Investigating the Impact of the **Innovation Union**

"Assessing for the European Innovation Union: The contribution of NEMESIS model"

***Pierre Le Mouël** , Arnaud Fougeyrollas, Paul Zagamé and Baptiste Boitier SEURECO*

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Introduction

- We present an evaluation of the impacts on economy and society that could bring the evolution of the Innovation Union (IU) in the next years.
- The IU flagship initiative is at the core of the Europe 2020 strategy agreed by Member State at June 2010 european council. The aim was improving the conditions and access to finance for research and innovation, that was identified as the most effective way for recovering from the 2007 financial crisis. Ambition to create a 'true' IU by 2020.
- The results we will present here, as one of the main outcomes of the I3U project, represent a unique attempt for assessing the progresses achieved toward this IU, and the evaluation of the impacts on economy and society.

Introduction

- We have already estimated, thanks to the European innovation scoreboard, that the progresses achieved on the 2007-2013 period have:
  - Increased the EU R&D intensity as % of GDP, from 1.75 in 2007 to 2.01 in 2013 (and 2.02 in 2015).
  - Assuming that that this rise will be maintained in the future, it could bring up to 2.8% additional GDP in the EU at the horizon 2040, increasing by about 0.07% the potential GDP growth rate of the EU.
  - The impact on employment in 2040 would be of about 3,2 million.

Introduction

The model used for this study is the NEMESIS model:

- One model for every EU-27 countries *plus* UK, in interaction with 10 world regions;
- 30 production sectors: Agriculture, 5 utilities, 13 industrial sectors, 10 private services sectors and the public sector
- The model was notably used for:
    - The ex-ante evaluation of FP7 and H2020
    - The ex-post evaluation of FP7 and interim evaluation of H2020
    - The ex-ante evaluation of Horizon Europe (FP9)

Introduction

The IU includes 34 commitments but they are in reality about 40 as some follow several objectives and are divided in sub-commitments.

From the individual analysis of these commitments by the different partners involved in I3U, only 24 describe quantitative targets.

On these 24, only 13, for which there exist enough data and relevant information, could be evaluated with the model.

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I- Methodology of the assessment

I – Methodology of the assessment

- The final list of commitments were implemented in NEMESIS is the following

WP Nb: (Team)	Commitment Nb:		Commitment category
1 (TIK)	2.2	Knowledge alliances for skill gaps	Group 1
1 (TIK)	3	Propose an integrated framework for e-skill	Group 1
2 (TIK)	4.2	ERA - research mobility	Group 1
2 (WERI)	6	EU research and innovation programmes	Group 3
3 (ULB)	10	Put in place EU financial instruments to attract private finance	Group 2
3 (ULB)	11	Access to finance- Venture capital	Group 2
3 (ULB)	12	Access to finance - Matching	Group 2
3 (ULB)	13	Review State aid framework for R&D and innovation	Group 2
5 (ULB)	19.1	Creative industries	Group 4
5 (ULB)	19.2	EU design leadership board	Group 4
6 (WIIW)	24/25	Improve/increase the use of Structural Funds for R&I	Group 3
7 (TIK)	30	Foreign talents	Group 1

I – Methodology of the assessment

- Four groups of commitments were distinguished gathering those that concern similar 'Thematics' and that act similarly in the NEMESIS model:
  - Group 1: 'ERA – Human capital' (4: C2.2 + C3 +C4.2 + C30)
  - Group 2: 'SMEs – Access to Finance' (4: C10 + C11 + C2 + C13)
  - Group 3: 'EU Funds' (FP and ESI funds) (3: C6 + C24/C25)
  - Group 4: 'Action to Market' (2: C191 + C19.2)

I – Methodology of the assessment

- For each commitment, the implementation in NEMESIS has required three categories of inputs:
  - New data, parameter estimates of new equations specification traducing the impact of the commitment in the model. These inputs were provided by the partners responsible of the analysis of the different commitments
  - Alternative sets of inputs for taking into account uncertainty that may exist on the exact value of certain variables or parameters, and perform sensitivity analysis
  - Design of scenarios that were simulated with NEMESIS, providing an assessment of how the commitment would impact the EU economy in the future

I – Methodology of the assessment

- **For each commitment, two scenarios were defined and simulated:**

1. A 'Realistic', or 'Current trend' scenario, that was based on the analysis of the current trends in the implementation of the commitment in the different countries and/or at the EU level. It has provided a 'Realistic' projection, in %, of the possibility of increasing, or improving, the implementation of the commitment in the future (from 2014, up to end of the next multiannual financial framework in 2027);
2. An 'Optimistic', or 'Volontarist' scenario, that was based on more 'Volontarist' targets for the commitment implementation. It was designed in a way to stay reachable, but at condition of implementing additional policies, or of amplifying the policies already in place.
3. Whatever be the scenario considered, it was supposed that after 2027 the commitment implementation does not increase anymore, and stay, up to 2050, at the level that will be reached in 2027.

I – Methodology of the assessment

- **The macro assessment:**
  - For the two scenarios, the quantification has resulted from the comparison of the simulation results with a reference scenario where, by assumption, the commitment implementation does not increase after 2013.
  - In addition for each scenario, three cases have been distinguished, the 'Low', the 'Medium' and the 'High' cases. It has provided a range, for the impact of the commitment, reflecting the uncertainty existing on the exact value of some crucial data or parameters.
  - Therefore, for the evaluation of each commitment, 6 model simulations have been necessary (two scenarios, with each time three different cases).

I – Methodology of the assessment

- **The simulation were performed:**

  - Commitment by commitment (13);
  - By groups of commitments (4), taking into account the potential overlapping between the commitments inside each group
  - As a whole (taking into account the potential overlapping between groups of commitments), providing finally a global picture, at different time horizons, of the potential impacts that the implementation of the Innovation Union could provide in the future.

