "Y: ≥3y stability" "X: <3y transition" "X: <1y
transition") ///

    varlabels( ///

        x_market5 "Labor market transition (x<5y)" ///
        x_market3 "Labor market transition (x<3y)" ///
        x_market1 "Labor market transition (x<1y)" ///
        fem "Female" ///
        age "Age" ///
        1.sisced "Lower secondary" ///
        2.sisced "Upper secondary" ///
        3.sisced "Tertiary education" ///
        plmexp_ic "Potential experience" ///
        imm1 "Immigrant (non-EU)" ///
    ) ///

    b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///

    stats(N, labels("Observations")) ///

    drop(_cons *cnt2* *year*) ///

    compress ///

    nonumbers ///

    addnotes( ///

        "Standard errors in parentheses.", ///
        "*** p < 0.01, ** p < 0.05, * p < 0.10.", ///
        "Outcome: employment stability score ranging from 0 to 2.", ///
        "Alternative models use stricter definitions of stability (tenure ≥ 3
years) or of transition (x<3y, x<1y)." ///
    )

* 4) Table 4 - Interactions Marginal Effect

esttab fem_marg edu_marg age_marg imm_marg using "table4_vertical.rtf", replace ///

    title("Table 4 - Marginal effect of labor market transition by subgroup") ///

    cells("b(fmt(3) star) se(fmt(3) par)") ///

    collabels("AME" "SE") ///

    label nodepvars nonumbers nomtitles ///

```

```

    mgroups("By gender" "By education" "By age group" "By immigration", pattern(1 1
1 1) span) ///

    addnotes( ///

        "Average marginal effects (AME) of a recent labor market transition (x<5y)
on the probability of stable employment (y2_binary).", ///

        "AMEs are reported separately for gender, education, age group, and
immigration status.", ///

        "Robust standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.10."
///

    )

```

```

*-----*
* PART 4 - BELGIUM INTERACTION MODEL *
*-----*

```

```

* 1) We only keep observations from Belgium (cnt2 = 2)

```

```

preserve
keep if cnt2 == 2

```

```

* 2) Reference logit regression (y2_binary - x_market5)
logit y2_binary x_market5 fem age i.sisced plmexp_ic imm1 i.year, robust
eststo be_logit
margins, dydx(x_market5)

```

```

* 3) Reference OLS regression (y2_score - x_market5)
reg y2_score x_market5 fem age i.sisced plmexp_ic imm1 i.year, robust
eststo be_ols

```

```

* 4) Table 5 - Reference models for Belgium (Logit & OLS)
esttab be_logit be_ols using "table3_belgium_coefficients.rtf", replace ///

    title("Table X - Effect of labor market transition on employment stability in
Belgium") ///

    varlabels( ///

        x_market "LMT" ///

        fem "Female" ///

        age "Age" ///

```



```

1.sisced "Low sec" ///
2.sisced "Up sec" ///
3.sisced "Tertiary" ///
plmexp_ic "Experience" ///
imm1 "Immigrant" ///
) ///
b(3) se(3) star(* 0.10 ** 0.05 *** 0.01) ///
stats(N, labels("Obs. ")) ///
drop(_cons *year*) ///
compress nonumbers ///
addnotes("Standard errors in parentheses.", ///
        "*** p < 0.01, ** p < 0.05, * p < 0.10.", ///
        "Logit model uses y2_binary (1 if full-time and tenure ≥ 1 year).",
///
        "OLS model uses y2_score (0 to 2).", ///
        "Sample restricted to Belgian observations only (cnt2 == 2).")

restore

*-----*
*          * PART 5 - FIGURES CREATION & EXPORT *
*-----*

* 1) Figure 1 - Average value of y2_binary according to x_market5 (Europe)

label define marketpass 0 "No market transition" 1 "Market transition"
label values x_market5 marketpass

graph bar (mean) y2_binary, over(x_market5, label(angle(0))) ///
    bar(1, color(navy)) bar(2, color(navy)) ///
    ytitle("Proportion in stable employment") ///
    title("Employment stability by market transition status - Europe") ///
    legend(off) ///
    blabel(bar, format(%4.2f))

graph export "graph1_stability_by_transition_europe.png", width(1600) replace

```

