

# Retirement incentives in Belgium

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## Outline

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- ▶ Data
- ▶ Matching
- ▶ Incentives
  - ▶ SSW
  - ▶ OV
  - ▶ Distribution tabs

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## Data

### ▶ SHARE:

**Table : SHARE sample**

	N	Age	
Average wage	33600€	50	12%
Gender		51	13%
Men	59%	52	14%
Women	41%	53	12%
Marital status		54	10%
Married	84%	55	10%
Widow	3%	56	9%
Separated-single	13%	57	5%
Region		58	5%
Brussels	2%	59	4%
Flanders	69%	60	2%
Wallonia	29%	61	2%
Occupation		62	2%
Wage-earners	58%	63	0.5%
Civil-servant	25%	64	0.5%
Self-employed	17%	65	0.1%

- ▶ SHARE however has limited information on career and earnings histories that are crucial component of benefit formula
- ▶ Need to find a way to match data
  - ▶ Ideally person-specific matches

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## Data

### ▶ MIMOSIS, 2001

- ▶ Administrative data
- ▶ Useful/needed to evaluate the incentives associated with different paths

### ▶ Information in MIMOSIS that we use in our pension calculator PENSCALC

- ▶ Wage-earners
  - ▶ Individual earnings records (CEMIRe)
  - ▶ Information on wages and days worked
  - ▶ Replacement rate (single vs. household)
- ▶ Self-employed
  - ▶ Career: RSVZ-INASTI data and CIMIRe imputations
  - ▶ Pension rights: lump sum
- ▶ Civil-servants
  - ▶ Career: DWH and CIMIRe imputations
  - ▶ Pension rights: DWH information on wages (2001)

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**Table : MIMOSIS sample**

N	18622	Age	
Average wage	24159€	50	14%
Gender		51	13%
Men	67%	52	12%
Women	33%	53	11%
Marital status		54	10%
Married	89%	55	10%
Widow	2%	56	7%
Separated-single	9%	57	6%
Region		58	5%
Brussels	8%	59	4%
Flanders	61%	60	3%
Wallonia	31%	61	2%
Occupation		62	1%
Wage-earners	54%	63	1%
Civil-servant	25%	64	1%
Self-employed	21%	65	0.5%

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## Matching technique

- ▶ Use of common variables: sex, date of birth, earnings, NACE, marital status, occupational status.
- ▶ Propensity score through Logit model (probability of being in the SHARE sample)
- ▶ Then Mahalanobis distance matching using propensity score
  - ▶ Propensity score + explaining variables are used
  - ▶ Each individual in SHARE is matched with one individual in MIMOSIS.

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## Outcome

- ▶ We match the entire careers, allowing us to calculate all incentive variables
  - ▶ Use of our PENSALC pension calculator
- ▶ At this stage we focus on private sector wage-earners
  - ▶ Compute incentives for different retirement pathways (Pension, CER, OAU, DI)

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## Incentives of 50+: SSW of Retirement, DI (Averages - cross-section)

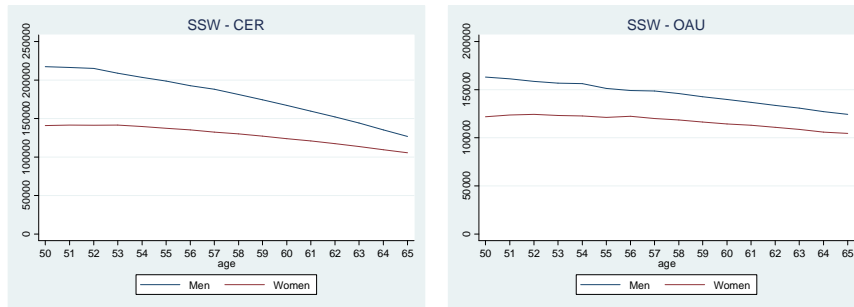
Driven by eligibility...

...and duration of benefits



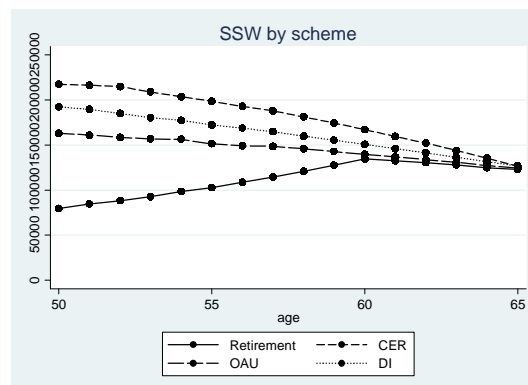
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## Incentives of 50+: SSW of CER, OAU



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## SSW: summary...



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## Correlation benefits Share/Mimosis

- ▶ We calculate OAU, CER and DI benefits based on SHARE wage info and compare with the values obtained with the matched (and more complete) administrative data.