    → **In all, 13x6 + 4x6 + 1x6 = 108 model simulations were therefore achieved**

II- Assessment commitment by commitment and by groups

II – Integration of commitments of Group 1 ‘ERA – HK’

- **Commitments of Group 1 ‘ERA – Human capital:**

1. C2.2 ‘Knowledge alliances for skill gaps’
2. C3 ‘Propose an integrated framework for e-skill
3. C4.2 ‘ERA - research mobility’
4. C30 ‘Foreign talents’

Action in NEMESIS: Increase public research productivity measured by the number of publication per 1,000 researchers in FTE (econometric estimation)

II – Integration of commitments of Group 1 ‘ERA – HK’

- **Commitment measurement:**
  1. C2.2: Variable measuring the current degree of knowledge transfers between companies and universities (1995-2016)
  2. C3: Variable measuring the current proportion of workers with ICT user skills, in % of total employment (2001-2010)
  3. ‘C4.2: Variable measuring the share of researchers currently employed in another country than their country of citizenship (2012).
  4. ‘C30: Variable measuring the importance of "Researchers and scientists that are attracted to your country" (2010-2016)
- **Commitment increase between 2013 and 2027 in ‘Realistic’ - ’Optimistic’ case:**
  1. C2.2: 18% - 39%
  2. C3: 22% - 49%
  3. C4.2: 18% - 39% (as for C2.2)
  4. C30: 18% - 39%

II – Results for Group 1 ‘ERA – HK’: ‘Realistic’ case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		from 2027	2027-2050	2040	2050	2040	2050	
Commitments of Group 1: "Human Capital"								
C2-2 "Knowledge alliances for skill gaps"		5.2%	0.003%	0.14%	0.26%	57	154	0.012%
C3 "Propose an integrated framework for e-skill"		6%	0.003%	0.14%	0.27%	60	162	0.013%
C4-2 "ERA - research mobility"		8.30%	0.004%	0.18%	0.34%	70	187	0.016%
C30 "Foreign talents"		4%	0.002%	0.10%	0.18%	39	105	0.009%
Joint implementation of Group 1 commitments (C2-2 + C3 + C30)		15.4%	0.0078%	0.37%	0.69%	157	405	0.032%

II – Results for Group 1 ‘ERA – HK’: ‘Optimistic’ case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		2027-2050	2027-2050	2040	2050	2040	2050	
Commitments of Group 1: "Human Capital"								
C2-2 "Knowledge alliances for skill gaps"		11.3%	0.006%	0.30%	0.56%	124	329	0.027%
C3 "Propose an integrated framework for e-skill"		13.4%	0.007%	0.32%	0.60%	134	356	0.028%
C4-2 "ERA - research mobility"		18%	0.008%	0.38%	0.72%	149	399	0.034%
C30 "Foreign talents"		8.7%	0.004%	0.21%	0.39%	86	227	0.019%
Joint implementation of Group 1 commitments (C2-2 + C3 + C30)		33.4%	0.016%	0.79%	1.45%	331	838	0.066%

II – Integration of commitments of Group 2 ‘Finance’

- **Commitments of Group 2 ‘SMEs – Access to finance:**

1. C10 ‘Put in place EU financial instruments to attract private finance’
2. C11 ‘Access to finance – Venture capital’
3. C12 ‘Access to finance – Matching’
4. C13 ‘Review State aid framework for R&D and innovation’

Action in NEMESIS: Increase private R&D from a leverage effect estimated by econometrics

II – Integration of commitments of Group 2 'Finance'

- **Commitment measurement:**
  1. C10: Variable measuring the loans granted by the EIB between 2007 to 2016 (RSFF and InnovFin)
  2. C11: Variable measuring the number of European Venture Capital (EuVECA) funds that were marketed in all the EU28 member states on the period 2013 to 2016.
  3. C12: Variable measuring the BERD by firms that is financed by abroad, for all the EU28 member states on the period 2007 to 2015.
  4. C13: Variable measuring the amount of GBER to firms' RDI, in the different the EU28 countries on the period 2008 to 2016.
- **Commitment increase between 2013 and 2027 in 'Realistic' - 'Optimistic' case:**
  1. C10: +0.0022% of EU GDP - +0.0054% of EU GDP
  2. C11: +0.039% of EU GDP - +0.052% of EU GDP
  3. C12: +0.052% of EU GDP - +0.1% of EU GDP
  4. C13: +0.041% of EU GDP - +0.055% of EU GDP

II – Results of Group 2 ‘Finance’: Realistic case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		from 2027	2027-2050	2040	2050	2040	2050	
Commitments of Group 2: "Finance"								
C10 "Put in place EU financial instruments to attract private finance"		-	0.010%	0.14%	0.18%	94	115	0.004%
C11 "Access to finance- Venture capital"		-	0.042%	0.50%	0.72%	310	435	0.022%
C12 "Access to finance - Matching"		-	0.027%	0.32%	0.45%	178	252	0.013%
C13 "Review State aid framework for R&D and innovation"		-	0.048%	0.55%	0.77%	434	580	0.022%
Joint implementation of Group 2 commitments (part of C10 + C11 + C13)		-	0.093%	1.11%	1.54%	775	1044	0.044%

II – Results of Group 2 ‘Finance’: Optimistic case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		2027-2050	2027-2050	2040	2050	2040	2050	
Commitments of Group 2: "Finance"								
C10 "Put in place EU financial instruments to attract private finance"		-	0.025%	0.30%	0.42%	192	266	0.012%
C11 "Access to finance- Venture capital"		-	0.057%	0.67%	0.96%	407	580	0.029%
C12 "Access to finance - Matching"		-	0.053%	0.60%	0.87%	334	484	0.027%
C13 "Review State aid framework for R&D and innovation"		-	0.064%	0.72%	1.02%	559	758	0.030%
Joint implementation of Group 2 commitments (part of C10 + C11 + C13)		-	0.126%	1.49%	2.10%	1026	1405	0.061%

II – Integration of commitments of Group 3 ‘EU funds’

- **Commitments of Group 3 ‘EU funds – FP and ESI funds:**

  1. C6 ‘EU FP for research and innovation’
  2. C24/C25 ‘Increase/Improve the use of ESI funds for R&I’

Action in NEMESIS: Increase private R&D from a leverage effect retrieved from econometric literature. Similar methodology as for Horizon Europe *ex-ante* assessment.

II – Integration of commitments of Group 3 ‘EU funds’

- **Commitment measurement:**
  1. C6: Current project of increasing FP from 80 billion (H2020) to 100 billion (FP9), and 120 billion in ‘Optimistic’ scenario
  2. C24/C25: Continuation of current trends from 2007 to 2016
- **Commitment increase between 2013 and 2027 in ‘Realistic’ - ’Optimistic’ case:**
  1. C6: FP funding to EU countries decreases in real terms from 69.3 billion (H2020) to 67.5 billion (FP9) after deduction of the share thae goes to non EU27 countries. Increase to 81.4 billion (+12.1 billion) in the ‘Optimistic case’.
  2. C24/C25: For 2014-2020, the ESI funds that go to R&I evolves as planned and decrea&se -15.8 billion compare to the situation in the reference scenario. After 2020 up to 2027, evolution of the share for R&I is supposed to re-increase (from 15% to 20%) to fill the gap introduced in the previous period. For the ‘Optimistic case, same evolution up to 2020 but re-increase of 5% of the share devoted to R&I after 2020 (from 20% to 25%). The total amount of ESI evolves itself as foreseen for the next multi-annual financial framework.

