

# Tapping the job potential of green investments in Europe

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## 1. Introduction

Research conducted by Rockström (2009) established, in the famous limits-of-growth tradition (Meadows *et al.* 1972), the concept of planetary boundaries that must not be crossed if ecological disasters are to be avoided. It has been shown that the boundaries in three out of nine life-support systems – namely climate change, nitrogen cycle and losses in biodiversity – have already been crossed and these authors argued, accordingly, that urgent action is needed. The so-called Stern Report (2007) quantifies the costs of climate change as amounting to between 5 and 20% of world GDP, while quantifying the costs of fighting climate change as equivalent to just 1% of World GDP. From the perspective of employees' representatives, it is necessary to mention that the poorest populations are the worst affected by environmental problems (PEP 2013: 14). In 2010 the United Nations Framework Convention on Climate Change agreed the aim of keeping climate warming to below 2 degrees Celsius above pre-industrial levels, but more effort is needed if this target is to be reached.

Europe is struggling not only with the containment of climate change but also with high levels of unemployment. That Europe needs more employment and less greenhouse gas emissions is beyond controversy. Within the last five years unemployment levels have increased dramatically in the European Union, and more particularly in the Euro area. According to Eurostat data, the annual unemployment rate in the Euro area increased between 2008 and 2013 from 7.6 to 12.1 percent compared with 7.1 to 10.9 percent in the European Union. In other words, over the last five years the number of unemployed people in the European Union has increased by nearly 10 million.

At first sight, the economic crisis and the ecological crisis may appear to have nothing in common other than the fact that they are taking place at

the same time. Economic activity and the effects on the environment of the ways in which we produce and consume goods and services are deeply interconnected. Yet European governments cannot focus on solving just one of these two crises while disregarding the other. To prevent unwanted adverse effects, they need to adopt an approach of tackling both crises simultaneously. Hence, a European strategy focussed exclusively on tackling climate change while disregarding the adverse effects of a deepening economic crisis is neither wise nor worthwhile; the same is true of a strategy focussing exclusively on the reduction of unemployment while disregarding the adverse effects of global warming and damage to the environment in Europe.

The European Union has already recognised the urgency of these two problems and incorporated them into its 'Europe 2020 strategy' for which funding was allocated in 2010. In this ten-year economic programme, tackling unemployment and climate change represent two of five central targets. The Europe 2020 strategy aims to achieve economic growth that is, among other things, simultaneously sustainable and inclusive, the sustainability aspect being the effort to convert the European economy to a low-carbon economy. At the same time, European economic growth is supposed to become more inclusive, meaning that more jobs will be created and poverty reduced.

The central question, therefore, is how to create new jobs while at the same time fighting climate change and moving towards a low-carbon economy. The aim of this chapter is to contribute to this debate and identify possible policy solutions that would enable national and European-level policy makers to address these challenges.

While there exist different strategies designed to achieve these aims, most of them focus excessively on just one of the three – economic, social, or ecological – dimensions. And yet to follow any single one of these unilateral strategies could cause the situation to worsen in one or even both of the other areas.

This paper argues therefore that, as a minimum expectation, any well-designed policy should serve to improve the situation in at least one of the three areas – social, ecological and economic – without worsening it in either or both of the others; the ambition, however, should be to aim at improvement in all three areas. The paper accordingly evaluates each strategy according to its ability to fulfill these success criteria.

At present, Europe is attempting to solve economic problems through policies targeted at labour market flexibilisation, competitiveness enhancement and fiscal consolidation (austerity). Yet, as section two argues, this is the wrong approach, for both social and economic as well as for environmental reasons. Section three argues that ‘degrowth’, the proponents of which are to be found primarily in the environmentalist camp, could worsen the economic and social situation of the European Union and is therefore not a wise strategy. While ‘green growth’, meanwhile, has many advantages, the fact that this concept ignores social criteria makes it highly unclear whether such growth could really help to fight unemployment and greenhouse gas emissions in the way that its proponents believe (section four). Section five describes a green investment programme that would help fight unemployment while reducing Europe’s greenhouse gas emissions and improving the social situation of the European Union. It mentions also some additional measures which, alongside an investment programme, could help to fulfill the aims mentioned. Section six concludes.