Correlation between benefits obtained on MIMOSIS wages and SHARE wages.

		SHARE		
		CER	OAU	DI
	CER	0.900		
MIMOSIS	OAU		0.930	
	DI			0.835

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### Focusing on specific individuals

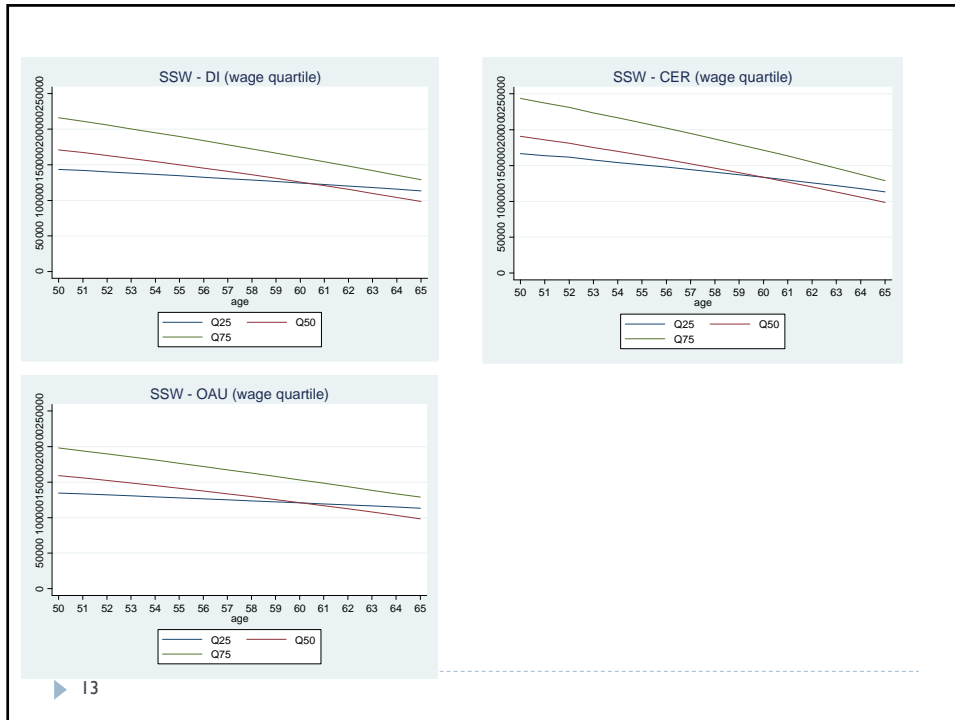
Forward looking approach

We look at quartiles basis of the net wage for the population aged 50.

- Q25 is a divorced Flemish woman with 35 years of affiliation
- Q50 is a married Flemish woman with 28 years of affiliation
- Q75 is a married Flemish man with 33 years of affiliation



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## Incentives of 50+: Accrual

Tableau 1: Accrual

	Men			
	Retirement	CER	OAU	DI
50	4,681	-980	-2,638	-3,043
51	4,397	-1,489	-2,658	-3,907
52	4,736	-6,104	-3,546	-4,426
53	4,636	-5,151	-3,332	-4,224
54	5,596	-5,063	-3,617	-4,635
55	5,804	-5,764	-3,353	-4,378
56	6,100	-4,826	-2,974	-3,976
57	6,348	-6,755	-3,723	-4,831
58	6,816	-6,796	-3,546	-4,606
59	7,306	-7,412	-3,548	-4,695
60	-2,045	-7,392	-3,541	-4,735
61	-2,263	-7,467	-3,532	-4,770
62	-2,481	-8,134	-3,605	-4,885
63	-2,585	-8,623	-3,555	-4,887
64	-2,651	-8,691	-3,449	-4,802

Tableau 3: Accrual

	Women			
	Retirement	CER	OAU	DI
50	4,076	542	-1,780	-1,417
51	4,083	-221	-1,757	-2,218
52	3,691	259	-2,799	-3,406
53	4,473	-1,952	-2,383	-3,287
54	4,001	-2,477	-1,860	-2,280
55	4,956	-2,019	-2,019	-2,375
56	5,239	-3,045	-2,554	-3,247
57	5,617	-2,458	-2,174	-2,812
58	3,475	-2,806	-2,248	-2,931
59	6,274	-3,602	-2,297	-3,070
60	-520	-2,838	-2,208	-2,950
61	-590	-3,768	-2,312	-3,083
62	-790	-3,961	-2,420	-3,219
63	-1,052	-4,191	-2,513	-3,318
64	-2,053	-4,227	-2,477	-3,324

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## Incentives of 50+: Option values