II – Results of Group 3 ‘EU funds’: Realistic case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		from 2027	2027-2050	2040	2050	2040	2050	
Commitments of Group 3: "EU funds"								
C6 "EU research and innovation programmes"		-	0.040%	0.34%	0.47%	242	322	0.013%
C24/25 "ESI funds"		-	-0.001%	0.04%	0.06%	88	114	0.002%
Joint implementation of Group 3 commitments (C6 + C24/25)			0.039%	0.38%	0.53%	332	437	0.015%

II – Results of Group 3 ‘EU funds’: Optimistic case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		2027-2050	2027-2050	2040	2050	2040	2050	
Commitments of Group 3: "EU funds"								
C6 "EU research and innovation programmes"		-	0.056%	0.49%	0.68%	345	465	0.019%
C24/25 "ESI funds"		-	0.003%	0.08%	0.10%	145	163	0.002%
Joint implementation of Group 3 commitments (C6 + C24/25)			0.062%	0.56%	0.78%	492	626	0.021%

II – Integration of commitments of Group 4 ‘Action to market’

- **Commitments of Group 4 ‘action to market’:**

  1. C19.1 ‘Creative industries’
  2. C19.2 ‘EU design leadership board’

Action in NEMESIS: Increase private R&D from a leverage effect estimated by econometrics

II – Integration of commitments of Group 4 ‘Action to market’

- **Commitment measurement:**
  1. C19.1: Variable measuring the investment in R&D by CI, for all the EU28 member states on the period 2007 to 2015.
  2. C19.2: Variable measuring the number of Community design registered, for all the EU28 member states on the period 2006 to 2016.
- **Commitment increase between 2013 and 2027 in ‘Realistic’ - ’Optimistic’ case:**
  1. C19.1: +0.015% of EU GDP - +0.030% of EU GDP . It corresponds in % of increases of respectively +25% and + 50% of the commitment implementation.
  2. C19.2: quasi-stable in ‘Realistic’ scenario, following the most recent trends. Increase 11% in the ‘Optimistic’ scenario, to compensate the fall observed after 2014.

II – Results of Group 4 ‘Action to market’: Realistic case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		from 2027	2027-2050	2040	2050	2040	2050	
Commitments of Group 4: "Action to market"								
C19-1 "Creative industries"		-	0.030%	0.34%	0.50%	217	318	0.016%
C19-2 "EU design leadership board"		-	0%	-0.01%	0%	-7	-2	0%
Joint implementation of Group 4 commitments (C19-1)		-	0.030%	0.34%	0.50%	217	318	0.016%

II – Results of Group 4 ‘Action to market’: Optimistic case

		IMPACT ON:						
		Public research productivity in %	R&D as % of EU GDP in diff. from refrence scenario	EU27 GDP in % diff. From reference scenario		EU27 employment in thousand and in diff. from ref. scenario		EU27 potential GDP growth rate
		2027-2050	2027-2050	2040	2050	2040	2050	
Commitments of Group 4: "action to market"								
C19-1 "Creative industries"		-	0.059%	0.66%	0.98%	407	621	0.033%
C19-2 "EU design leadership board"		-	0.006%	0.06%	0.10%	7	39	0.004%
Joint implementation of Group 4 commitments (C19-1)		-	0.059%	0.66%	0.98%	407	621	0.033%

III- Assessment of the IU 'as a whole'

III – Assessment of the IU as a whole

- In reason of the overlapping that we have identified between the different commitments and groups of commitments, 4 were retrieved when assessing the IU as a whole:

  - Commitment 4.2 ‘ERA – Research mobility’
  - Commiment 10 ‘RSFF/InnovFin’
  - Commiment 12 ‘Access to finance – Matching’
  - Commitment 19.2 ‘EU design leadership board’

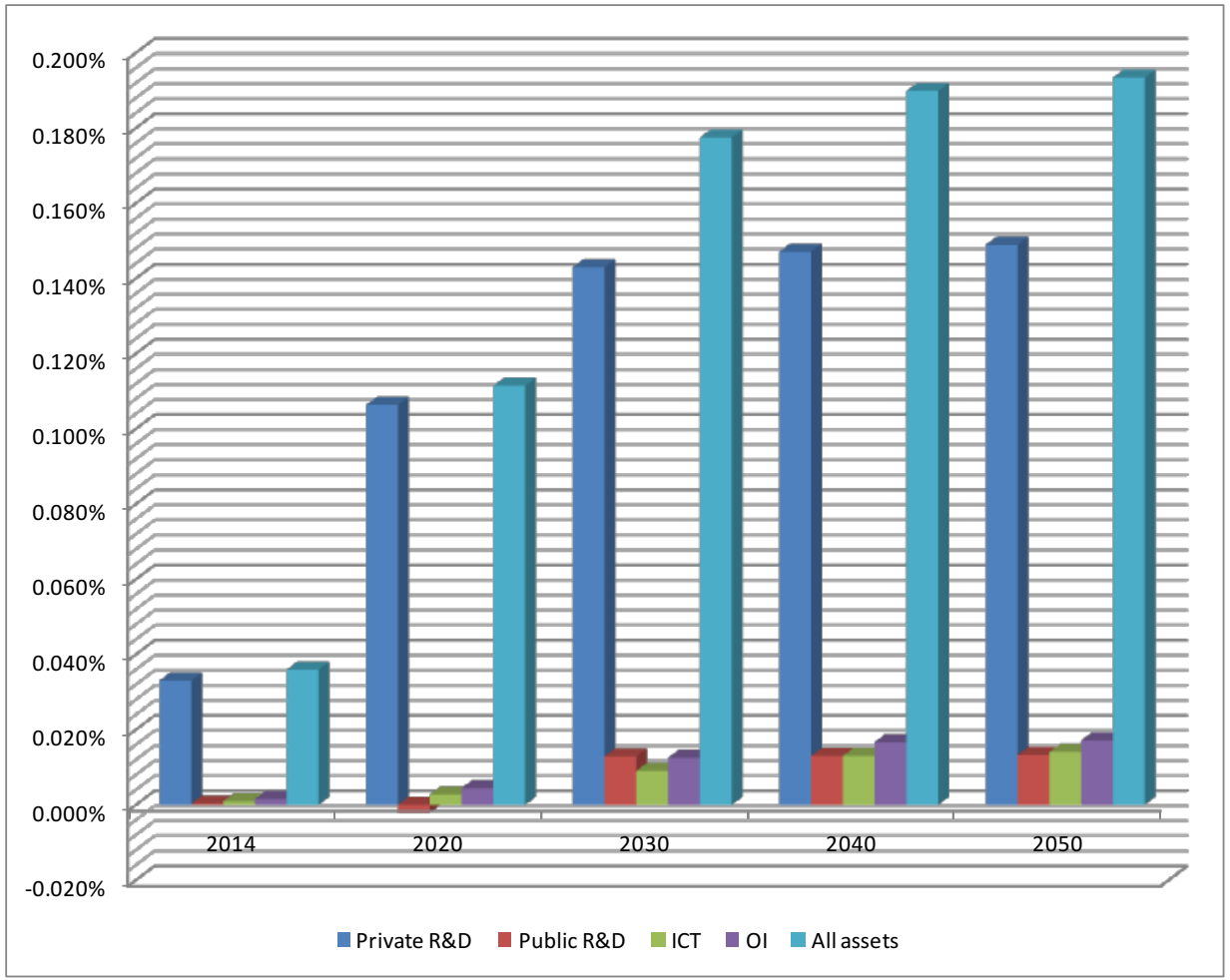
III – Assessment of the IU as a whole

- We display the results of the assessment at three levels:
  - EU27 macro level
  - EU27 sectoral level
  - National macro level

