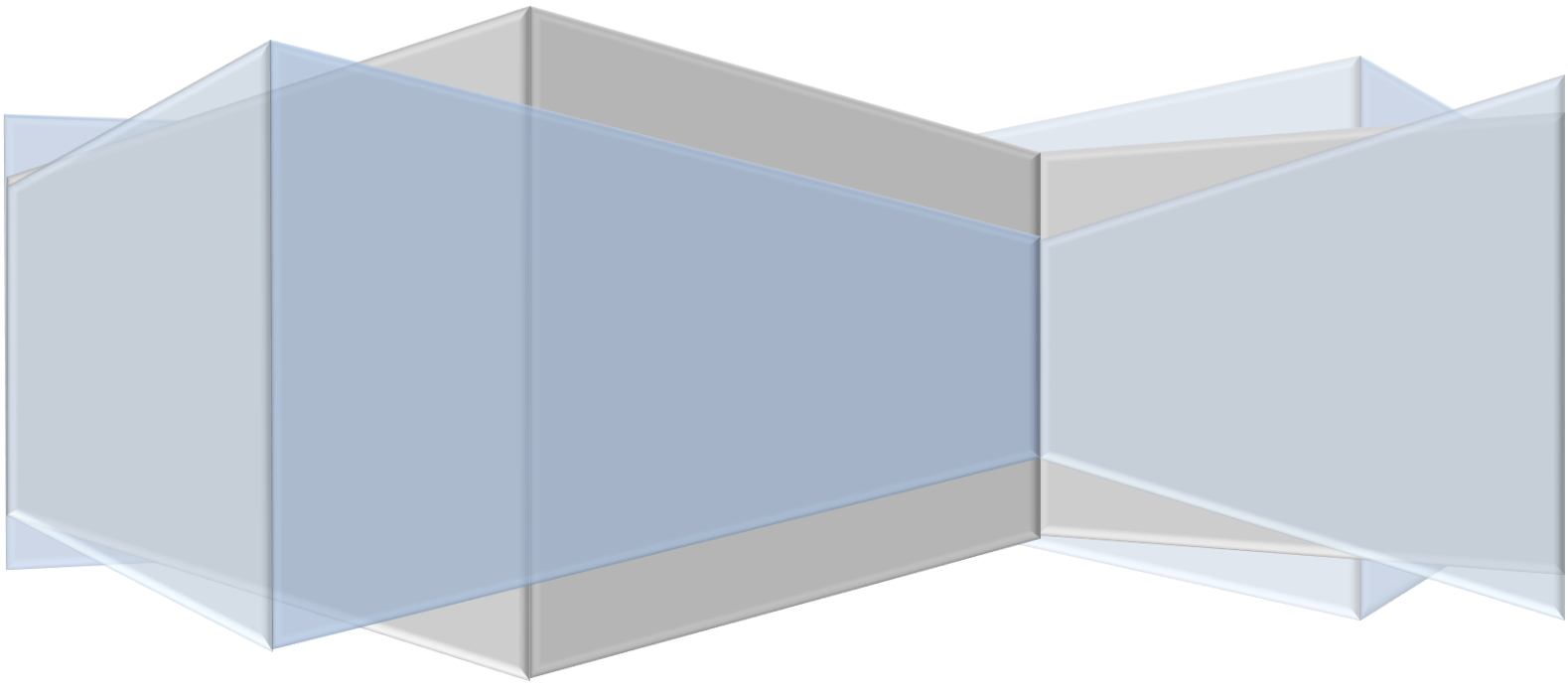
Hungarian Ministry for National Economy

COUNTRY FICHE ON PENSION
HUNGARY



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1. Overview of the Hungarian pension system and other relevant pension-like benefits

1.1. Description

The Hungarian mandatory pension system is a pure PAYG unfunded state pension system. It covers all persons who are engaged in any kind of employment as well as recipients of unemployment and certain child care benefits. This is a defined-benefit pay-as-you-go system with an earnings related public pension. This scheme covers the following pension benefits:

- old age pension benefit,
- pension benefit for women with “40 years’ eligibility period”,
- survivors’ pension benefit.

1.1.1. Old age pension benefit

Retirement age: The standard retirement age for old-age pension (“öregségi nyugellátás”) was 62 years in 2013 and it will have been gradually increasing, related to the year of birth. Beginning with the people born in 1952, the statutory retirement age will gradually ascend six months for each cohort both for women and men until 65 years of age by 2021.

TABLE1 Statutory retirement age, earliest retirement age and penalties/bonuses for early/late retirement

		2013	2020	2030	2040	2050	2060
Men - with 20 contribution years	statutory retirement age	62	64,5	65	65	65	65
	earliest retirement age	62	64,5	65	65	65	65
	penalty in case of earliest retirement age	no	no	no	no	no	no
	bonus in case of late retirement	0.5 % / months	0.5% / months	0.5% / months	0.5% / months	0.5% / months	0.5% / months
Men - with 40 contribution years	statutory retirement age	62	64,5	65	65	65	65
	earliest retirement age	62	64,5	65	65	65	65
	penalty in case of earliest retirement age	no	no	no	no	no	no
	bonus in case of late retirement	0.5 % / months	0.5% / months	0.5% / months	0.5% / months	0.5% / months	0.5% / months
Women - with 20 contribution years	statutory retirement age	62	64,5	65	65	65	65
	earliest retirement age	62	64,5	65	65	65	65
	penalty in case of earliest retirement age	no	no	no	no	no	no
	bonus in case of late retirement	0.5 % / months	0.5% / months	0.5% / months	0.5% / months	0.5% / months	0.5% / months
Women - with 40 contribution years*	statutory retirement age	62	64,5	65	65	65	65
	earliest retirement age	62	64,5	65	65	65	65
	penalty in case of earliest retirement age	no	no	no	no	no	no
	bonus in case of late retirement	0.5 % / months	0.5 % / months	0.5 % / months	0.5 % / months	0.5 % / months	0.5 % / months

*There is another definition for contribution years (later we use the “eligibility period” for this meaning), in this case retirement age allowance can be applied (see Chapter 1.1.2.)

The calculation of benefit based on:

- the number of service years and
- the average of wages earned since 1988 (which were liable to pension contribution).

Earnings have to be reduced by employees' social security contributions (for pension, health and unemployment) and personal income tax (the amount of which is only computed on wages net of contributions). Thereafter, all earnings are revalued (valorised) by the growth of nationwide net average earnings up to one year before the retirement (i.e. in 2014 to year 2013). Finally, the average of these adjusted earnings is multiplied by a rate pertaining to the number of service years the person has acquired (for example, this rate is 80 per cent for 40 service years). The rates belonging to the number of service years are not linear.

Bonus for postponing retirement: If someone retires after the standard retirement age and earns further service periods, he/she will be entitled to a bonus of 0.5 per cent of the pension benefit for each additional 30 days periods.

Minimum amount of pension: The minimum amount of pension (28 500 HUF/month) is for those who are eligible to full pension (having minimum 20 service years), and according to the benefit calculation their pensions do not reach this amount. This can happen in a very rare case.

Pensioners above retirement age can get pension benefit and work together without any limitation on their income in the private sector. Though pension benefits are suspended if the pensioner works at public sector.

1.1.2. Pension for women with "40 years' eligibility period"

Pension for women with 40 years eligibility period ("nők 40 év jogosultsági idővel szerzett kedvezményes nyugdíja") is the only early pension option, available for those women, regardless of age, who has gained at least 40 years eligibility period. Eligibility period means any period gained with gainful activity (work) or benefits connected to child raising or nursing fee. At least 32 years of gainful activity is needed besides the periods of child raising; or 30 years of gainful activity in case of nursing fee. Eligibility period is decreased by 1 year after every child raised in the household. For women raising 5 or more children gain altogether maximum 7 eligible years. In case of these pensions, women are entitled for full pension benefits, i.e. benefits are not reduced because of early retiring.

1.1.3. Survivors' benefits

Survivors' benefits ("hozzátartozói ellátás") are calculated on the basis of the pension that the deceased person was or would have been entitled to. The two types of survivors' benefits are widows' pension ("özvegyi nyugdíj) for the spouse and orphans' benefit ("árvaellátás") for the children of the deceased person.

Indexation of all pension benefits: From January 2012, pensions are indexed to inflation. Pension benefits are increased accordingly to the level of consumer price-index planned for the relevant economic year and defined in the annual budgetary act. A retroactive correction takes place every year in November, if fact CPI exceeds the planned CPI in the budget.

Financing the Pension System: The rate of pension contribution is 10% (of employer's gross wage). The maximum amount of contribution was abolished. The rate of social contribution tax (paid by the employer) is 27%. It is shared between the Pension Insurance and Health Insurance Fund. In 2014, 26% out of the 27% goes to the Pension Insurance Fund (the remaining 1% goes to the Health Insurance Fund).

1.1.4. Other pension-like benefits

Disability benefits (disability and rehabilitation provisions) are financed by Health Insurance Fund. Based on the complex evaluation of the incapacitated persons' health status, they will be eligible for rehabilitation or disability provisions („rehabilitációs ellátás" or „rokkantsági ellátás"). Those who are eligible for rehabilitation benefit, receive financial support and services aimed at facilitating their entry into the labour market, while those who are eligible for disability provisions receive financial support. During receiving rehabilitation or disability provisions, the period of time spent in employment is being taken into account when service years are calculated, miners' health impairment allowance (bányász egészségkárosodási járadék).

Temporary benefits prior to the retirement age: The benefit for the participant of former early retirement schemes is transformed to the new prior to the retirement age provision ("korhatár előtti ellátás"), which will function the same way as the previous benefit and be converted back to the regular old-age pension upon reaching the retirement age. It will phases out over 2-3 years. The early pension of armed forces or dangerous and hazardous jobs has been abolished as well. Pensioners formerly worked in the armed forces and are close enough to the retirement age (born in 1954 or before) will see their benefits practically unchanged. Younger beneficiaries of this group will be offered jobs in the public sector or they have to accept a 16% lower army benefit ("szolgálati járandóság"). Both type of pension will be phased out. No new early pension of armed forces will be established in the future, and no new rights for early pension of dangerous and hazardous jobs can be acquired in the future.

Old-age allowance: Those who have reached the standard retirement age, but are not eligible for social security pension and have no other source of sufficient income can apply for a means-tested old-age social allowance ("időskorúak járadéka"). This allowance is financed by taxes and forms part of the social assistance system.