```

* 2) Figure 2 - Average value of y2_binary according to x_market5 (Belgium)

preserve
keep if cnt2 == 2

graph bar (mean) y2_binary, over(x_market5, label(angle(0))) ///
    bar(1, color(gs8)) bar(2, color(gs14)) ///
    ytitle("Proportion in stable employment") ///
    title("Employment stability by market transition status - Belgium") ///
    legend(off) ///
    blabel(bar, format(%4.2f))

graph export "graph2_stability_by_transition_belgium.png", width(1600) replace
restore

* 3) Figure 3 - Average value of y2_score according to x_market5 (Europe)

graph bar (mean) y2_score, over(x_market5, label(angle(0))) ///
    bar(1, color(navy)) bar(2, color(navy)) ///
    ytitle("Average stability score (0-2)") ///
    title("Stability score by market transition status - Europe") ///
    legend(off) ///
    blabel(bar, format(%4.2f))

graph export "graph3_score_by_transition_europe.png", width(1600) replace

* 4) Figure 4 - Average value of y2_score according to x_market5 (Belgium)

preserve
keep if cnt2 == 2

graph bar (mean) y2_score, over(x_market5, label(angle(0))) ///
    bar(1, color(gs8)) bar(2, color(gs14)) ///
    ytitle("Average stability score (0-2)") ///

```

```

        title("Stability score by market transition status - Belgium") ///
        legend(off) ///
        blabel(bar, format(%4.2f))

graph export "graph4_score_by_transition_belgium.png", width(1600) replace
restore

* 5) Figure 5 - Interaction - Gender (Europe & Belgium)

gen belgium = (cnt2 == 2)
label define belg 0 "Europe" 1 "Belgium"
label values belgium belg

logit y2_binary c.x_market5##i.fem##i.belgium age i.sisced plmexp_ic imm1 i.year,
robust

margins fem#belgium, dydx(x_market5)

marginsplot, ///
    title("Marginal effect of market transition on employment stability, by
gender") ///
    ytitle("Marginal effect on P(Y2 = 1)") ///
    xtitle("Gender") ///
    recast(line) ///
    plotopts(lwidth(medthick)) ///
    ylabel(, format(%4.2f)) ///
    xlabel(0 "Men" 1 "Women", labgap(3)) ///
    legend(order(1 "Europe" 2 "Belgium")) ///
    graphregion(margin(5 5 3 3)) ///
    name(gr_gender_effect_comparison, replace)

graph export "graph5_marginal_effect_gender_belgium_europe.png", width(1600)
replace

* 6) Figure 6 - Interaction - Education level (Europe & Belgium)

```

```
logit y2_binary i.sisced##c.x_market5##i.belgium fem age plmexp_ic imm1 i.year,
robust
```

```
margins sisced#belgium, dydx(x_market5)
```

```
marginsplot, ///
```

```
    title("Marginal effect of market transition on employment stability, by
education") ///
```

```
    ytitle("Marginal effect on  $P(Y_2 = 1)$ ") ///
```

```
    xtitle("Education level (ISCED)") ///
```

```
    recast(line) ///
```

```
    plotopts(lwidth(medthick)) ///
```

```
    xlabel(1 "Lower secondary" 2 "Upper secondary" 3 "Tertiary") ///
```

```
    legend(order(1 "Europe" 2 "Belgium")) ///
```

```
    graphregion(margin(5 5 3 3))
```

```
graph export "graph6_marginal_effect_education_belgium_europe.png", width(1600)
replace
```

* 7) Figure 7 - Intéraktion - Age group (Europe & Belgium)