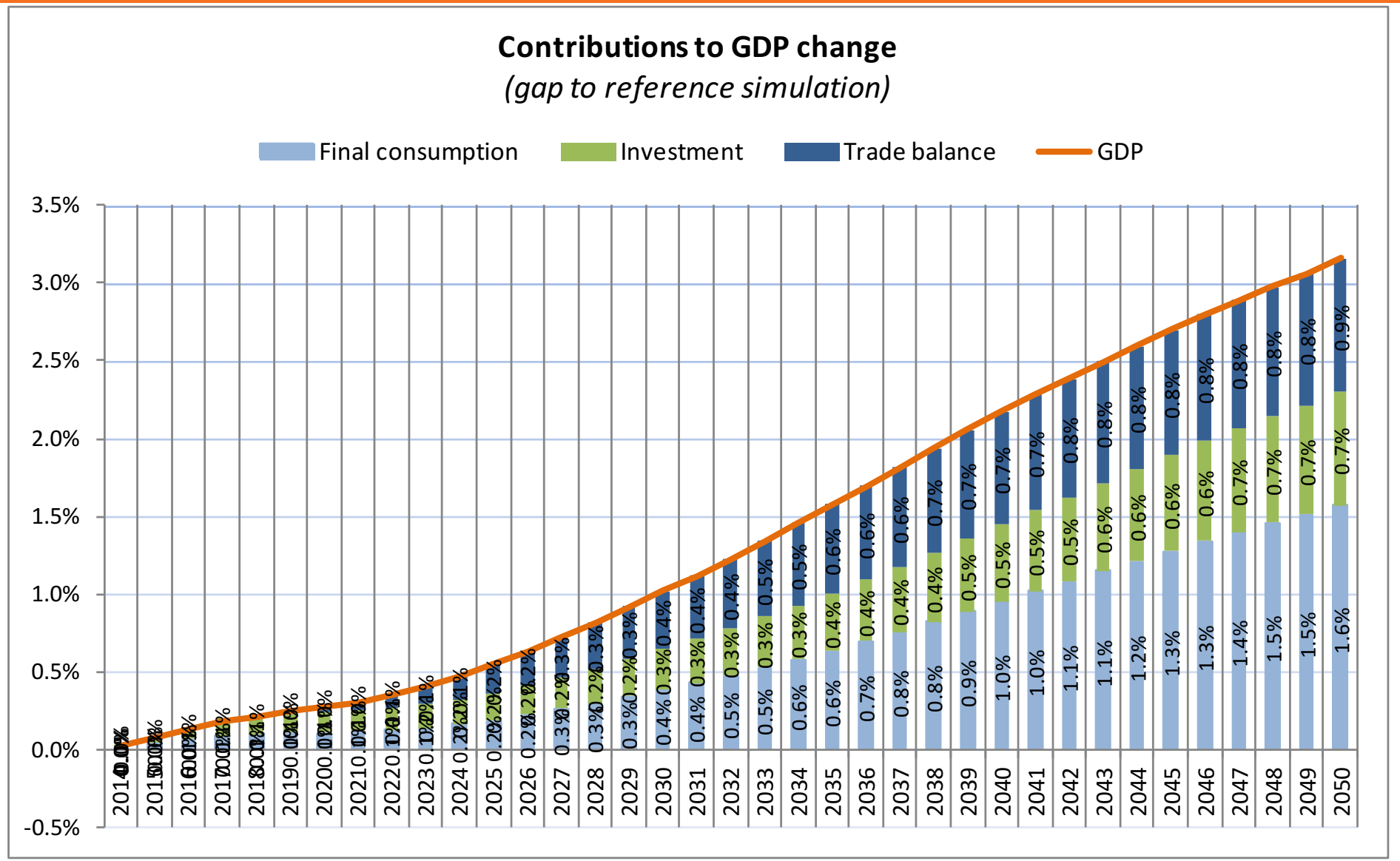
- We focus on the results for the ‘Realistic’ scenario’s Mean case