Pension-like supplementary social allowances: Regular allowances for agricultural workers ("mezőgazdasági szövetkezeti járadékok"), Accident allowance ("baleseti járadék"), Disability allowance ("rokkantsági járadék"), Spouse's supplement ("házastársi pótlék"), Other allowances ("egyéb járandóság").

1.1.5. Voluntary supplementary pension schemes

The projection didn't cover the voluntary, privately managed, supplementary pension schemes, which is an additional benefit for elders depending on their choice and possibilities to save and not the part of the mandatory system. Existing voluntary pension schemes are the following:

- occupational pension institutions – new possibility for employers, have not spread, yet,
- voluntary pension funds (individual, DC) – approximately 30 % of employed participates in this scheme,

- voluntary privately managed pension funds (ex-mandatory) – less than 2% of employed participates in this scheme, no further payments,
- retirement saving accounts,
- pension insurance products.

1.2. Recent reforms included in the projections

Since the Ageing Report 2012 projection, the following changes were made in the pension system, all of them included in the pension projection for the AR 2015. Hungary carried out a peer review in the AWG in 2012 September, which already captured the measures numbered below 1.2.1. – 1.2.4.. Measures from 1.2.5. are new ones compared to the 2012 September peer review.

1.2.1. The whole pension contribution goes to the mandatory public pension system

(as from 1st January 2012)

According to the previous rule, the total amount of employees' contribution (10%) of those who chose to remain in the private pension system (ex-mandatory) should have been gone to the private pension system. The new rules says that these contribution goes to the mandatory public pension system and also the members of private pension funds (currently less than 62 thousand people) can gain 100% eligibility in the future in the public pension system. Due to the low and decreasing number of member ***is has minor effect on the revenues' and expenditures' side.***

1.2.2. Pension benefits are indexed to inflation

(as from 1st January 2012)

From January 2012, pensions are indexed only to inflation. Before 2012 the indexation was linked to the proportion of inflation and wage index, determined by the economic growth. This change ***does not affect the results of the model***, since due to low growth assumptions in the earlier projection the inflation rate was applied in the whole period.

1.2.3. No new entrants in early retirement

(as from 1st January 2012)

Before 2012 there were several options to retire prior to reaching the statutory retirement age. The new regulations lock many of these ways and narrow those that still remain open. ***It has a significant effect (decrease) on the number of pensioners and the expenditure. The number of pensioners will sharply decrease in the cohorts of 54-59 and gradually in the cohorts of 60-64.***

1.2.4. Disability system was reformed

(as from 1st January 2012)

Starting from January 1, 2012 disability ceased to be part of the pension system, and the disability pension was transformed to disability provision ("rokkantsági ellátás") and rehabilitation provision ("rehabilitációs ellátás"), the latter being different from the former rehabilitation benefit, which was also withdrawn. The disability provision will function in effect in the same way as the disability pension. People belonged to

disability pensioners' class 1 and 2 (both include people with high disability) receive this new provision. The same applies to people classified to the 3rd category (at least 50% disabled) provided they were born in 1954 or before. The rest obtained rehabilitation provision till May 1, 2012. If the beneficiary requests a complex review of his/her health conditions – depending on the result of this review – provision was or will be transformed to disability provision (if the client cannot be rehabilitated) or a reduced amount of rehabilitation (if he/she can be rehabilitated) or withdrawn (if health conditions allow the client to work). ***This measure has a significant effect on disability benefit.*** The complex reviews are in process.

1.2.5. No contribution ceiling

(as from 1st January 2013)

The maximum amount for the base of contribution was cancelled. ***It slightly increases the pension revenues.***

1.2.6. Suspension of pension benefits for those who work in public sector

(as from 1st January 2013)

In case of workers in the public sector it is prohibited to pay pension or "benefit prior to retirement age". If workers remain in the status of pensioner during their work, their pension benefits shall be suspended. ***This provision slightly decreases the pension expenditure.***

1.2.7. New taxation possibility for self-employed

(as from 1st January 2013)

Small entrepreneurs can meet their total tax and contribution obligation with a flat amount (HUF 50,000). It is a good option for them, though it means slightly less pension eligibility. As the base of pension is below the minimal wage, they can collect only shorter length of service year. But when the minimum length of service year for pension eligibility is calculated (20 years), the whole period can be taken into account, so it does not affect the number of persons, who are eligible for pensions, it has effect only on the amount of pensions. If the person wants to get one year service year for every worked year, they can pay a higher amount of flat tax (HUF 75,000). Small entrepreneurs choosing this new simple tax scheme can gain less eligible years, though ***it causes a reduction in contribution revenues and slight reduction in pension expenditures.***

1.2.8. Benefit calculation is based on net wages

(Earlier rule should change it from 1st January 2013)

A new benefit calculation method was envisaged already in the 1997 reform. As set out by the 1997 reform, the method of calculation would have been changed in 2013, where the benefit calculation should have been based on gross wages. Though, current calculation system continues to be applied. It means that benefit calculation is based on length of service and average indexed net wage earned after 1988. Pensions are tax exempt since they are calculated from net wages. As a result of this change ***the net and gross pension will be the same in the future, as well.***

1.2.9. Contribution allowances for those who have small income to use the whole tax-reduction based on the number of children

(as from 1st January 2014)

According to the Hungarian tax legislation, those who have children can deduct a pre-set amount from their personal income tax. As from 2014, those who have not enough income and PIT to deduct the maximum allowance (pre-set amount) can get the remaining allowance from the health contribution. If also this is not enough for the whole deduction, they can deduct the remaining part from the pension contribution. ***This provision slightly decreases the pension contribution.***

1.3. Description of the actual constant policy assumptions used in the projections

In case of some benefits and allowances (e-g. old age social allowance), there is no rule for indexation, though in order to have more realistic modelling assumption, similar to the pension benefits, a **CPI indexation was applied for all the benefit**. Except of the old-age social allowance, in this case wage indexation was applied.

Old age social allowance is not a base or minimum pension. It is provided for the persons, if he or she has no other income from other sources. Fact data shows that only 20-25 % of those persons, who are not entitled to pension receive this kind of benefits. In order to have a more cautious projection, we doubled this ratio, and assume that in 2060 ***half of those who live in Hungary, but not entitled to pension benefit, will get old-age social allowance***.

In case of **women with 40 years' eligibility**, because of the gradual increase in retirement age, we assumed a further constant increase in the number of beneficiaries in the first following decade, and later because of the changing labour market tendencies, we assumed a decreasing number. As we had more experience and data, than we had in 2012, we updated our figures. In the AR 2015 projection, we use more cautious method and calculate with ***higher number of beneficiaries***.

Since 2012 all people will receive pensions or other forms of benefits from the public pillar. The projection calculates with ***no new entrants to the privately managed DC system***, therefore it phases out over the projection period. Those people who remained in the privately managed system can gain only 75% of the eligibility for those years, when the privately managed system was mandatory. During the following decades it causes smaller pension expenditure, but the effect is very low and uncertain so we didn't count with that. By the year of 2060, the effect of it expected to be very close to zero.

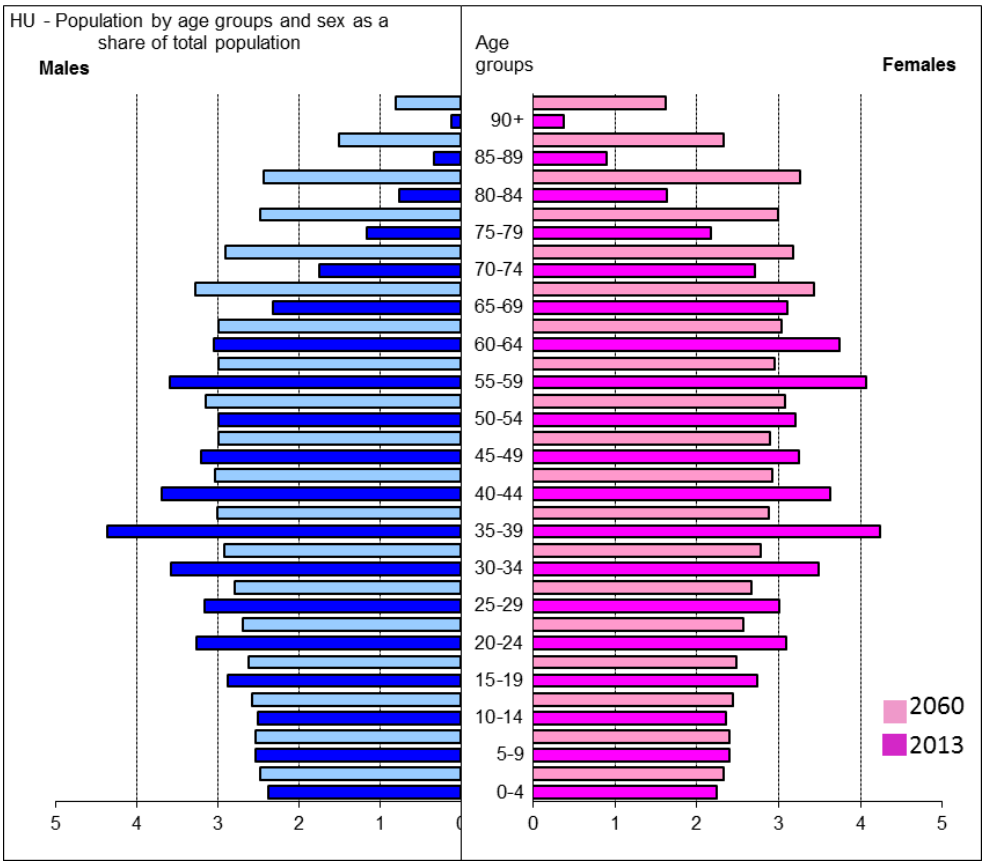
2. Demographic and labour forces projections