## **2. Austerity as a false solution**

The current European strategy, which focuses primarily on fiscal austerity, competitiveness and flexible labour markets, has worsened the economic and social situation in the European Union, in particular in southern Europe and in a number of central-eastern European new member states. Fiscal austerity is associated, by definition, with spending cuts for the purpose of reducing budget deficits. A reduction in public spending means that governments offer less benefits and services to their citizens. As the effects of spending cuts are obviously felt first by those who benefit most from the expenditure in question, fiscal austerity serves to exacerbate inequality in the population (King *et al.* 2012).

That fiscal austerity entails negative economic and social repercussions on countries’ populations can be seen through rising inequality, poverty and lower levels of citizen well-being. According to data from the Eurostat, the number of unemployed in the European Union has increased by almost 10 million since the start of the financial crisis. Simultaneously, standard measures of citizen well-being, such as ‘household income and wealth, jobs and housing conditions’, as well as life satisfaction, deteriorated in the global economic and financial crisis (OECD 2013: 71). Even though the OECD (2013) claims that the

consequences of austerity measures on health indicators are less clear, newer research shows that the negative influence of austerity on indicators such as health is indeed extensive. According to a study by Kentikelenis *et al.* (2014) the number of Greeks suffering from depression and the number of those reporting non-availability of necessary medical care has increased. Their figures indicate also an increase in suicides, while diseases like malaria – believed to have been eradicated – have returned. Meanwhile, the numbers of low-weight new-born babies are rising, as are the numbers of children receiving inadequate nutrition, as well as infant mortality.

The harmful results of austerity have indeed proved so alarming that even economists working for the European Commission have begun to criticize this policy (in t’Veld 2013).

A number of recently published studies highlight the importance of public spending as a stabilizer in an economic downturn (e.g. Ghilarducci *et al.* 2012; Pollin 2012; Sawyer 2012; Taylor *et al.* 2012). Even Olivier Blanchard and Daniel Leigh (2013), two economists from the IMF – an organization in the forefront of support for austerity measures in crisis-hit countries – recently published a paper stating that the multiplier effects of a public budget consolidation had been underestimated. Since this underestimation of the multiplier effect means that the public deficit decreases by far less than the amount of the spending, the likely success of a fiscal consolidation programme has clearly been overestimated.

When it comes to the impact of fiscal austerity measures on the environment, the picture is mixed. On the one hand, austerity substantially weakens the economic performance of the European Union and the corresponding reduction in GDP leads to a decrease in greenhouse-gas emissions<sup>1</sup>. Yet, even though austerity has the side-effect of decreasing greenhouse gas emissions, it is essential to realize that this is by no means an aim of the policy; nor is this reduction in greenhouse-gas emissions sustainable because the structure of the economy is not affected. In addition, as previously mentioned, the social and economic costs of austerity are so dramatic that, in terms of any cost-benefit

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1. [http://europa.eu/legislation\\_summaries/energy/european\\_energy\\_policy/en0025\\_en.htm](http://europa.eu/legislation_summaries/energy/european_energy_policy/en0025_en.htm)

analysis that it is possible to imagine, austerity is clearly the most ineffective route to climate change mitigation.

What is more, local environmental problems, such as for instance deforestation, water and air pollution (especially particulate matter), may be adversely affected by this economic policy because governments which follow a doctrine of fiscal consolidation tend to cut investment also in areas of importance for environmental protection. Fiscal consolidation may endanger investment, such as in waste-water treatment plants or in staff employed to protect endangered forests.

Furthermore, in Athens it is already a matter of fact that many people with low household incomes do not have enough money to switch on their heater or buy fuel. Low-income households overcome this difficulty by heating their flats or houses with fires on which they burn not only wood but 'almost anything that falls into their hands' (SRF 2013). As a result, air pollution in larger Greek cities increased dramatically in December with values in Athens exceeding 100 micrograms of dust particles per cubic metre (Focus 2013). The situation became so alarming that the Greek government decided to provide households with a monthly income of below 1000 euros with free electricity for two days when measuring such a high level of air pollution.

These empirical results are perfectly in line with theory. The hypothesis of an environmental Kuznets curve states that if a poor country gets richer, environmental problems will also increase but that at a certain level the consequences of GDP growth will reverse and more growth will help the environment. The intuition behind this hypothesis is that growth has in the first instance negative consequences on the environment but that as a society gets richer, the society will care more for the environment and an increasing amount of GDP will be used to protect it. Newer research shows that the environmental Kuznets curve hypothesis is correct for local environmental problems but unfortunately not for global environmental problems (Vona and Patriarca 2011). Global environmental problems, such as climate change, will not diminish with economic development; they need coordinated policy responses.

