CENTRE OF PLANNING AND ECONOMIC RESEARCH

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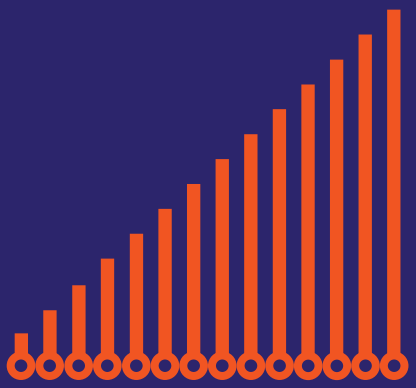
GREEK ECONOMIC OUTLOOK



- Macroeconomic analysis and projections
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Issue 33 - June 2017

Editorial

Issue 33 of KEPE's *Greek Economic Outlook* is published at what continues to be a difficult and challenging time, not only for Greece but also for Europe. At the Eurogroup meeting of May 22, Greece's creditors failed to bridge their differences concerning both the sustainability of Greece's debt and the debt relief plan. The final decision was therefore postponed for the next meeting, which is scheduled for June 15. The disagreement between the Eurozone and the IMF concerning the viability of Greece's debt is the last obstacle to unlocking yet another installment of rescue funds, which would allow the repayment of the € 7.3 billion due in July. Both the German and Dutch governments have declared that without the IMF's participation in the program it would be virtually impossible for them to accept the further disbursement of funds to Greece. As far as developments in the European Union are concerned, the positive outcome of the Dutch and French elections, the prospect of strong French leadership and the revival of the Franco-German axis at the core of Europe have generated some optimism. However, many important challenges remain, including the ongoing Brexit negotiations, increasing tensions in the EU's relations with the USA, Turkey and Russia, the threat of terrorism in Europe, and the revival of nationalist tensions in the Balkans.

In this context, the articles presented in KEPE's *Greek Economic Outlook* contribute important perspectives on crucial current issues. Part One features analyses of recent developments and prospects in the main demand components, in the Greek Current Account balance as well as in the evolution of the Consumer Price Index (CPI) in Greece and the Eurozone. An overview of the international macroeconomic environment as well as the factor model forecasts for the short-term prospects of GDP are also presented. Public finances are examined through an analysis of the Medium-term Financial Strategy Framework 2018-2021, as are the evolution and structure of public debt. Recent developments in key variables of the Greek labour market and the new phase of the refugee crisis are also discussed. As far as sectoral policies are concerned, the articles examine the external trade of agro-food products as well as the competitiveness and the enabling trade index of the Greek economy. The articles presented in Part Two provide a deeper and more specialised analysis of important contemporary issues. The first article examines "The output gap of the Greek economy and the role of pre-cyclical economic policy", the second analyses "The fundamental asymmetry in the economy of Greece" while the third discusses the "Access to finance and firm growth of Greek SMEs before and during the economic crisis".

RITSA PANAGIOTOU
Editor

1. Macroeconomic analysis and projections

1.1. Recent developments and prospects in the main demand components

Ersi Athanassiou

According to the latest seasonally adjusted data of the quarterly *National Accounts* (ELSTAT, March 2017), the rate of change of Greece's GDP exhibited considerable volatility in the last two quarters of 2016, with the significant recovery observed in the third quarter of the year (2.0% as compared to the corresponding quarter of 2015) being followed by a negative turn in the fourth quarter (-1.1%). These developments contributed to maintaining the real GDP of the Greek economy in 2016 at about the same level as that of 2015.

Concerning the role of domestic demand components in the evolution of the real GDP of the Greek economy, the slight decline of private consumption in the first and second quarters of 2016 gave turn to a significant recovery in the third quarter (6.1%, on a y-o-y basis), followed by a further increase in the fourth quarter of the year (1.1%). On the other hand, the considerable recovery in gross fixed capital formation in the second and third quarters of 2016 (17.8% and 12.6%, respectively) seemed to be interrupted in the fourth quarter of the year, when a considerable negative rate of change was recorded (-13.8%). In parallel, public consumption kept declining throughout the year, in the framework of

TABLE 1.1.1 Main macroeconomic data

	Billion EUR	% change compared to the previous period	
	Current prices	Constant prices	
	2016	2015	2016
Private consumption	124.0	-0.2	1.4
Public consumption	34.5	0.0	-2.1
Gross fixed capital formation	20.1	-0.2	0.1
of which			
Dwellings	1.1	-25.8	-12.8
Domestic demand*	178.7	-0.2	0.6
Exports of goods and services	53.0	3.4	-2.0
Exports of goods	28.3	8.6	2.9
Exports of services	24.8	-2.4	-7.2
Imports of goods and services	54.2	0.3	-0.4
Imports of goods	47.0	3.2	1.8
Imports of services	7.2	-14.9	-13.2
Balance of goods & services (% of GDP)	-0.7		
GDP	175.9	-0.2	0.0
Contributions to the change of real GDP			
Domestic demand*		-0.2	0.6
Balance of goods & services		1.0	-0.5
Change in inventories		-1.0	-0.1

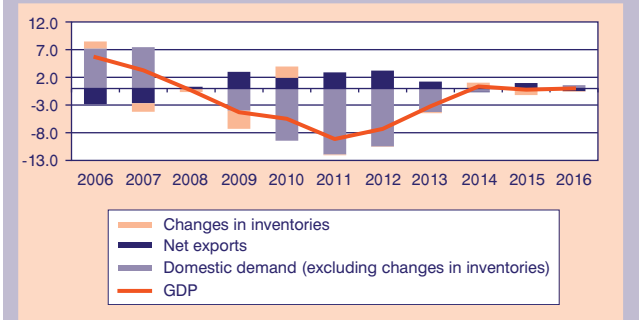
Source: National Accounts, ELSTAT (March 2017).

* Excluding inventories.

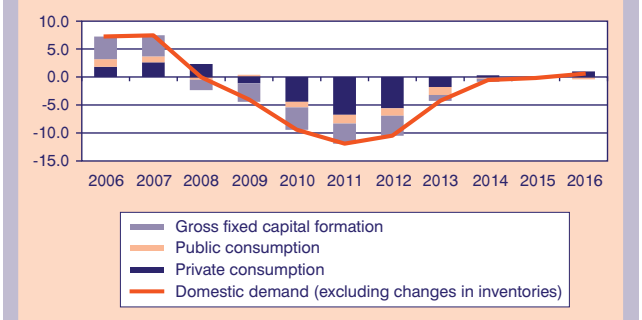
further fiscal consolidation. These developments resulted in significant fluctuations in the contribution of domestic demand to the rate of change of the GDP, with this contribution finally reaching 0.6 percentage points for the whole year 2016, from -0.2 points in 2015 (see Table 1.1.1 and Figure 1.1.1).

Concerning developments in the external sector, the trends prevailing in the first half of 2016 with respect to total imports and exports were reversed in the second half of the year. More particularly, imports, which had followed a downward path in the first two quarters of 2016, recovered sharply in the third quarter (13.8% as compared to the corresponding quarter of 2015) and at a milder rate in the fourth quarter of the year (3.0%). Similarly, in the case of exports, the decline recorded in the first two quarters of 2016 was followed by a positive turn in the third and fourth quarters of the year (11.0% and 5.7%, respectively, as compared to the third and fourth quarters of 2015). On the whole, these developments resulted in a positive contribution to the rate of change of the GDP from the side of imports and a stronger negative contribution from the side of exports. Thus the overall contribution of the external sector to the rate of change of the GDP amounted to -0.5 percentage point in 2016, from 1.0 point in 2015.

FIGURE 1.1.1
Contributions to the rate of change of the real GDP
Domestic and net external demand



Individual components of domestic demand



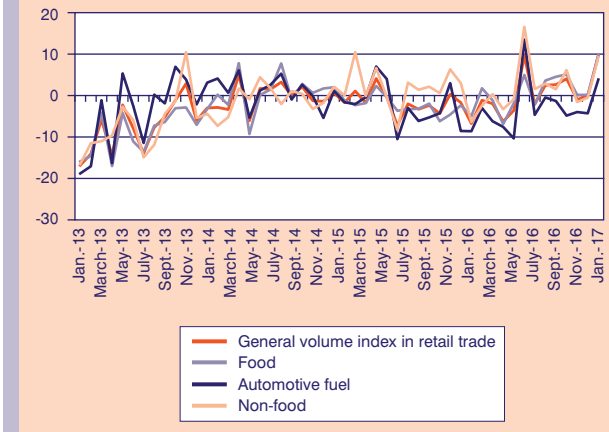
Source: National Accounts, ELSTAT, own calculations.

Regarding the main factors shaping the aforementioned developments in the GDP and its main components, next follows a more detailed analysis of their evolution and prospects, on the basis of national accounts data and selected short-term indicators.

1.1.1. Private consumption

The annual rate of change of private consumption amounted to 1.4% in 2016 from -0.2% in 2015, and as a result the contribution of private consumption to the rate of change of the GDP reached 1.0 percentage point in 2016, from -0.2 percentage point in 2015. On a quarterly basis, private consumption recorded a mild decrease until the second quarter of 2016, thereafter exhibiting, as already mentioned, a significant recovery in the third quarter and a slower increase in the fourth quarter of the year. Additional indications regarding the recent dynamics of private consumption expenditure are provided by the evolution of the monthly volume index in retail trade. Following the exclusively negative monthly percentage changes of the general index during the period from January to June 2016, positive rates of change of the index were recorded in July (9.5%), September (2.4%), October (2.6%) and November (4.0%), while negative rates of change were observed in August (-2.1%) and December (-1.0%). Positive contributions to the development of the general index during the second half of 2016 came from the side of two out of the three main retail sector categories, namely the *food* sector and, with the exception of December, the *non-food* sector (Figure 1.1.2). In contrast, negative developments were recorded in the

FIGURE 1.1.2
Percentage changes in the general volume index and the main sector indices in retail trade



Source: ELSTAT, own calculations.

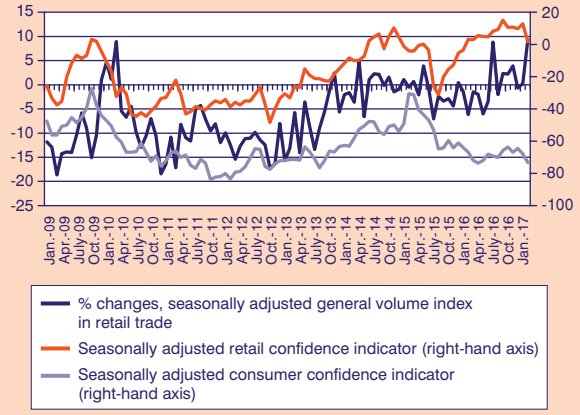
case of the index of the *automotive fuel* sector, with the exception of July.

With respect to the relevant developments during the first months of 2017, the general volume index in retail trade recorded a marginal decrease in January (-0.1%), followed by a significant increase in February (9.6%),[1] as compared to the corresponding months of 2016. The respective course of the general index is further mirrored in the developments in the three main retail categories. More particularly, in the case of the *food* sector, the marginal negative change observed in January (-0.1%) was followed by a significant increase in February (9.8%), while in the cases of the *automotive fuel* sector and the *non-food* sector, the negative changes recorded in January (-4.3% and -0.6%, respectively) were also reversed in February (3.8% and 9.2%, respectively).

With reference to the evolution of the indices in the eight individual retail store sub-categories, it seems that favorable developments in the January-December 2016 twelve-month period –as compared to 2016– were mainly related to *department stores* (6.6%), *clothing-footwear* (5.4%), *books-stationery-other books* (4.3%) and *supermarkets* (0.4%). On the contrary, adverse developments took place on average over the same period in the indices of the *automotive fuel* (-4.1%), *pharmaceuticals-cosmetics* (-2.7%), *food-beverages-tobacco* (-1.6%) and *furniture-electrical equipment-household equipment* (-1.2%) sub-categories. It is worth pointing out that in July 2016 the relevant indices recorded high positive rates of change in seven out of the eight individual sub-categories, while during the rest of the year most individual indices exhibited fluctuations. With respect to the corresponding developments in early 2017, in January positive rates of change were recorded in three out of the eight sub-categories (*supermarkets*, *clothing-footwear*, *books-stationery-other books)*, while in February upward trends prevailed in seven out of the eight sub-categories (only *pharmaceuticals-cosmetics* were excluded).

On the basis of the above data, it appears that from mid-2016 and until recently private consumption has followed a mostly upward trend, with some temporary intervals of weakening dynamics. This course appears to signify that the positive impact on consumption from the gradual stabilization of the economic environment, the slow but consistent improvement of the main labour market figures and the notable recovery in the compensation of employees (2.9% in current prices compared to 2015), outweighs the negative effects associated with the uncertainty and the pressures on household disposable income from the implementation of fiscal adjustment measures.

FIGURE 1.1.3
General volume index in retail trade and confidence indicators



Source: ELSTAT, EUROSTAT, own calculations.

With respect to the prospects of private consumption, developments in the consumer and retail confidence indicators over recent months (Figure 1.1.3) reflect the sensitivity of consumers' and retailers' expectations to the conditions emerging in the course of the negotiations for the second review of Greece's financial assistance programme. Thus, the continuation of the recovery of private consumption in 2017 is expected to be favoured by the agreement for the completion of the review and the resulting unwinding of uncertainty in the economy. In the current conjuncture, these conditions are crucial for curtailing the apprehension of consumers and counterbalancing the significant adverse effects on consumption from the implementation of fiscal measures imposing burdens on the disposable income of certain categories of households.

1.1.2. Investment

The annual rate of change of gross fixed capital formation amounted to 0.1% in 2016, versus -0.3% in 2015, and as a result the contribution of investment expenditure to the rate of change of the GDP was kept near zero in both years. On a quarterly basis, investment exhibited considerable fluctuations in the course of the year 2016, recording a decline in the first quarter, a significant recovery in the second and third quarters, and again a decrease in the final quarter of the year.

1. The data for February are provisional.

More particularly, with regard to investment other than construction, developments in 2016 were mixed, with expenditure in two out of the four relevant categories recording, on average, an increase. More specifically, expenditure increased for a third consecutive year in the metal products and machinery category (2.4%), while a marginal increase was also recorded in the other products category (0.2%). On the contrary, a decline was observed for a second consecutive year in the transport equipment expenditure category (-5.9%), while investment in products of agriculture-forestry-fisheries also decreased (-1.4%), although it should be noted that expenditure in the latter category accounts for a very small share of total investment.

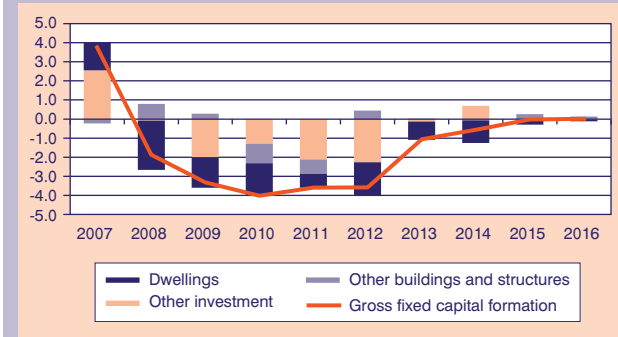
With respect to investment in constructions, 2016 was characterized by a milder rate of increase of expenditure in other constructions (2.9%) and a slower rate of decline of housing investment (-12.8%), as compared to the previous year. As a result, total investment in constructions recorded a nearly null contribution to the rate of change of the GDP for a second year in a row (Figure 1.1.4).

Additional information on developments in the construction sector as a whole is derived from the available statistical data on the course of the general production index in construction during the fourth quarter of 2016.[2] As it appears, the index increased by 18.6% as compared to the corresponding quarter of 2015, thus remaining on the upward track resumed since the second quarter of the year. This development was due both to the rise in the sub-index of production of civil engineering (19.7%), which relates to infrastructure works (e.g. highways, bridges, tunnels, pipelines, networks and port development), and to the respective positive development in the sub-index of production of building construction (17.3%), which reflects developments in the construction of dwellings, industrial and commercial buildings and other buildings.

More particular information with regard to the recent developments in residential investment is derived from the residential buildings indicator with respect to square meters of useful floor area, based on building permits. Both the individual monthly observations of the residential buildings indicator and the estimated private building activity[3] exhibited improvement in the most recent reference period. More specifically, the monthly percentage changes of the indicator on a year-on-year basis were positive in October (10.7%), negative in November (-2.2%), and once again significantly positive in December 2016 (51.6%) and January 2017 (17.8%). In parallel, the estimated private building activity presented a further deceleration of its negative dynamics in October and November 2016 (-0.2% and -0.9%, respectively), while in December 2016 and January 2017 it presented an increase (2.9% and 7.3%) for the first time since late 2006 (Figure 1.1.5).

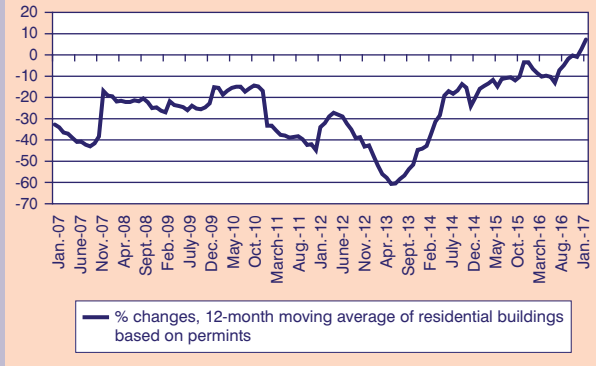
Overall, the aforementioned positive developments in individual investment categories signify the presence of underlying investment growth dynamics. However, the volatility of total investment in the course of 2016, and more particularly the decline recorded in the final quarter of the year, signify the vulnerability of invest-

FIGURE 1.1.4
Contribution to the rate of change of the GDP
Individual components of investment



Source: National Accounts, ELSTAT, own calculations.

FIGURE 1.1.5
Estimated residential building activity based on permits

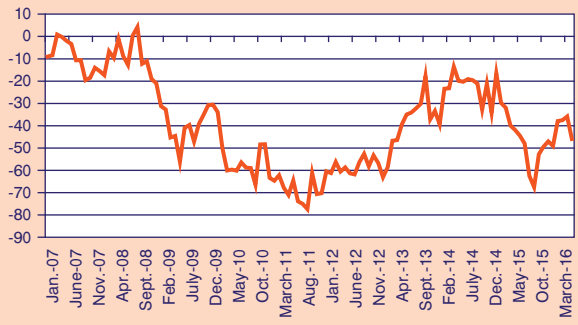


Source: EUROSTAT.

2. Note that the reference concerns the indicator adjusted for the number of working days while data for the fourth quarter of 2016 are provisional.

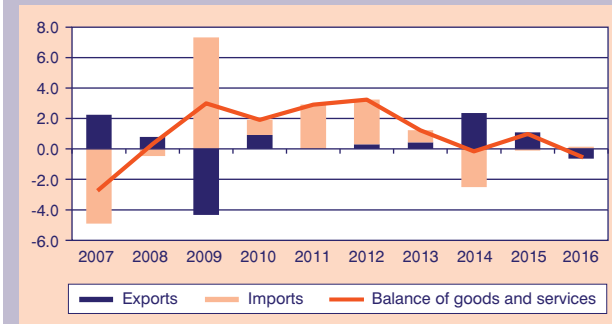
3. A twelve-month moving average and the related percentage point changes are calculated.

FIGURE 1.1.6
Construction confidence indicator



Source: EUROSTAT.

FIGURE 1.1.7
Contributions to the rate of change of the GDP
Individual components of external demand



Source: National Accounts, ELSTAT, own calculations.

ment to economic climate changes, while also reflecting the continuing serious liquidity and financing problems in the market and the negative effects on investment incentives due to the high taxation of businesses and real estate property.

With respect to the short-term prospects for fixed capital formation, developments in the short-term are expected to be favoured by the further stabilization of the economic climate, following the completion of the second review of the Greek programme. However, the gradual completion of large construction projects (roads, railways) which have thus far contributed decisively to the volume of investment, emphasizes the need for speeding up the launch of new major investment projects related to the utilization of public property and the construction of new infrastructures included in the 2014-2020 structural funds programming period. Progress with these particular investments is currently of crucial importance, both for the purpose of providing a boost to the domestic construction sector, where, based on the relevant confidence indicator, expectations have been volatile from mid-2016 onwards (Figure 1.1.6), and, more generally, for the role they can play in turning around the country's investment climate.

1.1.3. External balance of goods and services

As mentioned above, the downward trend prevailing in the first half of 2016 with respect to total imports and exports was reversed fully in the second half of the year, reflecting the progressive stabilization of the Greek economy and the impact of exogenous factors.

More particularly, concerning exports, in the case of services the negative course followed in the first two quarters of 2016 gave turn to a significant recovery in the third and fourth quarters of the year. According to data of the Bank of Greece, this development is related to the increase in receipts from transportation and other services in the third and fourth quarters, as well as to the rise in tourism receipts in the fourth quarter. In the case of goods exports, developments remained positive up until the third quarter of the year, while in the fourth quarter a decrease was recorded, which can most probably be attributed to endogenous factors as during the same period goods exports in most EU economies increased. Overall, for the year 2016 as a whole, exports recorded an increase in the case of goods (2.9%) and a significant decline in the case of services (-7.3%), the result being a negative contribution of -0.6 percentage points to the rate of change of the GDP (see Figure 1.1.7).

With respect to imports, in the case of services the downward trend recorded in the first two quarters of 2016 was reversed from the third quarter of the year onwards, as according to Bank of Greece data there was a rise in payments for transportation and other services. In the case of goods, imports increased from the second quarter of the year onwards, with the relevant rate of change accelerating in the third quarter (10.5%) and slowing down in the fourth quarter of the year (1.6%), in line with the respective develop-

2. Note that the reference concerns the indicator adjusted for the number of working days while data for the third quarter of 2016 are provisional.

3. A twelve-month moving average and the related percentage point changes are calculated.

ments in private consumption. For the year 2016 as a whole, imports recorded an increase in the case of goods (1.8%) and a decrease in the case of services (-13.2%), the result being a marginally positive contribution of 0.1 percentage point to the rate of change of the GDP.

Concerning the prospects of the external sector, with respect to exports the indications thus far available point to an improvement both in the case of goods and in the case of services. In parallel, imports are expected to keep increasing, due to the foreseen recovery of domestic demand, and the expected increase in oil prices as compared to the previous year. Under these circumstances, the balance of the external sector and its contribution to the GDP will depend critically upon the scale of export growth, as well as upon the degree to which a possible increase in internal demand will be covered by domestically produced goods. In the current conjuncture, a decisive role in the country's performance in the above fields will be played by the implementation of the new investment necessary for the strengthening of the country's productive capacity.

1.1.4. Conclusions

The above analysis of developments in the main demand components provides clear signs of positive underlying dynamics for private consumption and fixed capital formation, together with favourable indications for the short-term prospects of goods and services exports. This picture points to a positive outlook for the GDP in 2017, which is in line with the forecasts derived on the basis of the KEPE dynamic factor model (see Section 1.4.

1.2. Development of the Greek Current Account Balance and its components

Ioanna Konstantakopoulou, Fotis Gkouvas

The Current Account Balance (CA) developed a deficit in the previous year. Specifically, the deficit of the CA stood at 0.64% in 2016 compared to a surplus of 0.12% of GDP in 2015 (see Table 1.2.1). In absolute terms, the deficit of the CAB reached € 1.12 billion compared to a surplus of € 0.21 billion in 2015 (see Table 1.2.2). This negative development comes mainly from the Services Balance due to a decrease in transport services receipts. Also the Goods Balance excluding oil and ships, which is the most important element of the Goods Balance, presented negative indications due to the revival of Greek imports. Greek imports are expected to grow further as our economy develops positive growth rates as a result of the income elasticity of demand for Greek imports (Konstantakopoulou, 2017,

TABLE 1.2.1 Current Account (as % of GDP)

	CA	Goods	Exports	Imports	Services	Primary income	Secondary income
2007	**-15.71**	-19.02	9.17	28.18	6.73	-2.93	-0.49
2008	**-15.77**	-19.13	9.45	28.58	6.76	-3.25	-0.15
2009	**-12.66**	-14.31	7.65	21.96	4.97	-2.91	-0.41
2010	**-11.46**	-13.53	9.37	22.9	5.40	-2.54	-0.79
2011	**-10.09**	-12.80	11.61	24.41	6.63	-3.18	-0.73
2012	**-3.82**	-10.96	14.15	25.1	7.21	0.43	-0.50
2013	**-1.99**	-11.23	14.54	25.77	8.51	-0.25	0.97
2014	**-1.61**	-12.27	14.78	27.05	10.08	0.77	-0.18
2015	**0.12**	-9.70	13.96	23.67	9.54	0.58	-0.29
2016	**-0.64**	-9.44	13.94	23.37	8.71	0.43	-0.34

Source: Bank of Greece and Hellenic Statistical Authority.