2.1. Demographic development

TABLE 2	Main demographic variables evolution						
	2013	2020	2030	2040	2050	2060	Peak year*
Population (thousand)	9894	9795	9672	9513	9341	9154	2013
Population growth rate	-0.3	-0.1	-0.2	-0.2	-0.2	-0.2	2020
Old-age dependency ratio (pop65/pop15-64)	25.4	31.0	34.4	40.5	47.5	52.6	2060
Ageing of the aged (pop80+/pop65+)	23.8	22.6	27.8	32.6	31.3	39.5	2060
Men - Life expectancy at birth	71.9	73.6	75.9	78.1	80.1	82.0	2060
Men - Life expectancy at 65	14.5	15.5	16.8	18.2	19.5	20.8	2060
Women - Life expectancy at birth	78.8	80.2	82.1	83.8	85.5	87.0	2060
Women - Life expectancy at 65	18.1	19.1	20.4	21.7	22.9	24.1	2060
Men - Survivor rate at 65+	71.6	75.2	79.7	83.4	86.5	89.0	2060
Men - Survivor rate at 80+	33.9	39.5	47.3	54.6	61.3	67.3	2060
Women - Survivor rate at 65+	86.0	87.8	89.9	91.7	93.2	94.4	2060
Women - Survivor rate at 80+	57.8	62.4	68.3	73.5	78.0	81.8	2060
Net migration	8.1	24.3	20.9	24.2	15.3	14.0	2019
Net migration over population change	-0.3	-2.6	-1.4	-1.7	-0.8	-0.7	2020

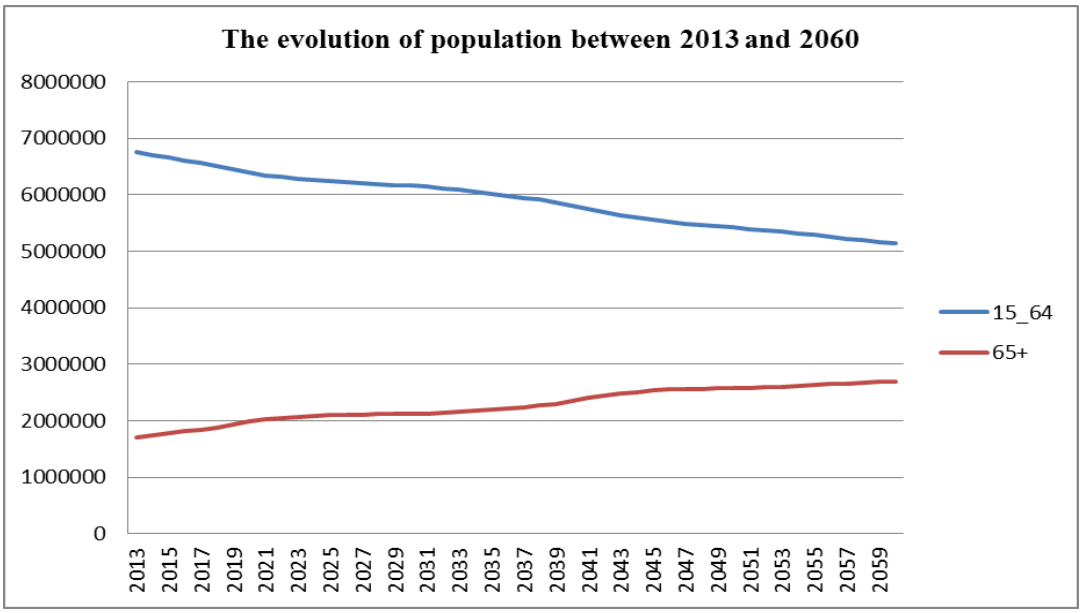
2.1.1. Ageing in the period of 2013-2060

Graph 1. Age pyramid 2013 vs 2060



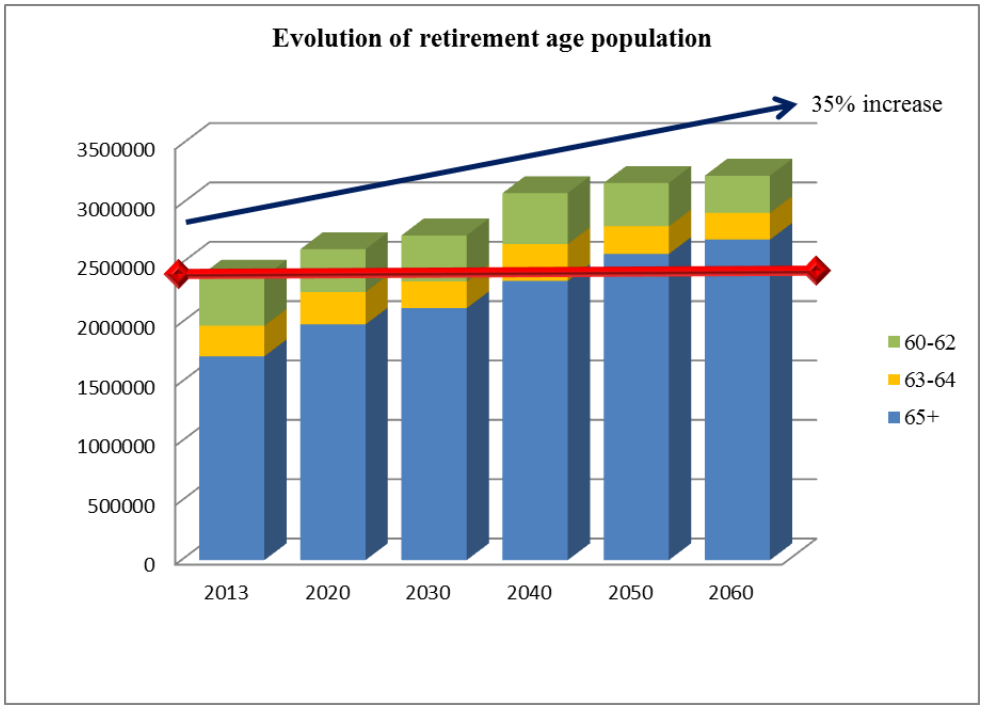
The number of people aged 60+ continuously rise in the examined period by 0.8 million people (+35%). Besides the increasing number of elders, the active population sharply decreases from 2013 to 2060 by 1.6 million people.

Graph 2. The evolution of population between 2013 and 2060



Due to these facts, the old age dependency ratio will be doubled for 2060 and reaches 52.6%. It has a large impact on the sustainability and forced Hungary to make reforms in the pension system. ***The increase in retirement age (62 to 65 years) and the cancellation of early retirement options (in case of general early retirement, two years before statutory retirement age) mitigate the adverse budgetary effect of ageing.***

Graph 3. The evolution of population above early and statutory retirement age between 2013 and 2060



The growing of old-age cohorts is continuous. Because of the baby boom cohorts, there are some slight fluctuations in the proportion of aged 80+ compared to the aged 65+; but it tends to growing almost by 70% in the next 50 years.

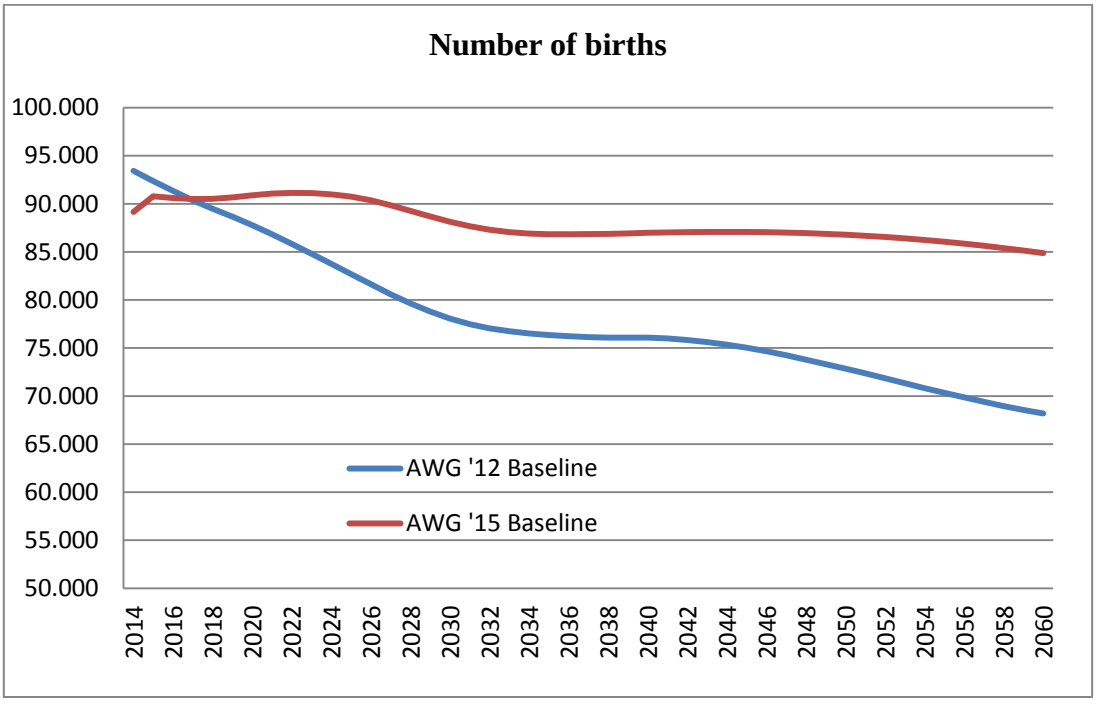
The average life expectancy rises continuously by 10.1 years for male and 8.2 for female (comparing to the EU average 7.2 for men and 6.0 for women) in the examined period.

The net migration is the highest in the middle of the projection period (2020-2040).

2.1.2. The effects of new demographic projections

Comparing the EUROPOP 2013 to EUROPOP 2011, it can be stated, that the ***new projection figures are more favourable for the pension sustainability***. It counts with much higher fertility rate (1.74 in 2060 compared to the previous 1.47).

