Rethinking Capitalism ed Mazzucato and Jacobs

CHAPTER 7: INVESTMENT-LED GROWTH: A SOLUTION TO THE EUROPEAN CRISIS

Stephany Griffith-Jones and Giovanni Cozzi

FINAL DRAFT

Introduction

Europe is suffering from growth that is too low and unemployment that is too high. This is especially, but not only, true in the southern Eurozone countries. While European institutions, and the European Central Bank in particular, had by the end of 2015 at last succeeded in taming financial turmoil (although the situation in Greece may return as a source of uncertainty), they have been far less successful in dealing with economic stagnation. There is no sign suggesting a return to robust growth and full employment in Europe within the next decade.

In this chapter we argue that low investment is at the root of European stagnation, and that a sustained (and sustainable) recovery can only be investment-driven. Investment is necessary to cure insufficient demand and unemployment in the short run, but also to introduce innovative technologies and increase potential output in the long run. Moreover, only higher investment can reverse the disquieting trend of de-industrialization that can be observed throughout Europe.

However, the measures that the European institutions have so far put in place to revive investment – in particular the 'Growth Compact' and President Jean-Claude Juncker's 'Investment Plan for Europe' –are likely to prove inadequate to deliver the desired outcomes. This chapter argues that a two-pronged approach is needed to achieve a significant increase in European investment. One is to use the European Investment Bank (EIB), and national development banks to help catalyze private investment. The other is to reduce the pace of fiscal consolidation, so that public investment does not continue to fall. As we will show through model simulations, it is the combined impact of public and private investment that will lead to sufficient total investment in Europe. Private investment can be discouraged by lack of public investment and lack of sufficient demand, especially in times of very slow growth: there is strong evidence that public investment 'crowds in' private investment under such circumstances.

In this chapter we make specific proposals on how the EIB, the EU's regional development bank, can significantly expand its lending to stimulate growth, investment and innovation, particularly in the countries that have suffered most during the sovereign debt crisis. This would help deal with the fragmentation of financial and banking markets, which has emerged in Europe since the crisis and has caused enterprises to be severely credit-rationed, particularly in the periphery of the continent.

The role of the EIB, and in parallel of national State Investment Banks (SIBs), is crucial to our proposal, for the reasons set out by Mariana Mazzucato in her chapter in this volume.[1] First, SIBs

are able to leverage public funds, enabling them to mobilize large amounts of private investment from relatively limited initial public resources. Second, they can play a stabilizing role: while private financial actors tend to expand credit during booms and restrict it during downturns, exacerbating cyclical swings, SIBs are able to 'lean against the wind', playing a countercyclical role. This is especially relevant in the present context of economic stagnation and pervasive macroeconomic uncertainty. Third, and perhaps most important, well-managed SIBs with a clear mandate are able to provide the kind of patient, long-term and mission-oriented finance that is needed to support investment in infrastructure and new technologies. Many of these long-term, capital intensive and risky projects, which are necessary to deal with great challenges like climate change and energy security, will not be given credit by a private financial sector increasingly oriented towards the short-term.[2]

This chapter starts by outlining the weak macroeconomic conditions currently exhibited in the EU, in particular in the Eurozone. We then discuss the main EU policy measures that have been implemented in recent years to counteract the decline in productive fixed investment. After illustrating their limited effectiveness, we set out our proposed investment plan for Europe, comprising an expansion of lending by the EIB and slower fiscal consolidation. By estimating the impact of this investment plan on the European economy using the Cambridge-Alphametrics Model (CAM), and comparing it with an alternative 'business-as-usual' scenario, we show the potential for stronger investment to stimulate renewed growth and reduce unemployment.

Underinvestment and economic stagnation in Europe

Few would deny that the European Union, and the Eurozone in particular, are suffering from too low economic growth and too high unemployment. This is most evident and urgent in Southern Europe, where Italy and Spain, for example, saw GDP fall by more than 5% between 2008 and 2014, Portugal by 6% over the same period, and Greece by over 25%, a decline larger than in any country during peacetime since the Great Depression of the 1930s. But in Germany, too, output growth averaged little more than 1% per year in the same period. Recovery from the global and European crises was short-lived, as displayed in Figure 1, and there is little sign of a return to robust growth within the next decade.