TABLE 1.2.2 Current Account (in EUR billion)

	CA	Goods	Exports	Imports	Services	Primary income	Secondary income
2007	-35.34	-42.79	20.62	63.41	15.14	-6.59	-1.11
2008	-36.57	-44.36	21.92	66.28	15.68	-7.54	-0.34
2009	-29.32	-33.14	17.72	50.86	11.50	-6.74	-0.95
2010	-25.73	-30.37	21.03	51.41	12.12	-5.71	-1.76
2011	-20.72	-26.29	23.84	50.13	13.61	-6.53	-1.51
2012	-7.33	-21.03	27.15	48.18	13.84	0.82	-0.95
2013	-3.69	-20.78	26.90	47.67	15.75	-0.46	1.80
2014	-2.91	-22.25	26.79	49.04	18.27	1.40	-0.33
2015	0.21	-17.23	24.79	42.02	16.93	1.03	-0.52
2016	-1.12	-16.58	24.49	41.07	15.31	0.75	-0.60

Source: Bank of Greece.

work in progress). The state of Greece's exports is encouraging, because they present a subtle but steady upswing in the last year.

1.2.1. Balance of Goods

The deficit of the Balance of Goods stood at -9.44% of GDP in 2016, presenting a change of -2.76% compared to 2015 (see Table 1.2.1). In absolute terms the deficit of the Balance of Goods was € 16.58 billion, € 0.65 billion less than the deficit of 2015 (see Table 1.2.2).

Oil Balance

This positive development reflects the improvement of the result of Oil Balance. Specifically, according to Table 1.2.3 the deficit in the oil balance declined significantly in 2016, and as percentage of the GDP stood at 1.61% whereas in 2015 it amounted to 2.37% of the

TABLE 1.2.3 The components of the Trade Balance (as percent of GDP)

	Oil	Trade excluding oil	Ships	Trade excluding oil & ships
2007	-3.05	-15.97	-2.41	-13.56
2008	-4.23	-14.89	-2.02	-12.88
2009	-2.44	-11.87	-1.43	-10.44
2010	-3.24	-10.29	-1.56	-8.73
2011	-4.01	-8.79	-1.59	-7.21
2012	-4.31	-6.65	-0.54	-6.11
2013	-3.74	-7.49	-0.8	-6.69
2014	-3.46	-8.81	-1.18	-7.63
2015	-2.37	-7.33	-0.24	-7.09
2016	-1.61	-7.82	-0.08	-7.74

Source: Bank of Greece.

TABLE 1.2.4 The components of imports excluding oil (shares)

		Imports				
		2005-08	2009-12	2013-14	2015	2016
Agricultural Products		*12.97*	*16.92*	*19.47*	*18.53*	*18.43*
0	Food and live animals	10.83	14.40	16.92	15.88	15.87
1	Beverages and tobacco	1.68	1.81	1.64	1.78	1.82
4	Animal and vegetable oils, fats and waxes	0.45	0.72	0.90	0.87	0.74
Crude Materials		*3.16*	*3.51*	*3.92*	*3.43*	*3.17*
2	Crude materials, inedible, except oil	3.16	3.51	3.92	3.43	3.17
Industrial Products		*83.44*	*79.49*	*76.57*	*77.71*	*78.27*
5	Chemicals and related products (n.e.s.)	16.77	20.20	21.72	21.29	20.16
6	Manufactured goods classified by material	16.96	14.39	15.38	14.89	15.20
7	Machinery and transports equipment	34.87	30.27	25.46	27.33	28.30
8	Miscellaneous manufactured articles	15.28	14.70	14.06	14.19	14.61
Total		100.00	100.00	100.00	100.00	100.00

Note: The data from 2005-2014, come mainly from Study no.76 of KEPE: *Analysis of Greek external trade: Sectoral analysis, comparative advantages, exports and economic growth, 2000-2014.* For the last two years they come from Comtrade.

GDP. This change is caused by the sharp reduction in oil prices, which continued to occur in 2016. The fall in prices of crude oil has a beneficial effect on the domestic production procedure due to the fact that the Greek economy has complete oil dependency.

Balance of Goods excluding oil and ships

The Balance of Goods excluding oil and ships is the main component of the Balance of Goods, and contributes significantly to the shaping of the Current Account Balance's outcome. During the time period of the great depression of Greek economy (2009-2012), we observed a considerable adjustment of this variable, which did not continue to occur in the following years and in 2016 a few negative indications were recorded. More thoroughly, the deficit of the Balance in question stood to 7.74% of GDP in 2016 compared to 7.09% of GDP in 2015 (see Table 1.2.3) and in absolute terms it increased by € 1.02 billion compared to 2015.

The widening of the deficit in the Balance of Goods excluding oil and ships came from the great increase of imported goods (not counting imports of oil and ships) which have risen to € 31.49 billion, a rise of 4.2% compared to 2015. As we can see from Table 1.2.4 the industrial products continue to be the main component of imported goods (excluding oil and ships) and present further augmentation of their share in 2016.

Moreover, we note that the shares of Machinery and transport equipment on exports, maintain their upswing trend, which is a most disturbing fact.

From Figure 1.2.1 we observe that the exports excluding oil and ships showed a steady rise, a rise that continues to occur in the next years, despite being intercepted significantly in 2009 and mildly in 2013.[1]

Regarding the ship balance, its contribution to the Current Account balance is small and its outcome is not indissolubly connected with the basic parts of the Greek economy.

1.2.2. Services Balance

The surplus in the Services Balance stood at 8.71% of GDP, recording a change of -8.63% compared to 2015. In absolute terms it amounted to € 15.31 billion, reduced by € 1.63 billion. The significant reduction in the Services Balance surplus is mainly attributable to the decline of net transport receipts (see Figure 1.2.2), whereas there is a positive trend in net travel receipts. Since 2011 the net travel receipts have significantly increased and between 2011 and 2016 the average yearly level of the Services Balance amounts to € 10.28 billion. The counterpart term for the net transport receipts stood at € 5.38 billion, recording a downswing. The latter variable depends heavily on external factors.

FIGURE 1.2.1
Exports, imports of goods excluding oil and ships 2007-2016, as % of GDP *(rate of change relative to the previous year)*

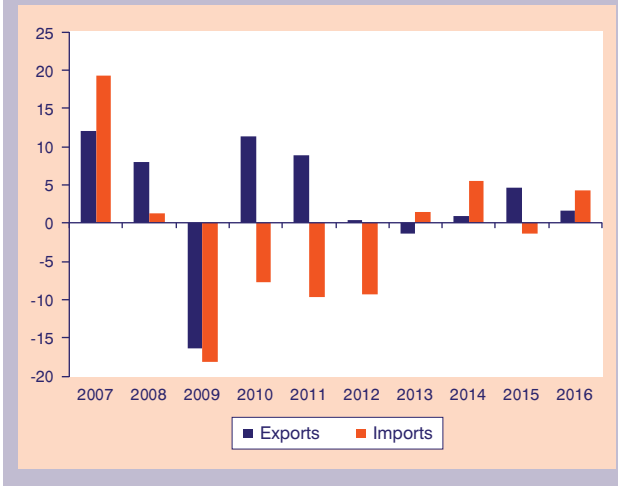


FIGURE 1.2.2
Net receipts from transport services and travel services *(in EUR billion)*

1. The sharp rise of the international trade was intercepted in 2009, when the world exports showed a decline by -22.3% as a result of the financial crisis and the international economic recession. *Source:* UNCTAD.

1.2.3. Primary Income Balance

In 2016 the Primary Income surplus stood at 0.43% of the GDP compared to 0.58% in 2015. In absolute terms it amounted to € 0.75 billion, reduced by € 0.27 billion compared to 2015. The reduction in the surplus comes from the increase in net payments of the rest primary income by € 0.23 billion in 2016 compared to 2015.

1.2.4. Secondary Income Balance

The deficit in the Secondary Income Balance[2] showed a marginal rate of change of € -0.076 billion compared to 2015. As a percentage of GDP the deficit in the Secondary Income Balance was 0.34. This development is mainly due to the increase of transfers from the General Government to the EU community budget by € 0.13 billion compared to 2015, while the respective receipts were reduced by € 0.037 billion.

2. The Secondary Income Balance has little influence on the result of Current Account Balance and in general it doesn't affect significantly the trend of the economy, as in this account all the unilateral transfers which are not linked to fixed capital investments are recorded.

1.3. The evolution of the Consumer Price Index (CPI) in Greece and the Eurozone

Yannis Panagopoulos

Based on the recent trend (May 2017), as indicated from the first column of Table 1.3.1 and from Diagram 1.3.1, the Greek economy, since January 2017, has entered the inflation area. On the other hand, however, the core of the headline CPI, is not following at the same path, with the exception of one positive change in March 2017 and is still moving with negatives values.

A similar trend, with the headline CPI, is recorded from the harmonized CPI (HCPI). More specifically, this index has moved to positive changes a month earlier than the headline CPI (December 2016, 0.3%). On the other hand, its core, contrary to the core of the headline CPI, has recorded slightly positive changes during all of 2017 (January-April).

Additionally, according to the Hellenic Statistical Authority (ELSTAT), the aforementioned headline inflation rate (1.6%, y-o-y, in April 2017) can be mainly attributed to subsequent price increases in six (6) main sub-categories, namely: (a) the "Transportation" category (by 6.8%) mainly due to increases in the price of the gasoline, car lubricants and airplane tickets,[1] b) the "Alcoholic, drinks and tobacco" category (by 5.8%) basically due to price increases for these products, c) the "Housing" category (by 3.3%) due to increases in the prices of residential heating and gas,[2] d) the "Communication" category (by 2.1%) mainly due to increased fees for telephone services, e) the "Restaurants-Hotel-Café" category (by 1.9%) mainly due to increases in their prices, f) the "Food and non-alcoholic beverages" category (by 1.9%), due to price increases mainly in fresh fruits, fresh vegetables, olive oil, potatoes, fish and coffee.[3]

Part of the aforementioned inflation was offset by the decrease in the prices mainly of six (6) sub-categories, namely: a) the "Household equipments" category (by 3.2%) mainly due to decreases in household textile products, in large household appliances (electrical or not), in household consumption items as well as in immediate household and care services, b) the "Health" category (by 2.8%) especially due to price decreases in nursing and paramedical services as well as in pharmaceutical products, c) the "Miscellaneous goods and services" category (by 2.2%) basically due to reductions in the prices of personal care products as well as of car and motorcycle insurance, d) the "Recreation and cul-

TABLE 1.3.1 Inflation in Greece & in the Eurozone

	Headline inflation (Greece)	Core inflation (Greece)	Harmonized inflation (Greece)	Core harmonized inflation (Greece)	Harmonized inflation (EU19)	Core harmonized inflation (EU19)
2016M10	-0.5	-0.6	0.6	0.9	0.5	0.7
2016M11	-0.9	-1.0	-0.2	0.0	0.6	0.8
2016M12	0.0	-0.6	0.3	0.0	1.1	0.9
2017M1	1.2	-0.6	1.5	0.4	1.8	0.9
2017M2	1.3	-0.9	1.4	0.1	2.0	0.9
2017M3	1.7	0.1	1.7	0.6	1.5	0.8
2017M4	1.6	-0.2	1.6	0.7	1.9	1.2

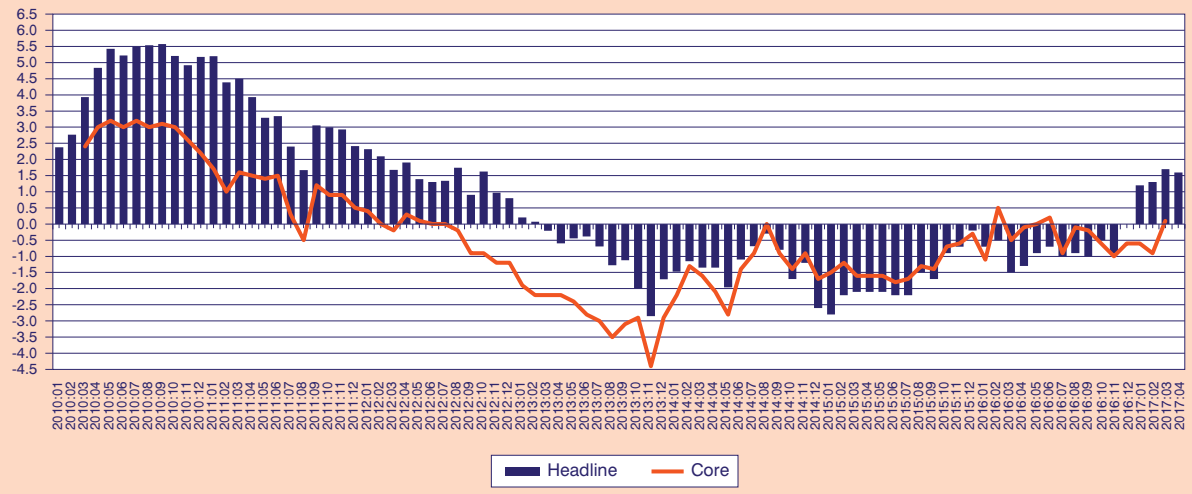
Source: ELSTAT, EUROSTAT.

1. Part of this increase was offset by the decreases in the price of cars and house rents.
2. Part of this increase was offset by the decreases in prices of electricity.
3. Part of this increase was offset by decreases in the price of bread, eggs, cereals, dried fruits and nuts.

ture" category (by 1.3%) mainly due to decreases in the prices of PCs,[4] e) the "Education" category (by 0.3%) mainly due to decreases in the fees for secondary schools and f) the "Clothing and Footwear" category (by 0.2%) due to price decreases of these products.

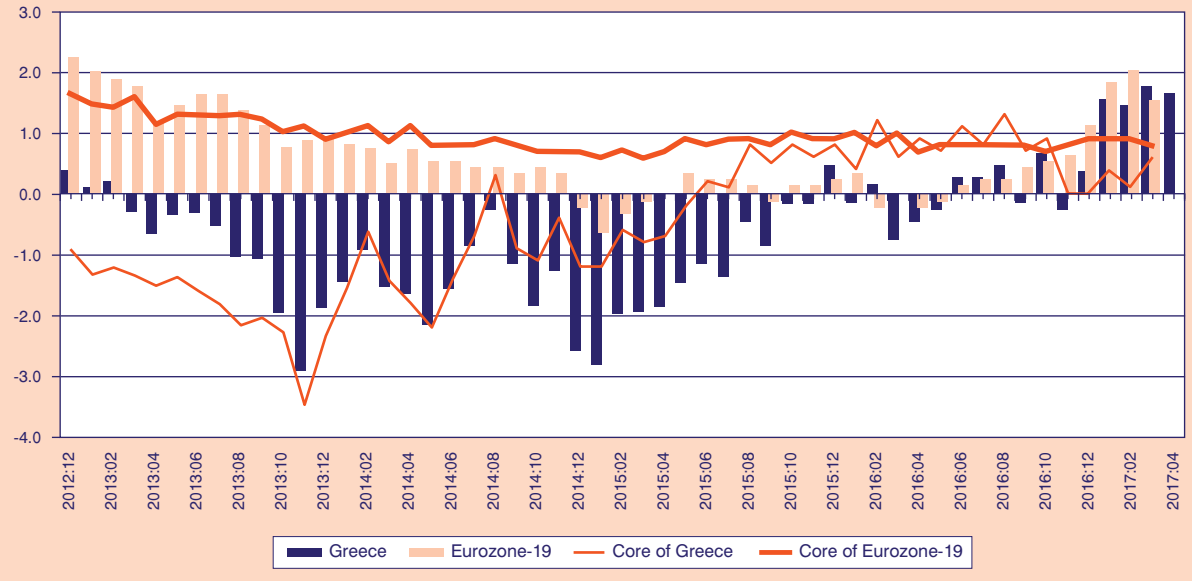
As regards to the harmonized CPI of the euro area (HCPI-EU19), we can mention that in the last few months it has been moving with an upward trend. More specifically, from 1.1%, in December 2016, it rose steadily to 2.0% in February 2017, which is also the inflationary target for the ECB. Then, we had a

DIAGRAM 1.3.1
CPI, % change relative to the respective month of the previous years



Source: ELSTAT, EUROSTAT.

DIAGRAM 1.3.2
Harmonized indices of consumer prices, % change relative to the respective month of the previous years



Source: ELSTAT, EUROSTAT.

4. Part of this decrease was offset by increases in the fees for State Television (ERT).

slight retreat in a lower percentage and at April returned back to almost 2.0%. At the same time period, the core of HCPI-EU19 (does not include unprocessed food and energy) has also continued to move steadily, with a positive upward trend (between 0.8% and 1.2%). On the other hand, as we can observe from Diagram 1.3.2, the Greek HCPI, after January 2017, has been moving with a percentage between 1.5% and 1.7%. Additionally, for the beginning of 2017, its core presents some positive changes which gradually bring it closer to the corresponding Eurozone's average.

In conclusion, both HCPIs (Greece and the Eurozone) in the last months converged towards a percentage change number of almost 1.7%-1.8%. On the contrary, the core of these two harmonized indices, as shown in Diagram 1.3.2, does not yet converge towards a common number.

1.4. Factor model forecasts for the short-term prospects in GDP

Factor Model Economic Forecasting Unit
Ersi Athanassiou, Theodore Tsekeris, Ekaterini Tsouma

The current section presents the updated short-term forecasts of KEPE concerning the evolution of the rate of change of real GDP in Greece for 2017.[1] The forecasts are produced by implementing a dynamic structural factor model, a detailed description of which can be found in Issue 15 (June 2011) of the *Greek Economic Outlook*. The underlying time series database used to estimate the model and produce the forecasts includes 126 variables, covering the main aspects of economic activity in the country on a quarterly basis, spanning the time period from January 2000 up to December 2016. Specifically, the database incorporates both real economy variables (such as the main components of GDP from the expenditure side, general and individual indices concerning industrial production, retail sales, travel receipts and the labor market) and nominal variables (such as the general and individual consumer price indices, monetary variables, bond yields, interest rates, exchange rates and housing price indices). In addition, the data sample includes a considerable number of variables reflecting expectations and assessments of economic agents (such as economic sentiment and business expectations indicators). It is noted that the seasonal adjustment of all time series is carried out by use of the Demetra+ software, which is freely available from Eurostat.[2]

According to the econometric estimates presented in Table 1.4.1, and having incorporated published GDP data up to the end of 2016, the mean annual rate of change of real GDP for 2017 is predicted at 1.6%. This forecast implies a considerable improvement of domestic economic conditions as compared to the previous year, in which the Greek GDP remained stagnant. At the same time, with the mean rates of change of real GDP for the first and second half of 2017 estimated at 1.3% and 2.0%, respectively, the forecast incorporates a downward revision of GDP prospects for the first half of 2017, as compared to the forecast made in the preceding period of reference (2.1%). Still, half-year predictions remain overall favourable and clearly demonstrate an upward trend, which is further reflected in the estimated quarterly rates of change of real GDP amounting to 1.2%, 1.3%. 1.5% and 2.4% in the respective four quarters of 2017.

The above presented forecasts of the rate of change of real GDP reflect the main aspects of the most recent short-term developments in the Greek economy and seem to be consistent with the incorporated data for the last quarter of 2016. In particular, the effects of the recorded deterioration in specific macroeconomic aggregates in the last months of 2016 appear to be carried over to the first half of 2017, hampering the achievement of higher growth rates. As a result, the establishment of stable and expansionary conditions as well the further enhancement of the recovery process in the country seem to be deferred into the future,

TABLE 1.4.1 Real GDP rate of change *(%, y-o-y)*

	2017			
Quarters	2017Q1	2017Q2	2017Q3	2017Q4
Quarterly rate of change	1.24 [1.14 , 1.34]	1.29 [1.12 , 1.46]	1.54 [1.31 , 1.77]	2.37 [2.08 , 2.67]
Mean rate of change, 1st and 2nd half of 2017	1.27 [1.13 , 1.40]		1.96 [1.70 , 2.22]	
Mean annual rate of change	1.61 [1.41 , 1.81]			

Note: Values in brackets indicate the lower and upper boundaries of the 95% confidence interval of the forecasts.

1. The date of the forecast is the 28th of April 2017.

2. The TRAMO/SEATS filter was used for the seasonal adjustment.

when compared with the preceding KEPE forecast. The respective assessment is associated with the time shift of the manifestation of the anticipated positive effects from (a) the completion of the second review on the country's programme, (b) the inclusion of Greece in the Quantitative Easing programme of the European Central Bank, and (c) an agreement on the issue of the Greek debt.

A more thorough inspection of the additional information contained in the data series for the last quarter of 2016 (on a non-seasonally adjusted basis) indeed reveals favorable developments in many cases, despite: (a) the downward course in individual economic aggregates and indicators, such as gross fixed capital investment, goods exports, the turnover index in wholesale and motor trade, building activity based on permits issued, and the General Index of the Athens Stock Exchange, (b) the negative developments in specific index categories, and (c) the marginal worsening in indicators reflecting competitiveness. Indicatively, an improved path characterized: (a) major macroeconomic aggregates, such as private consumption and services exports, (b) basic industry indicators, such as the industrial production index and the turnover index in industry (overall and for both the internal and external markets), (c) the volume index in retail trade, (d) indicators relating to construction activity, like the production index in construction, (e) travel and transport receipts, and (f) spreads. In addition, the overall economic sentiment indicator for Greece and most of the indicators reflecting and incorporating business expectations on a sectoral level (except for business expectations in construction), as well as assessments for orders in industry and exports, also moved upwards. Particular importance is further attributed to the continuation of the gradual reduction in unemployment (on an aggregate level and for both long-term and newly unemployed) and the preservation of the increasing trend in employment (basically in the secondary sector and marginally on an aggregate level and in the tertiary sector), despite the largely adverse conditions still characterizing the domestic labour market.

Greek real GDP, but also the overall domestic economic environment, might follow in 2017 a more or less favourable path than indicated by the above presented forecasts, depending on the crucial and decisive developments in a wide range of factors. These are intertwined, on the one hand, with the preservation of the balance in fiscal aggregates, the improvement of financing conditions for enterprises and the exploitation of all benefits arising from the implementation of the necessary structural reforms. On the other hand, they relate to the extent to which any negative effects on household income and business activity from potential major financial burdens and economic measures, within the framework of the financial assistance programme in force, can be offset or at least contained.

1.5. International macroeconomic environment: recent developments and prospects

Yannis Panagopoulos

1.5.1. Overview

The aim of this article is the presentation and analysis of the predictions regarding to the main macroeconomic variables of the global economy for 2017, which are reported by the major international organizations (e.g. EC, IMF, OECD). Additionally, a discussion upon the recorded deviations of the main macroeconomic variables predictions (see *Greek Economic Outlook*, Issue 32) is presented. It should be also noted that our analysis, although it includes the global dimension of the economy, is primarily Eurocentric (e.g. Eurozone, European Union [EU] outside Eurozone, and EU candidate countries) due to the geographical, economic and political interests of our country. More analytically, the sections presented in this article include: the developed economies (G4), the Eurozone, the EU outside the Eurozone, the EU candidate countries and, finally, the developing economies. Special brief reference is made also to Greece at the end of the article.