### 3. Degrowth?

Some economists, and numerous environmentalists, propose a strategy of degrowth (see for example Jackson 2009) to solve the problem of climate change. In their view, there is no possibility, by switching to more environment-friendly technology, of reducing greenhouse-gas emissions as much as is needed to limit global warming to the level of 2 degrees Celsius above pre-industrial levels set as the unchallenged aim by the United Nations Framework Convention on Climate Change. Therefore, proponents of degrowth wish to reduce the rate of growth even to negative growth rates so as to decrease greenhouse-gas emissions. Even though it is undoubtedly the case that lower growth rates are generally associated with less greenhouse-gas emissions, it is not clear whether this is *necessarily* the case. If a high growth rate were to be achieved by a form of technological progress which made it possible to produce more products while reducing greenhouse-gas emissions, this conclusion would no longer apply. There is no reasonable argument why progress of this kind should be impossible. Additionally, it is also clear that growth in the consumption of goods and services with a low ecological footprint – such as massages, education or babysitting – is not problematic for the environment. Therefore, a high rate of growth concentrated in such areas could be also favorable for the environment. Furthermore, degrowth reduces employment, exacerbates conflicts of distribution, and endangers social security, while also having negative consequences for local environmental problems (Feigl *et al.* 2013).

Proponents of degrowth argue that degrowth always decreases greenhouse-gas emissions (which is *historically*, but not *necessarily* correct) while its negative impacts (as, for example, unemployment) can be avoided if degrowth is designed properly. Accordingly, they call for degrowth by design and not by disaster (Victor 2008).

By arguing in this way, the proponents of degrowth make essentially the same mistake as the growth proponents insofar as they place too much emphasis on the pure rate of growth without considering what caused it. Growth can have positive and negative impacts on a society's economic, social and ecological prospects; the nature of the impact depends on the nature of the growth (or degrowth), on whether it is the negative or the positive impacts that predominate. Proponents of degrowth are therefore right if they argue that the point at issue is what is causing this degrowth but they forget that the same is true of growth. 'Growth is not a goal in

itself, but it can be a means to achieve progress' (Feigl *et al.* 2013: 1). Policy assessment should therefore never focus on pure rates of growth but on the policy aims and the nature of the activity underpinning the growth. The aim could be, for example, to limit climate warming or to halve unemployment in Europe, without compromising other social, ecological and economic goals. To assess a policy in this way means to be interested in the quality of its results and not in the rate of growth, for growth is just the residual of other policy goals.

#### **4. Green growth**

In the view of many progressive researchers green growth tends to be the simultaneous solution to environmental as well as to employment problems but, as this article will argue, green growth is a proper solution neither for environmental problems, such as for instance climate change, nor for economic problems, such as the currently high unemployment rate in Europe.

Before arguing about whether green growth might be a wise strategy, we need to clarify what green growth actually is, since there exist nowadays so many different definitions of green growth that almost every employee can be claimed to have a green job. The ILO, UNEP, OECD and Eurostat all use different definitions of green growth and green jobs but in Europe the new Eurostat definition is the most common; it goes under the name of the 'Environmental Goods and Services Sector' (Eurostat 2009). 'The basis of the evaluation is the corporate level where a company's activity is assessed with regard to its contribution to environmental protection and where all employees of the company, independent of their jobs and occupation, are in full or in part (to the extent of the environmental share of the object of the company) apportioned to Green Jobs' (AK 2012).

To answer the key question of whether green jobs can really help to reduce unemployment, it is necessary to focus on the net employment effects of green jobs instead of the gross employment effects (Hergovich 2013). Gross employment effects are a useful measure in relation to the importance of a particular sector of the economy but they become barely meaningful if one wishes to investigate the effects of a transformation of the economy, such as for instance the greening of the economy, on the number of unemployed. This is the case because the gross employment effect calculates only the number of jobs created, without taking into

account the number of jobs that were lost in connection with the creation of these new jobs. For this reason, the gross employment effect is always positive. It is important to realize also that the interpretation of employment effects is not clear by itself because high employment effects could be also caused by low productivity<sup>2</sup>.