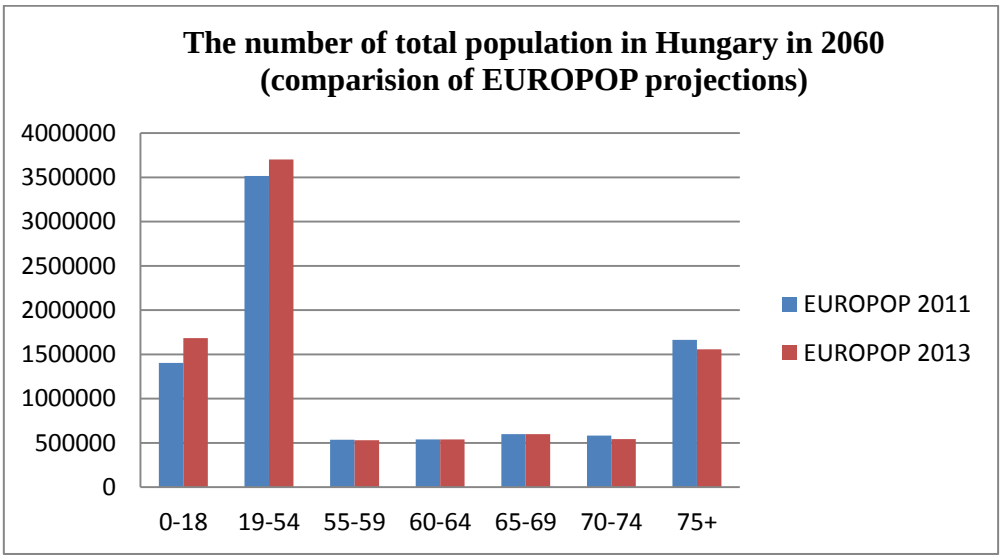
Graph 4. The evolution of projected number of births between 2013 and 2060 comparing the EUROPOP 2011 and EUROPOP 2013 projections



The life expectancy in the age of 60 is slightly lower (-0.5 years) for women. In the new projection the survivor rates for women aged 30-57 slightly increase and after that the survivor rates go down. The recovering period is longer for men, their survivor rates are expected to be slightly increased in the ages of 30-79. That can explain, that their life expectancy almost remain the same (-0.1 years).

According to these changes in projection, the age structure of Hungary in 2060 is more favourable for the finance of pension system. The dependency ratio is lower in the new projection.

Graph 5. The number of total population in Hungary in 2060



2.2. Labour forces

TABLE 3	Participation rate, employment rate and share of workers for the age groups 55-64 and 65-74						
	2013	2020	2030	2040	2050	2060	Peak year*
Labour force participation rate 55-64	41.8	64.8	77.7	76.4	77.9	77.5	2048
Employment rate for workers aged 55-64	38.6	60.9	73.5	72.5	73.9	73.6	2048
Share of workers aged 55-64 on the total labour force	92.3	94.0	94.6	94.9	94.8	94.9	2058
Labour force participation rate 65-74	3.5	4.3	9.8	11.9	9.8	11.0	2041
Employment rate for workers aged 65-74	3.4	4.3	9.6	11.8	9.7	10.9	2041
Share of workers aged 65-74 on the total labour force	98.4	99.0	98.7	98.8	98.7	98.7	2019
Median age of the labour force	39.0	42.0	44.0	44.0	44.0	43.0	2026

There were some significant changes in the labour market over the last couple of years. The effects of these measures are visible, because participation and employment rate increased significantly from 2010. The most important measure were the followings:

- Increase of statutory retirement age and cancellation of early retirement options have an effect on effective retirement age and prolonge the working carrier.
- Since 2010 Hungary implemented significant measures on the supply and demand side of the labour market. The tax burden on labour decreased, the period to get unemployment benefit has been lowered to 3 months and many other measures were implemented to whiten the economy and labour market.

Due to the increase of effective retirement, the labour force participation of people aged 55-64 rises. Though some lead time needs for the labour market to take up those who loose their right to retire earlier.

TABLE 4a	Labour market entry age, exit age and expected duration of life spent at retirement - MEN						
	2013	2020	2030	2040	2050	2060	Peak year*
Average effective entry age (CSM) (I)	22.5	23.0	23.0	23.0	23.0	23.0	2025
Average effective exit age (CSM) (II)	63.3	64.7	65.3	65.3	65.3	65.3	2022
Average effective working career (CSM) (II)- (I)	40.8	41.7	42.3	42.3	42.3	42.3	2022
Contributory period	39.7	39.3	38.0	37.6	37.4	37.3	2013
Contributory period/Average working career	97.3	94.2	90.0	88.9	88.4	88.2	2014
Duration of retirement **	15.7	15.5	16.8	18.2	19.5	20.8	2060
Duration of retirement/average working career	38.5	37.2	39.7	43.0	46.1	49.2	2060
Percentage of adult life spent at retirement***	25.7	24.9	26.2	27.8	29.2	30.5	2060
Early/late exit****	2.4	1.2	0.5	0.4	0.4	0.3	2016

TABLE 4a	Labour market entry age, exit age and expected duration of life spent at retirement - WOMEN						
	2013	2020	2030	2040	2050	2060	Peak year*
Average effective entry age (CSM) (I)	25.3	25.6	25.6	25.6	25.6	25.6	2019
Average effective exit age (CSM) (II)	59.6	64.4	64.9	64.9	64.9	64.9	2038
Average effective working career (CSM) (II)- (I)	34.3	38.8	39.3	39.3	39.3	39.3	2038
Contributory period	40.7	38.7	37.1	35.5	34.9	34.8	2013
Contributory period/Average working career	118.5	99.8	94.5	90.2	88.8	88.6	2013
Duration of retirement **	22.1	19.9	20.4	21.7	22.9	24.1	2060
Duration of retirement/average working career	64.4	51.3	51.9	55.2	58.3	61.3	2013
Percentage of adult life spent at retirement***	34.7	30.0	30.3	31.6	32.8	34.0	2013
Early/late exit****	2.3	1.9	0.6	0.5	0.5	0.4	2016

3. Pension projection results

3.1. Extent of the coverage of the pension schemes in the projections

3.1.1. Covered benefits

The projection covers the mandatory social security pension scheme, the disability benefits, the old-age social allowances, all pension-like supplementary social allowances and the temporary benefits prior to the retirement age. In more detailed, the subparts of the projection include the following benefits:

Name of the benefits	**Number of beneficiaries in January 2014 (in thousand)**
Old age and early retirement schemes	
old age pension (all pensioners above statutory retirement age) (*korbetöltött öregségi nyugdíj*)	1.925.1
pension of armed force born before 1955 - ***to be closed system***	6.9
women with 40 service years	105.2
below-retirement-age provision (*korhatár előtti ellátás*) – ***to be closed system***	83.9
allowance of armed force born after 1954 (szolgálati járandóság) **-** ***closed system***	30.7
Survivor's benefits (hozzátartozói ellátások)	
widows' and parentals pensions *(özvegyi és szülői nyugdíj)*	99.6
orphans' benefit *(árvaellátás)*	81.2
Disability provisions	
miners allowance ***- to be closed system***	3.3
disability provision (*rokkantsági ellátás*)	261.6
rehabilitation provision (*rehabilitációs ellátás*)	165.3
rehabilitation allowance (*rehabilitációs járadék*)	4.2
miners' health impairment allowance (*bányász egészségkárosodási járadék*)	2.2
Other benefits	
regular allowances for agricultural workers *(mezőgazdasági szövetkezeti járadékok)* accident allowance *(baseleti járadék)* disability allowance *(rokkantsági járadék)* spouse's supplement *(házastársi pótlék).* other allowances *(egyéb járandóság)* old age allowance *(időskorúak járadéka)*	72.2

'Earnings-related pensions': all pensions. excluding the disability and rehabilitation provisions *(rokkantsági ellátás and rehabilitációs ellátás)*. and pension-like supplementary social allowances *[„nyugdíjszerű kiegészítő ellátások"]*.

'Non earnings-related pensions': old age social allowances *[„*időskorúak járadéka*"]* and pension-like supplementary social allowances *[„nyugdíjszerű kiegészítő ellátások"]*.

The projection didn't cover the voluntary privately managed supplementary pension schemes, which is an additional benefit for elders depending on their choice and possibilities to save and not the part of the mandatory system.

3.1.2. The difference between ESSPROS and AWG numbers

Table 5 shows the difference between ESSPROSS and AWG numbers.

TABLE 5	Eurostat (ESSPROS) vs. Ageing Working Group definition of pension expenditure (% GDP)							
	2005	2006	2007	2008	2009	2010	2011	2012
1 Eurostat total pension expenditure	9.8	10.0	10.5	11.0	11.1	11.0	11.1	9.6
2 Eurostat public pension expenditure	9.8	10.0	10.5	11.0	11.1	11.0	11.1	9.6
3 Public pension expenditure (AWG)	9.8	10.0	10.6	11.0	11.1	11.3	11.3	11.7
4 Difference (2) - (3)	0.0	0.0	0.0	0.0	0.0	+0.3	+0.2	+2.1
5 Expenditure categories not considered in the AWG definition, please specify:	*:*	*:*	*:*	*:*	*:*	*:*	*:*	*:*
5.1 …	*:*	*:*	*:*	*:*	*:*	*:*	*:*	*:*
5.2 …	*:*	*:*	*:*	*:*	*:*	*:*	*:*	*:*
5.3 …	*:*	*:*	*:*	*:*	*:*	*:*	*:*	*:*

In 2010-2011 there is a slight difference between the ESSPROS figures and that of the model due to the different GDP figures used in the model than the ESSPROS. In 2012, the Hungarian pension system was restructured.

3.2. Overview of the projection results

The number of employed people is continuously decreases because of the demographic reasons (the fertility rate is 1.74 which is smaller than the optimal 2.1 what leads to decreasing number of active people).