Based on the macroeconomic outlook, presented in Table 1.5.1, the global economy is on a track of recovery. More specifically, it appears that for 2017 the world GDP economy will grow at a rate ranging from 3.4% to 3.5%. However, the non-homogenous nature of this growth among different countries is obvious.

1.5.2. Developed economies (outside the Eurozone)

With the term "developed economies" we refer to the four most advanced economies (G4: Canada, Japan, the USA and the United Kingdom [UK]). So, as reported from the outlook of various financial institutions (see Table 1.5.1), a slight increase in their average growth rate is estimated. Analytically, according to the EC[1] and to the IMF[2] reports, for 2017, an average growth rate ranging from 1.7% to 1.9% is expected. This growth will come mainly from some active aggregate demand policies and especially from moderate fiscal expansion.

The average inflation rate in G4 countries is expected to be around 1.7% to 2.0%.[3] This small increase in the inflation rate (up to +0.2%, relative to the previous estimation) will mainly come from the gradual recovery of international fuel prices. Secondarily, it is due to the gradual fiscal expansion in most of the G4 economies.

Regarding now the "output gap",[4] the institutions project variations from country to country. More analytically, in Table 1.5.1, we observe a small positive and/or negative deviation around 0% in all four countries.[5] This numerical evidence signifies that the G4 economies are very close to their production capabilities.

The average rate of unemployment (as shown in Table 1.5.1) in the G4 economies is expected to continue moving at relatively low levels in 2017 (below 4.9%). Thus we do not anticipate any dramatic change in the projections of the average level of the unemployment rate. Analytically, the anticipated average rate of unemployment in this group could be even smaller if Canada –in contrast to the other three economies– does not project a relatively high rate of almost 6.5%, in comparison to 2.8% for Japan, 4.8% for the UK and 4.6% for the US.

For 2017 the US economic growth rate projection is not expected to change and will remain at around 2.1% (relative to 1.5% in 2016). Moreover, the US unemployment rate will be slightly reduced (by -0.1%) and will reach 4.6%, while inflation will increase by +0.6%, relative to the previous projection, and will reach 2.5%. Finally, the US "output gap" is projected to be very close to zero (from 0.0% to +0.3%, as it was also recorded in 2016). As regards to Japan, a moderate growth rate of 1.4% is expected for 2017, which will primarily rely on supportive demand-driven macroeconomic policies. The unemployment rate will remain stable around 2.8%-3.1% while inflation will move marginally above zero (0.3%-0.6%). Japan's "output gap" is estimated to reduce to -1.0% (from -1.7% in 2016).

1. EC: European Commission, European Economic Forecast, Spring 2017.

2. IMF: International Monetary Fund, World Economic Outlook, 2017.

3. There are no updated OECD predictions for inflation in 2017.

4. The "output gap" is practically the difference between actual and potential GDP in a country. When it has a positive value it means that the real GDP of a country is higher than the potential. The opposite applies with a negative value.

5. A slightly negative value, regarding the "output gap", is expected for Canada and Japan and a slightly positive value for the UK and close to nil for the USA.

TABLE 1.5.1 The predictions for the main macroeconomic figures (2017)*

	Real GDP (%)			Inflation			Unemployment (%)			Output gap (%, GDP)		
	EC	IMF	OECD	EC	IMF	OECD	EC	IMF	OECD	EC	IMF	OECD
Developed (G4) economies	1.7%[1] [+0.1%]	1.9% [+0.5%]	1.9% [+0.3%]	1.7%[1] [+0.0%]	2.0% [+0.2%]	1.9% [+0.0%]	4.2%[1] [-0.1%]	4.9% [-0.1%]	4.7% [-0.2%]	0.3%[2] [-0.2%]	-0.4% [+0.1%]	-1.0%[3]
Eurozone	1.7% [+0.1%]	1.7% [+0.2%]	1.8% [0.2%]	1.6% [+0.1%]	1.7% [+0.7%]	1.7% [+0.5%]	9.4% [-0.2%]	9.4% [-0.3%]	9.3%[§] [-0.2%]	-0.6% [0.0%]	-0.7% [+0.1%]	-1.2%[3]
EU (outside EU)	3.0% [-0.2%]	2.6%[4] [+0.1%]	-	1.9% [+0.1%]	1.6% [+0.1%]	-	6.1% [-0.1%]	6.5% [-0.7%]	-	0.3% [0.0%]	-	-
Candidates for EU	3.2% [0.0%]	2.8% [-0.1%]	-	4.0% [+0.9%]	2.6% [-0.5%]	-	16.2% [+0.1%]	-	-	-	-	-
Developing economies	-	4.5% [-0.1%]	-	-	4.7% [+0.3%]	-	-	-	-	-	-	-
Greece	2.1% [-0.6%]	2.2% [-0.6%]	1.1% [-0.2%]	1.2% [-0.1%]	1.3% [+0.7%]	1.4% [+0.3%]	22.8% [+0.8%]	21.9% [+0.4%]	22.2% [-0.1%]	-7.6% [-0.7%]	-	-11.9%[3]
World	3.4% [0.0%]	3.5% [+0.1%]	3.5% [0.2%]	-	-	-	-	-	-	-	-	-

Source: Association of European Conjecture Institutes (AIECE), European Commission (EC), International Monetary Fund (IMF), Organization for Economic Cooperation and Development (OECD & PECD Interim Outlook).

Notes:

* In brackets is the difference (positive or negative) from the previous predictions.

a. G4: USA, Canada, Japan, UK.

b. The EU (other than the Eurozone): Croatia, Bulgaria, Denmark, Czech Republic, UK, Hungary, Poland, Romania, Sweden.

c. Candidate for EU: FYROM, Montenegro, Serbia, Turkey, Albania. In the case of the IMF Bosnia/Herzegovina and Kosovo are added to the list.

1. Without Canada. 2. Without Canada and Japan. 3. OECD Predictions: November 2016. 4. Without UK.

For Canada, a higher economic growth (+0.7%) is expected, reaching around 2.8% for 2017. This will be primarily based on a moderate fiscal expansion and a slight depreciation of the Canadian dollar, relative to the American dollar, which helps substantially the Canadian exports. On the other hand, as already mentioned above, the unemployment rate in the country will remain at a high level (around 6.5%) despite the serious reduction in the country's "output gap" at -0.5% (from -0.9% at 2016).

The UK is a different case by itself because it operates under the influence of Brexit. Actually, it incorporates a high degree of uncertainty for 2017 regarding the behavior of the main macroeconomic figures. In general terms an improvement of +0.4% of the GDP growth rate, relative to the previous projection, is expected for 2017 (at 1.6%, compared to 1.2% of February's estimation). The unemployment rate will increase slightly to 5.0%. On the other hand, the inflation rate will be stable at 2.8%. Finally, as regards to the "output gap", a slight rise by +0.3%, from February's estimation, to almost +0.7%, is expected. This possibility signifies the existence of a small overheating in the UK economy.

1.5.3. The Eurozone

Based on the macroeconomic outlook, the economic growth in the Eurozone is expected to move with a (moderate) average rate similar to that presented in the previous volume of this publication (vol. 32). Actually, the GDP growth rate is expected to range around 1.7%-1.8% for 2017 (+0.1% to +0.2% higher than the previous forecast). This growth rate will come mainly from a number of factors such as the neutral fiscal stance, the relatively moderate oil prices, the loosening monetary policy, and the devaluation of the euro. This expected growth rate could be higher if there were a bigger contribution on behalf of the European fixed investments.

Concerning now the "output gap" of the Eurozone, we should report here that no outstanding diversifications are expected relative to the previous estimations. In other words, a negative value spanning from -0.6% to -0.7% is expected.[6] This evidence indirectly signals the existence of some idle aggregate demand and therefore there is "some room" for further improvement regarding the Eurozone growth rate. Of course, we can additionally see the "output gap" variation from country to country[7] where the Greek economy is the biggest outlier.[8]

Regarding now to the inflation rate, the expectations for 2017 are for a further increase, ranging from +0.1% to +0.7%. So, EC, OECD and IMF reports estimate an inflation rate of 1.7%, due to the gradual increase of energy prices internationally (20%-25% oil price increase since August 2016). Concerning now the labour market and the unemployment rate, there are some signs of marginal improvement of the unemployment but not the employment rate. More analytically, the unemployment rate is now estimated to move around 9.6%, which is -0.2% to -0.3% lower than the previous estimation. Regarding the employment rate, a stable 1.0% annual increase is expected. However, although both macroeconomic figures look improved, relative to 2016, these rates of growth are considered as rather slow.

Special attention should be attributed to the contributing components of the Eurozone's GDP growth rate.[9] So, based on the individual components of the Eurozone's expected GDP rate,[10] we observe the dominant role of exports (a 1.8 contribution of GDP growth rate).[11] In second place is private consumption (with a 0.8 contribution). Then, fixed investments follow (with a 0.6 contribution) with public consumption in last place (with a 0.3 contribution).

Concerning now the Eurozones' Balance of Payments (BoP), we can say that, for 2017, a surplus with the rest of the world is expected (+3.0% of the Eurozone's total GDP), but this surplus is gradually diminishing.

1.5.4. The EU (outside Eurozone)

With this term we refer to those countries that for the time being do not share the common euro currency but belong to the European Union (EU).[12] Of course, these countries are not considered as homogeneous since they belong to different economic categories.

6. The corresponding estimated value of the OECD is higher (-1.2%), but is rather outdated (November 2016).

7. The "output gaps" range from -1.4% in Finland to +1.8% in Latvia.

8. The estimated "output gap" is recorded at -7.6%.

9. We talk about the basic components of GDP growth: private consumption, public consumption, investment and net exports.

10. See European Commission, Spring 2017.

11. This contribution is almost cancelled out by the corresponding negative contribution of imports (-1.7). Thus the net effect is nil.

12. We talk about the countries: Croatia, Bulgaria, Denmark, the Czech Republic, the UK, Hungary, Poland, Romania and Sweden.

In simple words, we have the countries of the former Eastern bloc who are trying to gradually fulfill the requirements for accession to the euro (see Croatia, Bulgaria, the Czech Republic, Hungary, Poland and Romania) and countries who choose to abstain, for the time being, from the euro (see Denmark and Sweden). Additionally, as we can also see in Table 1.5.1, in the second category of countries/economies we have only small variations in the main macroeconomic aggregates.

Regarding now the first sub-category of countries (i.e. the former Eastern bloc), it is important to mention that, for 2017, a GDP growth rate ranging between 2.6%-4.3% is expected. The countries with the highest growth rate from this sub-group are Romania and Poland (with 4.3% and 3.6%, respectively). At the unemployment rate issue, however, things diverge further in this group of countries. More analytically, Croatia will possibly remain an outlier with a double-digit unemployment rate for 2017 (11.6%). On the other hand, the rest of this group of countries will move with one-digit figures, ranging from 7.0% (Bulgaria) to 3.5% (Czech Republic).

Concerning now the second sub-category of the developed economies, some moderate GDP growth rates are expected, with Denmark at 1.7% and Sweden at a slightly more satisfactory rate (2.6%). Some relatively low unemployment rates are also expected in these two developed economies, with 6.6% for Sweden and 5.8% for Denmark.

1.5.5. Candidate countries for accession to the EU[13]

The prime element that characterizes this group of countries is that it primarily covers the Balkan Peninsula. It is also noticeable that, as it is illustrated in Table 1.5.1, this group faces high unemployment rates (16.2% on average) but also high growth rates (3.2% on average).

An important role should be attributed to the economy of Turkey, due to the size but also due to the recent political events that have affected the country. Starting from the GDP growth rate, a percentage of around 3.0% is expected for 2017 (an improvement of 0.2% in comparison to the previous estimation). The main driving macroeconomic factor of Turkey's GDP growth rate, aside from the political uncertainty, is the monetary policy. This policy is adjusted towards the devaluation of the Turkish lira, which consequently can boost exports. An important drawback for Turkey's economy is the unemployment rate, which persists at a double-digit level (11.1%). Regarding now the inflation rate, a substantial increase to 11.1% is estimated, in comparison to the previous projection (8.0%), which is considered as the highest value of this (regional) group.[14]

In the case of Serbia, the GDP growth rate is expected to be around 3.2% in 2017. According to the EC (Spring 2017) estimations, the main driving aggregate macroeconomic factors of the country's GDP growth rate will be private consumption and exports. Regarding now to the unemployment rate, it will stay at rather high double-digit levels (14.3%, which is -1.3% lower than the previous estimation). Finally, the inflation rate is expected to reach 2.4%.[15]

Albania, Montenegro and FYROM are the smallest countries of this (regional) group. The GDP growth rate is expected to be relatively uniform among these countries and more specifically around 2.9%-3.7%. On the other hand, the unemployment rate in this group is expected to remain at very high double-digit levels, ranging from 14.7% (Albania) up to 22.4% (FYROM). As regards to the inflation rate, figures will rather be much more controllable than that of the unemployment rate, ranging from 0.8% (FYROM) up to 2.2% (Albania).

1.5.6. Developing economies[16]

The emerging and developing economies are expected, first, to have a slightly lower GDP growth rate (by -0.1%) compared to the previous projections (see vol. 32, Table 1.4.1). More specifically, an average GDP growth rate of 4.5% is expected for 2017 (from 4.2% in 2016), which is the highest growth rate from all groups of countries. Additionally, the highest average inflation rate is also expected (4.7% for 2017). This average inflation rate is higher by +0.3% from

13. We talk about the countries: FYROM, Montenegro, Serbia, Turkey and Albania.

14. No new projection exists for Turkey's "output gap" (-4.5%, OECD, November 2016).

15. No data is available for the "output gap" of Serbia as well as of FYROM, Montenegro and Albania.

16. The specific group of countries, as the IMF report describes, includes five (5) different sub-groups of states: the Independent states and the states of the Commonwealth, the Emerging Asian countries, the Emerging European countries, the Latin American countries and the Caribbean, and, finally, the countries of the Middle East, N. Africa, Afghanistan, Pakistan and sub-Saharan Africa.

the previous estimation but also seriously varies from country to country.

Additionally, as in the previous volume, we will briefly report the projections, regarding the main aggregate macroeconomic variables, of the major countries of this group. These countries are: China, Brazil, Russia and India.

Starting from China, we can say that for 2017 the GDP is expected to grow with a rate of 6.6% (+0.6%, higher than the previous estimation). This growth rate is considered as a positive and helpful evolution because of China's strong spillover influence both on cross-border and world trade. On the other hand, the inflation rate will decrease slightly to 2.5% (from the previous estimation of 3.0%).[17] Nevertheless, there is still a concern about the speed and the quality of reforms in the country and also about the medium-term real estate prices.

Brazil's aggregate macroeconomic figures look better and therefore the country could possibly avoid recession for 2017. More analytically, although in 2016 the country faced recession (-3.6%) for the running year, stabilization is rather expected (+0.2%, in GDP growth rate). Finally, the inflation rate is estimated to decline from 8.7% in 2016 to 4.4% in 2017.[18]

As regards to Russia, it also demonstrates some signs of stabilization after the 2016 recession. More specifically, while for 2016 the recession was limited to -0.2%, for the current year a noticeable recovery is expected (ranging between 1.2% and 1.4%). Concerning now the unemployment rate, based on the existing data, it will rather remain at the same relatively low single-digit level which was also recorded in 2016 (5.7%). Finally, for the case of the inflation rate, a decline from 7.2% in 2016 to 5.0% in 2017[19] is expected.

In the case of India, a high GDP growth rate of around 7.2% is projected. Such a rate looks very similar to the 2016 GDP growth rate (actually +0.2% higher). Finally, a stable inflation rate is expected for the country (5.1%).[20]

1.5.7. Greece

Regarding Greece now, the expected GDP growth rate shows a significant deviation from Institution to Institution[21] (ranging from 1.1% to 2.2%, see Table 1.5.1). The existing EC Report (Spring 2017) claims that the improved indicators of consumer and investment sentiments as well as the government revenue outperformance advocate in favor of some higher growth rates for the country. If this climate persists for 2018, this will considerably advocate for a further relaxation of the capital controls in the country.

As regards to the country's "output gap", due to the idiosygracies of the Greek economy, no converging views appear among Institutions. Indeed, as we can observe from Table 1.5.1, the existing projections vary considerably (from -7.6% up to -11.9%). Nevertheless, the EC Report (Spring 2017) recently increased its "output gap" projection by 0.7%.

Concerning now the Greek labour market (the unemployment rate), we observe some small deviation in the reports of the EC, OECD and IMF Institutions. More specifically, the unemployment rate for 2017 is expected to range between 21.9% (EC) and 22.8% (IMF). This result is translated as a small increase relative to the previous projections of the unemployment rate. Finally, the deflation in the country has been terminated (with inflationary predictions from +1.2% to +1.4% for 2017) mainly due to the increase in indirect taxes (e.g. VAT).

As regards to the fiscal issues, a public deficit of the total General Government is expected for 2017 (-1.2% of GDP). Additionally, during 2018, the primary budget surplus is expected to reach 0.6% of the estimated GDP volume.

17. No data is available regarding the unemployment rate and "output gap" forecasts of China.

18. No data is available for the "output gap" of Brazil.

19. No data is available for the "output gap" of Russia.

20. No data is available for unemployment forecasts in India and for the "output gap".

21. Similar deviations regarding the expected GDP growth rate are presented by the main Greek economic Institutions (i.e. 1.5% from IOBE, 1.6% from KEPE and 1.8% from the Ministry of Finance).

2. Public finance

2.1. Medium Term Fiscal Strategy 2018-2021

Elisavet I. Nitsi

The Medium Term Fiscal Strategy 2018-2021 (MTFS) that was recently passed by the Greek Parliament consists of the fiscal policy road map for the coming years and is the result of the government's agreement with the country's official creditors, the European Commission (EC), the European Central Bank (ECB), the European Stability Mechanism (ESM) and the International Monetary Fund (IMF).

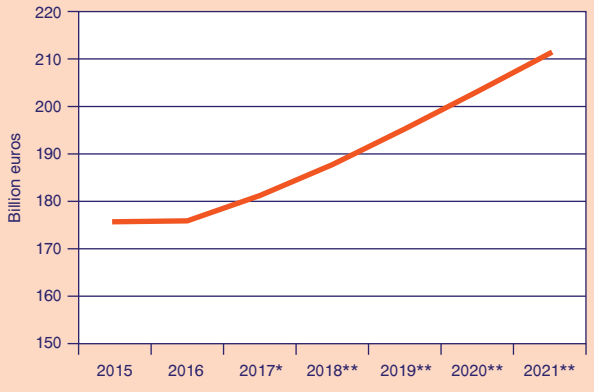
The MTFS 2018-2021, as it is presented, reflects the projections and developments of the general government budgets after the incorporation of the budgetary interventions, including the balancing interventions agreed upon, for the closure of the second assessment of the economic program under the Financial Assistance Facility Agreement. It should be noted that in the base scenario, which is the base of the MTFS 2018-2021, all updated fiscal interventions of the previous MTFS 2015-2018 have been incorporated, as well as the interventions that were legislated in order to achieve the budgetary targets set by the Financial Assistance Facility Agreement and were ratified by the Greek Parliament on 19 August 2015.

As the MTFS 2018-2021 includes the balancing budgetary interventions, and for comparison purposes, Table 2.1.1 shows the MTFS 2018-2021 without them. The data show that a significant increase in nominal GDP (Figure 2.1.1) is expected in the coming years. This increase is projected to be 3.0% in 2017, 3.6% in 2018 and 4% in the coming years.

Regarding the State Budget, the interventions agreed upon in order to achieve the objectives of the economic program without countermeasures are expected to accumulate much higher revenues, and given that a significant effort has be made to stabilize expenditure around 55 billion euros, this leads to a cash basis surplus, starting in 2019 from a zero cash basis surplus (a surplus of 26 million euros), and in the coming years to significant surpluses, 3.1 billion euros in 2020 and 5.4 billion euros in 2021 (Figure 2.1.2). The corresponding primary result in cash basis is significantly surplus (4.3 billion euros) from 2017, while it reaches 11.4 billion euros in 2021. It should be noted that the same is true for the Central Government Budget, if we add to the data of the Legal and Private Law Entities, the Reclassified Public Enterprises and Organizations (DEKOs), the Hospitals–Primary National Health Network (PEDY), but also the General Government, which includes the Local Authorities (OTA) and the Social Insurance Organizations (OCAs) outside the Hospitals.

More specifically, on the revenue side, a significant increase in direct and indirect taxes has been foreseen (Figure 2.1.3 and Table 2.1.2). Direct taxes are expected to increase between 2017 and 2021 by 21.4%, and indirect taxes by 14.13%. With GDP growth of 18.6% over the same period, estimates of indirect tax revenues, which are directly related to consumption, appear to be relatively optimistic, given the significant increase in direct taxation due to the decreased tax-free threshold. Efforts to implement countermeasures by lowering the tax rates of individuals and legal entities and ENFIA, as well as the reform of the Special Solidarity Contribution, could contribute to increasing consumption and, hence, the collection of more indirect taxes, but

FIGURE 2.1.1
Nominal Gross Domestic Product 2015-2021, billion euros



Source: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimate. ** Projection.