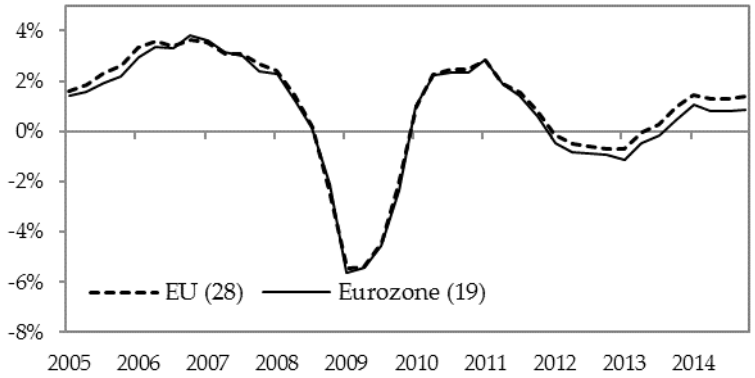

Figure 1 – GDP growth (% change on same quarter of previous year)
Source: Eurostat

Another remarkable and disquieting trend is de-industrialization, which has accelerated during the crisis. In 2013 alone, the share of industry in GDP fell by 1 percentage point at the EU level - from 15% to 14%. In Germany, Europe's major industrial champion, in 2014 the share of industry was 25.1%, or 30.7% including construction activities. This is down from 30.2% (36.8%) in 1991, the first year of common statistics after German re-unification: it has been decreasing, on average, by 0.2% per year. A continuation of the present EU trend would imply a 12% share of industry in GDP in 2020, which would be strikingly small for a rich economic zone. To complete the discomforting picture, productivity growth has been extremely low, averaging just 0.8% per year in the EU in the in the period 2011-2014 (Figure 2).

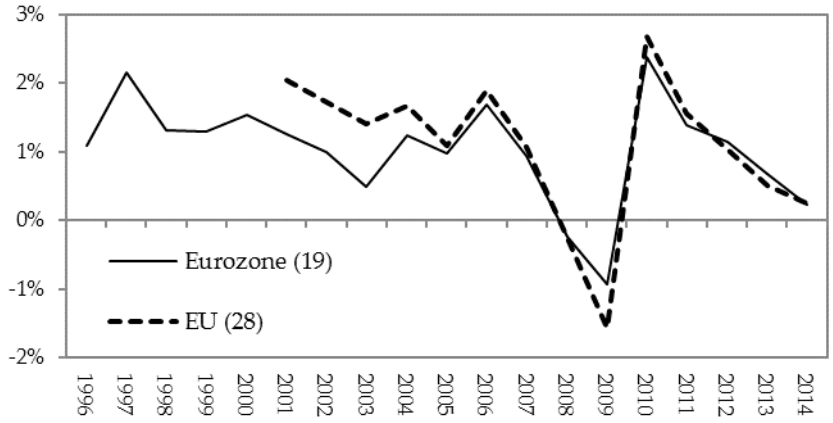

Figure 2 – Output per hour worked (% change)
Source: OECD

To reverse these worrying trends, powerful action will be needed. The key to recovery and positive structural transformation in Europe is a significant increase in investment, particularly if linked to innovation. Higher investment accelerates recovery in the short-term by expanding aggregate demand and – most importantly - it increases future output and encourages structural transformation. Sustained investment is necessary to incorporate innovative technologies and reignite productivity growth. In a world with growing globalization and increasing competition, de-industrialization can only be reversed through higher investment.[3]

Indeed in the European Union, and especially in the Eurozone, an already relatively low level of private investment has fallen further since the beginning of the financial crisis. Particularly dramatic has been the decline in the investment to GDP ratio in the South Eurozone, from 21.7% in 2007 to only 14% in 2014. In the UK the fall was also sharp, from 15.9% in 2007 to a mere 11.0% in 2012, though this subsequently increased to 13% by 2014. An investment ratio of 19–2%1 of GDP can be considered normal for a mature country with some industrial strength.[4] Even in countries that are doing rather well, investment is much too low with respect to this benchmark. Indeed in Germany it was just above 17.5% in 2014.

Countries seeking to return to trend growth after the crisis, and 'convergence' countries with a GDP per capita less than 75 percent of the EU average, should show a significantly higher

investment activity; if not, they will not catch up. In fact, before the crisis, the share of investment was above 20 percent in countries such as Spain, Greece, Ireland and Portugal. There was certainly misallocation and over-investment in certain sectors during the boom (creating asset bubbles), but the order of magnitude of investment was right. In these four countries investment fell during the crisis, declining by 2014 to less than 15 percent of GDP.[5] At around 15 percent de-industrialization occurs rapidly, as existing stock is depreciated and no replacement or new formation of capital takes place.