TABLE 6	Projected gross and net pension spending and contributions (% of GDP)						
Expenditure	2013	2020	2030	2040	2050	2060	Peak year*
Gross public pension expenditure	11.8	10.1	9.2	9.9	10.9	11.7	2013
Private occupational pensions	:	:	:	:	:	:	:
Private individual pensions	:	:	:	:	:	:	:
Mandatory private	:	:	:	:	:	:	:
Non-mandatory private	:	:	:	:	:	:	:
Gross total pension expenditure	11.8	10.1	9.2	9.9	10.9	11.7	2013
Net public pension expenditure	11.8	10.1	9.2	9.9	10.9	11.7	2013
Net total pension expenditure	11.8	10.1	9.2	9.9	10.9	11.7	2013
Contributions	2013	2020	2030	2040	2050	2060	Peak year*

Public pension contributions	10.7	10.8	10.6	10.5	10.5	10.4	2021
Total pension contributions	10.7	10.8	10.6	10.5	10.5	10.0	2021

3.2.1. Total pension expenditure

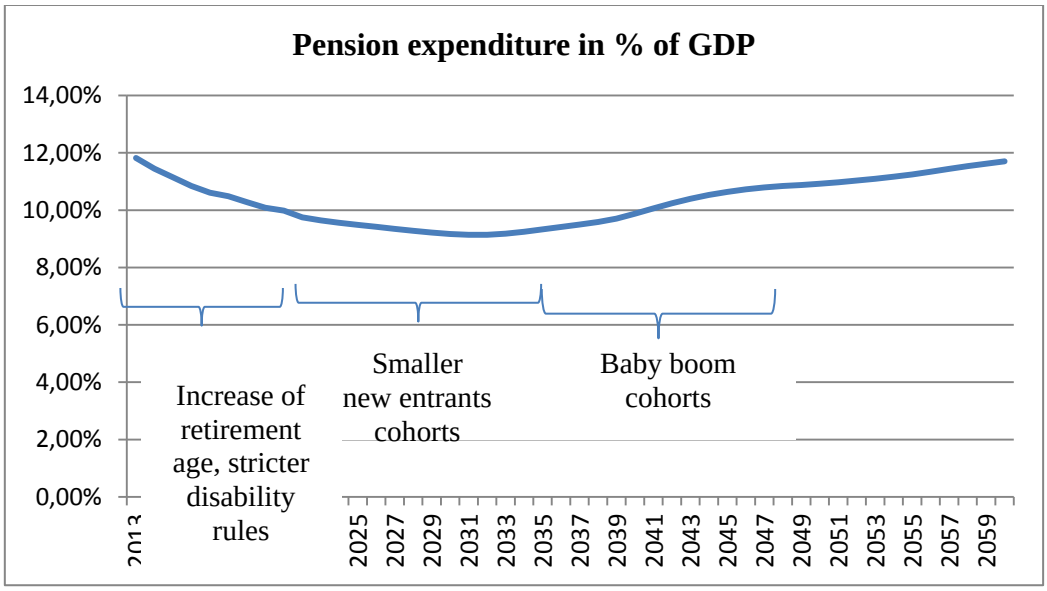
Pension expenditures in Hungary are projected to decline over the period 2010-2060. Public spending on pension will decrease from 11.8 % to around 11.7 % of GDP during the projected period. As the Hungarian pension benefits are not the subject to taxation, the gross and net expenditure results are the same.

TABLE 7 Projected gross public pension spending by scheme (% of GDP)

Pension scheme	2013	2020	2030	2040	2050	2060	Peak year *
Total public pensions	11,8	10,1	9,2	9,9	10,9	11,7	2013
of which earnings related:							
Old age and early pensions	9,4	8,1	7,4	8,2	9,2	9,9	2060
Disability pensions	1,1	0,7	0,7	0,8	0,7	0,7	2013
Survivors' pensions	1,3	1,2	1,0	0,9	1,0	1,0	2013
Other pensions	:	:	:	:	:	:	:
of which non-earnings related (including minimum pension and minimum income guarantee):							
Old age and early pensions	0,01	0,02	0,02	0,02	0,02	0,01	2020
Disability pensions	0,04	0,04	0,03	0,03	0,02	0,02	2014
Other pensions	0,01	0,01	0,00	0,00	0,00	0,00	2013

There are two factors behind the U-shape in the development of public pension expenditure. Firstly, the demographic factor implies that in the next years the baby boom generation of the 1950s is going to retire, which explain the high level of pension expenditure around 2010-2015. Their children will bring a new wave of demographic shock to the labour market and the pension spending afterwards. Secondly, the statutory retirement age is increasing between 2012 and 2021 from 62 to 65. This gradual increase has a downward effect on the pension expenditure over that period and expenditures start to increase thereafter due to the demography.

Graph 5. The evolution in pension expenditure in % of GDP

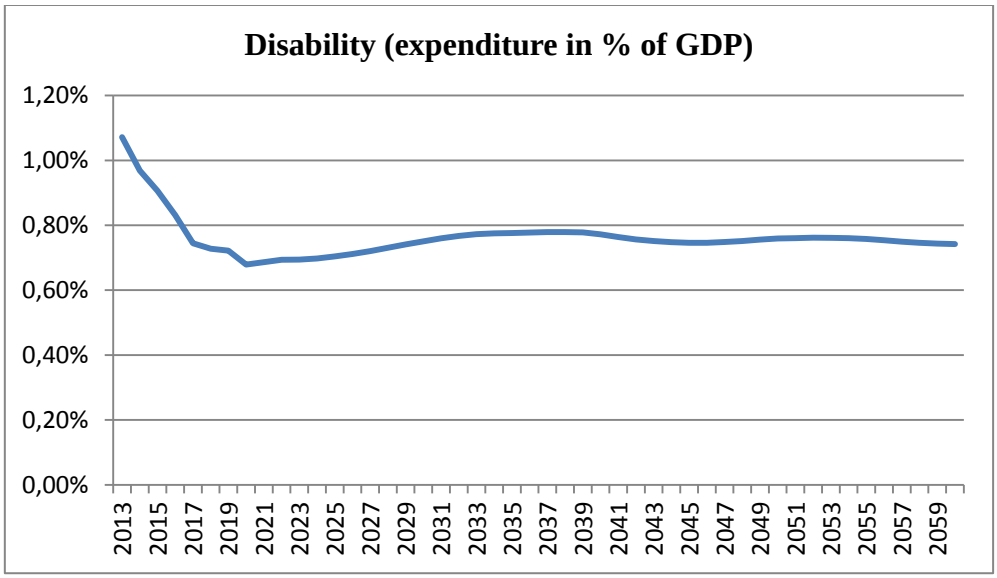


3.2.2. Disability pension expenditures

Concerning the evolution of the disability benefit, the model assumes that the recent trends experienced during the previous period (2003-2012) will continue. Since 2009 tighter rules have been introduced in disability benefit system, which also support the downward development of spending on disability benefit. As a part of the reform in 2012 the disability provisions have been tightened: provision will cease to exist unless the beneficiary requests a complex review of his/her health conditions.

Those, who became the beneficiaries of the disabled system because of changes in the labour market (after regime has changed and the phenomena of unemployment appeared) will reach their statutory retirement in the 2010's. These beneficiaries generally are the members of baby boom cohorts. Since the rules of eligibility for disability system is stricter, there are no significant number of new disabled, who entered the system because of labour market situation. These changes cause the remarkable reduction of number of disabled in 2010's. This can't be offset by the effect of increase in retirement age.

Graph 6. The evolution of disability pension expenditure in % of GDP



The aim of the new rehabilitation provisions is to bring back people to the labour market and it can be provided only for 3 years. According to the National Rehabilitation Authority, the number of rehabilitated workers increased significantly in the last years.

3.2.3. Contribution

The results on contribution are mostly effected by the number of actives and wage assumptions.

3.3. Description of the main driving forces behind the projection results and their implications for main items from a pension questionnaire

3.3.1. Main driving forces

The main driving force of the increase in pension expenditure is the significant growth of dependency ratio. In the current decade the baby boom generation of the 1950's (number of births was the highest in 1954) are going to retire which worsen the dependency ratio. This effect will partially offset by the reduction in coverage ratio, especially the coverage ratio for early age, as the early retirement options were cancelled from 2012.

TABLE 8a	Factors behind the change in public pension expenditures between 2013 and 2060 using pension data (in percentage points of GDP) - pensions						
	2013-20	2020-30	2030-40	2040-50	2050-60	2013-60	Average annual change
Public pensions to GDP	-1.7	-0.9	0.7	1.0	0.8	-0.1	0.244
Dependency ratio effect	2.3	1.1	1.6	1.7	1.2	8.0	0.159
Coverage ratio effect	-2.3	-0.5	-0.5	-0.4	-0.1	-3.8	-0.083
*Coverage ratio old-age**	*-0.3*	*-0.3*	*-0.3*	*-0.1*	*0.1*	*-0.9*	*-0.019*
*Coverage ratio early-age**	*-4.8*	*-1.9*	*0.5*	*-0.2*	*-0.1*	*-6.5*	*-0.145*
*Cohort effect**	*-2.5*	*0.6*	*-1.5*	*-1.8*	*-1.6*	*-6.8*	*-0.148*
Benefit ratio effect	-0.2	-0.9	-0.3	-0.2	-0.2	-1.8	n/a

Labour Market/Labour intensity effect	-1.3	-0.5	-0.1	0.0	0.0	-1.9	-0.040
Employment ratio effect	*-1.3*	*-0.4*	*0.0*	*0.0*	*0.0*	*-1.7*	*-0.035*
Labour intensity effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.000*
Career shift effect	*0.0*	*-0.1*	*-0.1*	*0.0*	*0.0*	*-0.3*	*-0.005*
Residual	-0.3	-0.1	-0.1	-0.1	0.0	-0.5	n/a

TABLE 8b Factors behind the change in public pension expenditures between 2013 and 2060 using pensioners data (in percentage points of GDP) - pensioners

	2013-20	2020-30	2030-40	2040-50	2050-60	2013-60	Average annual change
Public pensions to GDP	-1.7	-0.9	0.7	1.0	0.8	-0.1	0.244
Dependency ratio effect	2.3	1.1	1.6	1.7	1.2	8.0	0.159
Coverage ratio effect	-2.2	-0.3	-0.3	-0.4	-0.3	-3.5	-0.076
*Coverage ratio old-age**	*0.3*	*0.0*	*0.0*	*0.0*	*0.0*	*0.2*	*0.004*
*Coverage ratio early-age**	*-4.7*	*-1.8*	*0.5*	*-0.2*	*-0.1*	*-6.3*	*-0.141*
*Cohort effect**	*-2.5*	*0.6*	*-1.5*	*-1.8*	*-1.6*	*-6.8*	*-0.148*
Benefit ratio effect	-0.2	-1.1	-0.5	-0.2	-0.1	-2.1	n/a
Labour Market/Labour intensity effect	-1.3	-0.5	-0.1	0.0	0.0	-1.9	-0.040
Employment ratio effect	*-1.3*	*-0.4*	*0.0*	*0.0*	*0.0*	*-1.7*	*-0.035*
Labour intensity effect	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.0*	*0.000*
Career shift effect	*0.0*	*-0.1*	*-0.1*	*0.0*	*0.0*	*-0.3*	*-0.005*
Residual	-0.2	-0.1	-0.1	-0.1	0.0	-0.5	n/a

3.3.2. Replacement rate and benefit ratio

The evolution of replacement rate follows the tendencies of accrual rate in the long term. We expected a slight continuous reduction in replacement rates and benefit ratio in both projections, because of the extension of wage assessment period. All the income from 1988 will be taken into account in pension calculation. Thus in 2014 the average of last 26 years' income, in 2060, the average of all income (including the low incomes at the beginning of the career) will be taken into account. It entails a gradual reduction in newly granted pensions.