TABLE 2.1.1 Medium Term Fiscal Strategy 2018-2021 including only the fiscal interventions for the period 2018-2021 (On cash and ESA basis) (in million euros)

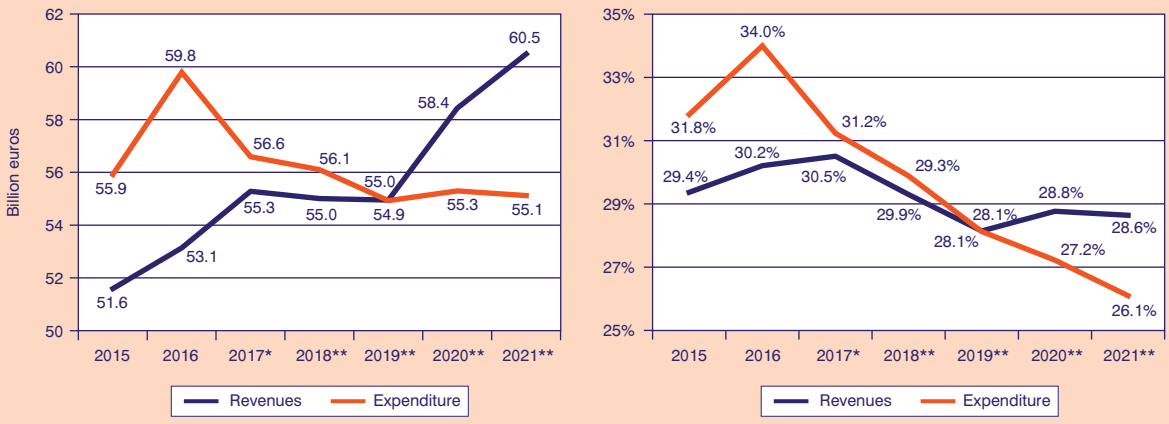
	2015 EDP[1]	2016 EDP	2017 Estimation	2018 Projection	2019 Projection	2020 Projection	2021 Projection
I. Revenue	**51,593**	**53,136**	**55,281**	**55,008**	**54,951**	**58,433**	**60,488**
1. Ordinary Budget Net Revenue	**46,761**	**48,958**	**51,664**	**51,273**	**51,361**	**55,053**	**57,123**
a. Recurring Revenue	**47,791**	**52,336**	**52,730**	**52,938**	**54,129**	**57,999**	**60,292**
1. Direct taxes	19,936	21,839	21,525	21,453	22,167	25,294	26,736
2. Indirect taxes	23,781	25,680	26,718	27,502	28,110	28,771	29,517
3. Withdrawals from the EU	428	415	508	321	202	203	204
4. Non–tax revenues	3,646	4,402	3,979	3,662	3,650	3,731	3,835
b. Non–recurring revenue	1,533	430	306	283	294	306	318
c. Tax refunds	3,108	3,263	3,324	3,383	3,493	3,609	3,733
c1. Tax refunds from special credit	0	1,026	0	0	0	0	0
d. Special revenues from licensing and rights	254	106	1,607	1,121	140	106	83
e. Revenues from ANFA	291	375	345	314	291	251	163
f. Unspecified measures	0	0	0	0	0	0	0
2. PIB Revenue	**4,832**	**4,178**	**3,617**	**3,735**	**3,590**	**3,380**	**3,365**
a. Inflows from ESPA	3,900	3,861	3,437	3,555	3,410	3,200	3,185
b. Own revenues	932	317	180	180	180	180	180
II. Expenditure	**55,921**	**59,793**	**56,595**	**56,104**	**54,925**	**55,298**	**55,117**
1. Ordinary Budget Expenditure	**49,544**	**53,506**	**49,845**	**49,354**	**47,925**	**48,298**	**48,117**
a. Primary Expenditure	**43,744**	**47,918**	**44,195**	**43,454**	**42,125**	**42,498**	**42,117**
1. Salaries & pensions	18,359	18,065	12,366	12,540	12,831	13,116	13,165
2. Grants to social security funds, Medical care & Social protection	14,715	15,630	20,268	19,649	18,537	18,275	18,290
3. Operational and other expenditures	5,469	5,309	5,704	5,295	5,313	5,297	5,392
4. Returns to third parties	2,786	3,248	3,119	3,395	3,411	3,523	3,523
5. Reserves	0	0	1,000	1,000	1,000	1,000	1,000
6. Expenditure from borrowing from ESM and parallel expenditure from public debt	178	54	75	20	20	20	20
7. Withdrawal of debts	0	553	193	0	0	0	0
8. Guarantees for entities within the General Government	1,619	1,614	855	927	368	622	82
9. Guarantees for non-General Government entities	53	37	140	118	115	115	115
10. Armament expenditure	565	584	475	510	530	530	530
11. Funding for payments of liabilities from previous financial years	0	2,824	0	0	0	0	0
b. Interest payment	5,800	5,588	5,650	5,900	5,800	5,800	6,000
2. PIB	**6,377**	**6,287**	**6,750**	**6,750**	**7,000**	**7,000**	**7,000**
a. Co-financed	5,717	5,454	5,750	5,750	5,750	5,750	5,750
b. National	660	833	1,000	1,000	1,250	1,250	1,250
III. Cash basis Balance of State Budget	**-4,328**	**-6,657**	**-1,314**	**-1,096**	**26**	**3,135**	**5,371**
% GDP	**-2.46%**	**-3.78%**	**-0.73%**	**-0.58%**	**0.01%**	**1.54%**	**2.54%**
III. a. Cash basis Primary Balance of State Budget	**1,472**	**-1,069**	**4,336**	**4,804**	**5,826**	**8,935**	**11,371**
% GDP	**0.84%**	**-0.61%**	**2.39%**	**2.56%**	**2.98%**	**4.40%**	**5.38%**

TABLE 2.1.1 (continued)

	2015 EDP[1]	2016 EDP	2017 Estimation	2018 Projection	2019 Projection	2020 Projection	2021 Projection
National Accounting Adjustments of Central Administration	**-3,648**	**134**	**-2,657**	**-781**	**57**	**-687**	**-1,007**
1. National Accounting Adjustments - Revenues	**-2,657**	**-1,123**	**-1,996**	**-348**	**620**	**464**	**473**
Recurring revenue	-33	-375	-518	30	205	104	104
Non–recurring revenue	-16	104	0	0	0	0	0
Tax refunds	-6	13	0	0	0	0	0
Revenues from privatization and from granting licenses and government rights	-64	100	-1,361	-407	165	160	184
Revenues from ANFA	-236	0	0	0	0	0	0
PIB revenues	-924	-965	-117	29	250	200	185
Recapitalization of banks	-1,378	0	0	0	0	0	0
2. National Accounting Adjustments - Expenditure	**-991**	**1,257**	**-661**	**-433**	**-563**	**-1,151**	**-1,480**
Salaries and pensions	174	148	170	29	41	57	73
Armament expenditure	-465	403	-404	207	233	187	109
Other expenditure	312	1437	473	431	413	55	-212
Interest paid	-1,012	-731	-900	-1,100	-1,250	-1,450	-1,450
State Budget Revenue by ESA	**48,936**	**52,013**	**53,285**	**54,660**	**55,571**	**58,897**	**60,961**
State Budget Expenditure by ESA	**56,912**	**58,536**	**57,256**	**56,537**	**60,788**	**60,449**	**60,537**
State Budget Primary Balance by ESA95	**-1,164**	**-204**	**2,579**	**5,123**	**1,833**	**5,698**	**7,874**
% GDP	**-0.66%**	**-0.12%**	**1.42%**	**2.73%**	**0.94%**	**2.81%**	**3.73%**
State Budget Balance by ESA95	**-7,976**	**-6,523**	**-3,971**	**-1,877**	**-5,217**	**-1,552**	**424**
% GDP	**-4.54%**	**-3.71%**	**-2.19%**	**-1.00%**	**-2.67%**	**-0.76%**	**0.20%**
Balance of Legal Law Entities	**-3,047**	**1,528**	**1,634**	**1,284**	**1,349**	**1,301**	**1,362**
Legal Law Entities Primary Balance	**-2,882**	**1,625**	**1,775**	**1,418**	**1,479**	**1,428**	**1,489**
Balance of Reclassified DEKOs	**942**	**2,264**	**368**	**855**	**328**	**581**	**118**
DEKOs Primary Balance	**1,354**	**2,627**	**763**	**1,219**	**651**	**887**	**402**
Balance of Hospitals - PEDY	**-222**	**1,409**	**509**	**138**	**113**	**95**	**69**
Hospitals - PEDY Primary Balance	**-222**	**1,409**	**509**	**138**	**113**	**95**	**69**
Balance of OTA	**485**	**572**	**199**	**398**	**372**	**284**	**449**
OTA Primary Balance	**549**	**643**	**270**	**469**	**443**	**355**	**520**
Balance of OCA	**-608**	**2,042**	**-941**	**175**	**2,135**	**2,510**	**3,096**
OCA Primary Balance[2]	**-605**	**2,045**	**-938**	**178**	**2,138**	**2,513**	**3,099**
General Government Balance by ESA95	**-10,426**	**1,292**	**-2,202**	**973**	**4,380**	**7,219**	**9,458**
% GDP	**-5.93%**	**0.73%**	**-1.22%**	**0.52%**	**2.24%**	**3.55%**	**4.48%**
Consolidated General Government's Interest paid	**6,322**	**5,649**	**6,015**	**6,445**	**6,459**	**6,648**	**6,824**
% GDP	**3.60%**	**3.21%**	**3.32%**	**3.43%**	**3.31%**	**3.27%**	**3.23%**
General Government Primary Balance by ESA95	**-4,104**	**6,941**	**3,813**	**7,418**	**10,839**	**13,867**	**16,282**
% GDO	**-2.34%**	**3.95%**	**2.10%**	**3.95%**	**5.55%**	**6.83%**	**7.71%**
GDP	**175,697**	**175,888**	**181,204**	**187,745**	**195,258**	**203,134**	**211,208**

Source: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.
Notes: [1] EDP: Excessive Deficit Procedure, April 2017.
[2] In the balance of OCA the pharmaceutical expenditure thresholds for EOPYY for the period 2017-2021 are incorporated.

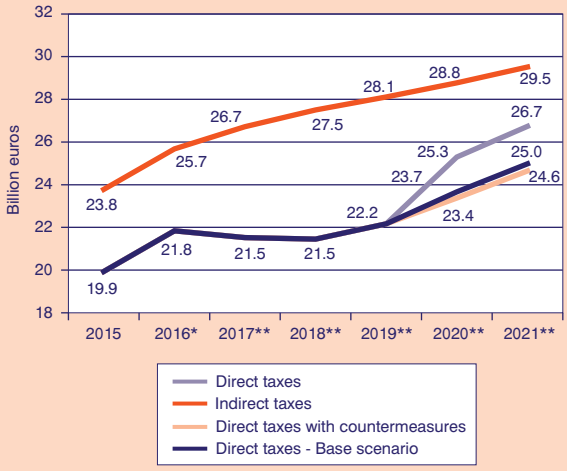
FIGURE 2.1.2
State Budget revenues and expenditure 2015-2021, in billion euros and annual percentage change



Sources: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimation. ** Forecast.

FIGURE 2.1.3
Direct and indirect taxes 2015-2021, in billion euros



Sources: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimation. ** Forecast.

again the provision for increased revenues from indirect taxation amounts to approximately 12.5% over the same period.

Overall, the evolution of the revenue path is shown in Figure 2.1.4. If the interventions that are passed, which are expected to lead to very high revenues and, thus, to large surpluses, and if the forecasts for the macroeconomic aggregates and, in particular, the growth rate of the Greek economy are realized, then the countermeasures, or those that will be finally implemented, would redistribute part of the surpluses, either as a tax reduction to stimulate economic development or relief of the tax burden to individuals or as an increase in expenditure to support the weakest economic groups.

Thus, on the expenditure side, countermeasures are integrated into the category of primary expenditures "Insurance, Health Care and Social Protection". As can be seen from Figure 2.1.5, provision of funds for social protection, employment and healthcare for the poorest economic groups of the population will lead to a clear increase in related expenditure, reaching a cumulative 1.87 billion euros over the three years in question.

Regarding total expenditure, significant savings are expected from all measures (Figure 2.1.6), that is the adjustment of the main pensions, as well as the reduction of the personal difference from both main and supplementary pensions. Therefore, the possibility of the implementation of countermeasures will provide a significant aid for the economically weak.

It is obvious that the interventions, other than those passed in order to reach the fiscal targets set by the Financial Assistance Facility Agreement in August 2015, added to close the second assessment of the economic program are particularly painful. They affect most taxpayers by reducing the tax-free threshold, but mostly the pensioners who are affected not only from the tax measures, but who are also burdened by the interventions on pensions, that is the adjustment of the main pensions, as well as the reduction of the personal difference in both main and supplementary pensions. The significant increase in revenues is

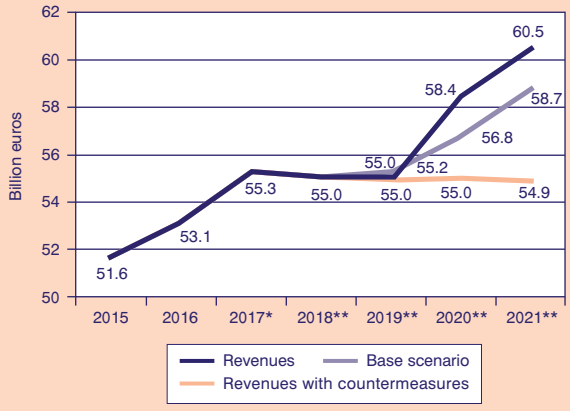
TABLE 2.1.2 Forecast of annual change in GDP and tax revenues, direct and indirect, under the MTFS 2018-2021, without countermeasures

	GDP	Annual % changes	Direct taxes	Annual % changes	Indirect taxes	Annual % changes
2016	175,888		21,839		25,680	
2017*	181,204	3.02%	21,525	-1.44%	26,718	4.04%
2018**	187,745	3.61%	21,453	-0.33%	27,502	2.93%
2019**	195,258	4.00%	22,167	3.33%	28,110	2.21%
2020**	203,134	4. 03%	25,294	14.11%	28,771	2.35%
2021**	211,208	3.97%	26,736	5.70%	29,517	2.59%
Total		18.64%		21.36%		14.13%

Sources: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimation. ** Forecast.

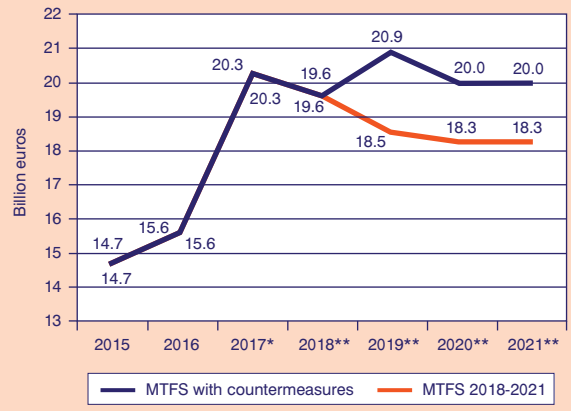
FIGURE 2.1.4
State Budget Revenues 2015-2021, in billion euros



Sources: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimation. ** Forecast.

FIGURE 2.1.5
Grants to social security funds, medical care & social protection 2015-2021, in billion euros

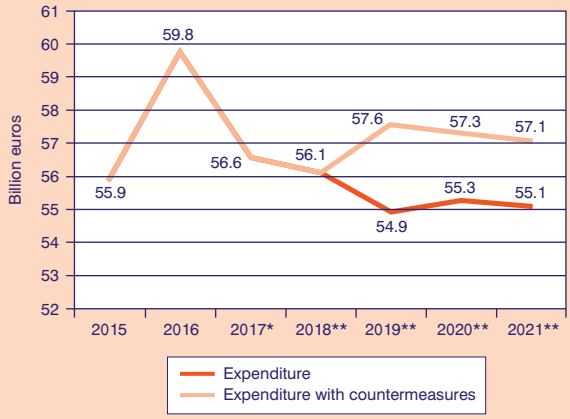


Sources: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimation. ** Forecast.

based not only on the measures' performance, but also on the growth rate optimistic forecasts, which implies an improvement in macroeconomic aggregates. The increase in revenues, if forecasts come true and expected revenues are collected, together with a reduction in expenditure, is expected to lead to particularly large surpluses. These surpluses, with the clause that the measures' returns are permanent, can be used to finance countermeasures. There are, of course, the unspecified interventions on the revenue side that can act as a safety net for any deviations. However, it should be noted that in addition to the social groups targeted by the countermeasures, greater attention should be given to social groups such as the homeless, chronically unemployed, etc. who have no income and, therefore, need more support than other categories receiving special attention from the state. Finally, the closing of the second evaluation opens the way for the Greek banks to join the Quantitative Easing, which will increase liquidity and boost the Greek economy. In addition, an agreement on debt relief with the country's creditors can be the

FIGURE 2.1.6
State Budget Expenditure 2015-2021, in billion euros



Sources: Medium Term Fiscal Strategy 2018-2021, Ministry of Finance, May 2017.

Notes: * Estimation. ** Forecast.

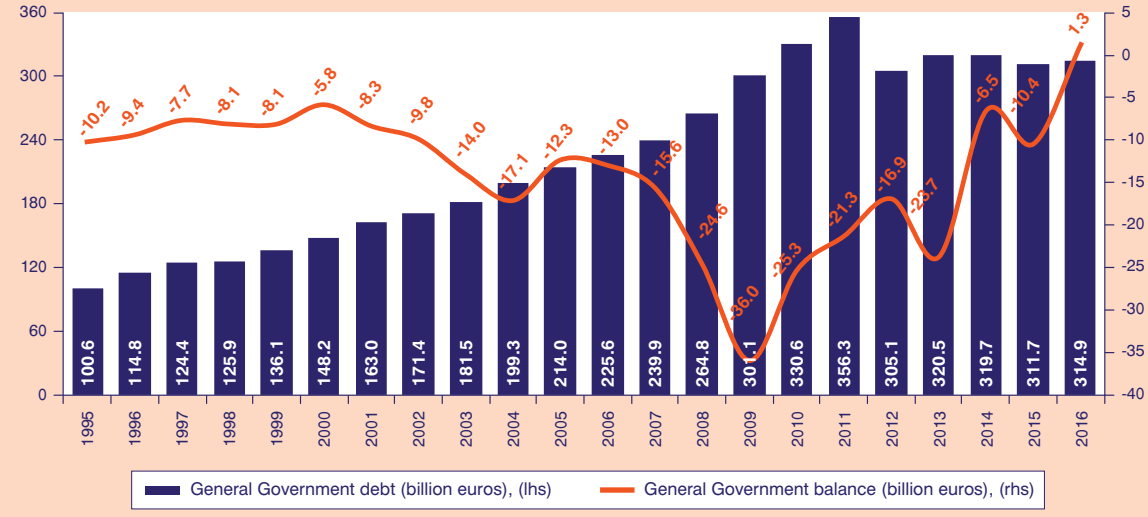
key to the success of the program, since the least that can be foreseen is an extension in repayment and a reduction in the interest rates paid, which will reduce the burden on the Budget. Such developments can help significantly to achieve high primary surpluses and to justify the implementation of the countermeasures.

2.2. The evolution and structure of public debt

Christos Triantopoulos

The evolution of fiscal performance for the year 2016 affected the level of public debt, which has also been burdened by the wider conditions regarding the state of public finances in recent years. In particular, according to the provisional fiscal data of the Hellenic Statistical Authority (ELSTAT), the General Government debt amounted to € 314,897 million (or 179% of GDP) in 2016, down by € 503 million compared to the year-end estimate in Budget 2017, which was € 315,400 million (or 180.3% of GDP) (November 2016). However, the range of the positive deviation from the 2017 estimate of the General Government debt in 2016 is significantly different from the corresponding positive deviation observed in the General Government balance (Figure 2.2.1). In particular, according to ELSTAT's provisional fiscal data, the General Government balance in 2016 is positive, as a general fiscal (not just primary) surplus of € 1,288 million (or 0.7 % of GDP) is recorded (for the first time according to the available data). This is an improvement of € 5,004 million compared to the Budget 2017 estimate of the General Government balance, which estimated that the year would close with a fiscal deficit of € 3,776 million (or 2.2% of GDP). However, in 2016, despite a General Government fiscal surplus of € 1,288 million, the General Government debt did not decrease accordingly or by less (according to the basic public finances' identity[1]), but increased by € 3,229 million, showing an increase of € 4,457 million compared to a balanced budget. This is a remarkable development that can be attributed, on the one hand, to (known) changes in flows and stocks and stock-flow adjustments and, on the other hand, to € 3,500 million in lending by the European Stability Mechanism (ESM) for the clearance of arrears of past periods.[2]

FIGURE 2.2.1
General Government balance and debt 1995-2016



Source: European Commission (2017) and ELSTAT (2017).

Note: The General Government balance also include the impact of the support provided for the banking system.

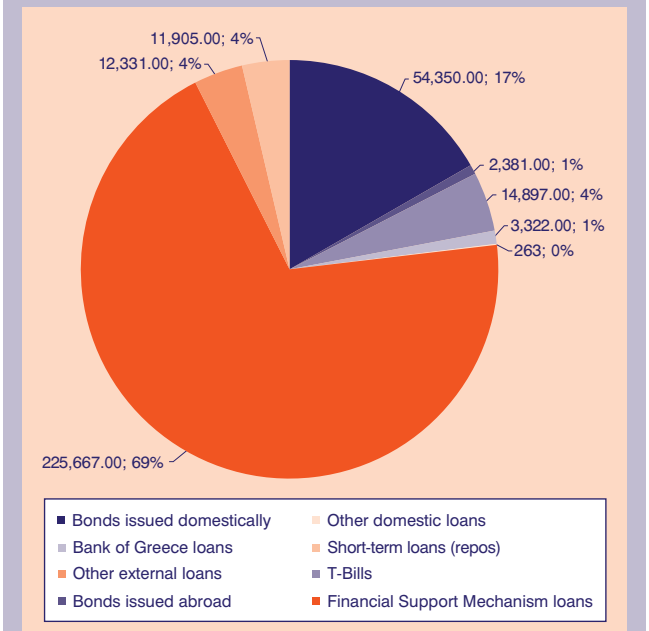
1. In general, if the stock-flow adjustments are excluded, the General Government debt changes each year according to the change in the fiscal deficit, which consists of primary surplus and interest expenditure. Therefore, always in the case of the exemption of stock-flow adjustments, when the balance sheet is surplus (i.e. the primary surplus is so high that it overpays interest expenditure), a part (corresponding to surplus) of amortization can be paid and not financed by new lending. In such a case, the General Government debt would decrease according to the fiscal surplus. However, in the case of Greece, and in 2016 in particular, stock-flow adjustments and the repayment schedule for arrears affect the public finances' identity.

2. According to the 2017 Budget, at the end of June 2016, the first instalment of € 1,800 million was earmarked by the ESM for the implementation of the arrears clearance program. In October 2016 the ESM also disbursed € 1,700 million, while the total amount for the payment of the outstanding arrears provided in the relevant agreement with the ESM is € 6,600 million for the years 2016-2017.

In terms of the Central Government, that is when the intergovernmental debt is not taken into account (the short-term borrowing by General Government entities through repos), the debt in 2016, according to the Public Debt Bulletin, stood at € 326,358 million, increased by approximately € 5 billion compared to 2015, when it stood at € 321,332 million. Regarding the evolution of Central Government debt in 2017, according to the General Government Monthly Bulletin, in February 2017 it was reduced compared to the end of 2016, by € 1,241 million, as it reached € 325,117 million. (Table 2.2.1).

In parallel, regarding the Central Government debt structure, as it is evident in the data of the first two months of 2017, the largest share still consists of the loans from the support mechanism, which, however, due to the related budgetary performance and delays in the flow of projected installments, declined by around € 2.2 billion in February 2017 compared to 2016 and amounted to € 225.7 billion (Table 2.2.1). This source of funding accounts for 69.4% of the total Central Government debt (Figure 2.2.2). On the other hand, the share of Central Government debt expressed in bonds remains at the same

FIGURE 2.2.2
Central Government debt (February 2017), (million euros; % debt)



Source: Ministry of Finance, General Government Monthly Bulletin (February 2017).

TABLE 2.2.1 Structure of Central Government debt

	2011		2013		2015		February 2017	
	€ million	% of debt	€ million	% of debt	€ million	% of debt	€ million	% of debt
A. Bonds	**259,774.18**	**70.6**	**76,296.25**	**23.7**	**59,818.00**	**18.6**	**56,731.00**	**17.4**
Bonds issued domestically	240,940.37	65.5	73,415.28	22.8	57,112.00	17.8	54,350.00	16.7
Bonds issued abroad*	18,833.81	5.1	2,880.97	0.9	2,706.00	0.8	2,381.00	0.7
B. T-Bills	**15,058.63**	**4.1**	**14,970.82**	**4.7**	**14,880.00**	**4.6**	**14,897.00**	**4.6**
C. Loans	**93,145.19**	**25.3**	**230,210.90**	**71.6**	**236,633.00**	**73.6**	**241,583.00**	**74.3**
Bank of Greece	5,683.99	1.5	4,734.61	1.5	3,792.00	1.2	3,322.00	1.0
Other domestic loans	836.71	0.2	115.50	0.0	110.00	0.0	263	0.1
Financial Support Mechanism loans	73,210,36	19.9	213,152.48	66.3	220,431.00	68.6	225,667.00	69.4
Other external loans**	13,414.13	3.6	12,208.31	3.8	12,300.00	3.8	12,331.00	3.8
D. Short-term loans* **	**0.00**	**0.0**	**0.00**	**0.0**	**10,001.00**	**3.1**	**11,905.00**	**3.7**
Total (A+B+C+D)	**367,978.00**	**100.0**	**321,477.97**	**100.0**	**321,332.00**	**100.0**	**325,116.00**	**100.0**

Source: Public Debt Bulletin (December 2011, December 2013, December 2016) and General Government Bulletin (February 2017).

Notes: * Including securitization issued abroad.
** Including special purpose and bilateral loans.
*** Including repos.

