



Investments in green and social sectors can create 2.8 million jobs in the EU

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The main conclusions of the analysis

- Both private and public investment levels are low across the European countries. Now is the time for the governments to step in and help the economies back on a growth-track with a starting point in public investments.
- To increase investments and secure future growth, this paper recommends a Green-Social Investment Plan.
- The effects of the investment plan are calculated based on FEPS-ECLM International Input-Output Model. In the model 1 pct. of GDP in each country is invested in sectors that promote green energy, construction, education and childcare.
- The Green-Social Investment Plan will have large positive effects on job creation and GDP directly in the sectors the investments are made in and indirectly in the entire economy.

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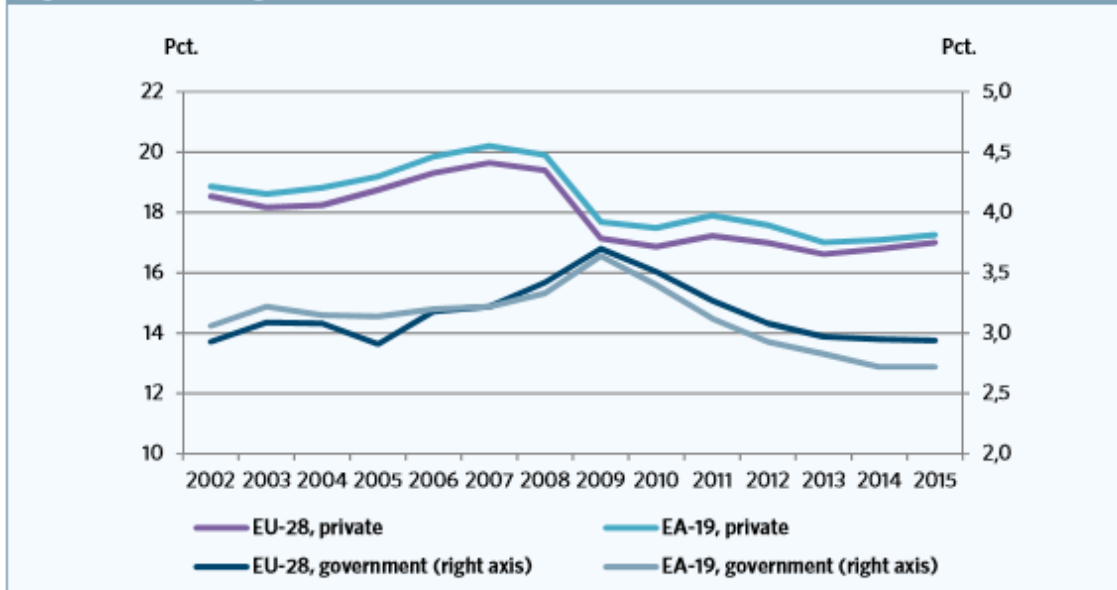
Historically low investment levels in the EU

Since the economic crisis started almost 10 years ago, many European countries have faced a number of severe economic problems, among these low levels of investment. Both public and private investments have decreased the last decade. In times of crisis, the national governments should step in and help the economy back on track with fiscal policies and public investments, but this has not been the case. It leaves us in a situation where there is a major need to increase the European growth potential in the medium and long run for Europe to regain momentum in growth.

The fall in investment is connected to a fall in demand, an increase in insecurity and low growth expectations for the future. Some fear that it is the start of a vicious circle. If the necessary investments to secure future economic growth are not made, it is hard to see how the economy can reach its full growth potential. This can lead to further insecurity, which in the worst case means a continuation of the low level of investments. On the other hand, the government can take the first step to ensure future growth because public investments can lay the foundation for private investment and growth in general. Unfortunately, this has not been the case. The European countries lead different fiscal policies of which most have been and are still biased towards austerity at a national level. This is not the way to go to secure a strong economy in Europe in the future.

To dig into the concrete numbers on investment, private and public investments relative to GDP are considered in figure 1. The figure shows that both private and public investments have fallen and are currently at a very low level. In the case of government investment, the euro area was at a higher level than the EU, but since 2007, it has been on a lower level. The distance between the two has increased since 2007, which shows that the euro area has been hit harder in terms of decreasing government investments after the crisis.

Figure 1. Private and government investment to GDP ratio



Note: Private investments are depicted on the left axis, while government investments are depicted on the right axis.
 Source: ECLM on the basis of data from Eurostat.