We have to highlight that the replacement rates are gross figures. In Hungary there is no tax on pensions and the pension benefits are calculated on net base. In this projection the net pensions are divided by gross wages to get the gross replacement rates. It causes much lower gross replacement rates compared to net replacement rates. As the denominator, the gross wage includes the 16% personal income tax, 10% individual pension contribution, 7% health contribution and 1.5% labour force contribution.

TABLE 9	Replacement rate at retirement (RR), benefit ratio (BR) and coverage by pension scheme (in %)					
	2013	2020	2030	2040	2050	2060
Public scheme (BR)	40.8	39.1	34.8	32.9	32.3	31.9
Public scheme (RR)	33.0	25.6	31.4	32.9	29.9	29.1
Coverage	100.0	100.0	100.0	100.0	100.0	100.0
Public scheme old-age earnings related (BR)	41.4	38.6	35.1	33.6	32.9	32.6
Public scheme old-age earnings related (RR)	45.5	43.3	47.1	46.1	45.6	45.2
Coverage	63.8	65.5	65.4	67.6	68.9	69.0
Private occupational scheme (BR)	:	:	:	:	:	:
Private occupational scheme (RR)	:	:	:	:	:	:
Coverage	:	:	:	:	:	:
Private individual scheme (BR)	:	:	:	:	:	:
Private individual scheme (RR)	:	:	:	:	:	:
Coverage	:	:	:	:	:	:
Total (BR)	40.8	39.1	34.8	32.9	32.3	31.9
Total (RR)	33.0	25.6	31.4	32.9	29.9	29.1

3.3.3. Number of pensioners compared to the total and inactive population

Tables 11 and 12 present the ratio of pensioners to respectively the inactive population and the total population by age group. Number of pensioners to total population in the age group (cohort) of 60-64 shows a sharp reduction for 2020 and then a continuous decline. This can be explained by the increase in retirement age from 62 to 65 and the cancellation of early retirement options. As the labour market is not able to cover all the people who won't get pension, it can cause temporarily higher inactivity in this age group and a reduction in the ratio of pensioners compared to inactive persons.

TABLE 11a	Pensioners (public scheme) to inactive population ratio by age group (%)					
	2013	2020	2030	2040	2050	2060
Age group -54	9.9	9.6	9.7	9.3	8.9	8.8
Age group 55-59	87.2	106.6	119.2	114.6	116.0	112.8
Age group 60-64	104.7	85.2	116.7	110.5	111.7	107.1
Age group 65-69	104.4	103.4	115.7	118.3	116.5	118.2
Age group 70-74	99.7	100.0	97.5	98.9	98.2	98.9
Age group 75+	98.0	98.1	100.3	99.0	98.6	98.8

TABLE 11b	Pensioners (public schemes) to total population ratio by age group (%)

	2013	2020	2030	2040	2050	2060
Age group -54	4.4	4.0	4.2	4.1	4.0	4.0
Age group 55-59	31.7	22.2	20.8	20.3	20.0	19.5
Age group 60-64	86.7	40.9	32.8	31.5	30.4	29.6
Age group 65-69	99.1	95.8	94.5	95.0	94.7	95.7
Age group 70-74	98.2	99.6	95.9	96.7	96.2	96.7
Age group 75+	98.0	98.1	100.3	99.0	98.6	98.8

TABLE 12a	Female pensioners (public scheme) to inactive population ratio by age group (%)					
	2013	2020	2030	2040	2050	2060
Age group -54	8.5	8.8	9.2	9.0	8.7	8.6
Age group 55-59	87.0	120.2	127.3	120.5	120.3	114.6
Age group 60-64	106.6	100.7	141.8	131.5	135.3	125.6
Age group 65-69	103.0	101.7	110.8	113.7	112.4	115.3
Age group 70-74	98.3	100.0	96.0	96.5	97.1	98.5
Age group 75+	98.0	97.8	101.0	98.8	97.8	98.8

TABLE 12b	Female pensioners (public scheme) to total population ratio by age group (%)					
	2013	2020	2030	2040	2050	2060
Age group -54	4.1	4.0	4.3	4.3	4.3	4.3
Age group 55-59	38.3	25.8	23.9	23.2	22.3	21.2
Age group 60-64	94.1	50.8	42.8	42.3	40.5	38.5
Age group 65-69	98.9	96.4	92.1	93.3	93.3	95.4
Age group 70-74	97.7	99.7	94.5	94.5	95.3	96.5
Age group 75+	98.0	97.8	101.0	98.8	97.8	98.8

3.3.4. New pensioners

Table 13 shows the trends in new old age pension and early earnings related pensions. The increase of statutory retirement age will be finished by 2022. As the increase is determined by cohorts, and a continuous 6 months increase is executed for each following cohorts, there are years in which only half of the cohorts will gain new eligibility. This phenomena explains the low new pension expenditure e.g. in 2020, when only those who were born January-June, 1956 can gain new eligibility (except of those of course, who acquire the minimum service years for that year). In case of women this difference is smaller as they have the option to retire with 40 years contribution year.

The accrual rate for shorter contributory period is higher.

As we assumed continuous retirement during the whole years, we calculated with an average of 6 months paid in the first year for new entrants. Though when there is an increase in the retirement age (2013-2022) we had to take into account that, the increase means 6 months for each cohort. This caused that those years when only half of the cohorts will reach the statutory retirement age, the “average number of

month paid the first year" is lower than 6 month. In case of men this is the half of it, so only 3 months, in case of women it is higher as the women can reach the 40 years eligibility period in the whole year independent from the statutory retirement age. This phenomenon explains the numbers of Table 13a, 13b and 13c.

Cohorts	Retirement age	Date of retirement
1951	62	2013
1952	62.5	2014. II.- 2015. I.
1953	63	2016
1954	63.5	2017. II.- 2018. I.
1955	64	2019
1956	64.5	2020. II.- 2021. I.
1957 or later	65	2022 or later

TABLE 13a	Projected and disaggregated new public pension expenditure (old-age and early earnings-related pensions)					
New pension	2013	2020	2030	2040	2050	2060
I Projected new pension expenditure (millions EUR)	311.3	162.7	444.7	890.2	977.5	1418.8
II. Average contributory period	39.4	40.6	40.7	40.6	40.5	40.5
III. Monthly average pensionable earnings	460.5	579.8	909.7	1344.5	1959.4	2736.6
IV. Average accrual rates (%)	2.1	2.0	2.0	2.0	2.0	2.0
V. Sustainability/Adjustment factor	1.0	1.0	1.0	1.0	1.0	1.0
VI. Number of new pensioners ('000)	136.2	75.1	101.6	138.2	103.0	104.7
VII Average number of months paid the first year	6.0	4.6	6.0	6.0	6.0	6.0
Monthly average pensionable earnings / Monthly economy-wide average wage	550.1	556.4	586.9	577.1	565.1	547.1

TABLE 13b	Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - MEN					
New pension	2013	2020	2030	2040	2050	2060

I Projected new pension expenditure (thousands EUR)	123238.8	48789.2	222989.7	486997.9	516911.6	771432.9
II. Average contributory period	38.6	40.6	40.9	40.6	40.6	40.6
III. Monthly average pensionable earnings	506.5	631.7	977.6	1424.9	2047.3	2818.7
IV. Average accrual rates (%)	2.2	2.0	2.0	2.0	2.0	2.0
V. Sustainability/Adjustment factor	1.0	1.0	1.0	1.0	1.0	1.0
VI. Number of new pensioners ('000)	48.6	31.7	47.4	71.5	52.1	55.3
VII Average number of months paid the first year	6.0	3.0	6.0	6.0	6.0	6.0
Monthly average pensionable earnings / Monthly economy-wide average wage	605.1	606.2	630.8	611.7	590.5	563.5

TABLE 13c	Disaggregated new public pension expenditure (old-age and early earnings-related pensions) - WOMEN					
New pension	2013	2020	2030	2040	2050	2060
I Projected new pension expenditure (thousands EUR)	187947.0	110430.6	221996.7	401474.7	459072.4	645969.6
II. Average contributory period	39.9	40.5	40.6	40.5	40.5	40.5
III. Monthly average pensionable earnings	434.9	541.9	850.4	1258.2	1869.1	2644.6
IV. Average accrual rates (%)	2.1	2.02.1	2.0	2.0	2.0	2.0
V. Sustainability/Adjustment factor	1.0	1.0	1.0	1.0	1.0	1.0
VI. Number of new pensioners ('000)	87.6	43.5	54.2	66.7	50.8	49.4
VII Average number of months paid the first year	6.0	5.8	6.0	6.0	6.0	6.0
Monthly average pensionable earnings / Monthly economy-wide average wage	519.6	520.1	548.6	540.1	539.1	528.7

3.4. Financing the pension system

The higher contribution to GDP (compared to the Ageing Report 2012 results) can be explained by the higher employment, the abolishment of the cap on pension contribution paid by employees (see 1.2.5) and the one pillar mandatory public pension system. As from 2011 all the insured pay the whole contribution only to the public pillar. Employees contribution is 10 % of gross wages and the employers' contribution (social added tax) is 27%. In 2014, 26%point out of 27%point goes to the Pension Fund, so we assumed 26% of the gross wages as an employers' contribution for the whole projected period. It should be noted that there are some

contribution allowances for individuals or entrepreneurs. Our model also take these rules into account, which explains the slight difference from the proportion of 26:10.

The employment improved and projected to improve in the next years as well, which explains the growing number of contributors by the end of 2030's, beginning of 2040's, when baby boom generation goes to retirement and the number of actives drops down.