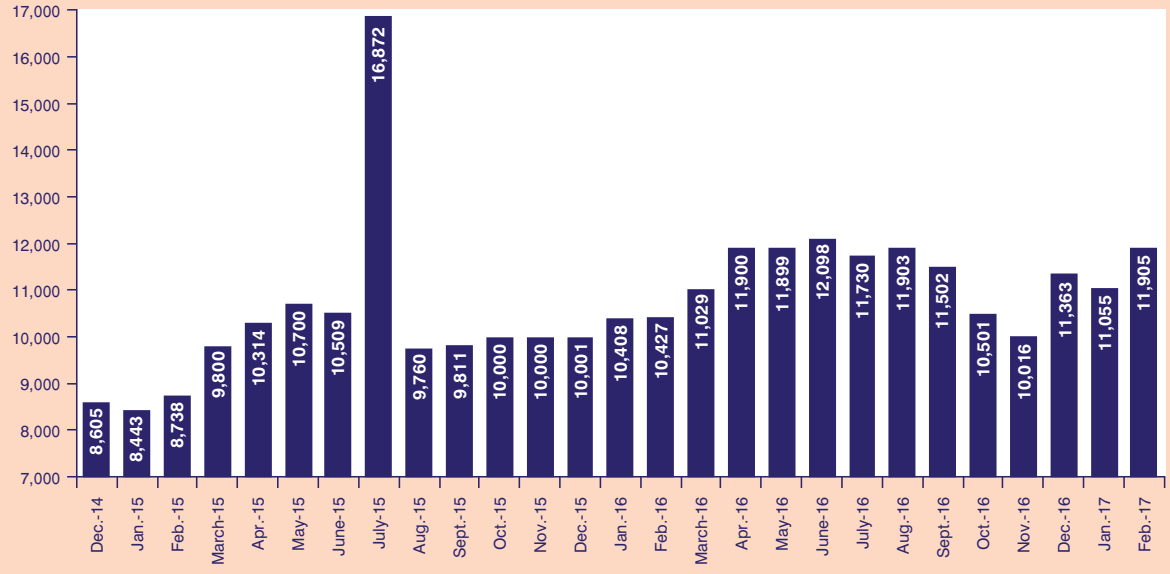
low levels (€ 56.7 billion), accounting for 17.5% of Central Government debt.

In addition, Central Government funding is maintained at the same level as in the previous months, through short-term securities and, in particular, T-bills of the Greek government, which remained stable at € 14.9 billion. On the other hand, short-term loans by General Government entities through repos shows a significant increase in the months following November 2016. In particular, Central Government short-term loans through the sale of repos to General Government entities increased by around € 2 billion after November 2016 (€ 10 billion), reaching € 11.9 billion in February 2017. According to February 2017 data, short-term loans (through repos) now account for 3.7% of the Central Government debt (Figure 2.2.3).

Alongside the structure of the Central Government debt, as it has been noted in previous relevant analyses, changes have taken place over the last few years in the Central Government's debt profile. Thus, in February 2017, most of the debt was non-tradable (78.1%) and at a floating rate (70.0%), as opposed to what was the case in 2011. As it has been noted again, this development in the composition of the debt is, of course, due to the funding of the country by the support mechanism, which is based on non-tradable and floating rate loans. Also, the developments in funding from the support mechanism in 2015 and 2016 (see: the non-participation of the IMF) also affected the share of the currency in which the Central Government debt is expressed; as a result, in February 2017, 97.0% of the debt is in euro against 95.9% in December 2013 (Table 2.2.2).

As for 2017, according to the Budget of 2017, the General Government debt is estimated to stand at € 319,200 million or 176.5% of GDP. However, this estimate is expected to be affected, in absolute terms, by the 2016 (positively) revised fiscal data and the implementation of the arrears clearance program and, in relative terms, by the course of economic activity in 2017. For the next period, of course, the long-term profile of the public debt will be affected significantly by the measures agreed in the framework of the support mechanism, which will be promoted in the short term, to strengthen the sustainability of the public debt of the country. However, as it has already been noted in previous analyses, the creation of conditions to enhance the long-term sustainability of public debt is a multi-factorial project with several assumptions (and risks) both in the public finance and real economy spheres.

FIGURE 2.2.3
Central Government short-term loans (repos)



Source: Ministry of Finance, General Government Bulletin (various months).

Note: The July 2015 performance is widely diverted as it includes the short-term "bridge" loan of € 7.16 billion from the European Financial Stability Facility that Greece received during the period between the second and third adjustment programs.

TABLE 2.2.2 Composition of Central Government debt

	December 2011	December 2012	December 2013	December 2015	February 2017
A. Rate					
Fixed rate[1]	62.0%	32.7%	28.5%	30.9%	30.0%
Floating rate[1, 2]	38.0%	67.3%	71.5%	69.1%	70.0%
B. Trade					
Tradable	74.7%	34.3%	28.4%	23.2%	21.9%
Non-tradable	25.3%	65.7%	71.6%	76.8%	78.1%
Γ. Currency					
Euro	97.5%	96.7%	95.9%	96.5%	97.0%
Non-Euro area currencies	2.5%	3.3%	4.1%	3.5%	3.0%

Source: Public Debt Bulletin (December 2011, December 2012, December 2013, December 2015, February 2017).

Notes: 1. Fixed/floating participation is calculated including Interest Rate Swap transactions.
2. Index-linked bonds are classified as floating rate bonds.

3. Human resources and social policies

3.1. Recent developments in key labour market variables

Ioannis Cholezas

3.1.1. Introduction

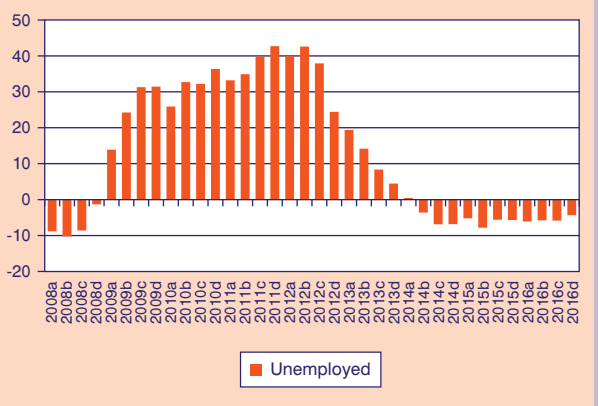
In the last quarter of 2016 the unemployment rate for individuals aged 15-64 was 23.6%, which is higher compared to the third quarter of 2016, as expected, but lower compared to the fourth quarter of 2015. As a result, the number of the unemployed went down by 50.7 thousand on an annual basis and the total number reached approximately 1.124 million. Despite the fact that the unemployment rate is still too high, the downward trend observed in the past quarters continues. Moreover, employment on an annual basis has increased, more or less, depending on the population group examined and based on gender, age, educational attainment and region of residence while employment on a quarterly basis decreased. Especially with respect to the region of residence, it seems that certain regions systematically create jobs and increase the number of individuals employed. Thus, it would be interesting to investigate the reasons for their performance. Paid employment increased further in the first quarter of 2017, but the troubling observations made in earlier issues of the *Greek Economic Outlook* with respect to the type of jobs created are still in effect. In this respect, it is no surprise that the number of under-employed constantly increases, even at times when the total number of employed individuals was decreasing. Such a situation could cause troubles and could delay the return of the economy to growth.

3.1.2. Unemployment

The latest data from the Labour Force Survey conducted by ELSTAT show that the number of the unemployed aged 15+ increased in the past quarter of 2016 by 31.4 thousand amounting to a total of 1.124 million persons. Nevertheless, this is nothing more than the usual seasonal fluctuation caused by changes in economic activity and, primarily, by the reduction of tourist flows, which affects a number of satellite industries as well. To eliminate any doubts, note that the number of the unemployed decreased by 50.7 thousand compared to the last quarter of 2015 (2015d). Consequently, the unemployment rate in the last quarter of 2016 was 23.6%, slightly lower on an annual basis, which means that the downward movement that started back in 2014 continues despite the prevailing economic uncertainty. Nevertheless, the rate of long-term unemployed (over 12 months) is still unacceptably high, despite the small reduction recorded on an annual and a quarterly basis: approximately seven out of ten people looking for a job are unemployed for more than twelve months. This is also the outcome of the relatively small reduction in the number of the unemployed compared to the increase recorded at times of increasing unemployment rates, as shown in Graph 3.1.1.

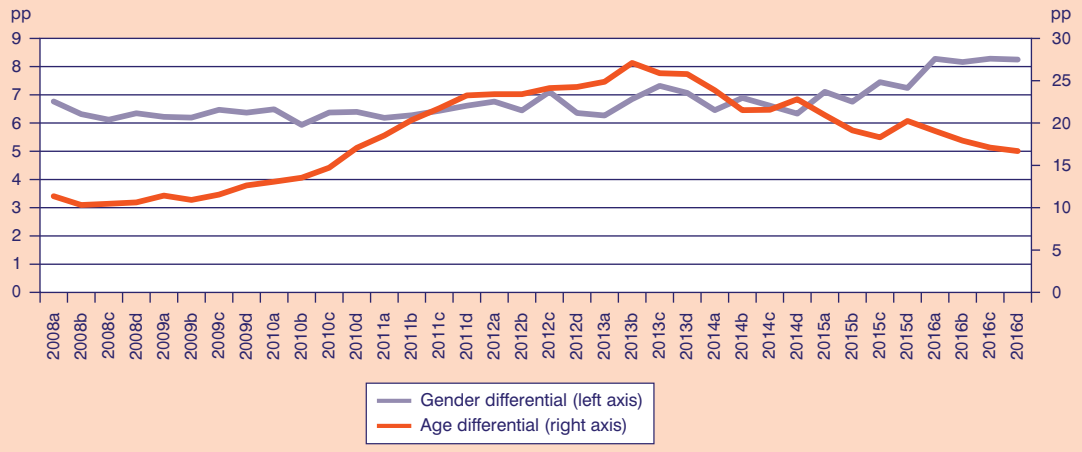
Most unemployed individuals are women (598 thousand vs. 526 thousand men). Note that during the crisis the number of unemployed men increased faster than women and as a result, despite their lower unemployment rate, they constituted the majority of the unemployed from the end of 2012 until the beginning of 2014. What is interesting is that men suffered more when unemployment was rising and they seem to benefit more now that it is falling, although at a slow pace. This is also clear when gender unemployment differences are considered: the unemployment gap decreased to 6 percentage points (pp) at the beginning

GRAPH 3.1.1
Annual change in the number of the unemployed (in thousands)



Source: Labour Force Survey, ELSTAT.

GRAPH 3.1.2
Unemployment rate gaps (gender and age)



Source: Labour Force Survey, ELSTAT.

of 2013, but it increased since then and stood above 8 pp at the end of 2016. (Graph 3.1.2) Consequently, the unemployment rate for women at the last quarter of 2016 was 28.1% compared to 19.9% for men. Different unemployment prospects by gender can be attributed to a number of factors related more or less with individuals' and population groups' productivity traits or the way these traits are treated by the labour market.

Besides women, the unemployment rate is also higher for youth. In the fourth quarter of 2016 the unemployment rate for youth aged 15-29 was 37.6%, while for individuals over 30 years of age it was 20.9%. The unemployment rate for youth continues to improve, partly because of the numerous targeted active labour market programmes in effect and perhaps in combination with the reduction in the population of certain age groups in the labour force who emigrate in search of a job. For the sake of the argument, note that in 2015 unemployed youth constituted 27.8% of the total unemployed while in 2016 the respective share dropped to 25.4%. Typically, and at the same time, there is some proof of the effectiveness of interventions in favour of youth in the labour market: at the beginning of the economic troubles in Greece back in 2008, youth constituted 42.8% of the total unemployed, while despite the unemployment rate skyrocketing (it reached 50% at the end of 2013) their share has dropped steadily since then.

The reduction in unemployment on an annual basis is evident for all education groups. Therefore, the unemployment rate ranges from 28.4% for those who have attended some years of primary education but have not completed it to 12.2% for holders of a PhD or Master's degree. Graduates of Upper Technical Vocational Education (ATEI included) and primary education graduates are excluded, since in these cases the unemployment rate either remained constant or increased only marginally. A big increase in the unemployment rate is recorded for those who have not attended school at all, following the sharp rise recorded in 2015.[1] Compared to the third quarter of 2016, graduates from lower levels of education seem to have been mostly affected by seasonal fluctuations, since the unemployment rate rose for those who have attended only some years of primary education by 3.7pp and for Gymnasium graduates by 2.9pp. In relative terms and on an annual basis the situation of AEI (university) graduates deteriorated, since in 2016d they had a 6pp lower unemployment rate compared to the general level of unemployment, while in 2015d they had a 4.8pp lower unemployment rate. On the other hand, the unemployment differential between holders of a PhD or Master's degree and the whole population increased to 11.4pp in favour of the former. These figures should be interpreted with caution, since they might conceal migration flows concerning more educated people looking for a job or/and a substitution process between education groups and a probable outbreak of over-education, i.e. occupying jobs that require less human capital than embodied by the individual.

1. The data indicate a big increase in the unemployment rate in 2015, which might not be entirely accurate.

Region-wise, the unemployment rate did not change much across regions between quarters and as a result the ranking of regions has also remained almost unchanged. Hence, in the last quarter of 2016 Western Macedonia (31.3%) and Western Greece (28.9%) recorded the highest unemployment rates, similarly to 2008. Nevertheless, at the regional level seasonality is more intense. For instance, on a quarterly basis (2016c-2016d) unemployment went up mostly in the Ionian islands (9.3pp), the South Aegean (4.2pp) and Crete (3.3pp), regions which rely heavily on tourism. On the contrary, the remaining regions saw either very small decreases in the unemployment rate or marginal changes in both directions. On an annual basis the unemployment rate rose considerably (from 3 to 5.8pp) in the Ionian islands and the Aegean islands (north and south), while it also decreased considerably (from -2.6pp to -4.2pp) in Thessaly, Sterea Greece and Crete. To fight unemployment, it seems rational and wise to treat different experiences across regions as a field of study, in order to determine the contributing factors and either heal or reinforce them accordingly by region.

3.1.3. Employment

In the last quarter of 2016 the number of employed individuals[2] aged 15-64 decreased by 88.1 thousand amounting to a total of 3.649 thousand persons without any actual impact on the employment rate, which remains very low, close to 40%. The low employment rate is due to the low participation rate (close to 52%) and, mainly, the high unemployment rate already discussed. On an annual basis, though, the number of employed individuals increased slightly (6.9 thousand) while compared to the minimum number of the employed in the last quarter of 2013, there is an overall increase by 168.7 thousand individuals. Thus, the recovery in employment that took place in the last three years equals approximately 56.2 thousand new jobs, and, consequently, at this rate it will take about 13 years to get back to the number of unemployed individuals that existed in the last quarter of 2008. Taking into account the type of new jobs created, which rely on flexible types of employment and entail lower wages and greater uncertainty, it becomes obvious that there is no room for complacency.

The reduction in employment on a quarterly basis (2016c-2016d) involves mainly the number of employed individuals aged 30-64, which decreased by 78.5 thousand individuals. It is noteworthy that 64.5% of the quarterly reduction involves individuals aged 30-44. Nevertheless, the important involvement of youth with seasonal jobs and, thus, the sizeable variation in their employment as a consequence, is reflected in the fact that almost one out of three people employed aged 15-19 (33.7%) is no longer employed. That is not true for the other two groups of youth which decreased only marginally. What is interesting is that the number of employed individuals aged 25-29 remained constant and so did the number of the employed aged 65+. Lastly, the reduction in employment is almost equally divided between men and women, with only small variations noted due to age.

On an annual basis (2015d-2016d) the picture is somewhat different. For starters, employed men increased by 15.6 thousand, while employed women decreased by 8.8 thousand. This fact verifies that the weak employment recovery has a stronger impact on men rather than on women. The age composition analysis reveals that the change in the number of the employed comes from individuals aged 30-44 whose numbers declined by 36.9 thousand or 2.3%. Indeed, the number of employed women in this specific age group decreased six times more compared to men. The only other age group that recorded a similar decrease in employed individuals is the 65+ group. On the contrary, amongst individuals aged 45-64, the number of employed women increased more than men, while employed youth (below 30) increased too, but to a much smaller extent. What is interesting is that the change in the number of the employed aged 25-29 differs significantly across gender, since the number of employed men increased by 12.5 thousand, while the number of employed women decreased by 9.5 thousand. At this point it should be stressed that differences across gender and age groups do not necessarily mean that they follow a specific pattern. For instance, a comparison with period 2014d-2015d indicates that only age groups 25-29 and 45-64 exhibit some stability in employment movements as far as both gender and the entire population are concerned.

The jobs created in an economy usually require a specific level of education.[3] (Graph 3.1.3) On a quarterly basis (2016c-2016d) employed university graduates is the only group that got bigger (by 9.2 thousand). The number of holders of a PhD or Master's degree

2. We use the term employed rather than employment, since the latter usually refers to working hours. Therefore, an increase in the number of the employed does not necessarily imply an increase in employment, since it could be the result of substituting two or more part-time/work-in-shifts employed individuals for a full-time employed individual.

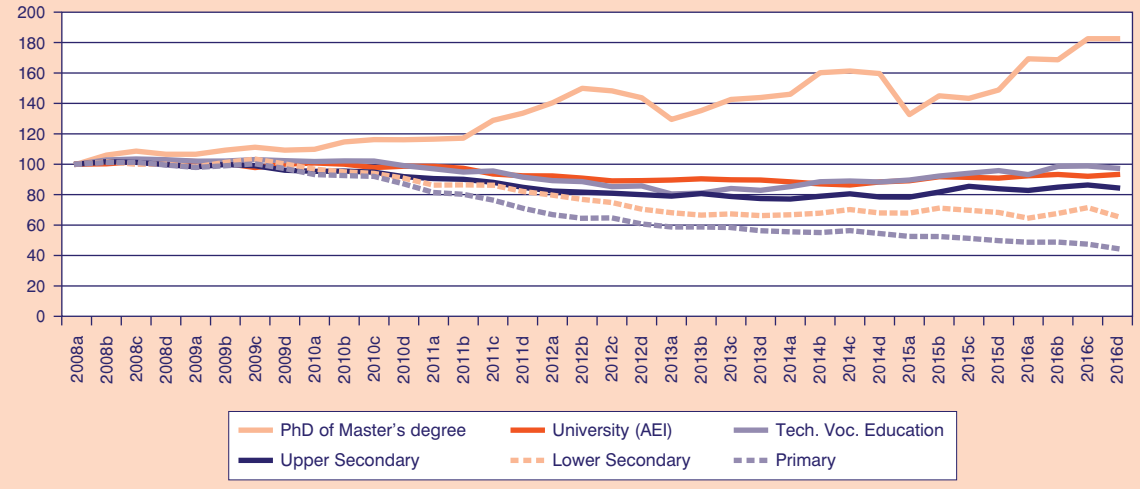
3. The type of education is perhaps even more important, but publicly available data do not provide such information.

remained almost constant, while the number of employed individuals who have attained a different level of education has decreased. The largest decreases were recorded for lower secondary education graduates, upper secondary and primary education graduates. On the other hand, the annual change, i.e. compared to the last quarter of 2015, shows that the number of employed lower secondary or less education graduates has decreased and the number of employed graduates from higher levels of education has increased. It is noteworthy that the higher the level of education attained, the bigger the increase in employed graduates. This means that the Greek economy over the past year has created primarily jobs that require a high level of education and, in particular, 32 thousand for holders of a PhD or Master's degree, 19 thousand for university graduates and 11 thousand for upper technical vocational education. Please note that the situation was quite different in period 2014d-2015d when the increase in employed individuals was several times bigger (106.4 thousand) and the jobs created back then required mostly upper secondary education graduates (81 thousand) and upper technical vocational education graduates (57.1 thousand). This means that the needs of the economy change over time and, therefore, predictions about the future are quite risky.

The number of employed individuals did not decrease homogeneously over the crisis, neither is it expected to recover that way. On a quarterly basis, as expected, the number of employed individuals decreased more in the last quarter of 2016 in *Accommodation and food service activities* (-52.2 thousand), followed by employed individuals in *Agriculture, forestry and fishing* (-11.6 thousand). On the contrary, employed individuals in *Education* increased (20.2 thousand), which is probably related to the increase in the number of employed university graduates discussed earlier. Note also that in most industries the number of employed individuals decreased. On the other hand, on an annual basis the number of employed individuals increased significantly in *Transport and storage* (16.2 thousand), *Manufacturing* (12.6 thousand) and *Information and communication* (8.3 thousand). Moreover, the number of the employed in *Professional, scientific and technical activities* decreased by 12.9 thousand, in *Other service activities* it decreased by 10.1 thousand and in *Agriculture, forestry and fishery* it decreased by -7.8 thousand.

Generally, the downward trend in employment seems to be reversed over the last few quarters and succeeded by upward trends in all industries. *Agriculture, forestry and fishery*, *Construction* and *Activities of households as employers* are exceptions to the rule, since in all three the minimum number of employed individuals since 2008 was recorded in the last quarter of 2016. Especially as far as the last two industries are concerned, employed individuals in the last quarter of 2016 represent 36.5% and 45.7% of employed individuals in 2008d, respectively, a fact which can fully describe the dire situation facing the two industries. That, of course, does not mean that there are not any industries which have completely recovered, at least in terms of the number of employed. For instance, in the

GRAPH 3.1.3
Index for the employed by level of education (2008a=100)



Source: Labour Force Survey, ELSTAT.

last quarter of 2016 the number of employed individuals in *Professional, scientific and technical activities* was 119.7% bigger than the respective number in the last quarter of 2008. Moreover, in *Accommodation and food service activities* the respective figure was 104.9% and in *Information and communication* it was 102.7%.[4] The remaining industries have been hurt more or less by the crisis.

3.1.4. Paid employment flows (ERGANI)

The balance of paid employment flows in 2016 was positive. In total some 136,260 new jobs were created as a result of approximately 333 thousand more hires and 297 thousand more dismissals (or quits) compared to 2015. This is the best performance since 2001 according to data available in ERGANI. The second best performance was recorded in 2013, when 133,488 new jobs were created throughout the year. One major difference, though, is that 53.9% of all hires from March until December 2013 involved full-time jobs, while during the same period in 2016 the respective share was only 45.3%.

The data for the first quarter of 2017 draw a positive picture. With the exception of January, when negative flows of paid employment were larger than usual,[5] paid employment seems to recover. Both February and March have the biggest positive paid employment flows balances since 2001 and, therefore, they fully compensate for January losses. Thus, overall, 33,834 net new jobs were created in the first quarter of 2017, a record that falls short only compared to 2014 (>40,000).

Most new jobs were occupied by men. In February the share of new jobs occupied by men was over 60%, similar to 2016 and 2015, while on a quarterly basis men occupied 54% of total net new jobs of paid employment. The age composition of new job occupants causes no surprise as it is very similar to previous years. On a quarterly basis most new jobs were occupied by individuals aged 30-44 (40.2%), while the rest of the age groups 15-64 occupied approximately one-fifth of new jobs. The situation was similar in previous years, thus no substantial change took place. Moreover, there seems to be a preference on behalf of the labour market towards younger individuals, since in the last quarter of 2016 youth aged 15-24 represented 10.5% of the total unemployed, but they occupied 20.5% of new jobs of paid employment in the first quarter of 2017. The representation of individuals aged 25-29 was slightly stronger, while the age group that seems to be underrepresented in occupying new jobs consists of people aged 45-64. A possible explanation could be that this particular age group prefers self-employment. Another could be that these people are less employable.

In the first quarter of 2017 most net new jobs were created in Attica (29.8%), the South Aegean (25.6%) and Crete (21.6%). Compared to the first quarter of 2016 there were relatively fewer new jobs in Attica, since it represented 42.4% of new jobs a year ago, and relatively more new jobs in the other two regions (the ranking has not changed however). The number of unemployed individuals per region shows that some regions are underrepresented in the creation of net new jobs of paid employment, such as Attica and the Peloponnese, while others are overrepresented, such as Crete and the South Aegean islands. Typically, not many things have changed across regions compared to 2016 in a sense that there are some that are systematically underrepresented in new jobs of paid employment and some that are overrepresented. The only exception is Attica, which created relatively more jobs last year than the share of unemployed would justify. Generally, an in-depth analysis could detect the determining factors for that and allow for the design and implementation of suitable policies.

Despite the positive balance of paid employment, the type of jobs offered is still a concern. In the first quarter of 2017 full-time job hires represented 46.5% of total hires. That share is slightly bigger than the respective share in 2015, but considerably smaller compared to 2014 (49.7%). On the contrary, the share of flexible job hires continued to shrink and it was one percentage point lower compared to 2014 (14.8%). The situation in March has improved, since the share of full-time job hires increased compared to both January and February.