The net employment effect is calculated by considering the substitution effect and the income effect linked to the gross employment effect. The substitution effect takes into account the fact that these green goods and services replace other (conventional) goods and services, whereas the income effect takes into account the fact that green goods and services are more expensive than conventional goods and services. If people buy these goods and services, they have less money to buy other goods. Naturally, the income effect depends on the source of funding and disappears if the greening of the economy is to be financed by the government via new debt because this would mean that the total demand increases<sup>3</sup>. Funding the greening of the economy by the state via higher debt would result in much better net employment effects and lower unemployment than funding it via private funding in a situation where aggregate demand is too low and full employment not reached – which is clearly the case in Europe at the present time. Of course, the effects of imports and exports have to be included if the net employment effect of a particular country is the point at interest.

Why it is so crucial to concentrate on the net employment effect and not on the gross employment effect can be best understood by using the example of organic farming. Many people think that organic farming can help us fight unemployment because it is more labour-intensive than conventional farming and the transformation towards more organic farming is therefore good not only for the environment but also for employment. This is simply not true. The higher time insensitivity is partly covered by unpaid family members and longer working hours. In addition, the income effect of organic farming is negative because organic food is more expensive than conventional food and some jobs in the fertilizer industry are lost because of organic farming (Hergovich 2013). Therefore, the net employment effect of organic farming is around zero

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2. This is easily explained by an example: Compare two investments in factories producing the same good. One company is able to produce with ten employees 100 pieces of good x whereas another needs 30 employees to produce 100 pieces of good x. In this case, buying good x from factory 2 has higher employment effects than buying goods from factory 1.
  3. This is the case until an economy reaches full employment.

or even negative<sup>4</sup>. It is important to realize that this is not an argument against organic farming since the purpose of this form of farming is not to fight unemployment but to save the environment. The environmental impact of organic farming is clearly positive.

Most people tend to think that green jobs are always good for the environment but this is not the case. For instance, employees in the public transport sector are not included in green jobs whilst some thousand workers in the automobile industry are. Hence, choice of a car over public transport serves to increase the number of green jobs. Within the Eurostat green jobs definition, increasing the volume of waste would also lead to a rise in numbers of green jobs!

Therefore, green jobs are not an appropriate indicator for good environmental policy and the creation of green jobs should not be a policy aim in itself. Contrary to widely shared beliefs, this problem is not due to a particular definition of green jobs but to the very concept of green jobs. The ecological effect of green jobs depends always on the baseline scenario to which the ecological gain is compared. A boom in green jobs could be caused for instance by more sales of eco-friendly cars. Eco-friendly cars are more environment-friendly than conventional cars but less so than use of public transport. Due to the fact that the concept of green jobs ignores the baseline scenario, a boom in eco-friendly cars would result in a boom in green jobs in every scenario. This means that green jobs are not the aim but could be the result of a good policy. Hence, policy should not concentrate on creating new green jobs but on improving citizens' lives. In order to do this, it is necessary to improve the situation of the environment, meaning that more investment in social and ecological aims will be needed, resulting in the creation of additional jobs (Feigl *et al.* 2013).

When assessing green jobs, aspects concerning the quality of work are often forgotten. Many people think of green jobs on the model of environmental engineers working on renewable energies. Taking Austria as an example, less than six percent of all green jobs actually correspond to this image, and the situation is probably very similar in other European countries. In fact, the three biggest green job sectors are farming, construction and waste and wastewater treatment. The farming sector is

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4. Section five mentions green jobs sectors where it is possible to have positive net employment effects.

dominated by a high proportion of unskilled and hard physical labour. The second largest green job sector, the construction sector, also does not match the image of green jobs as decent work. In the construction sector hard physical work is the norm. In addition, the sector is characterized by a high risk of accidents and unstable forms of employment. The third largest green job sector is waste and wastewater treatment. The working conditions in this sector are sometimes hardly satisfactory, particularly in relation to the health impacts of the manual sorting of waste (AK 2012).