Private investment relative to GDP increased until 2007 and from 2007 to 2009, there was a sharp decrease. Since then the investments have been relatively stable around 17 pct. of GDP. Private investment relative to GDP is at a much higher level than government investment, but has evolved quite similarly. However, it is seen that private investments started declining when the crisis hit in 2008, while the government investments started declining when austerity hit in 2010. While there have been no increases in government investments the last couple of years, there has been a slight increase in private investment since 2013.

A Green-Social Investment Plan

Whereas in some cases, the national government is to be blamed for the lack of public investment, the EU has been the limiting factor in other cases. Currently, the interest rates are at very low levels, but this has not been sufficient to stimulate private investments. Since the low interest rates of course also apply to public borrowers, it is a good time for a public investment initiative across Europe – both nationally and across countries.

We suggest an investment plan that specifically focuses on green investments and investments in education and childcare. There is general agreement and concern about the climate changes and at the same time actions are required to change to a production based on a high degree of

green energy. Education is key for future growth in any country and by also investing in childcare, the point is to ensure children's well-being and also encourage women to enter the labour market. Since professionals who are educated to take care of more children are in charge in institutions, both parents are able to work and that will boost productivity because the parents can make use of their education.

By implementing a simultaneous investment strategy across the European Union, we can obtain higher economic growth, productivity and prosperity. The strategy suggested in this paper focuses on the following two pillars:

1. Green investments and investments in R&D

Europe has a huge potential for increases in growth and employment by investing in the environment. This could be investments in infrastructure such as road and public transportation, or environmental investments and energy renovations. Investments in R&D are also important as a large proportion of Europe's energy is being wasted, mainly because of ineffective equipment.

2. Social investments in education and childcare

By increasing the education level and making sure that the European labour force hold the skills that are required by society, we do not only increase employment and cut unemployment, we also improve productivity for greater future prosperity. By investing in childcare, we can both invest in the children of Europe and also improve the frame conditions for increasing the female participation in the labour market. Thereby, we can increase employment and create more equal opportunities for men and women. One way to make it more likely for women to participate in the labour force is to develop and substitute the public childcare system.

Generating resources according to the above-mentioned lines can be done in several ways – and each European country will have to find its own way and pace depending on the fiscal development, the nature of the changes required and the current status on relevant parameters.

Effects of the Green-Social Investment Plan

Above we have outlined the arguments of the need for green and social investments. In this section, we will model the effects of the plan.

All the examples given above will take Europe in a more sustainable direction generating higher growth. The final effect will depend on the nature and pace of the initiatives, but a simultaneous investment strategy will definitely improve the productivity, cut unemployment and create a sustainable development. The following calculations will build on the two pillars: green investments and social investments.

The Green-Social Investment Plan will bring extra resources to the labour market and stimulate the activity in the economy, which will create new jobs. The direct job creation is the jobs needed for re-insulation of buildings, constructing wind farms, increasing energy efficiency, expanding the education system, child-care or the public transportation etc. This could be jobs such as construction workers, metal workers, truck drivers, building inspectors, engineers, electricians, teachers, professors or care personnel etc. On top of these jobs there are the jobs created indirectly. These are typical jobs connected with supplying intermediate goods for the industries directly connected with the investments.

The calculations are based on the FEPS-ECLM International Input-Output Model. It is assumed that the investment level is increased by 1 pct. of GDP in all 27 EU countries. The investment plan is decomposed into a green part and a social part that both adds up to half of the invested amount, i.e. $\frac{1}{2}$ pct. of GDP is invested in green investments and $\frac{1}{2}$ pct. of GDP is invested in social investments. Box 1 explains the technical aspects of the investment plan into more detail.

Box 1. Technical aspect of the modelling of the Green-Social Investment Plan

The International Input-Output Model is built by the Economic Council of the Labour Movement (ECLM) in joined cooperation with the Foundation of European Progressive Studies (FEPS) in 2016. The model is used to evaluate the impact of policy changes in the global economy on global production, employment etc. in a very detailed way. The model is programmed in STATA and MATA based on data from the WIOD.

So far, the WIOD provides annual WIOTs for the global economy from 1995 to 2011 each with 35 sectors in 40 countries and a Rest-of-the-World (RoW) aggregate. Included in the 40 countries are 27 EU members (Croatia not included), Australia, Brazil, Canada, China, India, Indonesia, Japan, Mexico, Russia, South Korea, Taiwan, Turkey and the USA.