TABLE 14 Revenue from contribution (Millions), number of contributors in the public scheme (in 1000), total employment (in 1000) and related ratios (%)

	2013	2020	2030	2040	2050	2060
Public contribution	10510.6	13526.9	20150.3	28107.2	39035.1	53191,4
Employer contribution	*7410.0*	*9536.4*	*14206.0*	*19815.6*	*27519.7*	*37499,9*
Employee contribution	*3100.6*	*3990.4*	*5944.3*	*8291.6*	*11515.3*	*15691,5*
State contribution	*:*	*:*	*:*	*:*	*:*	*:*
Number of contributors (I)	3978.2	4218.7	4331.8	4115.7	3817.8	3611.6
Employment (II)	3951.4	4252.6	4322.7	4079.3	3798.1	3592.1
Ratio of (I)/(II)	1.0	1.0	1.0	1.0	1.0	1.0

3.5. Sensitivity analysis

TABLE15	Public and total pension expenditure under different scenarios (p.p. deviation from the baseline)					
	2013	2020	2030	2040	2050	2060
Public Pension Expenditure						
Baseline	11,8	10,1	9,2	9,9	10,9	11,7
Higher life expectancy (2 extra years)	0,0	0,0	0,1	0,2	0,4	0,6
Higher lab. productivity (+0.25 pp.)	0,0	0,0	-0,2	-0,2	-0,3	-0,3
Lower lab. productivity (-0.25 pp.)	0,0	0,0	0,2	0,2	0,3	0,3
Higher emp. rate (+2 pp.)	0,0	-0,1	-0,1	0,0	0,0	0,0
Higher emp. of older workers (+10 pp.)	0,0	-0,2	-0,2	-0,2	-0,2	-0,2
Lower migration (-20%)	0,0	0,0	0,1	0,1	0,2	0,2
Risk scenario	0,0	0,0	0,1	0,2	0,4	0,5
Policy scenario: linking retirement age to increases in life expectancy	0,0	0,0	0,0	0,0	0,0	-0,3
Total Pension Expenditure						
Baseline	11,8	10,1	9,2	9,9	10,9	11,7
Higher life expectancy (2 extra years)	0,0	0,0	0,1	0,2	0,4	0,6
Higher lab. productivity (+0.25 pp.)	0,0	0,0	-0,2	-0,2	-0,3	-0,3
Lower lab. productivity (-0.25 pp.)	0,0	0,0	0,2	0,2	0,3	0,3
Higher emp. rate (+2 pp.)	0,0	-0,1	-0,1	0,0	0,0	0,0
Higher emp. of older workers (+10 pp.)	0,0	-0,2	-0,2	-0,2	-0,2	-0,2
Lower migration (-20%)	0,0	0,0	0,1	0,1	0,2	0,2
Risk scenario	0,0	0,0	0,1	0,2	0,4	0,5
Policy scenario: linking retirement age to increases in life expectancy	0,0	0,0	0,0	0,0	0,0	-0,3

Higher life expectancy

The higher life expectancy increases the number of pensioners and the length of the average period spent in the retirement. The effect of this changes can be observed in the growing pension expenditure in % of GDP, which is 5% higher in 2060 compared to the base scenario.

Higher labour productivity

The wage assumption is higher in this scenario, which leads to higher benefits and increases the amount of pension benefits, though the increasing effect on GDP growth is more significant, therefore the pension expenditure in percentage of GDP declines during the projected period.

Lower labour productivity

The wage assumption is lower in this scenario, which leads to lower benefits and decreases the amount of pension benefits, though the decreasing effect on GDP growth is more significant, therefore the pension expenditure in percentage of GDP increases during the projected period.

Higher employment

This change in the assumption of employment would lead to higher average service years, which increases the average amount of pension benefits. Though the increasing effect on GDP growth is more significant, therefore the pension expenditure in percentage of GDP declines during the projected period.

Higher employment of older workers

This change in the assumption of employment would lead to higher average service years, which increases the average amount of pension benefits. It does not influence the number and share of pensioners, as we assumed that people above the retirement age rather work besides the pension (and claim for the increase of benefit according to their income in each year). Though the increasing effect on GDP growth is more significant, therefore the pension expenditure in percentage of GDP declines during the projected period.

Lower migration

Because of the lower migration, the number of pensioners decreases, also the GDP will be lower during the period, though there is some shift in the two tendencies. The effect of lower population arrives earlier.

TFP Risk scenario

Risk scenario shows similar changes in the final results, as the lower production results, though there are some fluctuations in the projected period.

Policy scenario: linking retirement age to increases in life expectancy (dynamic retirement age scenario)

Currently there is a retirement age increase in process, which is faster than the increases in life expectancy, thus the first cohort that would be affected by this scenario is the cohort of 1976, the member of this cohort are expected to be retired at 2041. With the continuous rise in the life expectancy the pension expenditure is projected to be decreased.

3.6. Description of the changes in comparison with the 2006, 2009, 2012 and 2015 projections

Comparing to the previous projection, the dependency ratio decreased a lot because of the more favourable demographic projection, especially the higher fertility rates.

The changes in the coverage ratio can be explained by the increase in employment. The number of those who is not able to acquire pension rights is mitigated. All of these elements caused that the total pension expenditure to GDP in AR 2015 decreased by 0.1%point between 2013-2060 compared to AR 2012 results.

TABLE 16
Overall change in public pension expenditure to GDP under the2006, 2009, 2012 and 2015 projection exercises

	Public pensions to GDP	Dependency ratio	Coverage ratio	Employ-ment effect	Benefit ratio	Labour intensity	Residual (incl. Interaction effect)
2006 *	6.43	10.49	-4.47	-1.11	1.95	:	-0.44
2009 **	-0.20	8.91	-4.64	-1.12	-2.66	:	-0.69
2012 ***	0.50	9.59	-4.94	-1.44	-1.86	0.00	-0.85
2015****	-0.12	7.95	-3.84	-1.70	-1.81	0.00	-0.72

* 2004-2050; ** 2007-2060; *** 2010-2060; **** 2013-2060

The changes in assumptions and policy related changes are the most important reasons for more favourable results and more sustainable pension system compared to the previous report.

In 2009 the development of the projection figures for pension expenditures improved largely due to the significant parametric reforms (increase of the statutory retirement age from 62 to 65, change of swiss indexation to CPI indexation, cancellation of 13th month pension benefit). In the 2012 Ageing Report the pension expenditures increased again due to the closure of the mandatory funded private pension schemes. From 2011 the mixed pension system has been practically transformed to a solely state PAYG system (most of members switched back to the pure PAYG system and also the remaining members pay their contribution to PAYG system, so as from 2011 they are entitled to 100% benefit). It means that the pensions that would have been paid by the mandatory private scheme will be paid by the state PAYG system. This systemic change increases significantly the public spending on pension.

In case of Hungary assessment – as the pension benefits are calculated on net base and there is no tax on benefits – using the net figures is more expressing. The following table and the explanation below decompose the increase in pension expenditure between 2010 and the 2012 Ageing Report. It shows that half of the total increase in pension expenditure is due to systemic change (abolishment of the mixed system) and the other half is due to the worse macroeconomic scenario.

TABLE 17 Decomposition of the net Pension expenditures

	2010	2060	CoA	GDP level in 2010 (billion	Average potential growth (2010-

				€)	2060)
2009 Ageing report	11.3	13.2	1.9	120*	1.7%
2009 Ageing report with pension reform of 2009 (peer review 2010)	10.5	10.0	-0.5	120*	1.7%
2012 Ageing report with systemic change of end-2010	11.9	13.6	1.7	98**	1.2%
2012 Ageing Report with pension reform of 2012 (peer review October, 2012)	11.9	12.4	0.5	98**	1.2%
2015 Ageing Report	11.8***	11.7	-0.1	98***	1.5%

* estimation. We know only that GDP level in 2010 at 2007 price is 110.6 billion €
**current price
*** 2013 figures

This table shows that

- cost of ageing decreased significantly due to the 2009 pension reform from 13.2-11.3 = **1.9%** to 10.5-10.0= **-0.5%.** In the 2012 Ageing Report the same figure (cost of ageing) will be 13.6-11.9= **1.7**%, which means that the pension expenditure increase again mostly due to the systemic pension changes (abolishment of the mixed pension system) and the lower GDP growth rate. Later this effect is offset by the effects of 2012 pension reform.
- The worse macroeconomic scenario has an impact both to the level of GDP and also to the GDP growth rate. The pension expenditure as a percent of GDP in 2010 became much higher because of the lower GDP level (from 10.5 to 11.9%), and the lower GDP growth has an impact on the CoA.
- The pension expenditure widened from -0.5% to 1.7% (from the 2010 peer review to 2012 Ageing Report), altogether by 2.2% of GDP. This can be decomposed to the effect of the systemic change of end-2010 (around 1.8%) and the lower GDP growth (0.4%). Considering the GDP level effect as well, the difference between 13.6-10.0 = 3.6% should be decomposed: systemic change (around 1.8%) and the lower GDP growth (0.4%) and lower GDP level (1.4%).

- In the 2012 peer review the evolution of the pension expenditures improved again due to the significant parametric reforms (abolishment of the early retirement schemes, tightening of disability system), which counterbalanced the negative impact of the closing down of the mandatory funded pension pillar.

3.6.1. Change in assumptions

GDP assumptions have changed significantly, since the average annual GDP growth increased from 1.2% to 1.5%. The higher GDP growth projection is explained by the much better demographic projection and the higher participation rate. The higher participation rate reflects the positive effects of the recent labour market reforms, and these effects are visible in the latest employment figures.

The demographic changes also reduce the pension expenditures, as the dependency ratio is lower than it was projected in 2012. For more details please see Chapter 2.1.

All of these effects lead to lower pension expenditure.

3.6.2. Improvement in the coverage or in the modelling

In harmonisation with the new methodological initiatives and suggestions for pension models, a new model was elaborated in the Ministry for National Economy. It was also an actual task to renew the model, as there were numerous structural changes in the pension system (the mandatory two pillar system became one-pillar system,new benefit was introduced, the disability system was totally changed, early retirement schemes were phased out form the system).

Earlier we applied a methodology to use the past data as a base to estimate the future data with little corrections. This methodology was rethinked and the current model uses pension calculation for new entrants which is independent from the past pension data. The new model estimates the benefits more sophisticated in more elaborated way.

We also had a significant improvement in the collection of data. We systematically strengthened the relationships with the institutions handling pension, economic, population data, modernised the processes of data records and collection. Though in case of disability benefits (disability benefit and rehabilitation benefit) we have some shortage in data to make a precise and thorough projections. The reason for missing data is that the system is changed radically, the review of the health condition of former disabled people and the rehabilitation programs are in process and no new thorough information about the very new results. To dispose this problem, the model calculates with a quite cautious estimation for the number of disabled and the amount of pension benefits of disabled.