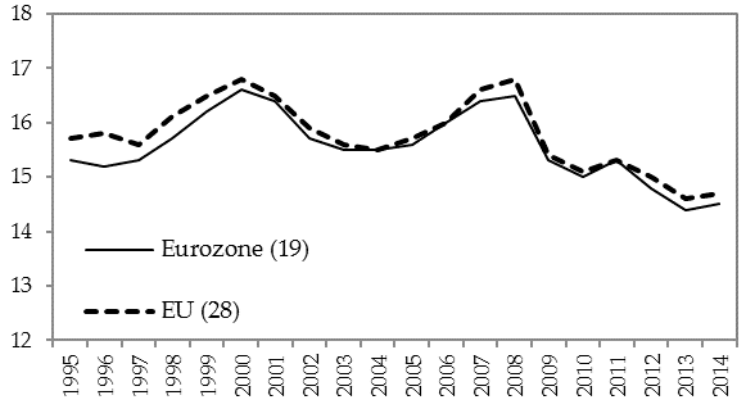

Figure 2 – Gross non-residential fixed capital formation as a % of GDP
Source: Eurostat

Low investment has been dragging down growth and industrial development in Europe, and increasing it is a necessary condition for a real and sustainable recovery. Strategies that try to circumvent this central problem, seeking to revive demand largely by increasing consumer debt, as observed in the UK, or to increase profit margins by indiscriminately cutting labour costs, are not going to work in the medium run.

It is not only the size, but the timing, of a major boost in investment which is key. The acute phase of the financial part of the Eurozone sovereign debt crisis is hopefully over, though the Greek situation remains precarious and may reignite uncertainty in the future. This gives renewed urgency for a less austere and more expansionary fiscal policy, particularly to increase public investment levels and to facilitate private investment.

One of the justifications for fiscal austerity has been the orthodox economic view that public investment does not ultimately boost demand because it merely "crowds out" private investment, as government borrowing leads to higher interest rates and taxation. This thesis, drawing on the work of Robert Barro,[6] appeared to receive empirical support from the experiences of Ireland and Denmark in the late 1980s. Giavazzi and Pagano's analysis of these countries' fiscal consolidation policies suggested that reductions in government spending has a positive impact on investors' confidence and that reduced public investment enables greater private investment.[7] Alesina and Ardanga went further, arguing that spending reductions accompanied by modest tax cuts are expansionary and therefore were the appropriate policy mix in times of economic crisis.[8]

But the economic environment of the 1980s was not the same as now. It was a period of significant economic expansion. Denmark and Ireland in particular were special cases, as

subsequent analysis showed. Fiscal consolidation occurred at the same time as other, favourable economic circumstances, including currency devaluation prior to linking to the European Exchange Rate Mechanism, the opening up of the single European market, and (in Ireland's case) new European fiscal revenues.[9] These examples did not in fact make the case for "expansionary austerity".

Today, with private investment low even at record low interest rates, the case for "crowding out" is particularly weak. With significant under-utilised resources in the European economy, there is no constraint on the availability of physical or human capital which would squeeze private investment, and interest rates are likely to remain at historically low levels. On the contrary, as Stiglitz has argued, public investment, particularly in infrastructure, is much more likely to "crowd in" private investment.[10] Infrastructure investment, such as in energy, transport or telecommunications, creates demand in the short term for a wide range of goods and services in construction and installation supply chains, and in the medium term stimulates growth through an expanded stock of physical capital and greater efficiency. In joint public-private investment projects, the public sector can take on risks which improve the risk-reward ratios for private investors. In both these ways public investment will stimulate and complement, rather than compete with, private investment.

Indeed, when interest rates are low, the enhanced growth in GDP from such investment will almost certainly offset the increased cost of government borrowing, thereby lowering the ratio of debt to GDP. In turn, higher growth with a lower debt ratio, generating expectations of lower future interest and tax rates, and higher consumption, may induce further private investment today. In this way public investment under current economic conditions is likely to increase the effective fiscal multiplier.[11]

A recent International Monetary Fund paper has provided empirical evidence for this proposition.[12] Identifying the causal effect of government investment in 17 OECD economies since 1985, it finds that increased public investment raises output, both in the short term and in the long term, crowds in private investment, and reduces unemployment. Several factors shape the macroeconomic effects of public investment: when there is economic slack and monetary policy accommodation, the demand effects are stronger, and the public-debt-to-GDP ratio may actually decline.

A well-designed pan-European public-investment financing strategy would therefore have the potential to crowd-in private investment and increase aggregate demand, with long-term positive effects on growth and employment. It should be designed to enhance productive capacity, encouraging present and future sustainable growth by financing economically sustainable projects and activities, in the context of a vision of innovation and structural transformation towards a greener economy. It should support the growth of both existing and new competitive enterprises, especially ones in innovative fields. To have a real chance of success, such a strategy needs to be implementable quickly; have sufficient size to have a significant economic impact; be cost effective in terms of impact relative to limited additional public resources; ensure significant leverage; and drive the kind of investments that will help to make the European economy more dynamic and equitable. The additional finance, which could be generated by expanding the lending capacity of the European Central Bank and by a better allocation of funds within the EU budget, should provide resources not only for working capital to generate greater

employment today, but – above all – for investment in innovation and increased productivity, including in new sectors, strategic for future growth, which will generate jobs in the future.