The other source of concern is the number of full-time job contracts that were converted to flexible job contracts that involve part-time employment and work-in-shifts jobs. The total number increased in

4. Individuals employed in *Human health and social work activities and Education* are nearly 90% of those employed in 2008, with a large share employed in the public sector.

5. Approximately 20 thousand jobs were lost compared to January 2015 and 2016. This is the worst performance since 2001, even compared to years with extremely bad records, such as 2009, 2011 and 2012.

the first quarter of 2017, amounting to 14,193 conversions. The increase corresponds to 734 more conversions compared to the first quarter of 2016, which also increased by 1,301 conversions compared to the first quarter of 2015. Therefore, it seems that employment terms actually deteriorated. Most conversions involve part-time job contracts in the first quarter of the year and their share has increased steadily over the past three years: from 47.2% in 2015 to 53.1% in 2016 and to 55.1% in 2017. On the contrary, the share of conversions that involve work-in-shifts without the consent of the employed individuals decreased compared to previous years, although it still remains very big (nearly one in every four conversions).

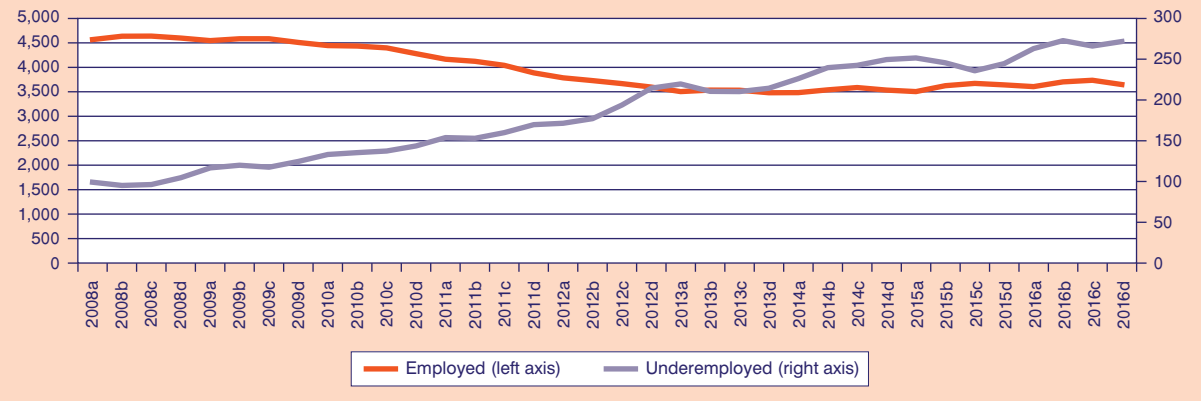
3.1.5. Underemployment and flexible employment

Increased employment observed in the past few years, together with the decline in unemployment, but without GDP growth, might cause serious concerns. To start, the increase in employment seems to rely heavily on the expansion of flexible types of jobs, an observation which is particularly valid for paid employment, as discussed in previous issues of the *Greek Economic Outlook*. For example, Graph 3.1.4 presents the evolution of the number of employed and underemployed individuals, i.e. those who are employed fewer than desirable hours and/or days. It is fairly obvious that the number of the underemployed individuals has increased rapidly since 2008, even at times when total employment was shrinking (i.e. 2008-2013). Until 2012 the number of the underemployed almost doubled (from 100 to 200 thousand) and until 2016 it tripled (300 thousand).

Undoubtedly, flexible jobs provide an escape route for the unemployed and, therefore, are preferable to unemployment. Especially in the case of Greece, with a weak protection system against the risk of unemployment, this is even more important. On top of that, flexible jobs allow firms to adjust to negative economic shocks quickly by changing their productive activity through wage cuts and/or through increases in working hours rather than decreases in the number of their employees. It should be borne in mind that a quite popular argument in public discourse is that the unemployment rate could potentially be much lower in Greece if employment was less protected (less restrictive rules and more freedom to firms to decide on the terms of employment), since in that case firms could adjust wages and working hours accordingly and avoid dismissals. Nevertheless, it should be clear that flexible jobs usually involve lower wages compared to full-time employment. In the context of an economy that heavily relies on domestic consumption this is particularly troublesome, since the wages of employees fuel the consumption of domestically produced products also (naturally of imported goods, too) and force them to hire personnel, to raise wages and to produce more by starting a virtuous circle.

Turning to exports or import substitution, neither is easy nor can happen immediately. The experience of the past few years should be good proof of that. Moreover, increasing competitiveness, an important element to boost exports and substitute for imports, demands investing in physical as well as in non-physical capital, such as new technologies and human capital, both of which have dropped considerably during the crisis. Therefore, flexible types of em-

GRAPH 3.1.4
The evolution of employment (in thousands)



Source: Labour Force Survey, ELSTAT.

ployment should only be viewed as an intermediate phase, as a substitute for the safety net against the risk of unemployment that unfortunately is seriously insufficient in Greece. In the next phase, only those jobs that are necessary should be preserved. "Necessity" could be decided upon by judging the firm's actual activity and/or the desire of people involved. The rest should be replaced by sustainable full-time jobs capable of ensuring decent living standards. That is the goal all involved parties should set, including the political leadership of the country. Complacency due to the superficial reading of the data for employment can only provide bad services.

3.1.6. Conclusions

Generally, it seems easier for men and youth to find a job, contrary to women and individuals over 30, respectively, although the ranking of groups based on the rate of unemployment has not changed (women and youth still face higher unemployment rates). More educated individuals have better employment prospects and they seem to be less influenced by seasonal volatility in economic activity. The unemployment gap between university graduates and the general population (the former face a lower unemployment rate) has shrunk and that could be the start of a deteriorating process. On a quarterly basis the unemployment rate increased more in the Ionian islands, the South Aegean islands and Crete, probably because the tourist season has ended, while on an annual basis the unemployment rate fell considerably in Thessaly, Sterea Greece and Crete.

Due to seasonal variations in economic activity, the number of employed individuals decreased in the last quarter of 2016 (compared to 2016c), but increased compared to the last quarter of 2015. Taking into account the slow pace of increase in employment since 2013, when signs of recovery first appeared, it is estimated that it will take approximately 13 years to return to the number of unemployed we had in the last quarter of 2008. It is interesting that on an annual basis, the number of employed men increased, while the number of employed women decreased. Moreover, several variations within gender groups based on age are found. On a quarterly basis employed university graduates is the only group that grew in numbers and it seems that the higher the education level attained, the bigger the increase in the number of the employed. This suggests that over the past year the Greek economy has created mostly jobs that require a high level of education. In particular, *Transport and storage*, *Manufacturing* and *Information and communication* exhibited a noteworthy increase in the number of the employed on an annual basis. On the contrary, in other industries the number of the employed decreased, e.g. *Professional, scientific and technical activities*, *Other service activities* and *Agriculture, forestry and fishing*.

Paid employment grew stronger in the first quarter of 2017. Men and youth occupied most net new jobs. An in-depth analysis of variations traced between regions, especially with respect to paid employment, could provide interesting results and could possibly determine the factors that allow some regional labour markets to have favourable developments. Nevertheless, things are far from perfect. The ongoing expansion of flexible job contracts is troubling, since it continues to increase underemployment and to jeopardise the prospects of economic recovery.

3.2. The new phase of the refugee crisis and the opinions of Greek society

Jennifer Cavounidis

3.2.1. Introduction

Subsequent to the EU-Turkey agreement of March 2016, arrivals of refugees and migrants in Greece have decreased sharply compared to inflows the previous year. Nonetheless, a large population of refugees and newly-arrived migrants is now present on the Greek mainland and islands. The overwhelming majority of this new population does not wish to remain in Greece but instead to continue onward and reach other countries of Europe. This plan, however, will prove unfeasible for many, given the closing of borders to the north of Greece and the ineffective implementation of the EU agreement for the relocation of refugees from Greece and Italy to other European countries.

It is now abundantly clear that a significant number of the recently arrived refugees and migrants will remain in Greece, despite their desire to the contrary. Greece must begin to design and implement policies to successfully integrate those who will stay over the long term, and to ensure social cohesion. These policies should focus especially on integration into the labour market and the integration of children into the educational system.

As has been noted (Jacobsen and Fratzke 2016; Papademetriou, Benton and Banulescu-Bogdan 2017), the success of initiatives developed for integration are affected not only by economic opportunities in receiving countries, but also by their political climate and the views of the local population, as well as by the views of refugees themselves and their willingness to make efforts to integrate into the specific society. In order to design effective policies and programs for integration, the economic and social landscape of local societies must be carefully considered, including the views of the populations concerned, such that specific barriers or opportunities can be identified.

Findings from recent studies carried out in Greece allow examination of population views regarding integration, and reveal that both natives and refugees have serious reservations about the prospects for the long-term stay of the latter and their integration into Greek society. In this article, we will first present recent developments with respect to refugee and migrant flows to Greece and the population currently hosted in the country. Then, the findings from three recent surveys tapping public opinions about the integration of refugees and migrants will be presented, and their implications for policy design will be discussed.

3.2.2. Inflows and population of refugees and migrants: Recent developments

Since the signing of the EU-Turkey agreement in March 2016, arrivals of refugees and migrants on Greek islands from the coast of Turkey have decreased significantly. According to FRONTEX data, in 2015 approximately 885,000 individuals followed the Eastern Mediterranean route to Europe, landing on Greek shores, compared to 182,000 in 2016 (with most arrivals occurring in the first three months of the year, prior to the agreement), while in the first three months of 2017, only 5,200 arrivals were recorded. It should be noted, of course, that the decrease in flows of refugees and migrants along this route as a result of the agreement was accompanied by a sharp increase in flows along the Central Mediterranean route to Europe, which leads from Libya to Italy.

As for the size of the population of refugees and new migrants now on Greek territory, according to UNHCR data, based on facts provided by the Coordinating Centre for the Management of the Refugee Crisis under the auspices of the Ministry of Migration Policy, on March 14, 2017, there were about 13,000 individuals in formal and informal facilities on islands of the Aegean and 34,000 on the mainland, while another 16,000 were in accommodations provided through the UNHCR's housing programme. In many of the formal and informal structures, living conditions were extremely problematic. Indeed, in the first months of 2017, Greece was the subject of a major international outcry, with international media heavily criticizing the Greek government and NGOs active in Greece for their complete failure to deal adequately with the refugee crisis despite the huge sums of money that had been devoted to this purpose. In February 2017, refugees and migrants residing in various facilities went on hunger strikes to protest the abominable conditions and serious shortcomings. More recently, in late April 2017, Amnesty International condemned the squalid, unsafe conditions faced by asylum seekers staying at the former Elliniko airport, and demanded immediate intervention by the state (*Kathimerini*, 26.4.2017).

While most estimates place the size of the population of recent arrivals now on Greek territory between 40,000 and 50,000, the size of the population that will remain in Greece over the long term is very difficult to estimate.

As is well known, the EU agreement of September 2015 for the relocation of refugees from Greece and Italy to other countries of Europe has not been implemented effectively, and the number of relocations accomplished to date lags far behind targets. More specifically, while the agreement foresaw the relocation of 50,000 from Greece, by April 19, 2017, only 11,500 refugees had been relocated. At the same time, the number of people returned to Turkey from the beginning of 2016, to mid-April 2017, after the rejection of their asylum claims, stood at about 2,300 (*Kathimerini* 21.4.2017). As far as the International Organisation for Migration's programme for the voluntary return of migrants is concerned, 6,153 such returns were completed in 2016, while in the first quarter of 2017, there were 296 departures. Of course, the number of refugees and migrants who have managed on their own initiative to proceed from Greece to other countries of Europe (usually with the involvement of smugglers) remains unknown.

According to an announcement by M. Stavropoulou, Director of the Greek Asylum Service, in April 2017, it is estimated that about 10,000 people will remain in Greece as recognized refugees. She indicated that most of these will be Afghanis, given that they are ineligible for the EU relocation programme and that very few of them can qualify for family reunification and join family members in other European countries.

Even though the number of recent arrivals who will eventually stay in Greece over the long term remains unknown, it is high time that the Greek authorities and other bodies involved with refugees extend the focus of their activities from programmes for reception and emergency care to programmes for the smooth integration of those who will eventually stay. As international experience has shown, the stakes of this next phase of the refugee crisis, the challenge of integration, are very high.

3.2.3. Views about the integration of refugees and migrants

As mentioned at the outset, when designing policies and programmes for the integration of refugees and migrants, the views of the populations implicated must be taken into consideration, and specifically, both the views of the settled population (whether natives or older migrants) and those of the newly-arrived. In what follows, we will examine the results of three recent surveys conducted in Greece which shed light on these views.

A new international study by the Pew Research Center (2017) allows the comparison of views in Greece concerning national identity and migrants with corresponding views in other countries. The study was carried out in April-May 2016 in many European countries: Greece, France, Germany, Hungary, Italy, the Netherlands, Poland, Spain, Sweden, and the United Kingdom, as well as in Australia, Canada, Japan, and the United States. It was ascertained that Greece and Hungary were similar in ways which differentiated them from the other countries of the study, and specifically, with respect to national identity and the prerequisites considered necessary for a person to be truly "one of us".

First, large proportions in both Hungary and Greece, 68% and 66%, respectively, believe that sharing national customs and tradition is very important for someone to be "one of us", while Sweden and Germany stood at the other end of the distribution, with only 26% and 29%, respectively, agreeing that adherence to customs and traditions is important. It is interesting that in many countries of Europe, the emphasis placed on national customs and traditions was connected with ideological preferences, with those placing themselves on the right of the ideological spectrum being more likely than those on the left to emphasize the salience of culture as a marker of nationality. Furthermore, adherence to customs and traditions was tied to preferences for populist and nationalistic political parties, and more particularly, for the UKIP party in the UK, the National Front in France, and related parties in Germany and Sweden (Pew Research Center 2017).

Second, in the same survey, a related question tapping views on "what it takes" to be truly "one of us", it was found that 52% of respondents in Hungary and 50% in Greece (and 50% in Japan as well) stated that being born in the country is very important for a person to be considered as "Hungarian", "Greek", etc., while the next highest percentage recorded was 42% (for Italy and Poland). At the other end of the distribution, only 8% of Swedes declared that being native-born is important, as did 13% of Germans and Australians.

To a question in the same survey about the importance of religion for national identity, Greece set itself apart from all other countries surveyed, having the highest proportion of respondents who closely connect the two. More specifically, 54% of respondents in Greece declared that being a Christian is very important for being truly Greek. In contrast, 57% in Spain and in Sweden declared that religion is not at all important to national identity. It should be mentioned, however, that a large age divide was observed in Greece, with 39% of those aged 18-34 believing that being a Christian is a very important element of being Greek, compared to 65% among those aged 50 and over.

It should be noted that the element of national identity found to be very important in most countries of the Pew study, for a person to be considered "one of us", was the ability to speak the national language. For example, 84% of the Dutch and 81% of Hungarians and the British replied that they consider knowledge of the language to be very important for belonging, while the corresponding proportion in Greece was 76%.

A recent survey focusing exclusively on Greece was carried out in December 2016 by diaNEOsis (2017). Like the Pew study, it explored population views on national identity and the integration of migrants and used similar questions as well as more specialised questions. According to the results, about half of those in the Greek study, and specifically 49%, believe that "refugees" represent something "good", while a smaller percentage, 38%, had positive attitudes towards "migrants". Of course, it is unknown which images the "migrants" of the question conjured up in the respondents' minds, and more particularly, whether they corresponded to the migrants of the mixed migrant and refugee flows of the last few years or to the migrants who arrived in Greece over the past decades.

It should be mentioned that a smaller proportion –36%– of the sample had positive attitudes towards "Muslims". When asked about construction of places of worship (mosques) for Muslims in Greece, 42% stated that it would bother them. In the opinion of 32% of the sample, many Muslims in the world agree with the terrorist attacks of jihadists, while 59% believe that few Muslims agree with these acts. When asked about the possibility of jihadist attacks in Greece over the next year, 31% said they consider it very likely or quite likely.

In the same DiaNEOsis study, important variation in views was observed according to age group and educational level. More particularly, younger age groups held more positive views towards refugees, with 60% of those aged 17-24 being positive compared to 37% of those aged 65 and over. Also, as educational level increases, attitudes become more positive, with 35% of respondents with primary school education being positive compared to 47% for those with secondary education and 53% for those with tertiary education (but 51% of those with graduate studies). Similar trends were ascertained in views towards specific groups of migrants such as Muslims, with younger age groups and more educated groups exhibiting more favorable attitudes.

The above views should be considered together with the finding that 88% of the sample stated that the number of migrants in our country over the last ten years has been excessively large, 64% that the migrant presence increases criminality and 58% that their presence increases unemployment, while only 34% stated that the migrant presence has a positive impact on the economy and 34% that it enriches our culture. It should be noted that stances towards illegal immigrants were especially unfavorable, with most of the sample believing that they should either be sent on to a country of their choice or deported immediately.

With respect to the issue of whether children born in Greece to legal migrants should be eligible for Greek citizenship, two-thirds of respondents answered that they should be able to acquire it immediately. It should be noted, however, that since the previous survey carried out in April 2015, the proportion replying affirmatively declined, and specifically from 75% to 66%.

It should also be noted that in the recent survey, a question was posed concerning the willingness to hire employees of various social groups. Respondents stated they would be more reluctant to hire an individual of Albanian origin than an individual with special needs or a gay person. More specifically, 39% of the sample stated that it would be quite or very difficult for them to hire a person of Albanian origin, compared to 13% for a person with special needs and 22% for a gay person.

The views expressed in the diaNEOsis study by the Greek population about national identity do not create optimism regarding the integration prospects of the population of refugees and migrants currently in Greece, many of whom will probably remain in the country despite their desire to travel onward to other countries of Europe. More particularly, nearly half (47%) replied that Greek identity depends on being born Greek, implying that a person cannot subsequently become Greek, and 48% replied that it is possible for a person to become Greek. Young respondents (aged 17-24) were the most likely (67%) to respond that a person can become Greek, as were those with tertiary education (55%) and postgraduate studies (67%).

Views concerning the preconditions for being considered Greek are also pertinent here. In the relevant question, respondents could mention up to two preconditions they considered important. The precondition that was mentioned most frequently (by 54% of the sample) was the adoption of Greek customs and traditions, while the next most frequently mentioned preconditions were that the person was born to Greek parents (36%), that the person spoke Greek (28%), that the person was born in Greece (25%) and that the person was Greek Orthodox (17%).

The results from a recent study conducted by the City of Athens must also be mentioned. The study attempted to tap attitudes towards refugees as well as the attitudes of refugees themselves. It should be noted that approximately 18,000 refugees reside in Athens. According to the results (*Kathimerini* 20.4.2017), Athenians are in favor of solidarity and the provision of temporary assistance for refugees, but not in favor of their long-term stay and integration into Greek society. More specifically, 54% believe that refugees cannot be incorporated into Greek society, and only 28% believe that they can be incorporated. Furthermore, 37% believes that refugees should not get work permits. With regard to the children of refugees, 72% of Athenians stated that they should be enrolled in schools, and 65% that they should be included in child care centers. As for places of worship, 44% replied that a mosque should not be built in Athens, and 44% stated that refugees represent a threat to national security. At the same time, most respondents (66%) believe that the presence of refugees in their neighborhoods does not create problems.

In the corresponding study of the City of Athens amongst refugees who live in the municipality, whether in the official Elaiona facility or in apartments, it was ascertained that only 5% intended to stay in the country, while the destination country that figured as the first choice of the majority of respondents was Germany. Therefore, it is not surprising that although only 3% know the Greek language, just 22% stated that they wanted to learn it. Similarly, most of the refugees of the sample stated that they do not want to work in Greece.

3.2.4. Conclusions

The results of the surveys which examine views on national identity, on the presence of refugees and migrants and on their integration into Greek society, suggest that their integration will not be an easy affair. It appears that a large proportion of the older residents of Greece (whether natives or past immigrants) have major reservations and doubts about the integration of new arrivals.

Of course it is not surprising that many of the older residents and many of the new arrivals are cautious about the prospects for the successful integration of the latter into Greek society given that present rates of unemployment are so high and that policies for the management of inflows of refugees and migrants and their reception have been so ineffective. When governmental authorities and private bodies (NGOs, etc.) design policies and programmes for integration, they need to take into consideration this complex constellation of sentiments and concerns.

First of all, in order for the attitudes of the older population towards the new population to become more favorable, the authorities need to show that they are effectively managing refugee and migrant inflows and concurrently respecting human rights and ensuring public safety. As is well known, local communities in the Aegean islands have not been convinced that this goal is being accomplished, and unfortunately, this is also true of many other communities of Greece.

At the same time, public authorities and NGOs and other involved bodies need to begin to present a new, convincing "narrative" that the newly arrived can eventually make an important contribution to Greek society and to the economy, even if not immediately. The serious demographic problem faced by Greece due to population ageing could play a part in this narrative. As seen in the international experience, it is usually when migrants and refugees are considered to contribute by virtue of working that they become accepted as members of society. Current levels of unemployment render their speedy integration into the labour market a difficult project, but international experience is rife with successful initiatives which create employment both for refugees and for natives, and this experience needs to be exploited. As far as the integration of children into the educational system is concerned, it is significant that the survey conducted by the City of Athens revealed that public opinion is quite positive as to the enrollment of refugee children in schools and childcare centers. The findings lead to optimism about the prospects for the harmonious coexistence of the children of older and newer residents once they attend school together and not separately in morning and afternoon sessions, as at present.

As for the newly arrived who will remain in Greece, they will need to come to terms with the reality that they will not manage to achieve their initial goal of continuing their journey onward to another country of Europe, in order that they become willing to invest time and effort in learning the Greek language and acquiring other skills that will facilitate their integration into Greek society. When policies and programmes for their integration are designed, they should be included in the process and consulted with respect to their needs, ambitions, qualifications and skills.

The challenges posed by this new phase of the refugee crisis, where the main issue is successful integration of those who remain, are huge. The stakes are of similar magnitude.

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4. Development policies and sectors

4.1. External trade of agro-food products

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4.1.1. Introduction

Last year, 2016, was positive regarding the external trade of agro-food products.[1] Exports increased by 7.3% and imports also increased by 4.9%. As a result, the deficit of agro-food trade fell below € 0.5 billion for the first time in decades and far below the highest peak of € 3.04 billion in 2008.

The picture changes when taking into consideration total trade (including mineral fuel-petroleum). Total exports marginally decreased by 0.24% reaching € 25.44 billion, down from 25.50 in 2015. Total imports increased by 3.5%, to € 44.09 billion, up from € 42.60 billion in 2015. The direct result of this development is that the total trade deficit significantly increased by 9.1%, to € 18.65 billion, up from € 17.1 billion in 2015, which was the lowest deficit since Greece joined the common currency. It is worth noting that the peak of the Greek total trade deficit was € 43.36 billion in 2008.

Total trade excluding mineral fuels-petroleum had a slightly worse performance given that mineral fuels contributed positively to the trade balance. Specifically, petroleum imports and exports decreased by 14.2% and 9.1%, respectively (imports fell to € 9.74 billion, down from € 11.36 billion in 2015 and exports fell to € 6.90 billion, down from € 7.60 billion in 2015), thus driving the petroleum deficit down by 24.6% to € 2.84 billion from € 3.76 billion in 2015.