The WIOT contains information on intermediate use and output for 35 industries in each country. The industries are mainly at the UN ISIC rev. 3 level or subindustries thereof. The industries in the model include Agriculture, Mining, Construction, fourteen Manufacturing industries, Telecom, Finance, Business Services, Personal Services, eight different Trade and Transport Service industries and three Public Service industries. More information about the FEPS-ECLM International Input-Output Model, and the details of the industries and subindustries can be found in Andersen and Dahl (2016).

The Green-Social Investment Plan is modelled based on the latest available year 2011. The investment plan is decomposed into a green part and a social part that both adds up to half of the invested amount, i.e. ½ pct. of GDP is invested in green investments and ½ pct. of GDP is invested in social investments.

The green part of the investment plan is based on investments of 0,4 pct./GDP in the construction sector and 0,1 pct./GDP in the sector "Renting of M&Eq and Other Business Activities" that includes R&D.

The social part of the investment plan is based on investments of 0,3 pct./GDP in the education sector and 0,2 pct./GDP in the sector "Health and social work" that includes child-care.

Regarding the employment effect on skills and gender it is assumed that the destruction of skills and the gender shares within each sector will not change.

The effects of the investment plan calculated in the input-output model gives us detailed information about the GDP and job-creation distributed on countries, sectors, gender and educational level, but it does not take into account the multiplier-effect, meaning the effect that higher employment lead to a higher overall income level of households, and this in turn will lead to higher private consumption, which further get GDP to rise and so on. This will be discussed into more detail below.

A simultaneous investment strategy, improvement of the productivity, increasing employment, creating a sustainable development and changing the structure of public spending can and must be done differently in different countries as the different challenges must be taken into account – as well as different public budget situations. This analysis does not give a plan in detail for each country. Instead it sketches the effects of different initiatives and gives a scenario on how the effect could be.

The following sections will introduce the effects of the investment plan in terms of job creation and increase of GDP both considering what can be attributed directly to the investments and what occurs indirectly. Initially, the overall effects for the EU and the European countries are presented and later, the effects will be broken down in a number of different ways, e.g. based on sector, gender and skill level.

The Green-Social Investment Plan creates 2.8 million jobs in EU-27

Table 1 shows the employment effects of the investment plan for the European countries divided into direct and indirect effects. The direct job creation is the jobs needed for re-insulation of buildings, constructing wind farms, increasing energy efficiency, expanding public transportation, the education system and childcare. This could be jobs for construction workers, metal workers, truck drivers, building inspectors, engineers, electricians, teachers, professors, child care personnel etc. On top of these jobs there are the jobs created indirectly. These are jobs connected with supplying intermediate goods for the industries or education or care sectors directly connected with the investments. In other words, the indirect effect occurs because the different parts of the economy are connected, so when demand increases in one sector, it will increase demand for input needed from other sectors and other countries to satisfy final demand and so the positive effect spreads like ripples in a pond.

From an EU-27 perspective, the table shows that the Green-Social Investment Plan will create close to 2.8 million jobs. Of these, 72 pct., i.e. almost 2 million jobs, comes from the direct effects of the investment plan, while the remaining 28 pct., i.e. almost 800,000 jobs, comes from the indirect effects. For the European countries, the division of direct effects and indirect effects is close to that of the EU-27. In most cases, the direct effect accounts for almost $\frac{3}{4}$ of the total effect, while the indirect effect accounts of the remaining $\frac{1}{4}$. The direct effect is larger, but the indirect effect does account for a sizeable part of the total investments. When more people are employed, the country will become richer and consumption and investment will rise. This will further increase demand and production and so the effect spreads in the economy. This is not accounted for in the FEPS-ECLM International Input-Output Model, but it will be discussed in further detail in the end of this paper.

Lithuania stands out in one end with as much as 83 pct. of the employment effect from the investment plan created directly and only 17 pct. created indirectly. On the other hand, in Czech Republic only 63 pct. of the employment effect is created directly, while the remaining 37 pct. is created indirectly. That means a difference of 20 percentage points between the country with the biggest effect and the smallest effect created directly and indirectly. The variation in the split between direct and indirect effect between countries depends on the specific production patterns in each country, and whether the production relies on input from

either other sectors within the country or sectors in other countries. A part of the indirect effect comes from other countries and in general, small economies and economies, that are very export oriented, are more integrated with other countries which contribute to larger indirect effects.