```
gen agegrp = .
```

```
replace agegrp = 1 if age >= 50 & age <= 54
```

```
replace agegrp = 2 if age >= 55 & age <= 59
```

```
replace agegrp = 3 if age >= 60 & age <= 64
```

```
label define agegrp 1 "50-54" 2 "55-59" 3 "60-64"
```

```
label values agegrp agegrp
```

```
logit y2_binary c.x_market5##i.agegrp##i.belgium fem i.sisced plmexp_ic imm1
i.year, robust
```

```
margins agegrp#belgium, dydx(x_market5)
```

```
marginsplot, ///
```

```
    title("Marginal effect of market transition on employment stability, by age
group") ///
```

```

    ytitle("Marginal effect on P(Y2 = 1)") ///
    xtitle("Age group") ///
    recast(line) ///
    plotopts(lwidth(medthick)) ///
    xlabel(1 "50-54" 2 "55-59" 3 "60-64") ///
    ylabel(, format(%4.2f)) ///
    legend(order(1 "Europe" 2 "Belgium")) ///
    graphregion(margin(5 5 3 3)) ///
    name(gr_age_belgium, replace)

graph export "graph7_marginal_effect_agegroup_europe_belgium.png", width(1600)
replace

* 8) Figure 8 - Interaction - Immigration (Europe & Belgium)

logit y2_binary i.imm1_#c.x_market5 fem age i.sisced plmexp_ic i.cnt2 i.year,
robust

margins imm1_, dydx(x_market5)

marginsplot, ///
    title("Marginal effect of market transition on employment stability, by
origin") ///
    ytitle("Marginal effect on P(Y2 = 1)") ///
    xtitle("Country of Birth") ///
    recast(bar) ///
    plotopts(barwidth(0.5) lwidth(medthick)) ///
    xlabel(0 "Born in Belgium" 1 "EU immigrant" 2 "Non-EU immigrant") ///
    ylabel(, format(%4.2f)) ///
    graphregion(margin(5 5 3 3)) ///
    name(gr_imm_effect, replace)

graph export "graph9_marginal_effect_immigration2.png", width(1600) replace

* 9) Figure 9 - Average Y2 score by country

```

```

label define countrylab 1 "AT" 2 "BE" 3 "BG" 4 "CH" 5 "CY" 7 "DE" 8 "DK" 9 "EE" ///
    10 "ES" 11 "FI" 12 "FR" 13 "GR" 14 "HR" 15 "HU" 18 "IT" 19 "LT" 20 "LU" ///
    21 "LV" 24 "NO" 25 "PL" 26 "PT" 27 "RO" 28 "SE" 29 "SI" 31 "UK"
label values cnt2 countrylab

```

```

preserve

```

```

collapse (mean) y2_score, by(cnt2)

```

```

graph bar y2_score, over(cnt2, label(angle(45))) ///
    ytitle("Average stability score (0-2)") ///
    title("Average employment stability score by country") ///
    bar(1, color(navy)) ///
    blabel(bar, format(%4.2f)) ///
    legend(off)

```

```

graph export "graph10_score_by_country.png", width(1600) replace
restore

```

* 10) Figure 10 - Relationship between market transitions and employment stability (by country)

```

preserve

```

```

collapse (mean) x_market5 y2_score, by(cnt2)

```

```

twoway (scatter y2_score x_market5, mlabel(cnt2) msymbol(circle) mlabsize(small))
///

```

```

    (lfit y2_score x_market), ///
    ytitle("Average stability score (y2)") ///
    xtitle("Share with market transition (xmarket)") ///
    title("Stability vs Market Transition (by country)") ///
    legend(off)

```

```

graph export "graph11_stability_vs_market_regression.png", replace
restore

```

* 11) Figure 11 - Histogram of Y2 score (value between 0 & 2) - 1 year as threshold