III – Assessment of the IU as a whole

➢ Impact on investment in innovation assets

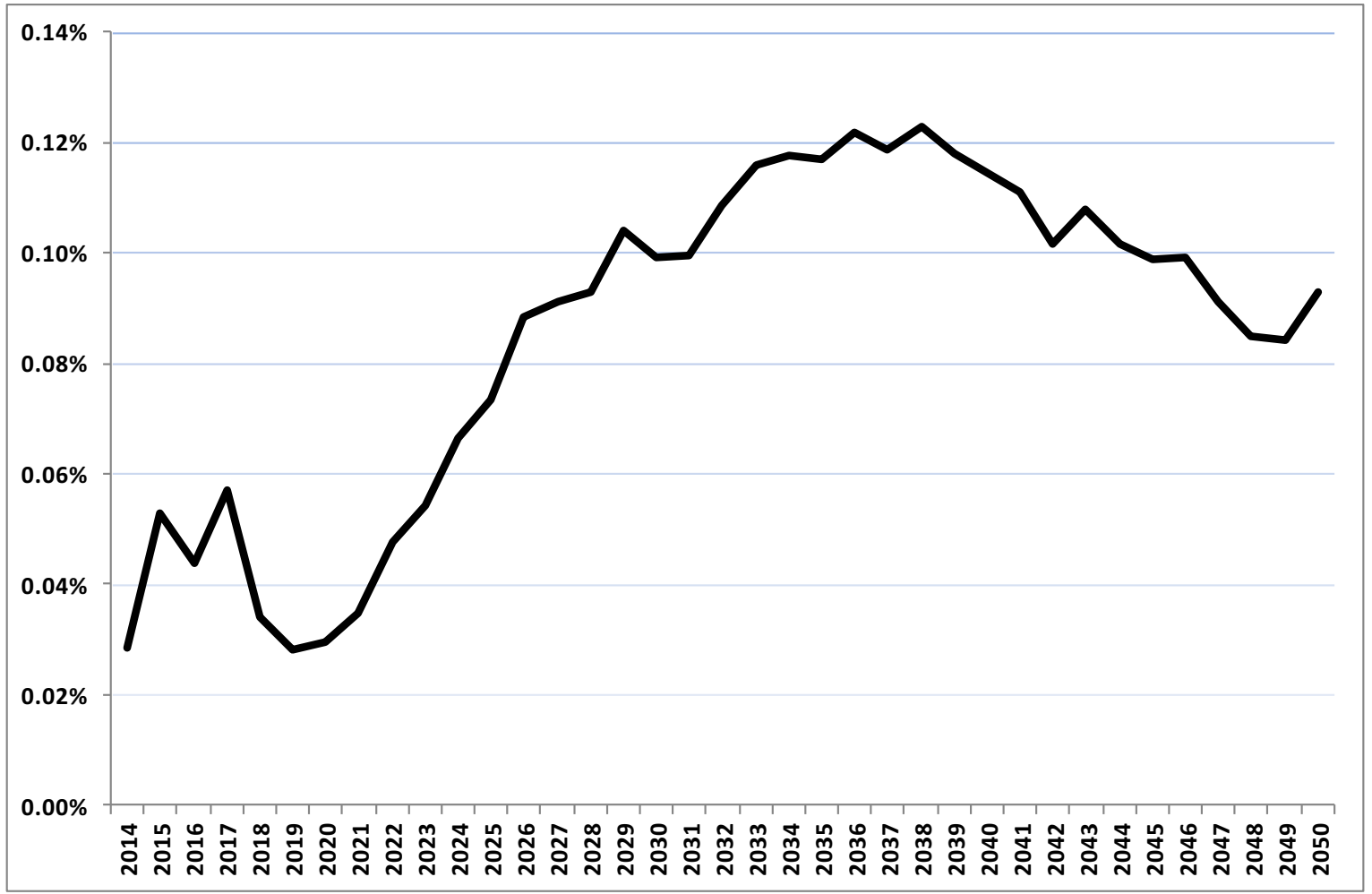


III – Assessment of the IU as a whole

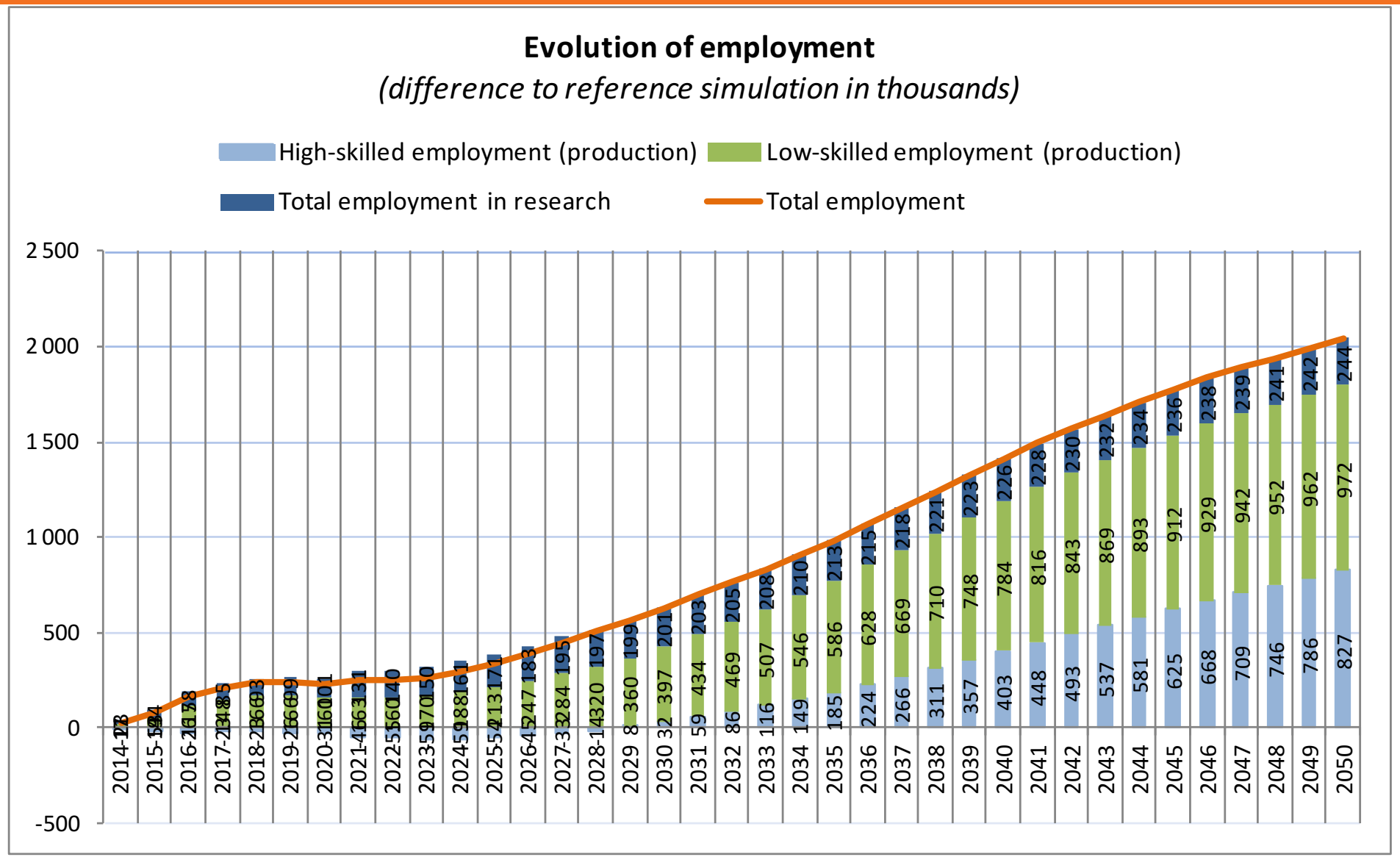


III – Assessment of the IU as a whole

- Increase in EU GDP growth rate compared to reference scenario



III – Assessment of the IU as a whole



III – Assessment of the IU as a whole

Impact on energy efficiency and energy related CO2 emissions per million of GDP (in % difference from reference scenario)

	2014	2015	2016	2017	2018	2019	2020	2025	2030	2040	2050
Total inland energy consumption in % GDP	0.0%	-0.1%	-0.1%	-0.2%	-0.3%	-0.3%	-0.4%	-0.9%	-1.5%	-3.0%	-4.0%
Final energy consumption in % GDP	0.0%	-0.1%	-0.1%	-0.2%	-0.3%	-0.3%	-0.4%	-1.0%	-1.7%	-3.3%	-4.4%
Energy related Co2 emissions in % GDP	0.0%	-0.1%	-0.1%	-0.2%	-0.3%	-0.3%	-0.4%	-0.9%	-1.7%	-3.2%	-4.4%