When considering the amount of new jobs, the large countries naturally experience the largest numerical effect. Germany, France, UK and Italy alone experience an increase of more than a million jobs from the direct effect, i.e. more than half of the direct job creation happen in these four countries.

Table 1. Job creation, 1000 jobs			
	Direct effects (A)	Indirect effects (B)	Total (A+B)
AUT	34	13	47
BEL	36	16	52
BGR	27	11	38
CYP	3	1	4
CZE	41	24	65
DEU	379	143	522
DNK	24	10	34
ESP	128	60	187
EST	6	2	9
FIN	21	9	30
FRA	240	76	316
GBR	278	135	413
GRC	47	14	61
HUN	42	12	54
IRL	22	9	31
ITA	222	81	303
LTU	17	3	20
LUX	4	1	5
LVA	9	3	12
MLT	2	0	2
NLD	74	31	105
POL	139	51	190
PRT	39	20	59
ROU	64	26	89
SVK	23	9	32
SVN	7	4	11
SWE	46	14	60
EU27	1973	779	2752

Source: ECLM based on the FEPS-ECLM International Input-Output Model.

Effects from the Green-Social Investment Plan on a sector-level

In the following, we decompose the effect of the investment plan into different sectors, and into direct and indirect effect to other sectors in which investments are not made directly. Table 2 and 3 consider the effects on all sectors divided into 9 groups, while table 4 consider the effects on the specific sectors in which the investments are undertaken and the spillover effects on other sectors.

Table 2 shows the effects of the green investments on employment in 1000 jobs, on GDP in percent and on GDP in percentage points. Further, these effects are divided in direct, indirect and total effect. The direct effect of the green investments can be seen in manufacturing and construction and finance and business service. This makes perfect sense because the investments are made in the construction sector and in R&D, which is included in finance and business service. The main part of the investments take place in construction and naturally, the biggest effect on employment and GDP can be seen in that sector.

Overall, 649,000 jobs are created directly from the green investments, while the direct effect on GDP is of 0.3 pct. Considering the indirect effects on e.g. employment, the table shows that even though there are no investments made directly in transport, there is a rather large indirect job effect. When demand increases in one sector, this sector will produce more and spur demand in sectors that deliver inputs to the final production in the first sector. This will again increase demand in other sectors for input and so the effect of the investments spreads in the economy and the interconnected sectors. Returning to the transportation sector, it can be argued that construction sector depends on transportation of materials for construction and therefore, when employment in construction increases, employment in the transportation sector will increase too. It is noted that while the direct effect only takes place in two sectors, almost all sectors are affected indirectly. Overall, the indirect job creation from the green investments is of 528,000 jobs, which is quite close to the direct job creation.

Table 2. Employment and GDP effects of the green investments									
	Employment, 1000 jobs			GDP, percent			GDP, percentage points		
	direct effect	indirect effect	total	direct effect	indirect effect	total	direct effect	indirect effect	total
Agriculture and fishing	0	10	10	0,0	0,1	0,1	0,00	0,00	0,00
<u>Manufacturing and construction</u>	498	216	714	0,7	0,4	1,1	0,19	0,10	0,28
Trade, hotels and restaurants	0	94	94	0,0	0,2	0,2	0,00	0,03	0,03
Transport, storage and communication	0	34	34	0,0	0,2	0,2	0,00	0,02	0,02
<u>Finance and business service</u>	151	147	299	0,2	0,3	0,5	0,07	0,09	0,15
Public administration and defense	0	5	5	0,0	0,0	0,0	0,00	0,00	0,00
Education	0	5	5	0,0	0,0	0,0	0,00	0,00	0,00
Health and social work	0	17	17	0,0	0,1	0,1	0,00	0,01	0,01
Other community activities and private households	0	0	0	0,0	0,0	0,0	0,00	0,00	0,00
Total Green	649	528	1178	0,3	0,2	0,5	0,25	0,24	0,49

Note: Investments are made directly in the underlined sectors. Agriculture and fishing cover the ISIC 3 sectors A-B. Manufacturing and construction cover the ISIC 3 sectors C-F. Trade, hotels and restaurants cover the ISIC 3 sectors G-H. Transport, storage and communication cover the ISIC 3 sector I. Finance and business service cover the ISIC 3 sector JK, which includes R&D. Public administration and defense cover the ISIC 3 sector L. Education covers the ISIC 3 sector M. Health and social work cover the ISIC 3 sector N. Other community activities and private households cover the ISIC 3 sector OP.

Source: ECLM based on the FEPS-ECLM International Input-Output Model.