Most green jobs are characterized by hard physical work and the working conditions might even prove to be a health hazard. If green jobs are to be the jobs of the future, they should not be allowed to harm people's health and must be sufficiently well-paid to ensure that people can live on their earnings. Hence, green jobs are not automatically good jobs; they have to be made into good jobs (AK 2012). The evaluation of green jobs accordingly leads to a result similar to the evaluation of degrowth: green jobs are neither automatically meaningful nor automatically negative. Some green jobs can help to fight unemployment and climate change simultaneously and some cannot. The next section will mention the sectors where it is possible to create real green jobs with positive net employment effects and preferably environmental effects.

## **5. More employment and less greenhouse-gas emissions for Europe**

Economic theory clearly states that investment increases GDP and employment in both the short and the long run (Marterbauer 2014). Research by the IMF additionally emphasizes that the fiscal multiplier is particularly high in financial crises and especially in the current financial crisis. More investment is therefore crucial to solving the current economic crisis.

With a special focus on the environmental and social sector (e.g. health, education, care), any new European investment programme should aim to design jobs not only as a measure to reduce mass unemployment (as already mentioned, the numbers of the unemployed in the EU have increased by nearly 10 million since the start of the financial crisis) but also to solve urgent environmental and social problems. Unlike existing green job programmes, these new jobs must be characterized by good working conditions.

The debate tends usually to focus on creating new jobs through environmental investment, even though some forms of environmental investment fail to show positive employment effects. There are, nonetheless, some areas where investment in preservation of the environment can indeed contribute also to reducing the numbers of unemployed. Most green jobs result from just five major areas of work: organic farming, waste collection and wastewater treatment, renewable energy and energy efficiency, public transport and thermal insulation (Hergovich 2013)<sup>5</sup>. It is crucial to point out that this does not mean that most green jobbers work in these sectors because many green jobs resulting from these five major activities are in other economic sectors. For example, many green jobbers are employed in the construction sector even though the purpose of the construction work performed may be thermal insulation or wastewater treatment (construction of a wastewater treatment plant, for example).

Companies which produce garbage collection trucks count as green companies and their employees as green jobbers. These jobs are green jobs in the sector of automobile manufacturing rather than in that of waste collection, even though their existence is attributable to the waste collection sector. For this reason, it is more straightforward to provide a breakdown based on the sectors which create the green jobs and not those in which the jobs are actually found.

## 5.1 Public transport sector

One positive but often neglected area is the public transport sector. Calculations carried out by the Verkehrsclub Österreich, the Austrian branch of transport and environment (VCÖ 2013), show that the employment effect of investment in public transport systems or bicycle paths is generally higher than the employment effect of investment in roads or highways. One billion euros invested in the Austrian public transport system or bicycle paths would create 16 600 to 18 100 new jobs, whereas investment in roads would create just 10 700 to 12 700 new jobs. The net employment effect of public transport is positive. Accordingly, by investing in public transport, it is possible to create a lot of additional employment while simultaneously saving the environment.

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5. The following chapter about the net employment effects of green investments is mainly based on Hergovich (2013).

## 5.2 Renewable energy sector

Many very optimistic forecasts in relation to the employment implications of renewable energies (hydro power, wind power, photovoltaic, biomass and biogas) are based on the confusion between gross and net employment effects. Typically, in these studies (Wei *et al.* 2010; Kammen *et al.* 2004) the employment effect per megawatt of power generated is calculated for different energy sources. It is clear that this methodology will always lead to favorable employment effects of renewable energy because the income effect is omitted. Hence, it makes more sense to compute the employment effect per euro spent and not the employment effect per megawatt (Bowen 2012). The net employment effect of renewable energy is small but positive. While the net employment effect of small hydro power, wind power and photovoltaic is always positive, the net employment effect of biomass and biogas, depending on the domestic share of biomass, can be negative in some cases. The intuition behind these results is that the domestic share is generally higher for renewable energy than for conventional energy because of the imports of fossil energy thereby saved.

## 5.3 Energy efficiency and thermal insulation

Another means of creating new jobs by protecting the environment is through energy efficiency measures. The reason for this result is the positive income effect of most energy efficiency measures. Thermal insulation is one sector where it is particularly possible to combine good environmental results with positive net employment effects. Generally speaking, energy efficiency measures have positive employment effects because their income effect is positive which means that people have more money to buy other goods and services, which creates jobs.