III – Assessment of the IU as a whole

EU-27 sectoral production (in % difference from reference scenario)

	2014	2015	2016	2017	2018	2019	2020	2025	2030	2040	2050
- Agriculture	0.0%	0.1%	0.1%	0.1%	0.1%	0.2%	0.2%	0.4%	0.8%	1.8%	2.9%
- Utilities	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.7%	1.6%	2.5%
- Heavy Industries	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.7%	1.7%	2.5%
- Chemicals	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.4%	1.0%	1.6%	3.1%	4.2%
- High Technological Industries	0.1%	0.2%	0.2%	0.3%	0.3%	0.4%	0.5%	1.0%	1.8%	3.5%	4.8%
- Transports Equipment	0.1%	0.2%	0.3%	0.4%	0.4%	0.5%	0.5%	1.0%	1.8%	3.4%	4.5%
- Other Industries	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.4%	0.9%	2.0%	3.0%
- Construction	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.4%	1.3%	2.3%
- Distribution	0.0%	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.6%	1.6%	2.5%
- Transports	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.5%	0.9%	2.1%	3.1%
- Communication	0.1%	0.1%	0.1%	0.2%	0.2%	0.2%	0.2%	0.4%	0.8%	1.7%	2.6%
- Bank, finance, insurance and real estate	0.0%	0.1%	0.1%	0.1%	0.1%	0.1%	0.1%	0.3%	0.7%	1.7%	2.6%
- Other market services	0.0%	0.1%	0.1%	0.2%	0.2%	0.2%	0.3%	0.4%	0.8%	1.9%	2.9%
- Non-market services	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	0.1%	0.1%	0.1%

Source: NEMESIS model

III – Assessment of the IU as a whole

EU-27 sectoral employment in thousands (in difference from reference scenario)

	2014	2015	2016	2017	2018	2019	2020	2025	2030	2040	2050
- Agriculture	0	1	3	4	5	5	5	8	14	27	31
- Utilities	0	1	2	2	3	2	2	4	7	16	29
- Heavy Industries	1	3	6	8	9	10	9	12	26	62	86
- Chemicals	2	4	6	6	5	3	2	0	0	4	6
- High Technological Industries	8	17	25	27	27	25	23	25	38	68	84
- Transports Equipment	5	10	16	19	19	17	15	10	11	19	25
- Other Industries	2	7	17	21	23	24	24	42	81	182	267
- Construction	-4	-2	5	10	14	16	17	10	36	126	200
- Distribution	2	8	22	31	37	39	38	61	125	287	391
- Transports	1	3	7	8	9	8	6	4	13	39	56
- Communication	1	0	0	1	1	1	1	2	4	8	11
- Bank, finance, insurance and real estate	0	2	6	9	10	11	11	20	47	127	210
- Other market services	22	36	64	77	87	93	92	118	200	414	610
- Non-market services	-11	-12	-12	-13	-14	-15	-16	15	27	34	38

III – Assessment of the IU as a whole

EU-27 sectoral trade balance in million 2005 € (in difference from reference scenario)

	2014	2015	2016	2017	2018	2019	2020	2025	2030	2040	2050
- Agriculture	-3	-8	-14	-19	-18	-4	22	235	505	1222	1727
- Utilities	-24	-64	-108	-126	-111	-13	111	942	1929	4364	6209
- Heavy Industries	-10	-15	-32	-40	-29	26	136	1109	2362	5583	8035
- Chemicals	-44	-121	-203	-238	-160	107	532	3341	6953	15379	21475
- High Technological Industries	-97	-249	-432	-515	-417	1	768	6342	13342	29637	40628
- Transports Equipment	-36	-108	-181	-210	-159	69	483	3353	7096	16033	22248
- Other Industries	-33	-64	-119	-172	-169	-51	182	2110	4388	9951	13310
- Construction	4	0	-9	-19	-25	-23	-13	133	238	394	318
- Distribution	-7	-1	-3	-5	11	58	123	710	1486	3545	5173
- Transports	-9	-18	-37	-50	-44	31	176	1573	3675	9528	14568
- Communication	-8	-6	-11	-17	-21	-20	-12	61	82	64	-196
- Bank, finance, insurance and real estate	-20	-62	-165	-221	-190	-91	14	763	1952	5016	6950
- Other market services	-13	-1	-11	-7	47	162	315	1736	3471	7829	10767
- Non-market services	-9	-12	-21	-34	-38	-18	13	244	446	854	815