In table 3, the same effects as above are considered, but for the social investments. The table shows that the investments are made in the education and health and social work sectors. The direct effects on employment in those sectors are of 864,000 and 459,000 jobs, respectively. Again, almost all sectors are affected indirectly with increasing employment and GDP, but in opposition to before, the indirect effect is quite small compared to the direct effect. As an example, the indirect job creation is less than 1/5 of the direct job creation.

In general, the job creation from the social investments is larger than the job creation from the green investments. Regarding the direct effect, this can be seen as a sign, that the green investments (construction and R&D) rely both on capital and labour in the production, whereas education and child care use relatively more labour as an input factor. As an example, we could compare investments in energy renovation with investments in education. To energy renovate you need both materials (for instance isolation material, 3 glazing windows etc.) as well as construction workers to perform the energy renovation work. If you invest in the education sector you will mainly need more teachers and professors. The final job creation is of course more complex than that, and depends both on how capital-intensive the production is, and on how much is imported from non-EU countries.

Table 3. Employment and GDP effects of the social investments									
	Employment, 1000 jobs			GDP, percent			GDP, percentage points		
	direct effect	indirect effect	total	direct effect	indirect effect	total	direct effect	indirect effect	Total
Agriculture and fishing	0	8	8	0,0	0,1	0,1	0,00	0,00	0,00
Manufacturing and construction	0	43	43	0,0	0,1	0,1	0,00	0,02	0,02
Trade, hotels and restaurants	0	44	44	0,0	0,1	0,1	0,00	0,01	0,01
Transport, storage and communication	0	21	21	0,0	0,1	0,1	0,00	0,01	0,01
Finance and business service	0	61	61	0,0	0,1	0,1	0,00	0,04	0,04
Public administration and defense	0	4	4	0,0	0,0	0,0	0,00	0,00	0,00
Education	864	31	895	5,4	0,2	5,6	0,28	0,01	0,29
Health and social work	459	40	499	1,3	0,1	1,4	0,15	0,01	0,16
Other community activities and private households	0	0	0	0,0	0,0	0,0	0,00	0,00	0,00
Total Social	1323	251	1574	0,4	0,1	0,5	0,42	0,11	0,54

Note: Investments are made directly in the underlined sectors. Agriculture and fishing cover the ISIC 3 sectors A-B. Manufacturing and construction cover the ISIC 3 sectors C-F. Trade, hotels and restaurants cover the ISIC 3 sectors G-H. Transport, storage and communication cover the ISIC 3 sector I. Finance and business service cover the ISIC 3 sector JK, which includes R&D. Public administration and defense cover the ISIC 3 sector L. Education covers the ISIC 3 sector M. Health and social work cover the ISIC 3 sector N. Other community activities and private households cover the ISIC 3 sector OP.

Source: ECLM based on the FEPS-ECLM International Input-Output Model.

In table 4, the effects of the Green-Social Investment Plan are considered in the specific sectors the investments are undertaken in. Further, the spillover effects on all other sectors are considered. Naturally, the direct effects only occur in the sectors, which investments are made in and these effects correspond to the ones described in table 2 and 3. Table 4 allows us to consider the indirect effects on all sectors and it turns out that indirect effect created in other sectors is much larger than the indirect effect created in the sectors that are initially invested in. For the green investments around 60 pct. of the indirect effects on employment occur in other sectors than those initially invested in. For the Social investments, more than 76 pct. of indirect employment effects occurs in other sectors, while the remaining 24 pct. occurs in education, health and social work.

Table 4. Employment and GDP effects of the Green-Social Investment Plan									
	Employment, 1000 jobs			GDP, percent (pct. change in sector)			GDP, percentage points (growth contribution to pct. change in total GDP)		
	Direct effect	Indirect effect	Total	Direct effect	Indirect effect	Total	Direct effect	Indirect effect	Total
Green Investments:									
Construction	498	97	595	3,2	0,6	3,8	0,19	0,04	0,22
Renting, R&D and other Business Activities.	151	125	276	0,5	0,5	1,0	0,07	0,06	0,12
Spillovers from green investments on all other sectors	0	307	307	0,0	0,2	0,2	0,00	0,15	0,15
Total Green	649	528	1178	0,3	0,2	0,5	0,25	0,24	0,49
Social Investments:									
Education	864	31	895	5,4	0,2	5,6	0,28	0,01	0,29
Health and Social Work (child care)	459	28	487	2,0	0,1	2,1	0,15	0,01	0,16
Spillovers from social investments on all other sectors	0	192	192	0,0	0,1	0,1	0,00	0,09	0,09
Total Social	1323	251	1574	0,4	0,1	0,5	0,42	0,11	0,54
Total investment plan (Green+So- cial)	1973	779	2752	0,7	0,4	1,0	0,68	0,35	1,03