Thermal insulation is more widespread in Austria than in any other European country. This is the reason why most studies which compute the employment effects of thermal insulation look at the Austrian case. When adopting the measured gross employment effects for other countries, it is necessary to take into account that the employment effects of investment in thermal insulation differ between different countries, mainly, because of different productivity and wage levels for construction workers. Hence, countries with higher wage levels have lower employment effects and countries with lower wage levels have higher

employment effects. The variously estimated gross employment effects for investments in thermal insulation in Austria are all very similar. Kletzan-Slamanig, Köppl, Artner and Pfeffer (2008) as well as Schleicher and Karner (2010) reached the conclusion that every million euros invested in thermal insulation created 14 new jobs. Likewise, Czerny und Weingärtler (2007) estimated that every million invested in thermal insulation created 12 new jobs.

In order to determine the net employment effect, an alternative investment scenario may also be considered. Since the employment effect of all realistic alternative scenarios is worse than the employment effect of thermal insulation, the net employment effect of thermal insulation is positive in every case.

Thermal insulation is the best green job sector with regard to the aim of saving the environment while making appreciable net employment gains.

#### 5.4 Waste collection and wastewater treatment sector

The net employment effect of waste collection and wastewater treatment depends on the baseline scenario and the alternative scenario. The most environment-friendly alternative to waste collection and wastewater treatment would be to reduce the amount of waste, for example by a longer service life. It is usually argued that this would lead to more jobs because it would mean a shift from the secondary to the tertiary sector. This would mean that energy will be substituted by manpower. This result depends on the assumption that the secondary sector is more energy-intensive than the tertiary sector but this is not always the case, for research shows that the tertiary sector is – at least in Denmark and Germany – as energy-intensive as the secondary sector. The reason for this is that the tertiary sector needs more transport which is also very energy-intensive. For this reason, it is unclear whether a shift to the tertiary sector will actually lead to an increase in job numbers<sup>6</sup>.

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6. Of course an alternative explanation for the hypothesis of positive employment effects of a shift from the secondary towards the tertiary sector would be that wages are lower in the tertiary sector. This argument is not included in this analysis, because a strategy for a fair society should never focus on low-paid jobs.

All in all, an investment programme to fight unemployment and climate change should focus on three pillars: public transport, partly renewable energy, and measures to improve energy efficiency with special regard to thermal insulation.

## 5.5 Eco-friendly working time reduction

Another option is to rely on policies that, while not strictly associated with either environmental protection or the fight against unemployment, nevertheless draw positive effects in both policy fields. Working time reductions are particularly noteworthy here since such reductions can not only help to reduce unemployment significantly but are associated also with lower resource consumption and lower greenhouse-gas emissions. Working time reductions are in fact so crucial for the environment that it is strange that this aspect is so little discussed. The mere adjustment of US working times to the European level would reduce the US energy consumption by 20 percent (Hayden and Shandra 2009). The first effect of working time reductions on the environment is known as the size effect. This means that on the (quite realistic) assumption that the gains in productivity caused by working time reductions are lower than the effects of the working time reduction, greenhouse-gas emissions decrease. Hence, working time reductions lead to less resource consumption and less greenhouses gases. A frequently heard misconception is that such an eco-friendly working time reduction is not compatible with full wage adjustment. This misconception would mean that even low-paid workers have to give up some of their consumption which is not the case. Shorter working hours mean (under our assumption), of course, less production but this gap could be also filled by less consumption on the side of capital. Eco-friendly working time reductions with full wage adjustment would simply mean that profit shares would decrease. Another option would be to redistribute the losses in production between high-paid and low-paid workers.

To design eco-friendly working time reductions is therefore not the problem. The difficult task is to decide which class of society has to pay for it.

Some will also argue that reduction in working time could result in an increase in consumption styles which are not very eco-friendly. One example would be that people could use their additional amount of spare

time to book more holiday flights which could offset or even exceed the size effect. Certainly, while this is quite possible in theory, in actual fact a new study by Knight, Rosa and Schor (2012) shows that precisely the opposite tends to be the case. More leisure proves to be an incentive to switch to a more eco-friendly lifestyle because people can replace energy-intensive activities by time-intensive activities (e.g. time to walk instead of driving a car, time to use the train instead of an airplane, time to stay longer instead of flying more often.) The positive environmental impact of working time reductions is even stronger than expected in the study by Hayden and Shandra (2009) due to the fact that the additive effect (energy intensity is replaced by time intensity) is not taken into account in most studies.