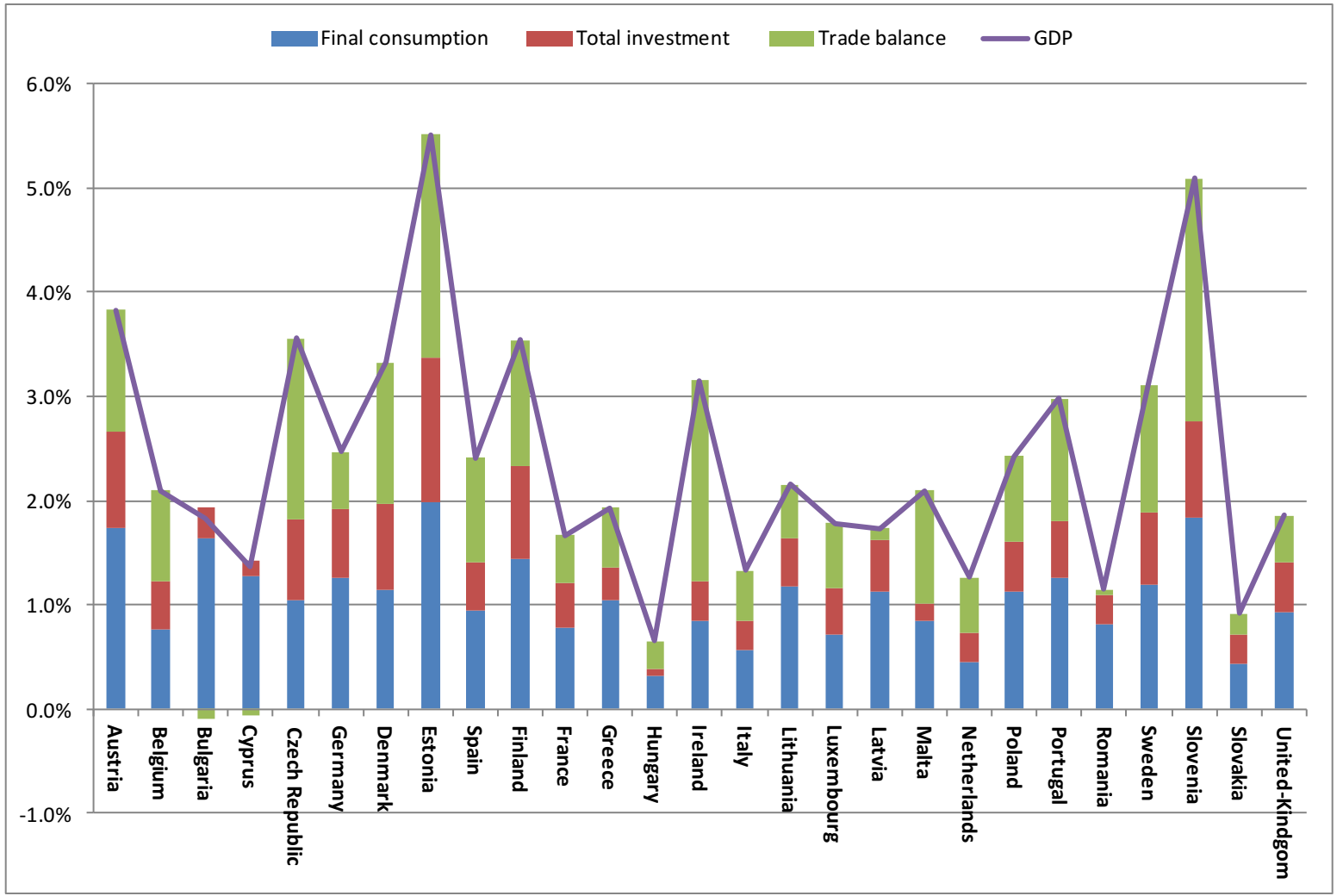
III – Assessment of the IU as a whole

Impact on GDP at national level

	GDP gain in 2040 in %	Increase in long term annual growth rate of GDP (2040-2050)	Increase in R&D intensity in 2040
Austria	3.83%	0.118%	0.175%
Belgium	2.10%	0.098%	0.174%
Bulgaria	1.83%	0.078%	0.072%
Cyprus	1.36%	0.062%	0.109%
Czech Republic	3.56%	0.096%	0.301%
Germany	2.47%	0.098%	0.209%
Denmark	3.33%	0.153%	0.210%
Estonia	5.52%	0.185%	0.272%
Spain	2.41%	0.112%	0.121%
Finland	3.54%	0.226%	0.217%
France	1.67%	0.093%	0.153%
Greece	1.93%	0.136%	0.105%
Hungary	0.65%	0.020%	0.056%
Ireland	3.15%	0.060%	0.106%
Italy	1.33%	0.079%	0.106%
Lithuania	2.15%	0.054%	0.154%
Luxembourg	1.78%	-0.058%	0.161%
Latvia	1.73%	0.077%	0.162%
Malta	2.10%	0.049%	0.092%
The Netherlands	1.26%	0.069%	0.165%
Poland	2.43%	0.079%	0.119%
Portugal	2.98%	0.119%	0.263%
Romania	1.15%	0.111%	0.031%
Sweden	3.11%	0.135%	0.132%
Slovenia	5.09%	0.181%	0.274%
Slovakia	0.92%	0.065%	0.118%
United-Kingdom	1.86%	0.100%	0.091%
EU-27	**2.17%**	**0.097%**	**0.160%**

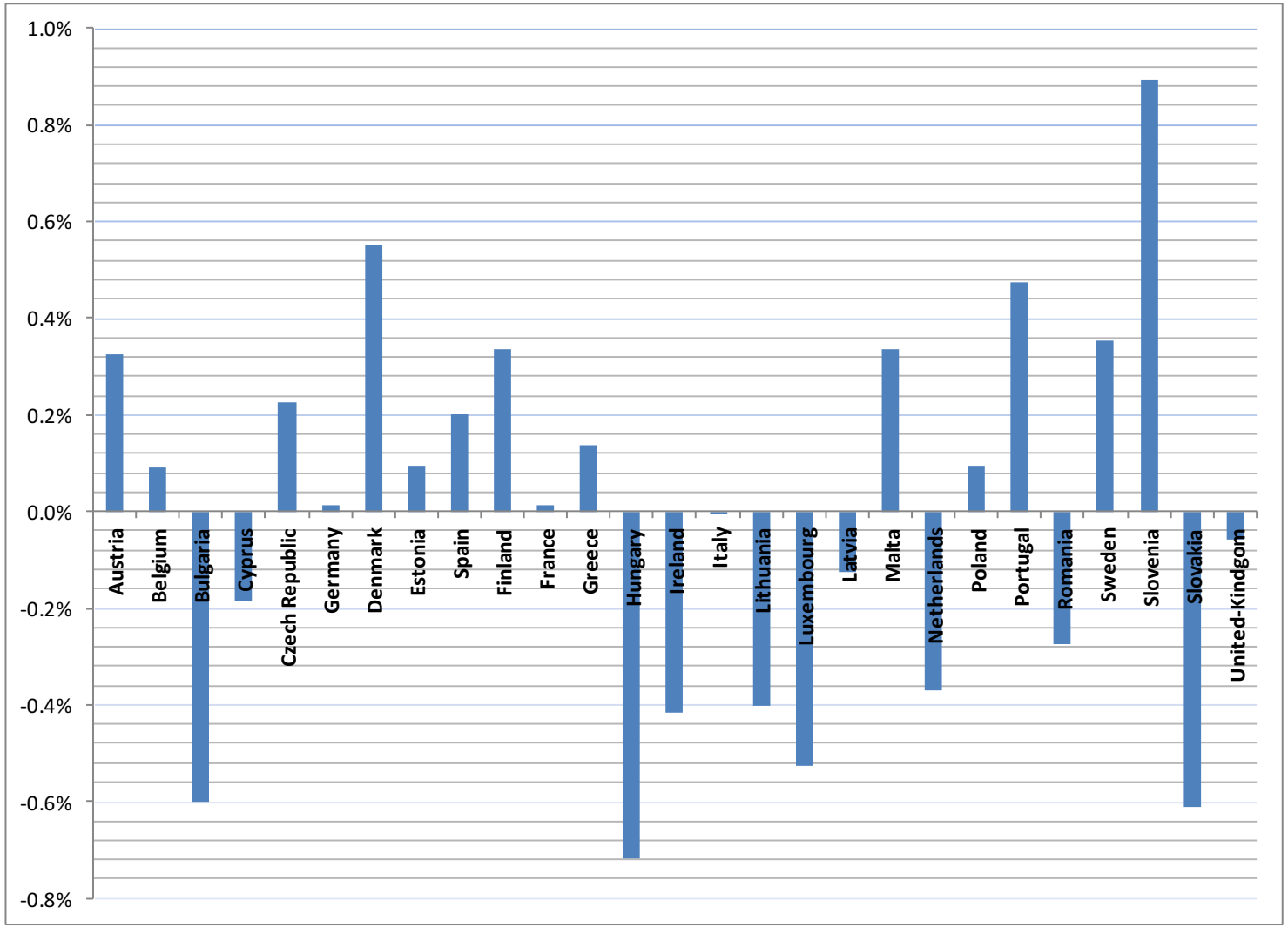
III – Assessment of the IU as a whole

➢ Contributions to GDP change (gap to reference scenario)