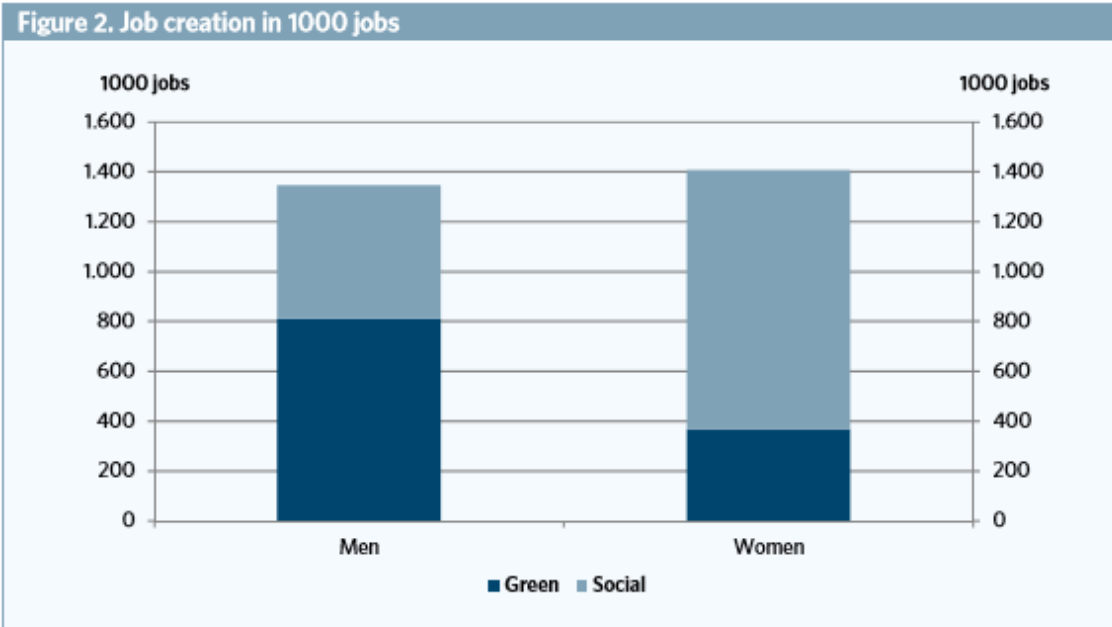
Source: ECLM based on the FEPS-ECLM International Input-Output Model.

Gender and educational effect of the Green-Social Investment Plan

Below we will analyze the effects from the investment plan on a gender and educational level and also have a closer look at what is created by green and social investments respectively, and how the effects are distributed across sectors.

Considering the gender effect, figure 2 gives an overview of how many jobs are created for men and women by the two parts of the investment plan. Overall, the table shows that while the green part of the investment plan creates most jobs for men, the social part of the investment plan creates more jobs for women than for men. The green investments create around 800,000 jobs for men, while it only creates 370,000 jobs for women. On the other hand, the social investments create 340,000 jobs for men, but more than a million jobs for women.

In total, more than 1.3 million male jobs and 1.4 million female jobs will be created, so the investment plan will create slightly more jobs for women than for men and thereby slightly improve the gender balance on the labour market.



Source: ECLM based on the FEPS-ECLM International Input-Output Model.

Table 5 digs further into the gender effects from the green and social investments on employment by dividing them into different sectors. The result allows us to get a deeper and more detailed understanding of the mechanisms of the investment plan on a gender and sector level.

While the green investments mainly create jobs for men, they also create some jobs for women and mainly in the same sectors as for men. The gender effects in different sectors depend on what is considered typical male and female jobs and is based on the actual split between males and females in the different sectors at the time the investment plan is implemented. Often more men work in construction and more women work in health and social work and this can be seen quite clear in the table.

Considering the social investments, the largest effects for both men and women are found in the sectors which the investments are made in. In the sectors education and health and social work 300,000 and 121,000 male jobs were created, respectively, thanks to the social investment. For women, 594,000 and 377,000 jobs were created in these two sectors.