The current EU policy framework

In June 2012 the European Council approved the so-called "Growth Compact", a set of measures aimed at encouraging European growth.[13] From the point of view of national fiscal policies, it prescribed continued austerity (though this was described as "growth-friendly fiscal consolidation"[14]). At the European level, however, the strategy outlined was twofold: first, the Compact stressed the need for further reforms in various fields to deepen the Single Market; second, it required member states to provide €10 billion of additional capital to the European Investment Bank. According to the Growth Compact this would unlock, through leverage, up to €180 billion of additional private investment. In addition to this, the Compact proposed a reallocation of the EU budget, shifting funds towards programmes aimed at fighting stagnation and unemployment.

By the end of 2015 an *ex-post* assessment could be made. The results show a half-hearted implementation of insufficient measures. The main problems have been suboptimal utilization of the EU budget, with not enough shift to programmes to fight stagnation, as well as further overall restrictions of the EU budget in the years following approval. In terms of outcomes, the Growth Compact did not deliver the revival of investment and the reduction of unemployment rates that it had promised. Increasing the capital of the EIB was a good idea and yielded some positive results in terms of increased lending since 2013. But this positive measure was not implemented on a sufficient scale, and it was accompanied by further austerity measures at the national level, which more than offset its positive effects on growth.

The main focus of the EU Compact was on unleashing market potential through a deeper common market. Experience shows that the results of such reforms take time; forecasts of impact tend to be over-optimistic and impacts are not neutral in terms of income distribution. Additional means to compensate for the "collateral damage" of income effects would have improved the policy.

In November 2014, when it was clear that the Growth Compact had not delivered the desired boost to the European economy, European Commission President Juncker proposed the mobilization of up to €315 billion in additional public and private investment in the following three years.[15] Juncker argued that additional investment was needed in infrastructure, notably in broadband, renewable energy, distribution and energy efficiency and transport in industrial centers; and education, research and innovation. Juncker called for a significant amount to be channeled towards projects that could counter youth unemployment.[16] The Juncker Plan proposed that the EIB and national development banks should play a central role in financing and catalyzing this additional investment.

Specifically, the plan was to relocate €21 billion from the existing EU budget and EIB resources into a new fund, with the hope of achieving a leverage large enough to mobilize €315 billion in total investment. Even if this leverage ratio of 15 were achieved (many observers fear it will not be, as much of the money contributed is not an addition to fiscal resources), €315 billion over

three years represents an annual investment boost of approximately 0.75% of EU GDP, which is far short of what is needed to kick-start sufficient growth. By comparison, in 2009-10 the US Government's stimulus package amounted to around 2.8% of GDP per annum over two years.[17] An order of magnitude closer to this is needed today in Europe. The Juncker Plan is not of sufficient size to provide a significant and sustainable stimulus to the European economy.

A proposal for investment-led European recovery

We propose three major measures to boost investment in the European economy, with a particular focus on the countries, which have suffered most in the crisis. These measures should be seen as additional to the proposed Investment Plan for Europe and are based on the recognition that public investment is essential in order to crowd in private investment.

The first is an expansion of lending by the European Investment Bank, based on an increase in its paid-in capital provided by EU members. The EIB's ability to leverage its own financing to attract private co-investment enables a significant economic impact to be achieved from fairly limited public resources. Using the proven EIB would enable the programme to be implemented quickly and effectively.

Since 2013 the EU has doubled the EIB's paid-in capital. This has led to a significant increase in lending. If we assume a leverage ratio of eight, as accepted by the rating agencies to maintain the bank's triple-A status, an extra €10 billion provided would allow the EIB to expand its lending by up to €80 billion. Given that EIB-funded projects are typically 50% co-financed by the private sector or in some cases by national development banks, this may result in additional investment of around €160 billion. Even if a more conservative leverage ratio of six is assumed, a €10 billion increase in paid-in capital would result in a total of €120 billion of additional lending in coming years.

Such additional lending should be focused especially on investment linked to innovation and structural transformation, particularly in infrastructure. As Carlota Perez argues in her chapter in this volume, there are particular opportunities in the field of renewable energy and environmental technologies, where digitalisation offers the potential of a radical increase in the efficiency of resource use. A range of innovative proposals are already available, such as the linking of European energy markets through new grid transmission lines, to maximize the use of solar power in the south of the continent, and wind in the north.[18] Employment creation, especially for the young, should also be a priority: the direct and indirect labour intensity of investments could be a criterion for choosing projects.