```

histogram y2_score, discrete ///
    barwidth(0.8) ///
    xlabel(0(1)2) ///
    xscale(range(-0.5 2.5)) ///
    title("Distribution of the employment stability score (Y2, 1-year threshold)")
///
    xtitle("Stability score (0 = unstable ; 2 = highly stable)") ///
    ytitle("Number of individuals (%)") ///
    graphregion(color(white)) ///
    addlabels

```

```

graph export "histogram12_y2_score.png", width(2000) replace

```

* 12) Figure 12 - Histogram of Y2 score (value between 0 & 2) - 3 years as threshold

```

histogram y2_score2, discrete ///
    barwidth(0.8) ///
    xlabel(0(1)2) ///
    xscale(range(-0.5 2.5)) ///
    title("Distribution of the employment stability score (Y2, 3-year threshold)")
///
    xtitle("Stability score (0 = unstable ; 2 = highly stable)") ///
    ytitle("Number of individuals (%)") ///
    graphregion(color(white)) ///
    addlabels

```

```

graph export "histogram13_y2_2_score.png", width(2000) replace

```

* 13) Figure 13 - Histogram of Y2 score (value between 0 & 2) - 5 years as threshold

```

gen y2_score3 = 0
replace y2_score3 = y2_score3 + 1 if durwk_ >= 5 & durwk_ != .
replace y2_score3 = y2_score3 + 1 if pt_ == 0 & pt_ != .

```

```

histogram y2_score3, discrete ///
    barwidth(0.8) ///
    xlabel(0(1)2) ///
    xscale(range(-0.5 2.5)) ///
    title("Distribution of the employment stability score (Y2, 5-year threshold)")
///
    xtitle("Stability score (0 = unstable ; 2 = highly stable)") ///
    ytitle("Number of individuals (%)") ///
    graphregion(color(white)) ///
    addlabels

graph export "histogram14_y2_3_score.png", width(2000) replace

```

* 14) Figure 14 - Share of full-time employment by job tenure (Europe)

```

gen durwk_grp = .
replace durwk_grp = 1 if durwk_ == 1
replace durwk_grp = 2 if durwk_ == 2
replace durwk_grp = 3 if durwk_ == 3
replace durwk_grp = 4 if durwk_ == 4
replace durwk_grp = 5 if durwk_ == 5
replace durwk_grp = 6 if durwk_ >= 6 & durwk_ < 10
replace durwk_grp = 10 if durwk_ >= 10 & durwk_ < 20
replace durwk_grp = 20 if durwk_ >= 20

label define durwk_lbl 1 "1y" 2 "2y" 3 "3y" 4 "4y" 5 "5y" 6 "6-9y" 10 "10-19y" 20
"20y+"
label values durwk_grp durwk_lbl

preserve

collapse (mean) y2_binary, by(durwk_grp)

graph bar y2_binary, over(durwk_grp, label(angle(0))) ///
    bar(1, color(navy)) bar(2, color(navy)) ///
    ytitle("Share in full-time employment (%)") ///
    bltitle("Years in current job") ///

```



```

    title("Share of full-time employment by job tenure - Europe") ///
    blabel(bar, format(%4.2f)) ///
    legend(off)

graph export "graph15__stability_rate_by_transition_europe.png", width(1600)
replace

restore

* 15) Figure 15 - Share of full-time employment by job tenure (Belgium)

preserve
keep if cnt2 == 2
collapse (mean) y2_binary, by(durwk_grp)

graph bar y2_binary, over(durwk_grp, label(angle(0))) ///
    bar(1, color(gs8)) bar(2, color(gs14)) ///
    ytitle("Share in full-time employment (%)") ///
    bltitle("Years in current job") ///
    title("Share of full-time employment by job tenure - Belgium") ///
    blabel(bar, format(%4.2f)) ///
    legend(off)

graph export "graph16__stability_rate_by_transition_belgium.png", width(1600)
replace

restore

* 16) Figure 16 - Stability rate by age group (Europe)

gen agegrp = .
replace agegrp = 1 if age >= 50 & age <= 54
replace agegrp = 2 if age >= 55 & age <= 59
replace agegrp = 3 if age >= 60 & age <= 64

label define agegrp 1 "50-54" 2 "55-59" 3 "60-64"
label values agegrp agegrp

```