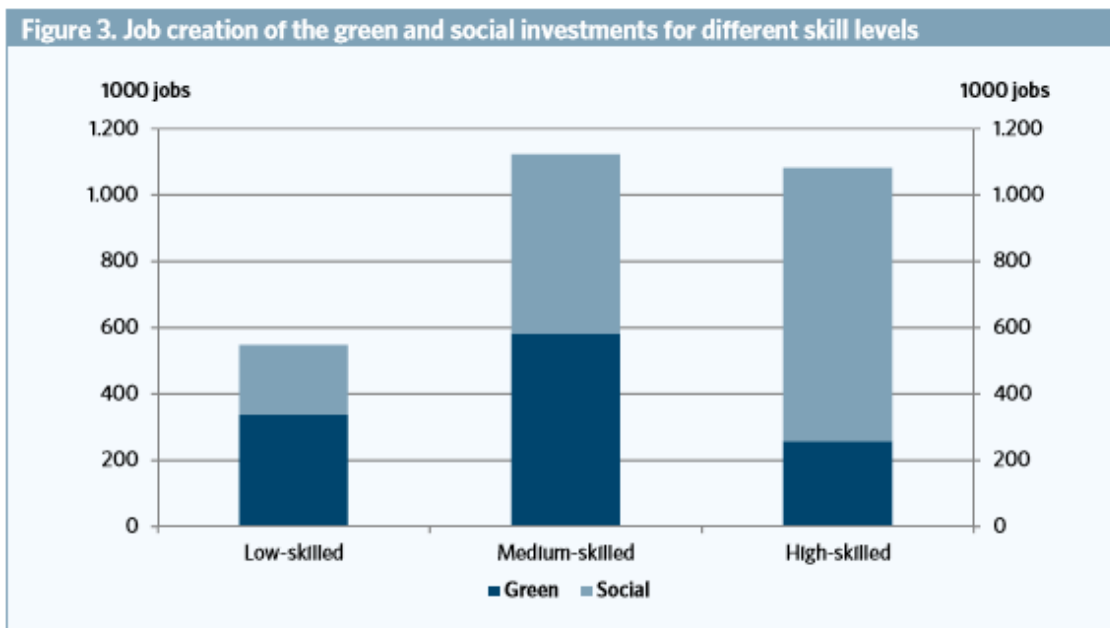
One should note that of course, the initial sizes of the sectors matter for how many jobs there are created. As an example, agriculture and fishing are relatively small sectors in terms of labour demand and therefore, the job creation is quite small in those sectors.

Table 5. Investment effects on employment in different sectors on gender						
	Men			Women		
	Green	Social	Total	Green	Social	Total
Agriculture and fishing	7	5	12	3	2	6
<u>Manufacturing and construction</u>	551	33	584	163	10	173
Trade, hotels and restaurants	48	23	71	46	22	68
Transport, storage and communication	27	16	43	7	4	11
<u>Finance and business service</u>	168	34	202	131	27	158
Public administration and defense	3	2	6	2	1	3
<u>Education</u>	2	301	302	4	594	598
<u>Health and social work</u>	4	121	126	13	377	390
Other community activities and private households	0	0	0	0	0	0
EU27 Total	809	536	1345	369	1038	1407

Note: Investments are made directly in the underlined sectors. Agriculture and fishing cover the ISIC 3 sectors A-B. Manufacturing and construction cover the ISIC 3 sectors C-F. Trade, hotels and restaurants cover the ISIC 3 sectors G-H. Transport, storage and communication cover the ISIC 3 sector I. Finance and business service cover the ISIC 3 sector JK, which includes R&D. Public administration and defense cover the ISIC 3 sector L. Education covers the ISIC 3 sector M. Health and social work cover the ISIC 3 sector N. Other community activities and private households cover the ISIC 3 sector OP.

Source: ECLM based on the FEPS-ECLM International Input-Output Model.

Figure 3 divides the job creation from the green and social part of the investment plan into jobs for workers with different skill levels. The figure shows, that overall most jobs are created for medium-skilled workers, who experience an increase of more than 1.1 million jobs. This is followed closely by the job creation for high-skilled, which is of almost 1.1 million. Finally, almost 550,000 jobs are created for low-skilled workers.



Source: ECLIM based on the FEPS-ECLIM International Input-Output Model.