Second, we propose that funds from the EU budget are used to mitigate investment risk for the private sector. Today many institutional investors such as pension funds and insurance companies do not fund large investment projects, particularly in infrastructure, due to a perception that the risks are too high. Before the financial crisis, these risks were typically absorbed by large mono-line insurers (such as AIG), which enabled the financing of such projects through triple-A-rated bonds. Since the crisis, such insurance has no longer been available. We therefore propose that around €5 billion a year (a very small proportion of the EU budget), should be allocated to a risk mitigation fund. Such resources could come from the existing EU budget, with a small

restructuring of expenditure areas such as the EU Structural Funds, including the European Regional Development Fund (ERDF), which already focuses on investment in comparable areas. €5 billion a year would allow the EIB to lend an additional €10 billion annually both for financing infrastructure projects (through project bonds) and for investments in research and development of new technologies and innovative enterprises. In turn this would likely leverage around €40 billion of project finance annually, or around €200 billion over five years. Some small steps have already been taken to mitigate risk in this way, but there is an urgent need to scale them up.[19]

Third, we suggest the creation of a new European Fund for Investment (EFI), as proposed by former Polish Finance Minister Mateusz Szczurek.[20] A special purpose vehicle sitting under the umbrella of the European Investment Bank, such a Fund would focus on e quity investment in large-scale, long-term infrastructure projects, particularly in energy, transportation and ICT, and particularly at a pan-European scale. Such projects typically carry too much risk for the private sector to finance on their own, but with co-investment by a triple-A rated, government-backed fund, considerable private investment currently seeking long-term returns could be leveraged. The assets created through these investments could eventually be privatised, generating ongoing revenues for the Fund.

The EFI would be financed by paid-in capital from EU member states, complementary to that of the EIB. This would be excluded from the calculation of budget deficits and its borrowing on financial markets would be recorded as EFI debt, not re-routed to member states. This would be the same treatment as for the European Stability Mechanism currently under the rules of the Stability and Growth Pact. With paid-in capital of around €20-30 billion, such a fund could leverage total investment of around €170 billion over the five years to 2020.

These three measures would generate an additional €530 billion of investment in the EU economy over the 2015-20 period, which represents an annual investment boost 0.75% of EU GDP. Added to the Juncker Investment Plan's €315 billion for the first three years, this would provide an average investment boost in the EU of the order of 1.2% of GPD per annum, sustained over five years. In addition, as we argue below, we would propose that Europe follows a more expansionary fiscal stance in order to halt the fall in public investment.

In the next section we assess the impact of this significant investment boost on EU growth, employment and investment, as well as on debt to GDP ratios, and fiscal deficits to GDP. We present results at the aggregate level for the European Union, and also for the North Eurozone (which comprises Germany, the Netherlands, Finland, Austria, and Belgium) and for the South Eurozone (which comprises Spain, Portugal, Italy and Greece).

Projected impacts of the proposals

Using the Cambridge Alphametrics Model (CAM), we examined two alternative scenarios for Europe for the period 2015-2020 (more information on the CAM model can be found in the Appendix to the chapter). In the first scenario – “business as usual” – we attempt to model the impact of the €315 billion Juncker Investment Plan for Europe We assume that as a result of the Plan private investment in the European Union increases from 15.7% of GDP in 2015 to 17% of

GDP by 2020. This represents an optimistic assumption that, over the next five years, all of the resources allocated under the Investment Plan will feed into higher investment rates across the EU. In addition, the business as usual scenario assumes that austerity policies in Europe are maintained in an attempt to reduce national debt-to-GDP ratios to around 60 percent. In other words, governments will continue to cut their expenditures to reduce government debt. This is translated into a negative effect on public investment, which would continue to fall.

We contrast this scenario with an investment-led recovery scenario for Europe. In this scenario investment (both government and private) is considered as the key strategy to increase employment and economic growth. Based on the proposals set out above, we assume additional resources for investment, compared to the business as usual scenario, of approximately €530 billion by 2020 in nominal terms. This enables private investment in the European Union to increase significantly to 19% of GDP by 2020, whilst public investment would stop falling.

Table 1 summarizes the estimates for private investment for the ”business as usual” scenario and the “investment-led” scenario for the European Union as a whole and for the North and South Eurozone. With regards to the distribution of the investment funds, we assume that more funds will be directed to the South Eurozone compared to the North Eurozone.