```

preserve
collapse (mean) y2_binary, by(agegrp)

graph bar y2_binary, over(agegrp, label(angle(0))) ///
    bar(1, color(navy)) ///
    ytitle("Share in stable employment") ///
    bltitle("Age group") ///
    title("Stability rate by age group - Europe") ///
    xlabel(bar, format(%4.2f)) ///
    legend(off)

graph export "graph17_stability_rate_by_age_europe.png", width(1600) replace
restore

* 17) Figure 17 - Stability rate by age group (Belgium)

preserve
keep if cnt2 == 2
collapse (mean) y2_binary, by(agegrp)

graph bar y2_binary, over(agegrp, label(angle(0))) ///
    bar(1, color(gs8)) ///
    ytitle("Share in stable employment") ///
    bltitle("Age group") ///
    title("Stability rate by age group - Belgium") ///
    xlabel(bar, format(%4.2f)) ///
    legend(off)

graph export "graph18_stability_rate_by_age_belgium.png", width(1600) replace
restore

* 18) Figure 18 - Share of full-time employment by tenure & gender (Europe)

label define fem 0 "Men" 1 "Women"
label values fem fem

```

```

* Average by job tenure x gender

preserve

collapse (mean) y2_binary, by(durwk_grp fem)

reshape wide y2_binary, i(durwk_grp) j(fem)
rename y2_binary0 men
rename y2_binary1 women
label var men    "Men"
label var women "Women"

graph bar men women, over(durwk_grp, label(angle(45))) ///
    bar(1, color(navy)) ///
    bar(2, color(orange)) ///
    legend(order(1 "Men" 2 "Women") ring(0) pos(1)) ///
    ytitle("Share in full-time employment (%)") ///
    bltitle("Years in current job") ///
    title("Share of full-time employment by tenure & gender - Europe") ///
    blabel(bar, format(%4.2f)) ///
    graphregion(color(white))

graph export "graph19_stability_by_tenure_gender_europe.png", width(1800) replace
restore

* 19) Figure 19 - Share of full-time employment by tenure & gender (Belgium)

preserve
keep if cnt2 == 2
collapse (mean) y2_binary, by(durwk_grp fem)

reshape wide y2_binary, i(durwk_grp) j(fem)
rename y2_binary0 men
rename y2_binary1 women
label var men    "Men"
label var women "Women"

```

```

graph bar men women, over(durwk_grp, label(angle(45))) ///
    bar(1, color(gs8)) ///
    bar(2, color(orange)) ///
    legend(order(1 "Men" 2 "Women") ring(0) pos(1)) ///
    ytitle("Share in full-time employment (%)") ///
    bltitle("Years in current job") ///
    title("Share of full-time employment by tenure & gender - Belgium") ///
    blabel(bar, format(%4.2f)) ///
    graphregion(color(white))

graph export "graph20_stability_by_tenure_gender_belgium.png", width(1800) replace
restore

* 20) Graph 20 - Share of full-time employment by tenure & education (Europe)

label define sisced_lbl 1 "Low" 2 "Medium" 3 "High"
label values sisced sisced_lbl

preserve
drop if missing(sisced)
collapse (mean) y2_binary, by(durwk_grp sisced)

reshape wide y2_binary, i(durwk_grp) j(sisced)

rename y2_binary1 low
rename y2_binary2 medium
rename y2_binary3 high

label var low "Low education"
label var medium "Medium education"
label var high "High education"

graph bar low medium high, over(durwk_grp, label(angle(45))) ///
    bar(1, color(gs14)) ///

```