Of course, the two parts of the investment plans have different focus and create more jobs for differently skilled workers. For the low-skilled, the largest part of the jobs is created from the green investments. For the medium-skilled around half of the jobs come from green investments and the other half from social investments. Finally, for the high-skilled, almost 4/5 jobs are created thanks to the social investments. As the figure shows, most jobs are created for the medium- and high-skilled and this underlines the importance of the social part of the investment plan, where education and further training of the workers is an important element.

Table 6 considers the job creation for different skill levels in further detail by dividing the new jobs into different sectors. The division of workers based on skill level is of course dependent on what qualifications are required to work in the different sectors, so more jobs for high-skilled are created in sectors that employ many high-skilled workers and the other way around. An example is that in the educational sector, many jobs are created for high-skilled and medium-skilled. On the other hand, the job effect for low- and medium-skilled workers is quite large in the manufacturing and construction sectors, but small for the high-skilled.

Table 6. Job creation divided into sectors and skill levels									
	Low-skilled			Medium-skilled			High-skilled		
	Green	Social	Total	Green	Social	Total	Green	Social	Total
Agriculture and fishing	4	3	7	4	3	8	1	1	2
<u>Manufacturing and construction</u>	242	13	255	374	22	396	98	8	106
Trade, hotels and restaurants	27	13	40	52	24	77	15	7	21
Transport, storage and communication	9	6	15	18	11	30	6	4	10
<u>Finance and business service</u>	48	9	58	122	25	148	128	26	154
Public administration and defense	1	1	1	2	2	4	2	1	3
<u>Education</u>	0	78	79	1	238	239	3	579	582
<u>Health and social work</u>	5	88	93	8	213	220	5	198	203
Other community activities and private households	0	0	0	0	0	0	0	0	0
Total	337	211	548	584	539	1122	258	825	1082

Note: Investments are made directly in the underlined sectors. Agriculture and fishing cover the ISIC 3 sectors A-B. Manufacturing and construction cover the ISIC 3 sectors C-F. Trade, hotels and restaurants cover the ISIC 3 sectors G-H. Transport, storage and communication cover the ISIC 3 sector I. Finance and business service cover the ISIC 3 sector JK, which includes R&D. Public administration and defense cover the ISIC 3 sector L. Education covers the ISIC 3 sector M. Health and social work cover the ISIC 3 sector N. Other community activities and private households cover the ISIC 3 sector OP.

Source: ECLM based on the FEPS-ECLM International Input-Output Model.

The effect of higher spending power

Above we have analyzed the detailed effects of how the Green-Social Investment Plan of 1 pct./GDP will spread into the European economy, affecting all countries and sectors in the economy. The calculated effects are based on the FEPS-ECLM International Input-Output Model. The input-output model allows for a very detailed analysis of direct- and indirect effect, country-, sector-, gender-, and educational distribution. However, the input-output model does not take the multiplier-effect into account, meaning that the effect of higher employment from the investment plan will lead to a higher overall income level of households, and this in turn will lead to higher private consumption and therefore higher investments, as higher production needs higher capital stock. This will get GDP to rise even further.

In other words, the input-output model only illustrates the effects of what a given investment plan will create in terms of jobs and GDP, but it does not take into account, that the plan will also generate extra spending power, that again will spread like ripples in the water and will

create more jobs and wealth. The final overall job and GDP effect from the Green-Social Investment Plan will therefore be larger than the effects presented above.

To illustrate the effects of the extra spending power, we will compare the multiplier on the international macroeconomic model Heimdal with the result from the input-output model. By comparing the multiplier from Heimdal (that includes the effect of higher spending) with the multiplier from the input-output (that does not include the effect of extra spending power), the difference gives an idea about the side of the effect from the extra spending power. For more information about the international macroeconomic model Heimdal, see Bjørsted and Dahl (2012).

The international macroeconomic model Heimdal is not sector based, so the multiplier effect from Heimdal should not be compared to the multiplier effect of increasing the investments in specific sectors, as it is the case in the Green-Social Investment Plan. Instead we compare the multiplier from Heimdal with the multiplier from the input-output model when the investments are spread out equally on all sectors, based on the share of investment for each sector in each economy.

By comparing the two different multipliers it is seen that the final effect of the Green-Social Investment Plan might be as much as double the size when the extra spending power is included.

The results above clearly show that after a decade with falling investment levels and weak growth, implementing The Green-Social Investment Plan could be an important step in the right direction, finally raising the level of investment across the EU and improve and secure future growth.

For more information and further details about the Green-Social Investment Plan, see Andersen, Dahl, Nissen (2017).

References

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