Orthodox economists would argue that every individual is free to choose his optimal allocation of leisure and consumption (and therefore the correspondingly necessary working time) which means that interventions by the government to change this allocation would reduce the utility of its citizens. However, it should be noted that inefficient equilibria are likely in the case of working time allocations. On the one hand, there is a problem of coordination because people tend to want to spend their spare time together with other people. If many people work longer hours, the consumption of leisure is less attractive for all. In addition, we have to consider that preferences are influenced by a country's culture (Stiglitz 2008). But none of these effects is more relevant than the effect of income inequality. People in very unequal societies try to increase their working time to increase their social status, but the rich are also increasing their working time to maintain their social status. This leads to a situation in which all are working longer but no one is better off than before (Bowles and Park 2005).

Hence, redistribution of working time is one precondition for working time reductions, which is why it can also help the environment. Redistribution has also a second positive effect on the environment because many eco-friendly lifestyles are ultimately a form of altruism, since the benefits of an eco-friendly lifestyle (such as less greenhouse-gas emissions) are often not noticeable on a personal level. More egalitarian societies are seen as fairer, and altruistic behavior (such as an eco-friendly lifestyle) is more common in societies which are perceived as fairer (Wilkinson and Pickett 2010).

## 5.6 Investment in social services

Last but not least, opportunities to create new jobs in sectors of the economy which are neutral from an ecological standpoint should be considered. This means that investments can be chosen such that new jobs are generated without having appreciable negative consequences on the environment. From an ecological point of view, these investments are preferable to other investments which have a noticeably negative impact on the environment.

Forms of investment that fall into this category are often referred to as investment in social services. Examples of such investment in social services are investment in education (kindergartens, schools and universities), housing, child care and nursing facilities. One example of such investment may consist of extensions in the supply of (child) care by offering comprehensive, affordable and demand-oriented care.

Investment in social services is preferable to most other forms of investment because it has a higher impact on employment. According to the Austrian Arbeiterkammer atmosphere index<sup>7</sup>, one billion euros invested in social services generate 12 000 to 20 000 new jobs compared to 5 000 to 9 000 new jobs for real investments (Bock-Schappelwein *et al.* 2009).

A similar study has been conducted by the Austrian economists Buxbaum and Pirklbauer (2013). They conclude that investments of 800 million euros in more and better kindergartens would lead to the creation of 16 300 new and decent jobs.

Most especially, investment in social services such as child care and nursing facilities is needed to deal with rising life expectancies. Investment in these sectors does not only create new jobs but also enables women to (re-)enter the labour market by making it possible for them to reconcile work and family, increase their household income and reduce their risk of poverty.

These investments in social services have a multiplier effect because they do not only generate new jobs but also help solve social problems without compromising the environment. Such investments in social services are

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7. AK Arbeitsklima Index

essential for achieving the sociopolitical, employment and educational goals of the Europe 2020 strategy.

## **6. Paradigm shift to a new model of sustainable prosperity**

Concluding the above, while austerity exacerbates economic, environmental and social problems, neither green growth nor degrowth can help solve economic, social and environmental problems simultaneously. Instead, we need a sustainable model of prosperity which concentrates on forms of investment by means of which it is possible to solve social or economic problems at the same time without exceeding ecological limits, in combination with working time reductions and redistribution.

There are indeed several measures whereby it is possible to solve economic or social or ecological problems without affecting one of the other categories negatively. The goal of all proposed measures is to substantially reduce unemployment – both in the short and in the long term – and simultaneously to protect the environment. Such a socio-ecological transformation towards a more sustainable model of prosperity should focus mainly on three complementary policy areas: investment in decent green jobs which have the potential to reduce greenhouse gas emissions dramatically and to combat unemployment at the same time. Such investment should focus on the extension of public transport, on a cost-effective development of renewable energy, and on energy efficiency with special regard to the thermal insulation of buildings. The second core area of a sustainable investment programme should be social investment; this would help to solve social problems and reduce unemployment as this form of investment does not have noticeable negative impacts on the environment. The focus of such investments would be the provision of childcare facilities, housing and investment in education and in health care and care. The third core area is working time reduction and more redistribution: both have in common the potential to reduce unemployment and environmental pollution. Not only would a European policy reversal of this kind mean a Europe with significantly reduced unemployment; it would also result in a fairer, greener and more social Europe.

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