3.6.3. Change in the interpretation of constant policy

In case of old age social allowance, the fact data shows that only 20-25 % of those persons, who are not entitled to pension receive this kind of benefits. It is not a permanent allowance, those who have no other income have to reclaim for it in every two years. Thus we do not assume that all the person who is not entitled to pension benefit, get this allowance. In order to have a more cautious projection, we doubled this ratio, and assume that in 2060 half of those who live in Hungary, but not entitled to pension benefit, will get old-age social allowance. Though according to the new fact data, we assumed higher amount of benefit.

In case of women with 40 years' eligibility, we could perceive a constant increase in the number of beneficiaries, so we calculate with higher number of beneficiaries for the future as well. Though later because of the changing labour market tendencies, we assumed a slightly decreasing number.

3.6.4. Policy related changes

In 2012 there was a financial reform in the Hungarian pension system which had a significant effect on the level of pension expenditures. The most important measures were the cancellation of early retirement and the structural changes in disability system.

Before 2012 there were several options to retire prior to reaching the statutory retirement age. The new regulations have locked many of these ways and narrowed those that still remain open. It has a significant effect on the number of pensioners and the expenditure. The number of pensioners in the cohort of 54-59 decreased drastically and gradually in the cohort of 60-64.

Starting from January 1, 2012 disability ceased to be part of the pension system, and the disability pension was transformed to disability provision ("rokkantsági ellátás") and rehabilitation provision ("rehabilitációs ellátás"), the latter being different from the former rehabilitation benefit, which was also withdrawn. The disability provision will function in effect in the same way as the disability pension. People belonged to disability class 1 and 2 (both include people with high disability) will receive this new provision. The same applies to people classified to the 3rd category (at least 50% disabled) provided they were born in 1954 or before. The rest obtained rehabilitation provision till May 1, 2012. If the beneficiary requests a complex review of his/her health conditions – depending on the result of this re-checking the rehabilitation – provision will be transformed to disability provision (if the client cannot be rehabilitated) or reduced (if he/she can be rehabilitated) or withdrawn (if health conditions allow the client to work). This measurement has a significant effect on provision.

TABLE 17 Decomposition of the difference between 2012 and the new public pension projection (% of GDP)

	2013	2020	2030	2040	2050	2060
Ageing report 2012 (net expenditure)		11.1	10.4	11.2	12.5	13.6
Change in assumptions	:	-0.2	-0.6	-0.7	-1.2	-1.7

Improvement in the coverage or in the modelling	:	-0.4	0.1	0.4	0.6	0.6
Change in the interpretation of constant policy	:	0.3	0.2	0.2	0.1	0.1
Policy related changes	:	-0.7	-0.9	-1.2	-1.1	-0.9
New projection (net expenditure)	11.8	10.1	9.2	9.9	10.9	11.7

* fact data for 2013

4. Description of the pension projection model and its base data

4.1. Institutional context in which those projections are made

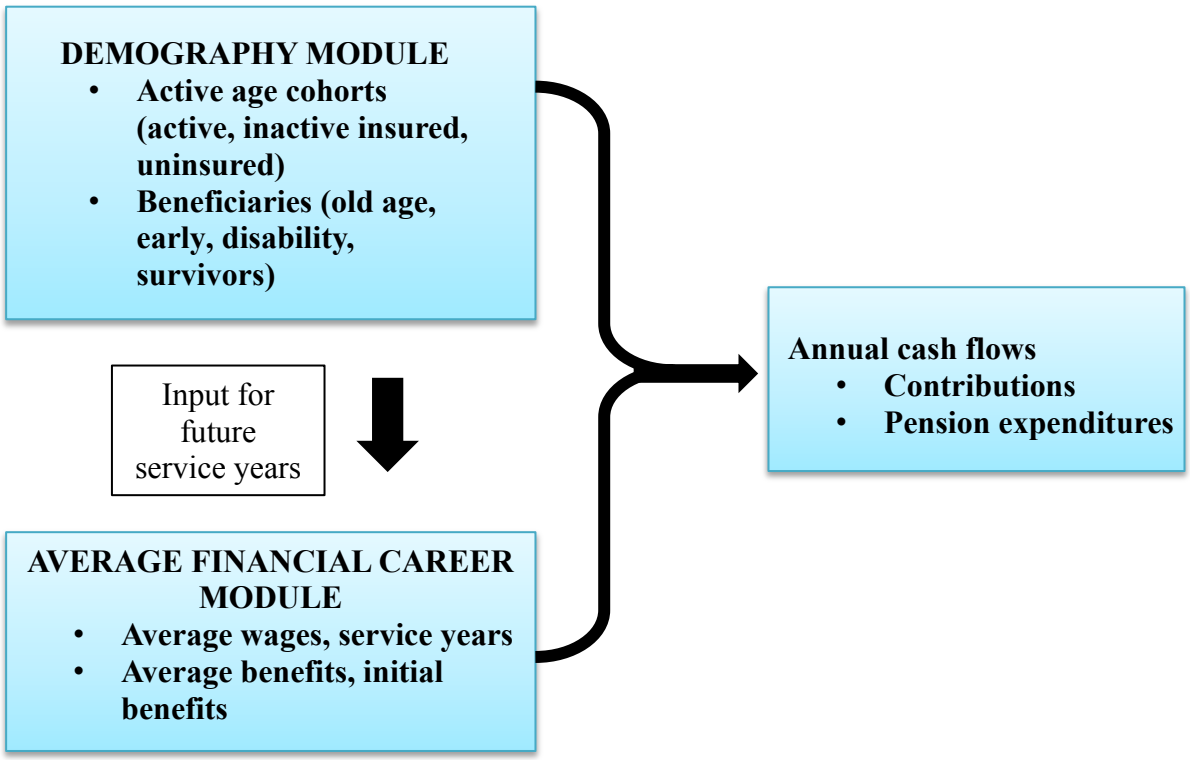
The Pension Department of Ministry for National Economy has developed the used model and the Department is still in charge of maintaining and updating the model if needed.

One of the main purposes of estimating the long term incomes and outcomes of the pension system is to make our report to AWG. The other reason, why estimation of the long term incomes and outcomes of the pension system is of major importance in pension policy is analysing the long term effects of measures concerning the pension system. It has become necessary to create that new model instead of the old one due to significant changes in the pension system and because of the need of comparing different pension systems.

4.2. Assumptions and methodologies applied

The model is a macro simulation model. i.e. aggregated data are used by calculations. It defines the pension benefits of new entrants by the estimated amount of incomes valorised by wage growth and service years for different cohorts. Thus, the full process of pension benefit calculation is simulated by the model. Then the benefit will be indexed by CPI.

The commonly agreed AWG assumptions are used in the pension projections.



4.3. Data used to run the model

The model uses the data since year 2012. Most of them come from the Hungarian Central Administration of National Pension Insurance (CANPI), which is in charge of disbursing all pension benefits except disability benefits. The model requires the following data given by CANPI:

- the number of pensions (by type of pension. gender and single age).
- the number of new pensions (by type of pension. gender and single age).
- number of pensioners (by type of pension. gender and single age).
- the number of new pensioners (by type of pension. gender and single age).
- average pension benefit (by type of pension. gender and single age).
- average newly granted pension benefit (by type of pension. gender and single age).

Projections of the labour market and macroeconomic parameters are from AWG assumptions.

4.4. Reforms incorporated in the model

All the reforms and changes in legislations are incorporated in our model. For further information, please see Chapter 1.2. (“Recent reforms included in the projections”).

4.5. General description of the model(s)

The type and the structure of the model

The Hungarian pension projection model is based on Excel workbooks and the calculations are made by Visual Basic codes. The model is a macro simulation model, i.e. aggregated data are used by calculations. The main purpose of the model projects the incomes and outcomes of the pension system. It is also suitable for comparing different pension systems, modelling individuals’ contributions and benefits, the effects on specific individuals.

The coverage of the model

The model consists of all the schemes (except of old-age allowance) which are covered by the projection, namely the following:

Old-age pension: over the statutory retirement age
Women with 40 years real contribution period: until reaching the statutory retirement age, over the retirement age conversion to old-age pension
Disability pension: disabled people regardless their age
Widow(er)s’ pension: regardless their age
Orphans’ benefit: young people under 25 years

A separated calculation is used for the old-age allowance expenditures because it’s a specific benefit that should be renewed every two years.

Main equations

The formula of calculating the pension benefit:

$$PDB_{x.yr} = aw_{yr} * ar * de_{NRA}(x)$$

where:

- $PDB_{x.yr}$ is the pension benefit of a x years old person. in the year of retirement
- aw_{yr} is the valorised average career wage at retirement
- ar is the pension benefit calculating factor (it depends on service years. average 2%/year)
- NRA statutory retirement age
- $de_{NRA}(x)$ is a factor in order to grant the postponement of retiring

The formula of indexation of the pension benefit after retiring:

$$\mathrm{PDB_{x.t}} = \mathrm{PDB_{x-1.t-1}} * (1 + \mathrm{CPI}_t)$$

where:

- $PDB_{x.t}$ is the pension benefit of a x years old person. in year t
- CPI_t is the estimated value of CPI in year t

Additional assumptions for modelling the pensioners' behaviour

Currently 97% of people at statutory retirement age retire. that's why we assumed that close to all insured persons are willing to retire as soon as possible.

4.6. Additional features of the projection model

The careers are modelled by using the labour market projections and transition probabilities between groups of active, inactive and uninsured people of all cohorts and calendar years. All of these groups consist of subgroups of people, who enter, stay, leave or enter and leave the group during the year. Assuming that active or inactive people acquire different number of service years and applying the transition probabilities between these groups.. The model is able to calculate the number of service years for each group.

Calculating survivors' pension benefit is a complex task based on the complex legislation of survivors. There are temporary and permanent benefits which causes different amounts of benefit. It is also possible to receive permanent benefit after 1 year temporary benefit and maximum 10 years pause. In our macro simulation model, we are not able to fully model the transitions between these benefits. Therefore a specific methodology based on past data to calculate survivors' pension benefit was elaborated.

Retirement age is given by the law for the future. in the base case, the model uses it automatically, though there are different functions for analysing the effect of changes. Retirement age can be changed (increased) for each cohort with the necessary months or years. Though the changes can be also linked to other parameters (e.g. life expectancy), and let the model to calculate the retirement ages and effects automatically.