Table 1. Private investment as % of GDP

	Scenario	Actual		Projected		
		2007	**2014**	**2015**	**2018**	**2020**
European Union	Business as usual	19.0	15.3	15.7	16.8	17.2
	Investment-led			16.0	18.0	19.1
North Eurozone	Business as usual	17.5	15.9	16.2	17.0	17.3
	Investment-led			16.5	18.2	19.4
South Eurozone	Business as usual	22.1	14.2	14.5	15.8	16.2
	Investment-led			14.8	17.6	18.8

The second important aspect of our investment-led scenario is the implementation of a more expansionary (or in some cases less contractionary) fiscal policy stance at the EU level. In this respect, we assume that EU governments either maintain or increase public expenditure as a share of GDP, in an attempt to create the economic momentum required to substantially increase investment, employment and economic growth. The more significant increase in government expenditure occurs in the South Eurozone, from 22.8% of GDP in 2014 to 23.8% by 2020. The North Eurozone experiences a more marginal increase in government expenditure, from 23% of GDP in 2014 to 23.5% of GDP in 2020. The key is to maintain levels of public investment, particularly in infrastructure and innovation, as a vital basis to support long-term growth and structural transformation and to complement and crowd in private investment. In the modeling these increases in government expenditure are mainly funded by higher tax revenues, from additional output generated under the investment-led strategy, along with some increases in direct taxation and stronger action to curb tax evasion.

The impact of our alternative investment-led scenario on fiscal deficits is particularly important. Alternatives to current investment policy proposals are often criticized on the grounds of

economic viability, with the claim that they would lead to higher government debt and larger fiscal deficits. However, our simulations demonstrate that a much stronger pan-European investment strategy coupled with expansionary fiscal policies can have positive effects, not only on European GDP and employment, but on the fiscal deficits and debt position of European economies.

Table 2 summarizes the projected average GDP growth for the business as usual scenario and the investment-led scenario. Under the assumption that 85% of resources from the Juncker plan will be allocated towards investment, projected average GDP growth for the European Union as a whole in the business as usual scenario reaches only 1.5% over the 2015-2020 period. This is much lower than the 2.3% average growth recorded in the period 2000-2008. By contrast, in the investment-led scenario, average growth in the same period is projected to be 3%.

Table 2. Projected average GDP growth (%)

	Scenario	Actual		Projected
		2000-2008	2009-2014	2015-2020
European Union	**Business as usual**	2.3	0.1	1.5
	Investment-led			3.0
North Eurozone	**Business as usual**	1.8	0.6	1.5
	Investment-led			2.9
South Eurozone	**Business as usual**	2.3	-1.3	1.2
	Investment-led			3.3

In the South Eurozone, average GDP growth increases from 2.3% in 2000-2008 to 3.3% in 2015-2020 under the investment-led scenario, compared with 1.2% in the business as usual scenario. In the North Eurozone average growth is 2.9% in the investment-led scenario and 1.5% in the business as usual scenario.

Our simulations also reveal some improvement, albeit still insufficient, in the level of unemployment (Table 3). Under both scenarios, unemployment in the EU falls. The highest reduction occurs in the investment-led scenario, where unemployment falls by 5.2 million from 2014 to 2020. In the North Eurozone unemployment does not experience any significant variation between the two scenarios over the period although it increases slightly from 3.4 to 3.8 million from 2014 to 2020. Finally, in the South Eurozone, under the more positive investment-led scenario, unemployment falls by 3.5 million.

Table 3. Unemployed workers (million of people)

	Scenario	Actual			Projected	
		2000	**2008**	**2014**	**2015**	**2020**
European Union	Business as usual	21.7	17.9	27.3	26.7	24.3
	investment-led				26.3	22.1
North Eurozone	Business as usual	3.9	4.0	3.4	3.5	3.8
	investment-led				3.4	3.4

South Eurozone	Business as usual	5.9	5.3	12.0	11.6	9.5
	investment-led				11.4	8.5

Despite these important reductions, the level of unemployment in the European Union and in the Eurozone does not decline to pre-crisis levels. To further reduce the level of unemployment in Europe, an investment-led strategy would have to be complemented by other policies, such as better educational programmes, training and research.

The investment-led scenario also leads to more favorable results in terms of debt-to-GDP ratios compared to the business as usual scenario. Whilst debt levels for both scenarios are projected to remain above the 60 percent level prescribed by the Growth and Stability Pact, the important gains achieved in terms of GDP growth in the investment-led scenario lead to lower debt to GDP ratios. Table 4 presents the debt-to-GDP ratio for the European Union, as well as the North and South Eurozone. Overall, the debt to GDP ratio in the European Union under the investment-led scenario declines from 92% in 2014 to 90% in 2020, whereas it continues to increase under the business as usual scenario, where debt-to-GPD reaches 103% by 2020. In the South Eurozone, the block with the highest level of debt, government debt as a ratio to GDP continues to rise in both scenarios. However, the increase is debt-to-GDP in the investment-led scenario is much more moderate compared to the business as usual scenario.