4.1.2. Agro-food trade in comparison to total trade (excluding mineral fuels)

Table 4.1.1 shows the evolution of agro-food trade in comparison to total trade (now excluding mineral fuel-petroleum) for the period 2008-2016. It is clear

TABLE 4.1.1 Total trade and agro-food products trade (in billion €)*

	2008	2010	2012	2013	2014	2015	2016	% annual change rate 2008-2015	% change 2015-2016
					Imports				
Total	48.60	36.49	30.21	29.64	31.66	31.24	34.34	-7.1	9.9
Agro-food	**7.05**	**6.30**	**6.34**	**6.54**	**6.49**	**6.31**	**6.62**	**-1.8**	**4.9**
Agro (%)	*14.5*	*17.3*	*21.0*	*22.1*	*20.5*	*20.2*	*19.3*		
					Exports				
Total	15.46	14.46	16.73	16.67	16.84	17.90	18.53	2,5	3.5
Agro-food	**4.01**	**4.41**	**5.24**	**5.42**	**5.18**	**5.72**	**6.14**	**6.1**	**7.3**
Agro (%)	*25.9*	*30.5*	*31.3*	*32.5*	*30.7*	*31.9*	*33.1*		
					Deficit				
Total	33.14	22.04	13.48	12.98	14.82	13.34	15.81	-14.1	18.5
Agro-food	**3.04**	**1.89**	**1.09**	**1.12**	**1.31**	**0.60**	**0.49**	**-23.8**	**-18.6**

Source: Hellenic Statistical Authority (ELSTAT), own calculations.

* Excluding mineral fuels-petroleum.

1. The term "agro-food products" includes agricultural products and foodstuffs and its definition is based on the classification followed by the Ministry of Rural Development and Food, which is aligned with the SITC (Standard International Trade Classification) of the OECD. According to this classification, agro-food products include the following codes: 0 (food and live animals), 1 (beverages and tobacco), 21 (hides, skins), 22 (oil seeds), 231 (natural rubber), 24 (cork and wood), 261-265 & 268 (natural textile fibers), 29 (other agricultural raw material), 4 (animal and vegetable oils), 59211/12 (wheat and corn starch).

that total imports had a strong increase, at a rate of 9.9% in 2016. This is the highest rate since 2008. It is a good thing that total exports also increased by 3.5%, which is higher than the average annual rate of the period 2008-2015. Due to these developments, the total trade deficit increased for the first time since 2008 at a rate as high as 18.5% or, in value, € 2.47 billion.

Data on agro-food trade is encouraging and it shows once again (as it does almost every year since the beginning of the economic crisis) the dynamism and the potential of this sector of the Greek economy. Agro-food exports increased in 2016 at a faster rate than the annual average of the period 2008-2015, namely, 7.3% in 2016 compared to an annual average of 6.3%. Moreover, during the crisis (2008-2015) the average annual rate of growth of agro-food exports is more than double the annual rate of growth of the total exports. This is an indicator of the robustness of the sector as well as its potential.

Agro-food imports increased by 4.9% while, during the period 2008-2015 there was, on average, a yearly decrease of 1.8%. Despite this important increase of imports, the agro-food trade deficit declined by 18.6% while at the same time the total trade deficit increased by 18.5%. From Table 4.1.1 it becomes obvious that since 2008 the steady decline of the agro-food trade deficit is due to the constant increase of exports rather than the sporadic decrease of imports.

4.1.3. Geographical distribution of agro-food trade

Table 4.1.2 shows that the main characteristic of Greek agro-food exports in 2016 is their significant increase toward countries of the European Union (EU). As a consequence the percentage of agro-food exports to the EU reached 72%, which is the highest since 2008. This column has argued that a high share of exports towards a specific group of countries is not a bad thing by itself so long as agro-food exporters have the ability and flexibility to shift to different destinations depending on any changes in the global conditions in general and, more specifically, in the socioeconomic conditions in importing countries.

Following the same trend, imports from EU countries also increased their share over the total agro-food imports. The result of these developments is that the deficit in agro-food trade with the EU declined by 14.8% to € 664 million, down from € 780 million in 2015. The agro-food trade with non-EU countries has had a surplus the last few years. In 2016 this surplus

TABLE 4.1.2 Geographical distribution of agro-food trade (in million €)

	2008	2010	2012	2013	2014	2015	2016	% annual change rate 2008-2015	% change 2015-2016
					Imports				
Total	7,054	6,299	6,335	6,537	6,488	6,313	6,621	-1.8	4.9
EU	5,295	4,947	4,903	5,082	5,102	4,841	5,086	-1.5	5.1
Non-EU	1,758	1,352	1,432	1,455	1,385	1,472	1,535	-2.9	4.3
% EU	*75.1*	*78.5*	*77.4*	*77.7*	*78.6*	*76.7*	*76.8*		
% Non-EU	*24.9*	*21.5*	*22.6*	*22.3*	*21.4*	*23.3*	*23.2*		
					Exports				
Total	4,011	4,406	5,241	5,415	5,176	5,717	6,136	6.1	7.3
EU	2,783	2,954	3,424	3,692	3,539	4,061	4,422	6.5	8.9
Non-EU	1,228	1,452	1,817	1,723	1,636	1,657	1,715	5.1	3.5
% EU	*69.4*	*67.1*	*65.3*	*68.2*	*68.4*	*71.0*	*72.0*		
% Non-EU	*30.6*	*32.9*	*34.7*	*31.8*	*31.6*	*29.0*	*28.0*		
					Balance				
Total	-3,043	-1,893	-1,094	-1,122	-1,312	-596	-485	-23.8	-18.6
EU	-2,513	-1,993	-1,479	-1,390	-1,563	-780	-664	-17.7	-14.8
Non-EU	- 530	100	385	268	251	185	180	*	-2.8

Source: Hellenic Statistical Authority (ELSTAT), own calculations.

* Due to changes in the sign, calculation of the rate of change is not possible.

slightly decreased by 2.8%. It is the first time in the last few decades that the total agro-food deficit fell below € 500 million.

4.1.4. Structure of agro-food products trade

Tables 4.1.3 and 4.1.4 illustrate the imports and exports of the most important agro-food categories (mainly at the 2-digit level of the Standard International Trade Classification –SITC codes). As usual the main product categories which make almost a third (28.7%) of total agro-food imports are Meat products and Dairy. Taking the livestock sector as a whole we should add Feeding stuff (€ 423 million) as well as a big chunk of Oil seeds (€ 193 million) which goes for livestock use. These add up to more than € 2.5 billion in import value, which is more than 35% of total agro-food imports. This column has repeatedly supported the idea of developing the domestic livestock sector (mostly bovine and porcine) which could not only eliminate the remaining agro-food trade deficit but also increase the very low degree of self sufficiency in meat and dairy products.

The imported value of Fruits and Vegetables as well as Cereals holds steadily at two positions behind Meat and Dairy with 11.3% and 9.3%, respectively. The category of Coffee, tea, etc. had a significant increase in imported value which broke the € 500 million threshold. Other product categories that had significant increases in import values are Fish, Tobacco, Beverages and Sugars.

Regarding exports, Fruits and Vegetables are constantly the most important product category. In 2016 Fruits and Vegetables reached closer to the € 2 billion export value threshold. Given the slight decrease in the average per unit value, the export value increase was due to the significant increase in the quantity exported (15%). Through this column we have supported the argument that developing the processing and marketing of fruits and vegetables could significantly increase the export value of the quantity exported.

TABLE 4.1.3 Imports of agro-food products categories in million € (M €)

	2008		2010		2012		2013		2014		2015		2016	
	M €	%	M €	%	M €	%	M €	%	M €	%	M €	%	M €	%
Meat products [a]	1,211	17.2	1,160	18.4	1,199	18.9	1,179	18.0	1,162	17.9	1,117	17.7	**1,150**	**17.4**
Dairy	808	11.5	770	12.2	772	12.2	847	13.0	842	13.0	752	11.9	**749**	**11.3**
Fruits-Vegetables	786	11.1	672	10.7	635	10.0	642	9.8	663	10.2	731	11.6	**748**	**11.3**
Cereals	681	9.7	541	8.6	560	8.8	595	9.1	532	8.2	554	8.8	**615**	**9.3**
Coffee, tea, etc.	365	5.2	376	6.0	411	6.5	404	6.2	442	6.8	472	7.5	**547**	**8.3**
Fish	428	6.1	384	6.1	373	5.9	351	5.4	378	5.8	375	5.9	**432**	**6.5**
Feeding stuff	406	5.8	371	5.9	345	5.4	400	6.1	403	6.2	401	6.4	**423**	**6.4**
Various foodstuff	344	4.9	356	5.7	333	5.3	346	5.3	367	5.7	352	5.6	**354**	**5.3**
Tobacco	335	4.7	310	4.9	234	3.7	234	3.6	236	3.6	301	4.8	**323**	**4.9**
Beverages	436	6.2	370	5.9	267	4.2	257	3.9	248	3.8	255	4.0	**281**	**4.2**
Oils and fats	290	4.1	232	3.7	286	4.5	264	4.0	274	4.2	264	4.2	**244**	**3.7**
Sugars	225	3.2	220	3.5	295	4.7	278	4.3	227	3.5	207	3.3	**231**	**3.5**
Oil seeds	224	3.2	173	2.7	219	3.5	238	3.6	220	3.4	211	3.3	**193**	**2.9**
Wood	262	3.7	148	2.3	128	2.0	113	1.7	118	1.8	124	2.0	**135**	**2.0**
Raw materials	130	1.8	111	1.8	111	1.8	116	1.8	121	1.9	123	1.9	**132**	**2.0**
Hides-skins	93	1.3	76	1.2	146	2.3	147	2.2	116	1.8	56	0.9	**46**	**0.7**
Total	**7,054[b]**		**6,299**		**6,335**		**6,537**		**6,488**		**6,313**		**6,621**	

Source: Hellenic Statistical Authority (ELSTAT), own calculations.

Notes:
[a] Includes live animals and meat products.
[b] The sum of values for each product may not equal to 'Total' because some categories with insignificant values such as cotton, natural rubber, other natural textile fibers, wool and jute are not included.

TABLE 4.1.4 Exports of agro-food products categories in million € (M €)

	2008		2010		2012		2013		2014		2015		2016	
	M €	%	M €	%	M €	%	M €	%	M €	%	M €	%	M €	%
Fruits-Vegetables	1,346	33.6	1,485	33.7	1,771	33.8	1,856	34.3	1,826	35.3	1,846	32.3	**1.966**	**32,0**
Oils and fats	333	8.3	287	6.5	393	7.5	580	10.7	322	6.2	714	12.5	**674**	**11,0**
Fish	449	11.4	541	12.3	613	11.7	562	10.4	556	10.7	590	10.3	**661**	**10,8**
Dairy	275	6.9	301	6.8	372	7.1	416	7.7	483	9.3	561	9.8	**593**	**9,7**
Tobacco	416	10.4	374	8.5	428	8.2	392	7.2	386	7.5	450	7.9	**524**	**8,5**
Cereals	315	7.9	292	6.6	330	6.3	270	5.0	338	6.5	303	5.3	**421**	**6,9**
Cotton	236	5.9	391	8.9	442	8.4	377	7.0	310	6.0	299	5.2	**316**	**5,1**
Various foodstuff	124	3.1	161	3.7	191	3.6	206	3.8	221	4.3	236	4.1	**253**	**4,1**
Beverages	163	4.1	166	3.8	202	3.9	192	3.5	198	3.8	209	3.7	**205**	**3,3**
Meat products [a]	76	1.9	67	1.5	78	1.5	74	1.4	84	1.6	84	1.5	**95**	**1,5**
Sugars	54	1.3	129	2.9	119	2.3	96	1.8	71	1.4	77	1.3	**91**	**1,5**
Coffee, tea, etc.	30	0.7	34	0.8	54	1.0	64	1.2	60	1.2	78	1.4	**86**	**1,4**
Oil seeds	76	1.9	64	1.5	78	1.5	79	1.5	86	1.7	96	1.7	**81**	**1,3**
Hides-skins	38	0.9	40	0.9	80	1.5	87	1.6	64	1.2	73	1.3	**69**	**1,1**
Feeding stuff	51	1.3	41	0.9	47	0.9	59	1.1	58	1.1	54	0.9	**58**	**0,9**
Raw materials	18	0.4	20	0.5	30	0.6	32	0.6	34	0.7	37	0.6	**35**	**0,6**
Wood	9	0.2	7	0.2	8	0.2	10	0.2	10	0.2	8	0.1	**6**	**0,1**
Total	**4,011[b]**		**4,406**		**5,241**		**5,415**		**5,176**		**5,717**		**6.136**	

Source: Hellenic Statistical Authority (ELSTAT), own calculations.

Notes:
[a] Includes live animals and meat products.
[b] The sum of values for each product may not equal to 'Total' because some categories with insignificant values such as wool, natural rubber, other natural textile fibers and jute are not included.

Oils and fats (mainly composed of olive oil) had another very good year. Given that the productivity of olive trees varies considerably from year to year, it is very good news that for two consecutive years the export value of olive oil remains at relatively high levels. The small drop in export value in 2016 is mostly due to a drop in the price of olive oil.

Fish had an important increase in export value. This is, in part, the result of the effort to solve the major credit/financial problems of the aquaculture firms, most of which were on the verge of bankruptcy the last few years. World demand for aquaculture products is on a constant and significant rise and Greece could (and should) play an important role in satisfying this demand. Dairy exports (mainly based on bovine dairy products, such as feta cheese and yogurt) have continued their increasing trend steadily since 2008. Finally, Tobacco and Cereals had significant increases in export value. Tobacco seems to regain its share in agro-food exports.

4.1.5. Conclusion

The past year, 2016, was another good year for the external trade of agro-food products. Exports increased by € 419 million (growth rate 7.3%) and imports went up by € 308 million (growth rate 4.9%). This resulted in a decrease of the deficit by € 111 million (a decrease of 18.6%).

This column always repeats the significance of the agro-food sector in the Greek economy. It is worth noting that the exports of the sector have had a steady increasing trend since 2009, with the exception of 2014. The cumulative increase between 2008 and 2016 is an impressive 53%. In comparison, over the same period, total exports excluding fossil fuel have cumulatively increased by a meager 8%. Not surprisingly, the share of agro-food exports to total exports reached 33.1% in 2016, up from 25.9% in 2008 (see Table 4.1.1). As previously mentioned, for the period 2008-2016 the agro-food trade deficit went down mainly due to the in-

crease in agro-food exports. Contrarily, the total trade deficit has decreased mainly due to the significant decrease of imports. This is not a sign of a healthy economy. A healthy economy increases its exports rather than undercutting its imports.

It is probable that many may think that Greece has limits in increasing its agro-food production which means that agro-food exports have a limit too. While this thought is correct with respect to land size, which is stable, we cannot say the same for the quantity and, most importantly, the value of production. Greece has large pieces of uncultivated land (mostly abandoned fields in rural areas, the population of which moved to urban areas during the decades after World War II) that could be given (again) to agriculture, thus increasing the quantity of agricultural production. However, the most important factor is the per unit value of production. Greece, relatively to other advanced economies, has not developed the processing and marketing of agricultural products. This is key for significantly increasing the value added of the country's agro-food production and, consequently, for substantially increasing agro-food export value.

4.2. Competitiveness and the Enabling Trade Index of the Greek economy

Georgia Skintzi

4.2.1. Introduction

Exports can contribute significantly not only to economic growth and the enhancement of economic efficiency (Shirazi and Manap 2005; Todaro and Smith 2003; Balassa 1985; Feder 1982; Tyler 1981) but also to the reduction of poverty (WEF 2016). Especially in the case of Greece, exports can make a decisive contribution to the growth of the Greek economy and the improvement of competitiveness. The economic crisis seems to have affected exports in two different ways. On one hand, financing difficulties and the volatile financial environment have acted as limiting factors as far as exports are concerned (Manova 2013; Becker et al. 2013; Chor and Manova 2012). On the other hand, the reduction of domestic demand has forced Greek companies to turn to foreign markets (Bower et al. 2014; Bournakis 2014).

The year 2009 was crucial for Greek foreign trade. As it can be seen in Table 4.2.1, 2009 saw the largest decline in both imports and exports, as well as the trade deficit, of the last thirteen years (2004-2016). The year 2015 was also crucial since it saw the second largest decrease in both exports and imports in the period under examination (2004-2016). In general, exports increased significantly over the three-year period 2010-2012, while in the following years exports continuously decreased. On the other hand, imports fluctuated from 2009 onwards. The trade deficit continuously decreased over the period 2009-2013, while in 2014 and 2016 there was an increase. Therefore, the need for further supporting exports becomes evident.

4.2.2. The Enabling Trade Index

The World Economic Forum (WEF 2016) published the Enabling Trade Index (ETI) for 2016. Greece is ranked 52nd among 136 countries for 2016, while in 2014 Greece was ranked 51st.[1] The European countries that reached

TABLE 4.2.1 Value of imports, exports and the trade balance (in million €) and year-on-year changes

Year	Value in million €			y-o-y changes (%)		
	Imports	Exports	Trade Balance	Imports	Exports	Trade Balance
2004	45,148.1	13,365.6	31,782.5			
2005	46,436.7	14,856.6	31,580.1	2.9	11.2	0.6
2006	53,574.2	17,130.3	36,443.9	15.4	15.3	15.4
2007	61,857.3	19,313.4	42,543.9	15.5	12.7	16.7
2008	65,528.3	21,227.7	44,300.6	5.9	9.9	4.1
2009	53,135.1	18,015.1	35,120.1	18.9	15.1	20.7
2010	52,147.5	21,299.4	30,848.1	1.9	18.2	12.2
2011	48,891.5	24,377.2	24,514.2	6.2	14.5	20.5
2012	49,537.1	27,578.0	21,959.1	1.3	13.1	10.4
2013	46,996.7	27,295.7	19,701.0	5.1	1.0	10.3
2014	48,327.4	27,118.9	21,208.5	2.8	0.6	7.7
2015	43,619.1	25,825.4	17,793.7	9.7	4.8	16.1
2016	44,110.4	25,445.0	18,665.4	1.1	1.5	4.9

Source: ELSTAT.

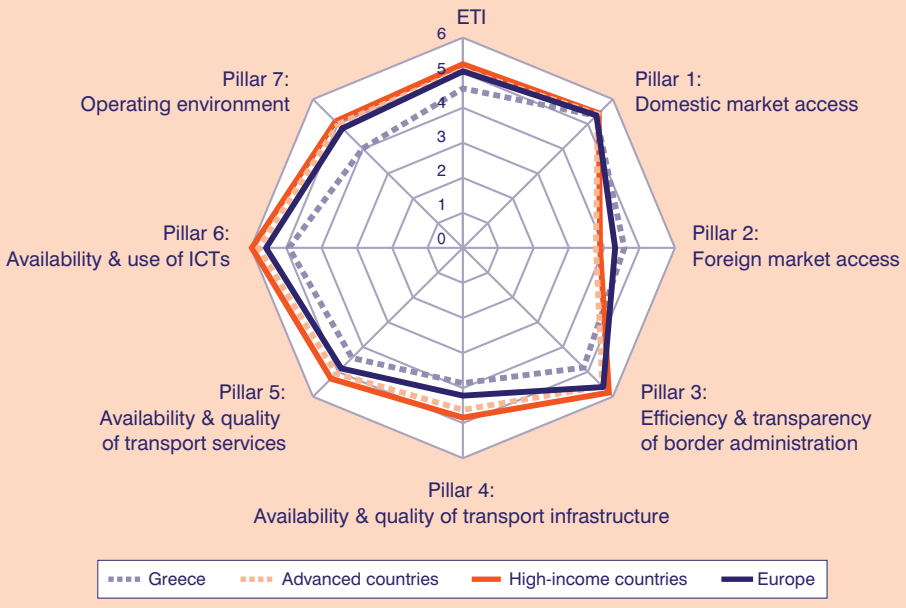
Note: The data for 2016 is provisional.

1. The results for 2014 were calculated based on the 2016 methodology.

the top ten are: the Netherlands (second place), Luxembourg, Sweden, Finland, Austria, the UK, Germany and Belgium. Two non-European countries made it to the top ten, Singapore (first place) and Hong Kong (third place). It should be noted that Spain and Portugal, two southern countries that implemented fiscal adjustment programs, were ranked in far better positions than Greece, 15th and 28th, respectively. Greece was ranked 30th among the 37 European countries under examination, as far as the ETI is concerned. Moreover, Greece placed at the bottom of the advanced economies (last place, 36th among 36 countries) and of the high-income countries (44th among 49 countries).

In more detail, the ETI consists of four subindices: a) market access, b) border administration, c) infrastructure and d) operating environment. These subindices include seven pillars as Table 4.2.2 shows. Each pillar comprises several indicators.[2] The subindices and the pillars take values on a 1-to-7 scale. Greece has fallen in the rankings of 4 out of 7 pillars in 2016, compared to 2014. The greatest decline was observed in Pillar 1: Domestic market access –from the 30th place in 2014, Greece ranked 48th in 2016. The second largest decline was observed in Pillar 6: Availability and use of ICTs (Information and Communications Technologies) –from the 46th place in 2014, Greece ranked 56th in 2016. It should be mentioned that Greece scores below the average score of the advanced economies, the high-income countries and the European countries, in all pillars except Pillar 2: Foreign market access (Figure 4.2.1). The score of Greece in Pillar 7: Operating environment, exhibits the highest deviation from the average score of all three groups of countries under investigation (advanced economies, high-income countries, and European countries). Among the indicators that constitute Pillar 7, Greece's worst performance is observed in "Access to finance", ranking 133rd among 136 countries, and in "Efficiency and Accountability of Public Institutions", ranking 107th place. Other indicators in which Greece is underperforming, and therefore could aim at their improvement, are in Pillar 6: Availability and use of ICTs – Greece ranked 97th in the indicator "ICT use for biz-to-biz transactions" and 82nd in the indicator "Internet use for biz-to-consumer transactions". Moreover, in Pillar 5: Availability and quality of transport services, Greece ranked 96th in indicator "Efficiency of transport mode change". Finally, in Pillar 3: Efficiency and transparency of border administration, Greece also ranked 96th in indicator "Customs transparency index".

FIGURE 4.2.1
The Enabling Trade Index and pillars, 2016



Source: WEF (2016), own calculations.

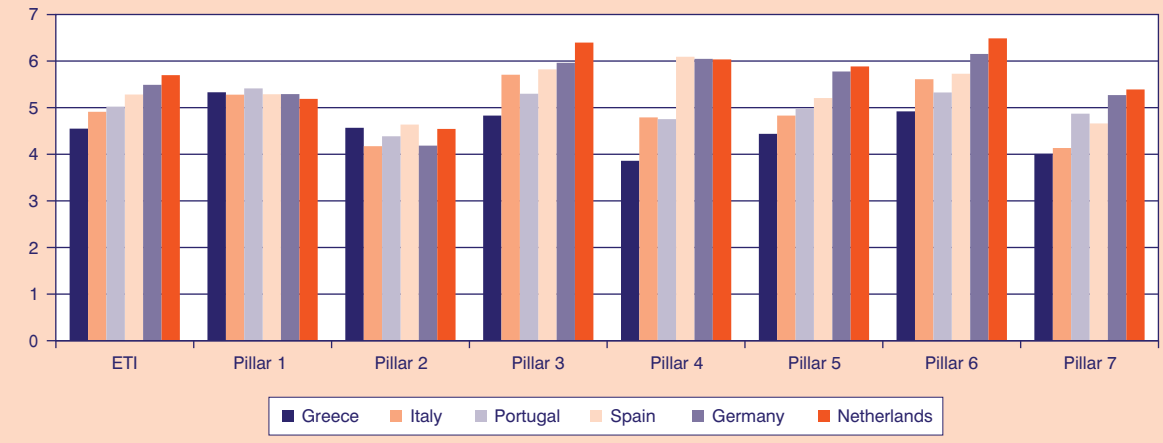
2. For example, Pillar 7 consists of the following indicators: a) protection of property, b) efficiency and accountability of public institutions, c) access to finance, d) openness to foreign participation and e) physical security.