```

    bar(2, color(eltblue)) ///
    bar(3, color(navy)) ///

    legend(order(1 "Lower secondary" 2 "Upper secondary" 3 "Tertiary") pos(3)
ring(0) col(1) region(lstyle(none))) ///

    xlabel(bar, position(outside) orientation(vertical) format(%4.2f)) ///
    yscale(range(0 1)) ylabel(0(0.1)1, nogrid) ///
    plotregion(margin(zero)) ///
    ylabel("Share in full-time employment (%)") ///
    bltitle("Years in current job") ///
    title("Share of full-time employment by tenure & education - Europe") ///
    graphregion(color(white))

graph export "graph21_stability_by_tenure_education_europe.png", width(1800)
replace

restore

* 21) Graph 21 - Share of full-time employment by tenure & education (Belgium)

preserve
keep if cnt2 == 2
drop if missing(sisced)
collapse (mean) y2_binary, by(durwk_grp sisced)

reshape wide y2_binary, i(durwk_grp) j(sisced)

rename y2_binary1 low
rename y2_binary2 medium
rename y2_binary3 high

label var low "Low education"
label var medium "Medium education"
label var high "High education"

graph bar low medium high, over(durwk_grp, label(angle(45))) ///
    bar(1, color(orange*0.4)) ///
    bar(2, color(orange)) ///

```

```

    bar(3, color(cranberry)) ///

    legend(order(1 "Lower secondary" 2 "Upper secondary" 3 "Tertiary") pos(3)
ring(0) col(1) region(lstyle(none))) ///

    blabel(bar, position(outside) orientation(vertical) format(%4.2f)) ///

    yscale(range(0 1)) ylabel(0(0.1)1, nogrid) ///

    plotregion(margin(zero)) ///

    ytitle("Share in full-time employment (%)") ///

    bltitle("Years in current job") ///

    title("Share of full-time employment by tenure & education - Belgium") ///

    graphregion(color(white))

graph export "graph22_stability_by_tenure_education_belgium.png", width(1800)
replace

restore

*****

/*
----- SECTION III: METHODOLOGICAL APPENDICES -----
                                                                    */
*****

clear

use "C:\GUILLAUME\UCLouvain\MASTER ECONOMIE\MEMOIRE\DATA\lfsdb_desag.dta", clear
keep if age >= 50 & age <= 64
keep if empl_ilo == 1

/* 1) Construction of our dependent variable Y2 with 4 criteriums
    * (a) Score version from 0 to 4 */

gen y2_score = 0

* Criterium 1 : +1 si job tenure ≥ 1 year
replace y2_score = y2_score + 1 if durwk_ >= 1 & durwk_ != .

* Criterium 2 : +1 if full-time job

```

```

replace y2_score = y2_score + 1 if pt_ == 0 & pt_ != .

* Criterium 3 : +1 if same occupation as before
replace y2_score = y2_score + 1 if isco == isco_pr & isco != . & isco_pr != .

* Criterium 4 : +1 if same industry as before
replace y2_score = y2_score + 1 if nace == nace_pr & nace != . & nace_pr != .

* (b) Binary version : Y2 = 1 if at least 3 out of the 4 criteriums are met
gen y2_binary = .
replace y2_binary = 1 if y2_score >= 3
replace y2_binary = 0 if y2_score < 3

* 2) Why isco et nace are unusable :
gen critere1 = durwk_ >= 1 if durwk_ != .
gen critere2 = pt_ == 0 if pt_ != .
gen critere3 = nace == nace_pr if nace != . & nace_pr != .
gen critere4 = isco == isco_pr if isco != . & isco_pr != .

gen nb_valides = (critere1 != .) + (critere2 != .) + (critere3 != .) + (critere4 != .)

tab nb_valides

tab isco if isco != . & isco < 999
tab isco_pr if isco_pr != . & isco_pr < 999

tab nace if nace != . & nace < 999
tab nace_pr if nace_pr != . & nace_pr < 999

*****
* END *
*****

```