In the South Eurozone projected levels of government debt to GDP ratios increase from 133% of GDP in 2014 to 173% by 2020 under the business as usual scenario. On the other hand, the increase in government debt to GDP ratio under the investment-led scenario is more modest, projected to reach 144% of GDP by 2020. In the North Eurozone, under the business as usual scenario government debt as a ratio to GDP remains virtually unchanged whereas it declines from 83% in 2014 to 71% in 2020 under the investment-led scenario.

Table 4. Debt-to-GDP ratio, South Eurozone

	Scenario	**Actual**			**Projected**	
		2000	**2008**	**2014**	**2015**	**2020**
European Union	**Business as usual**	61.9	62.4	91.9	92.8	102.7
	investment-led				90.5	89.6
North Eurozone	**Business as usual**	63.3	66.8	82.6	81.5	82.3
	investment-led				79.2	71.4
South Eurozone	**Business as usual**	86.6	78.5	133.4	138.1	172.7
	investment-led				133.5	144.1

More positive results in terms of fiscal deficit reduction are also achieved under the investment-led scenario in comparison with the business as usual scenario. Table 5 shows net government lending for the European Union, the North and the South Eurozone. In the European Union as a whole, under the investment-led scenario fiscal deficits significantly reduced from -3.5% of GDP in 2014 to -2% in 2020. In the North Eurozone, under the investment-led scenario, net government lending falls to -1.1% of GDP. The fiscal deficit in the South Eurozone also significantly improves. Under the investment-led scenario fiscal deficits decline on average from

-6.5% in 2014 to -4% in 2020. Under the business as usual scenario, fiscal deficits remain above 5% of GDP in 2020.

Table 5. Net government lending as % of GDP

	Scenario	Actual			Projected	
		2000	2008	2014	2015	2020
European Union	**Business as usual**	0.4	-2.4	-3.5	-3.1	-2.6
	investment-led				-2.7	-2.0
North Eurozone	**Business as usual**	0.9	-1.6	-1.8	-1.5	-1.5
	investment-led				-1.2	-1.1
South Eurozone	**Business as usual**	-1.0	-4.0	-6.5	-5.9	-5.1
	investment-led				-4.9	-4.0

Conclusion

Europe's core economic problem is insufficient investment. At current levels of investment, European economies are not generating enough demand in the short term, and are not laying down the basis for future growth and structural transformation. Private investment will not return to adequate levels without complementary public investment and measures to mitigate risk. While current EU policy, in the form of the Juncker Investment Plan, is a step in the right direction, it is too small, and is offset by continued national austerity. A larger investment plan is needed, based on expanded lending from the European Investment Bank, and accompanied by a slower pace of fiscal consolidation in national economies.

Modeling such a recovery package, simulation results suggest an important conclusion. Not only does an investment-led strategy of this kind lead to an average growth rate in the European Union of around 3% during the period 2015-2020, with a reduction in unemployment of 5.2 million. In addition, such a package leads to lower debt-to-GDP ratios and lower fiscal deficits compared to a business as usual scenario. In other words, stimulating investment is not only good for growth and employment. It is a more successful way of bringing down deficits and debt than continued austerity.

Appendix: The Cambridge Alphametrics Model (CAM)

The Cambridge-Alphametrics Model (CAM) of the world economy is a non-conventional macroeconomic model that is primarily used to make medium to long-term projections of historical trends of the global economy, blocs of countries, and major individual countries. This macro-model does not have any single, well-defined equilibrium path to which the economy tends to return. Being an open disequilibrium system, a wide variety of outcomes may be simulated with different growth rates and end points.[21] CAM projections draw on continuous historical data from 1970 to the latest year available (2014 for this exercise).

In CAM the world economy is regarded as an integrated system in which the behaviour of different countries and blocs differs and changes progressively through time because of their specific situation in terms of geography, level of development, financial position, etc. The macro-model has a common set of identities and behavioural equations for all blocs to reflect they are part of the same world economy. This allows for panel estimation methods.