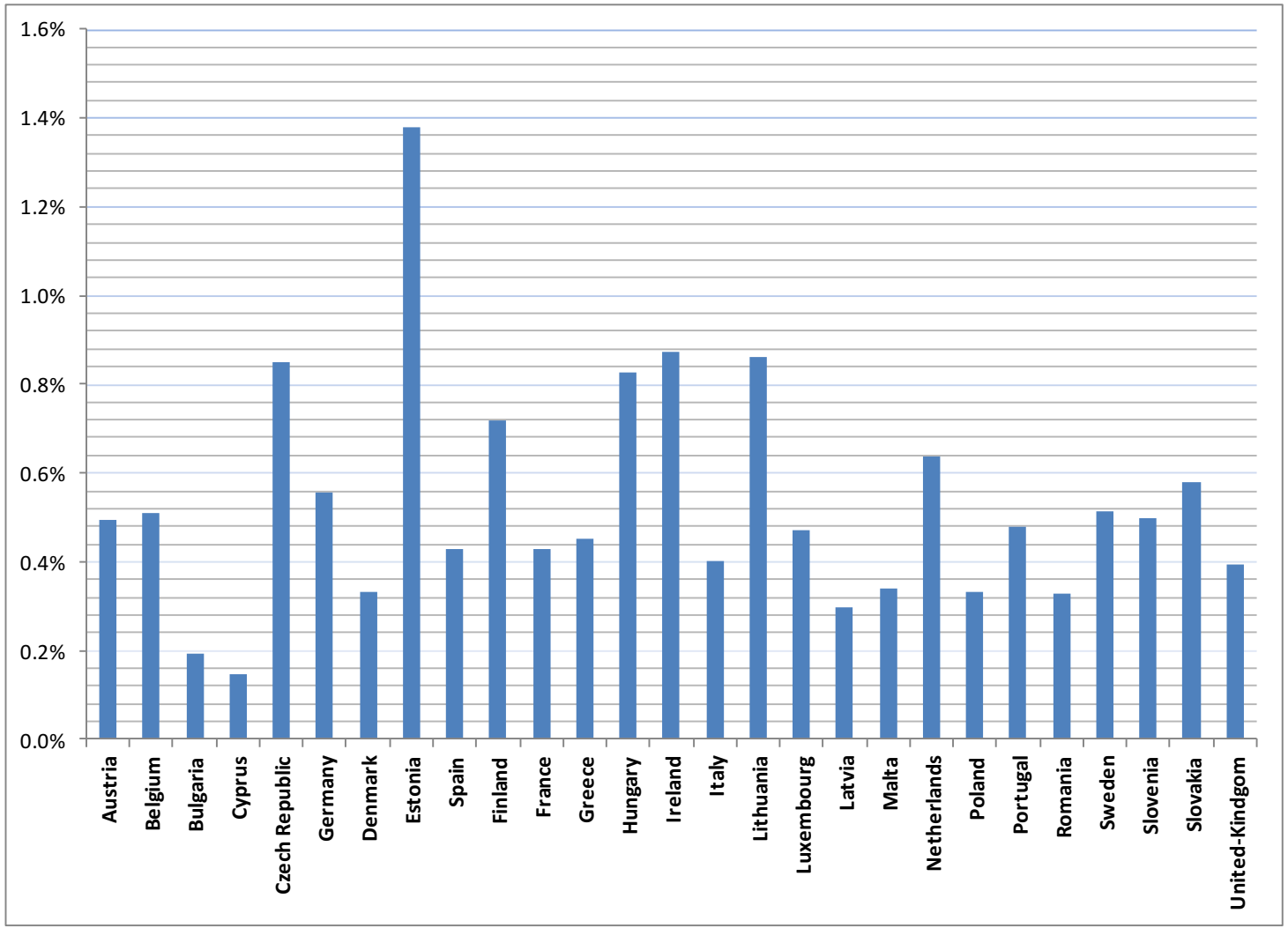
III – Assessment of the IU as a whole

- Impact on intra-EU trade (in dev. from ref. Scenario and in % GDP)



III – Assessment of the IU as a whole

➢ Impact on extra-EU trade (in dev. from ref. scenario)



III – Assessment of the IU as a whole: Comparison of six scenarios

		GDP (in % difference from reference scenario)			***Employment in thousands*** (in difference from reference scenario)		
		2030	2040	2050	2030	2040	2050
'Realistic' scenario	*Low*	0.62%	1.35%	1.97%	335	862	1261
	Medium	1.02%	2.17%	3.16%	630	1413	2044
	High	1.43%	3.02%	4.37%	941	1990	2837
'Optimistic' scenario	*Low*	0.89%	2.08%	3.06%	480	1313	1942
	Medium	1.46%	3.47%	5.11%	867	2159	3195
	High	2.05%	4.89%	7.21%	1278	3015	4438

IV- Conclusion

IV – Conclusion

- Following the current trends in the evolution of the IU(notably from the evolution that is forseen for EU funds, the access to finance of R&D and innovation, research mobility and the development of creative industries):
  - An additional rise of 0.16% of EU R&D intensity could be reached by 2027
  - And, if maintained, it could lead to an additional rise of EU GDP of 2.2% by 2040 (0.1% of EU GDP potential growth rate) and 1.4 million new jobs.

IV – Conclusion

- By re-inforcing current policies and current trends (notably by setting more ambitious targets for EU funds dedicated to the financing of research and innovation):
  - The rise of the EU GDP intentity in 2027 could reach 0.24%
  - Leading this time to 3.5% additional GDP (an increase of 0.16% of EU GDP potential growth rate) and 2.2 million new jobs.
- Finally, if we sum-up the progresses that could be reached between 2007 and 2027, we obtain for 2040:
  - A rise of the EU GDP between 4.9% and 6.2% (an increase of EU GDP potential growth rate between 0.14% and 0.23%) and between 4.6 and 5.4 million new jobs
- This compared to a situation where no progresses would have occured.

Thank you

Pierre Le Mouël
Paul Zagamé
Baptiste Boitier
Arnaud Fougeyrollas

paul.zagame@erasme-team.eu
pierre.le-mouel@erasme-team.eu
arnaud.fougeyrollas@erasme-team.eu