Tableau 4 : Average option value by scheme - Men

	Men							
	$\gamma = 1$				$\gamma = 0.75$			
	Retirement	CER	OAU	DI	Retirement	CER	OAU	DI
50	296,318	131,256	180,813	153,682	24,229	10,337	13,671	11,549
51	269,053	124,447	162,673	139,254	22,056	9,962	12,333	10,536
52	264,822	119,120	166,105	145,669	21,206	9,336	12,158	10,640
53	246,626	112,383	161,843	141,739	19,487	8,722	11,695	10,184
54	219,448	101,291	148,933	128,947	17,319	7,883	10,774	9,233
55	192,717	86,103	131,447	112,875	15,228	6,735	9,566	8,131
56	168,628	76,344	118,670	102,073	13,213	5,955	8,575	7,311
57	142,700	64,088	102,509	88,325	11,098	4,995	7,376	6,305
58	118,338	54,243	89,668	77,758	9,050	4,197	6,380	5,495
59	94,474	45,129	77,598	67,314	7,033	3,462	5,462	4,701
60	69,147	36,761	65,038	56,180	4,929	2,806	4,538	3,884
61	53,818	27,330	50,947	43,870	3,815	2,078	3,530	3,011
62	38,704	18,312	36,767	31,517	2,731	1,395	2,534	2,151
63	24,572	10,931	23,544	20,060	1,729	836	1,620	1,366
64	11,512	4,978	11,100	9,525	807	383	759	646

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Tableau 5 : Average option value by scheme - Women

	Women							
	$\gamma = 1$				$\gamma = 0.75$			
	Retirement	CER	OAU	DI	Retirement	CER	OAU	DI
50	203,158	97,414	120,260	101,057	18,098	8,806	10,152	8,369
51	198,598	101,786	123,938	103,749	17,595	9,003	10,318	8,497
52	189,509	97,840	117,733	100,158	16,713	8,640	9,672	8,127
53	173,243	83,165	105,150	89,814	15,262	7,358	8,623	7,304
54	154,272	73,509	94,376	80,276	13,586	6,520	7,760	6,544
55	135,876	67,158	83,664	71,111	11,969	6,015	6,884	5,818
56	117,259	58,012	71,241	61,264	10,346	5,244	5,863	5,044
57	97,594	48,997	61,351	52,263	8,605	4,454	5,074	4,320
58	78,818	40,018	51,792	43,937	6,894	3,634	4,264	3,620
59	61,817	32,390	42,521	36,003	5,339	2,947	3,489	2,964
60	43,664	25,821	34,139	28,752	3,675	2,358	2,794	2,361
61	33,989	18,799	26,282	21,946	2,856	1,719	2,147	1,798
62	24,732	13,128	18,875	15,628	2,071	1,203	1,538	1,277
63	15,927	8,091	11,835	9,799	1,327	742	959	798
64	7,789	3,687	5,361	4,447	647	341	433	363

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## Distributional analysis of OV

**Tableau 6 : Distribution of option value by scheme – Men ( $\gamma=1$ )**

	10 <sup>th</sup> percentile			Median			90 <sup>th</sup> percentile					
	Retirement	CER	OAU	DI	Retirement	CER	OAU	DI	Retirement	CER	OAU	DI
50	182,787	64,034	99,939	76,028	283,511	122,350	168,476	145,307	414,311	186,152	268,788	241,557
51	166,668	44,206	81,759	68,249	256,670	110,410	148,730	132,092	376,464	202,748	242,248	216,617
52	155,164	49,581	79,611	60,938	230,072	97,904	133,409	119,054	418,938	196,610	291,011	272,226
53	148,068	52,244	72,537	58,891	211,363	90,658	122,845	109,211	376,914	179,767	266,411	242,343
54	123,557	45,242	64,823	48,167	187,692	80,240	111,311	96,226	335,316	169,651	260,047	234,578
55	112,231	38,637	55,161	39,795	163,276	69,714	98,772	85,234	294,837	142,564	230,050	190,336
56	94,921	32,659	47,308	34,961	139,387	62,275	87,264	74,759	271,161	131,380	239,284	181,751
57	78,359	26,068	39,623	28,186	116,907	51,765	75,833	64,637	229,720	113,236	178,215	155,719
58	60,921	21,305	33,927	23,470	93,722	43,643	64,921	55,427	191,985	95,760	169,758	142,087
59	41,482	15,466	28,388	18,889	73,624	34,594	54,450	46,008	161,548	80,613	160,407	138,884
60	24,987	11,482	22,202	14,495	51,460	27,438	44,451	37,329	121,635	65,088	138,754	118,906
61	18,334	7,728	16,221	10,039	39,387	20,130	34,357	28,769	99,374	47,820	109,685	93,639
62	13,013	4,798	10,555	6,697	28,117	13,863	24,787	20,459	70,453	33,770	79,828	67,610
63	6,684	2,438	6,083	3,806	18,020	8,498	16,036	13,213	44,237	21,555	51,770	43,548
64	580	0	0	0	8,714	3,970	7,756	6,448	21,493	10,535	25,405	21,311