In the model aggregate demand and technical progress are the principal drivers of growth. Thus the long-term growth rate is best understood as reflecting the growth of aggregate investment and government spending in the world as a whole. These variables in turn reflect confidence, expectations and policy.[22]

Prof. Stephany Griffith-Jones is Financial Markets Director, Initiative for Policy Dialogue (IPD) at Columbia University. Dr. Giovanni Cozzi is Senior Lecturer in Economics, Greenwich Political Economy Research Centre (GPERC) at the University of Greenwich

We thank Mariana Mazzucato and Michael Jacobs for very valuable comments on a previous draft, as well as Ernst Stetter, Secretary General of the Foundation for European Progressive Studies (FEPS) for his crucial support for this work. We are grateful to Matthias Kollatz and Signe Hansen for their very good comments, as well as valuable previous collaboration on this topic. We thank Edward Griffith-Jones and Daniele Girardi for excellent research and editorial assistance.

[1] See also S. Griffith-Jones, and G. Cozzi, 'The Role of Development Banks' in A. Noman and J. E. Stiglitz (eds) *Efficiency, Finance and Varieties of Industrial Policy* Columbia University Press: New York (forthcoming summer 2016)

[2] See M. Mazzucato and C. Penna, 'The rise of mission-oriented state investment banks: the cases of Germany's KfW and Brazil's BNDES', 2015, SPRU Working Paper Series, for a detailed illustration of the role of State Investment Banks with relevant case studies.

[3] See B. Eichengreen, 'Lessons from the Marshall Plan', World Development Report 2011. Background Case Note, April 2010.

[4] See discussion in E. Klär, 'Die Eurokrise im Spiegel der Potenzialsähtzungen', Wiso Diskurs, Friedrich Ebert Stiftung, April 2014, pp. 31–33.

[5] E. Klär (op.cit.)

[6] R. Barro, 'Are government bonds net wealth?', *Journal of Political Economy,* Vol.82, Issue 6, pp. 1095 – 1117, 1974.

[7] F. Giavazzi and M. Pagano, 'Can severe fiscal contractions be expansionary? Tales of two small European economies, *NBER Macroeconomics Annual*, Vol. 5, pp. 75-111, 1990. Available at: http://www.nber.org/chapters/c10973.pdf%20.

[8] A. Alesina and S. Ardanga, 'Tale of Fiscal Adjustment', *Economic Policy*, Vol. 13, Issue 27, pp. 489 – 585, 1998.

[9] S. Konzelmann, 'The political economics of austerity', *Cambridge Journal of Economics*, Vol. 38, 2014, pp. 701 -741; S. Kinsella, 'Is Ireland really the role model of austerity?', *Cambridge Journal of Economics,* Vol.36, 2012, pp. 223 -235

[10] J. Stiglitz, 'Stimulating the Economy in an Era of Debt and Deficit'. *The Economists' Voice*, March 2015.

[11] J. Stiglitz, op cit.

[12] A. Abiad, D. Furceri and P. Topalova, 'The Macroeconomic Effects of Public Investment: Evidence from Advanced Economies' IMF Discussion Paper, WP15/95, 2015

[13] European Council, 'Compact for Growth and Jobs', Annex to the Conclusions of the European Council, EUCO 76/12, 28-29 June 2012, pp.8-15. Available online, http://www.consilium.europa.eu/uedocs/cms_Data/docs/pressdata/en/ec/131388.pdf, access date 30/11/2015.

[14] European Council, op. cit., p.9.

[15] European Commission, 'An Investment Plan for Europe', COM(2014) 903, 26 November 2014. Available online, http://ec.europa.eu/priorities/jobs-growth-investment/plan/docs/an-investment-plan-for-europe_com_2014_903_en.pdf, Access date 30/11/2015.

[16] See European Commission, op. cit., which also provides details on the financial mechanisms through which the Plan would work.

[17] IMF, Update on Fiscal Stimulus and Financial Sector Measures. Note to update the information in the paper 'The State of Public Finances: Outlook and Medium-term Policies After the 2008 Crisis'. Available online, http://www.imf.org/external/np/fad/2009/042609.htm, Access date 30/11/2015.

[18] See http://www.renewables-grid.eu/.

[19] See See M. Kollatz-Ahnen, S. Griffith-Jones and U. Bullmann, 'Industrial Policy as a Contribution to Overcome the Crisis in Europe', forthcoming 2016, in G. Cozzi, S. Newman, and J. Toporowski, (eds) *Finance and Industrial Policy. Beyond Financial Regulation in Europe*, Oxford University Press: Oxford.

[20] M. Szczurek, 'Investing for Europe's future', Sep.2014, speech delivered at the Bruegel Institute. Available at: http://www.voxeu.org/article/investing-europe-s-future.

[21] F. Cripps, 'Macro-model Scenarios and Implications for European Policy. Technical Appendix', in J. Eatwell, T. McKinley and P. Petit (eds.), 'Challenges for Europe in the World, 2030', 2013, Ashgate: Farnham.

[22] See Cripps, op.cit.