TABLE 4.2.2 The Enabling Trade Index, subindices and pillars for Greece, advanced countries (average of 36 countries), high-income countries (average of 49 countries) and Europe (average of 37 countries)

	Greece						Advanced countries		High-income countries		Europe	
	Rank		Difference	Score		Difference	Score (average)	Difference	Score (average)	Difference	Score (average)	Difference
	2016	2014		2016	2014							
	(1)	(2)	(3)=(2)-(1)	(4)	(5)	(6)=(5)-(4)	(7)	(8)=(4)-(7)	(9)	(10) =(4)-(9)	(11)	(12) =(4)-(11)
ETI	**52**	**51**	**-1**	**4.55**	**4.53**	**0.02**	**5.24**	**-0.69**	**5.08**	**-0.53**	**5.04**	**-0.49**
Subindex A: Market access	**32**			**4.95**			**4.66**	**0.30**	**4.58**	**0.37**	**4.83**	**0.13**
Pillar 1: Domestic market access	48	30	-18	5.33	5.41	-0.08	5.43	-0.10	5.40	-0.07	5.35	-0.02
Pillar 2: Foreign market access	31	33	2	4.57	4.44	0.13	3.88	0.69	3.76	0.81	4.31	0.26
Subindex B: Border administration	**57**			**4.83**			**5.84**	**-1.01**	**5.58**	**-0.75**	**5.61**	**-0.78**
Pillar 3: Efficiency and transparency of border administration	57	54	-3	4.83	4.90	-0.07	5.84	-1.01	5.58	-0.75	5.61	-0.78
Subindex C: Infrastracture	**51**			**4.41**			**5.36**	**-0.96**	**5.16**	**-0.76**	**4.89**	**-0.48**
Pillar 4: Availability and quality of transport infrastructure	50	51	1	3.86	3.79	0.07	4.84	-0.98	4.62	-0.76	4.22	-0.36
Pillar 5: Availability and quality of transport services	51	55	4	4.44	4.34	0.10	5.28	-0.84	5.07	-0.63	4.87	-0.43
Pillar 6: Availability and use of ICTs	56	46	-10	4.92	4.77	0.15	5.97	-1.05	5.79	-0.87	5.57	-0.65
Subindex D: Operating environment	**91**			**4.01**			**5.10**	**-1.09**	**5.00**	**-0.99**	**4.82**	**-0.81**
Pillar 7: Operating environment	91	84	-7	4.01	3.98	0.03	5.10	-1.09	5.00	-0.99	4.82	-0.81

Source: WEF (2016), own calculations.

FIGURE 4.2.2
The ETI and pillars for Greece and selected countries, 2016



Source: WEF (2016).

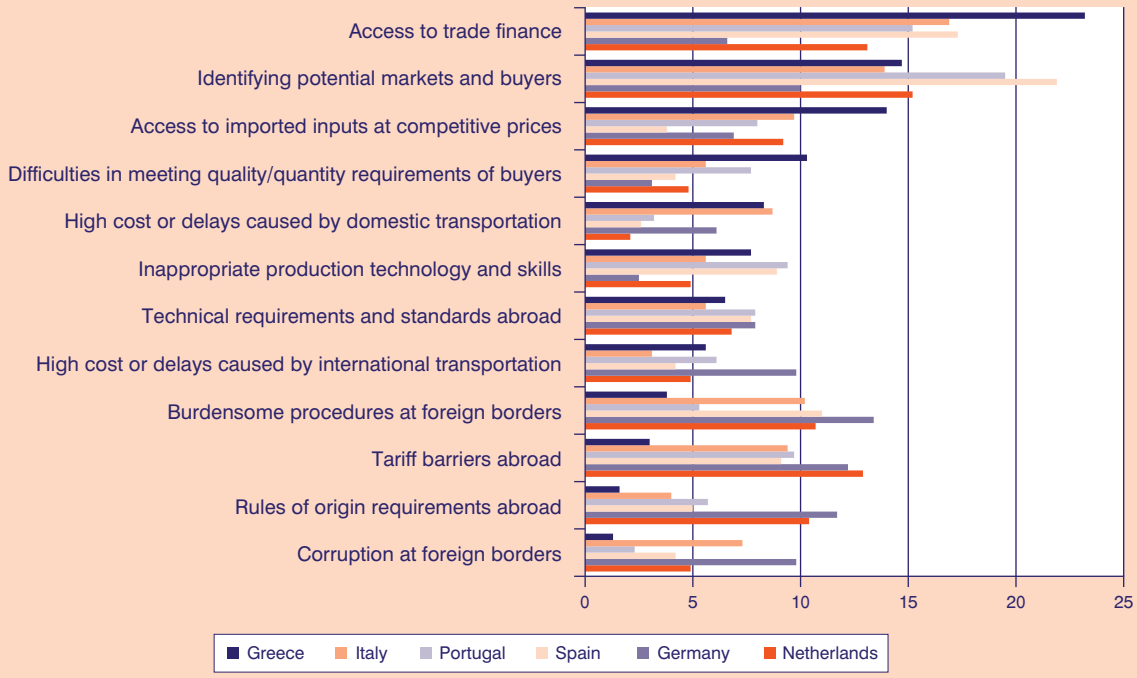
In Figure 4.2.2 Greece is compared with selected countries as far as the ETI and its pillars are concerned. The countries selected were three southern European countries (Italy, Spain and Portugal) with which Greece competes in international markets and which experienced a fierce economic crisis (two of them, Spain and Portugal, implemented fiscal consolidation programs). On the other hand, as successful examples, two European countries that play a leading role in international trade were selected. Germany, which exhibits the highest value of exports among the European countries and ranked 9th on the ETI, and the Netherlands, which is also a top performing country as far as exports are concerned and is ranked 1st among European countries and 2nd internationally on the ETI. Although Greece is ranked below the countries under consideration, as far as the ETI is concerned, Greece's performance on Pillars 1 and 2 is very close to the performance of the selected countries (and in some cases is better). On the other hand, the greatest difference between Greece and the other five countries is observed in Pillar 4: Availability and quality of transport infrastructure. From all the indicators that comprise Pillar 4, Greece has the lowest score in "Quality of railroad infrastructure" and "Road quality index". Moreover, Greece underperforms in all other pillars (3, 5, 6 and 7) compared to the other five countries under consideration.

4.2.3. Factors that hinder exports

The factors that hinder exports have become apparent from the analysis of the ETI and its various pillars. In addition, the WEF publishes the results of an annual executive opinion survey on the most problematic factors for exporting. In Figure 4.2.3 the most important factors hindering exports are presented for Greece, Italy, Portugal, Spain, Germany and the Netherlands.[3] Access to finance and identifying potential markets and buyers are the most problematic factors for exporting for all countries under consideration, with the exception of Germany. The list of the top-five factors hindering Greek exports also includes access to imported inputs at competitive prices, difficulties in meeting the quality and quantity requirements of buyers, and high cost or delays caused by domestic transport. It is worth noting, that factors dependant on the importing country rather than the exporting country, that is tariff barriers abroad and burdensome procedures at foreign borders, are ranked at the top of the list for the rest of the countries under consideration, notably for Germany and the Netherlands, while they seem to be less important for Greece. In the case of Greece, the most problematic factors that hinder exports could be tackled either with the assistance of the government (adoption of a national export promotion strategy, upgrading the transport infrastructure, improving the financial environment,

3. Respondents to the WEF's Executive Opinion Survey were asked to select, from a list of factors, the five most problematic factors in their country and to rank them. The score corresponds to the responses weighted by their rankings.

FIGURE 4.2.3
Most problematic factors for exporting



Source: WEF (2016).

reducing bureaucracy, etc.) or through initiatives taken by the exporting companies (invest in research and development and innovation, organizing in clusters, etc.).

4.2.4. Conclusions

Exports are an important determinant of economic growth. In Greece, the financial crisis and the liquidity constraints have contributed to the deterioration of the economic environment in which exporting companies strive to survive. Greece underperforms not only compared to countries such as Germany and the Netherlands, that play a leading role in international trade, but also compared to countries such as Italy, Portugal and Spain, that also experienced a fierce economic crisis and with which Greece competes in international markets.

Nevertheless, it should be stressed that in the case of Greece the most problematic factors that hinder exports could be tackled by initiatives taken by both the government and the exporting companies. Therefore, these problems could be solved in the medium or the short term. In addition, Greece has significant competitive advantages (Kanellopoulos and Skintzi 2016; Konstantakopoulou 2015). Therefore, it is of extreme importance to fully benefit from the competitive advantages Greece has, to create new ones, to improve competitiveness and to reverse brain drain, in order to achieve economic growth, increase employment, improve the living conditions and eradicate poverty.

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The output gap of the Greek economy and the role of pre-cyclical economic policy

Aristotelis Koutroulis*

1. Introduction

The choice among alternative economic policy measures and their implementation to mitigate the effects of economic cycles are both based on information that is derived from a set of key macroeconomic indicators (e.g. growth rate of the economy, unemployment level, inflation rate, etc). Recently, much of policy makers' attention has been shifted on the potential Gross Domestic Product (GDP) and the output gap of the economy.

Potential GDP is defined as the maximum quantity of goods and services that a given economy can produce using its entire production capacity without generating inflationary pressures. In turn, the output gap of an economy is equal to the ratio of the difference between actual and potential GDP to potential GDP and is expressed in percentages. Algebraically, the output gap is given as follows:

$$Output\ gap = \frac{(Real\ GDP - Potential\ GDP)}{Potential\ GDP} \times 100.$$

A positive output gap (i.e. when actual GDP is higher than potential GDP) implies that the economy in question has exhausted its production capacity. A negative output gap (i.e. when actual GDP is lower than potential GDP) implies that a positive fraction of the economy's factors of production (e.g. capital, labour, etc.) remain idle.

Potential GDP is essentially a theoretical macroeconomic variable that cannot be directly observed. To obtain any measure of it, one has to resort to econometric estimation procedures. This means that the estimates of the output gap of a given national economy may differ according to the econometric methodology and the assumptions that have been adopted. Nevertheless, to the extent that different estimates do not lead to contradictory conclusions as to the overall picture of the economy under consideration, then one can derive important information regarding the position of the economy in the economic cycle and its possible future course.

The remainder of the article discusses the output gap of the Greek economy in combination with the economic policy implemented in the country since 2010.

2. The output gap of the Greek economy

The deep and prolonged economic recession over the last seven years has left the Greek economy with a legacy of a large negative output gap. Compared to the EU-28 or the euro area, the output gap of the Greek economy is significantly higher (see Chart 1). This asymmetry reflects the great differences in the depth and the duration of the economic downturn in Greece compared to the respective magnitudes of the economic recession experienced by Greece's European partners. It also reflects the restructuring process of the Greek production base as well as the lack of important economic policy tools on the part of Greek authorities to tackle the recession.

3. Moving against the winds

In theory, the existence of a negative output gap signals the need for government interventions which can take the form of expansionary fiscal and monetary policy measures. Higher and wiser government spending (e.g. higher public investments on infrastructure) in combination with lower interest rates at which funds are available to the private sector can stimulate domestic demand, increase real GDP and allow the economy to utilize a larger fraction of its production capacity. Obviously, the bigger the negative output gap is in an economy, the higher the pressure is for closing the gap, and therefore, the stronger the required economic policy interventions are on the part of economic authorities. In practice,

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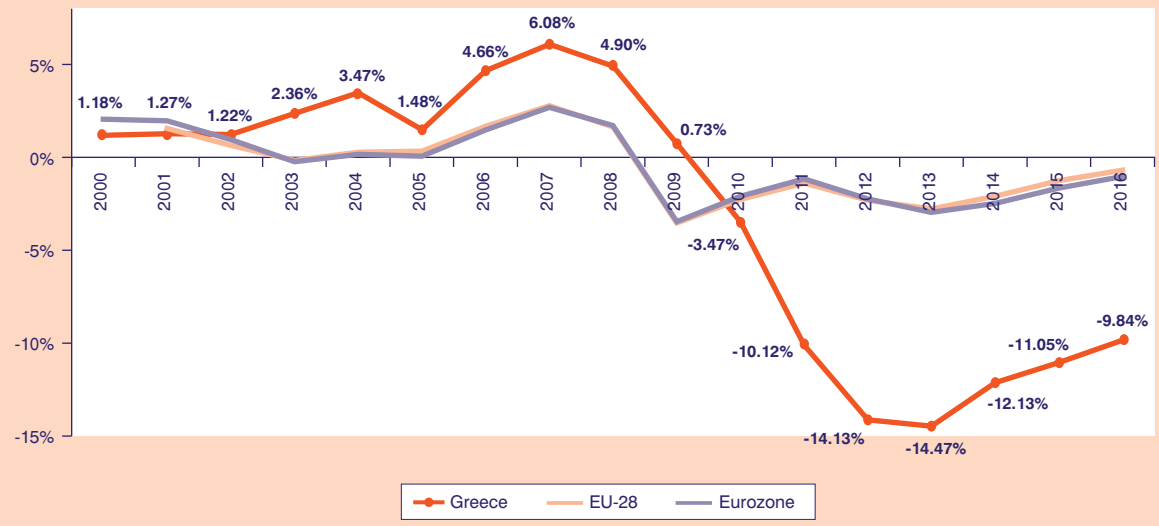
CHART 1
The output gap in Greece, the Eurozone and the EU-28, 2000-2016 (2010 reference levels)



Source: AMECO.

this was the logic that, more or less, dictated the policies followed by the majority of Western economies hit by the World Economic Crisis.[1] The same logic is shared as well by the European Union (EU) Stability and Growth Pact. Indeed, member-states that are part of the preventive arm of the Pact, and therefore subject to the excessive deficit procedure, are temporarily exempted from making any fiscal effort at exceptionally bad times,[2] irrespective of their public debt level (European Commission, 2017).

Contrary to what economic theory suggests and contrary to what has been done elsewhere in the world during the Global Economic Crisis, economic policy in Greece moved and continues to move towards a different direction. In particular, (a) the lack of fiscal room equivalent to the ones enjoyed by other countries, (b) the de facto exclusion of Greece from the ECB's quantitative easing measures, and (c) the country's commitments in the context of Memorandums of Understanding signed by the Greek governments required that Greece would follow a pre-cyclical economic policy accompanied by the implementation of a series of important structural changes.

4. The overambitious goals of a rigorous economic program amid a deep economic recession in an economy with severe structural weaknesses

Considered as a 'special case', it was assumed that Greece could not find its way out of the crisis without facing its internal and external economic imbalances. Under this dominant view, and despite falling GDP and rising unemployment, the country embarked on harsh austerity policies. The basic elements of the policy mix implemented from 2010 and onwards were restrictive fiscal policy, internal devaluation and the adoption of major structural reforms. Restrictive fiscal policy (i.e. primary surpluses in the government's budget) would improve the picture of public finances. Internal devaluation would improve the ratio of internationally traded goods prices to non-traded goods prices, thereby triggering the transfer of resources from the tertiary sector to export-oriented sectors. Finally, the adoption of business-friendly institutional changes and structural reforms would create a better business environment. In turn, the achievement of these intermediate targets was expected to restore the confidence of foreign and

1. See International Monetary Fund, *World Economic Outlook* (Various issues over the period 2010-2015), and OECD, *OECD Economic Outlook*, Paris: OECD Publishing (Various issues over the period 2010-2015).

2. Exceptionally bad times are interpreted as an output gap below 4% of potential GDP or when real GDP contracts (see European Commission, 2017, ch.1, Box 1.6, p. 38).

TABLE 1 Developments regarding gross value added of selected economic sectors, 2010-2015 (2010 reference levels, million euro)

Sectors	Subsectors	Gross Value Added			
		Levels		Absolute cumulative change over the period 2009-2015	Cumulative percentage change over the period 2009-2015
		2009	2015		
Tradable sector	Agriculture, forestry & fishing	6,227.5	6,657.5	+430	+6.9%
	Manufacturing	18,877.9	14,014.8	-4,863.1	-25.76%
	Accommodation & food services	10,354	11,208.5	+854	+8.25%
Non-tradable sector	Construction	9,793.1	4,656.1	-5,137	-52.45%
	Wholesale & retail trade	27,432.4	15,186.8	-12,245.8	-44.64%

Source: Eurostat, National Accounts aggregates by industry.

domestic investors in the Greek economy, thereby triggering a chain of increases in investment, employment, real and potential GDP.[3]

In retrospect, the course of the Greek economy has shown that, with regard to the objectives set, the economic adjustment programs implemented by Greece were overambitious. This is due either to the overestimation or the underestimation of some key factors regarding the smooth implementation of the programs. For example, in sociopolitical terms, the proponents of the programs overestimated both the ability and the limits of the state and the society, the former to adopt and the latter to absorb a wide range of institutional changes within a short period of time amid a deep economic recession. In other words, Greece was called upon to address a pathogenic cause of its current situation (i.e. the failure to adapt economically and institutionally to the demands of the times) knowing (or overlooking) that this pathogenic cause by itself would undermine the country's efforts to address it. Referring to the European South, a similar conclusion is reached by Jonathan Hopkin, a professor at the London School of Economics and Political Science, who writes very aptly: "... *Perceptions of the South are dominated by an awkward combination of fatalistic stereotypes and overly optimistic expectations of deep economic reform"*.[4]

Similar overestimations/underestimations were made in purely economic terms. For example, due to the underestimation of fiscal multipliers,[5] restrictive fiscal policy's (negative) effects on economic activity were larger than expected. On the other hand, there was an overestimation regarding the capacity of the tradable sector to absorb resources, expand and counterbalance the losses of the tertiary sector. At this point, one finds the greatest discrepancy between the goals set by the program and its actual outcomes: The tradable sector not only failed to offset the losses of the non-tradable sector but registered significant losses as well. A piece of information that indicates this failure comes from manufacturing, which is the major representative of the tradable sector: Between 2009 and 2015, Greek manufacturing's gross value added, number of enterprises and employees recorded cumulative losses of -25.76%, -25.35%[6] and -28.95%, respectively.[7] At the same period, two sub-sectors of

3. See European Commission (2010, 2012) and the texts of the August 2015 Memorandum of Understanding (https://ec.europa.eu/info/sites/info/files/01_mou_20150811_en1.pdf) as well as the Supplemental Memorandum of Understanding of June 2016 (Http://ec.europa.eu/info/sites/info/files/ecfin_smou_en.pdf).

4. See Hopkin (2015) in *The future of Europe*, M. Matthijs and M. Blyth (eds.), Ch. 8, p. 161.

5. See Auerbach and Gorodnichenko (2012) and Blanchard and Leigh (2013).

6. Due to limitations regarding data availability, the cumulative change in the number of enterprises refers to the period 2009-2014.

7. See, Athanassiou, Kanellopoulos, Koutroulis, Kotsi and Cholezas (2017).

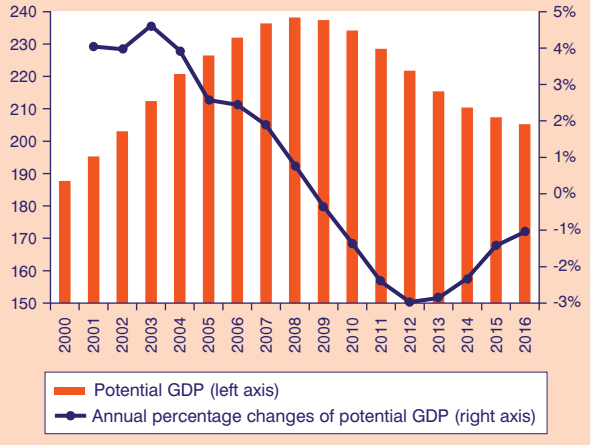
the tradable sector, namely the agricultural sector and the accommodation/catering services experienced positive changes in terms of gross value added. However, in absolute terms, these positive changes were disproportionately smaller than the negative changes experienced by key sub-sectors of the non-tradable sector (see Table 1 above).

Overall, it could be argued that the capacity of Greek firms to increase their shares in foreign markets and offset their losses due to falling domestic demand has been overestimated. Put differently, there was an underestimation of the (negative) impact of shrinking domestic demand on the real and potential GDP of the country.

5. The role of domestic demand in reducing potential GDP

Given that Greece's economic adjustment programs are inspired by what is widely known as supply-side economics,[8] the continuous contraction of potential GDP (see Chart 2) throughout the period 2010-2016 brings Greece's policy choices into question. How could one possibly explain the negative effects of economic austerity on the supply-side and the overall productive capacity of the economy? The explanation suggested here is that austerity policies amid a period of economic recession made things worse by affecting adversely an already shrinking domestic demand. In turn, the large contraction in domestic demand triggered a mechanism that had adverse effects even on the productive capacity of the economy. Very briefly, this mechanism is described as follows:

CHART 2
Estimation of the Potential GDP, 2000-2016 (2010 reference levels, billon euro / annual percentage changes)



Source: AMECO.

Faced with continuously decreasing domestic demand, many Greek firms were forced to reduce the number of their employees and to postpone or cancel their investment projects. Other firms, especially those with severe budgetary constraints, were forced to exit the market. In either case, the result was much less spending in physical capital investment and a surge in unemployment. But it is well known that physical capital obeys to the laws of physics (i.e. its condition gradually becomes worse). So, decreasing investment expenditures when the investment rate is already low translates to disinvestment which means less available physical capital for the production of goods and services. If we combine now the physical capital destruction with the consequences of soaring unemployment (e.g. depreciation of human capital, brain drain, low wages and much lower morale of those still employed) then we get an explosive mix which runs counter to total factor productivity and the country's productive capacity.

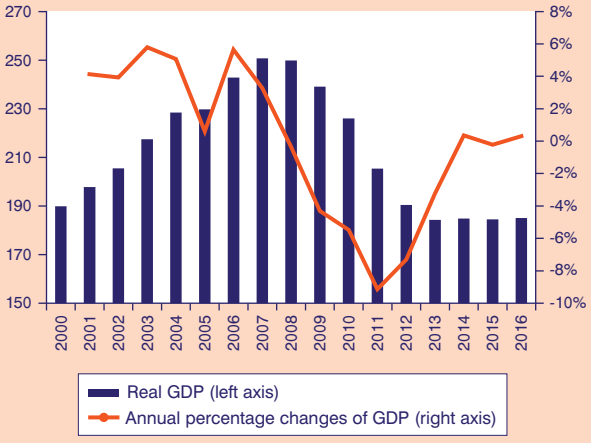
Some might claim that things would have been better if Greek firms had managed to increase their shares in foreign markets. However, as has been already mentioned, this assumption proved to be a very strong one. Faced with double-sided competition from technologically advanced countries on the one hand, and low-cost countries on the other, credit-rationed Greek firms failed to increase their exports in the way that has been expected. As a result, the supply-side of the Greek economy felt the multiple consequences of shrinking domestic demand to the fullest possible degree.

6. Conclusion

In closing the article, it would be interesting to contrast the developments of the output gap of the Greek economy during the period 2013-2016 (Chart 1) with

8. In the spirit of supply-side economics, supply-side policies consist of a mix of microeconomic policy measures with the aim of increasing business efficiency and market functionality. The ultimate goal is to increase real and potential GDP. Another key feature of supply-side policies is the favorable tax treatment of corporations. During the period 2010-2012, Greek economic authorities made efforts to adapt corporation taxation to this feature (e.g. the tax rate on corporate income decreased from 25% in 2009 to 24% in 2010 before dropping to 20% in the two subsequent years). However, inadequate public revenues led to successive increases in the tax rate by six and three percentage points in 2013 and in 2016, respectively.

CHART 3
Real GDP, 2000-2016 (2010 reference levels, billon euro/annual percentage changes)



Source: AMECO.

the corresponding developments of the potential and the real GDP (Charts 2 & 3) over the same period. Optical observation of the three Charts gives rise to the following conclusion: The reductions of the (negative) output gap since 2014 seem to be largely explained by declines in potential GDP.

Needless to say, one can talk about effective economic policy and successful crisis management when decreases of a negative output gap are strongly associated with increases of the real GDP. Otherwise, the adjectives "effective" and "successful" can hardly describe economic policy choices.

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The fundamental asymmetry in the economy of Greece

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1. "Internationally tradable" and "internationally non-tradable" goods and services

According to a well-known definition:

*"The ratio of "tradable" to "non-tradable" goods" is a simplifying concept which assumes all goods can be classified into those that could enter into foreign trade and those that do not because transportation is not feasible for them. (...) This overly sharp distinction between classes of tradable and non-tradable goods is an analytical simple way of taking transportation costs into account. By tradable goods we mean: (1) exportables, which are those goods produced domestically and, in part, exported; (2) importables, which are both produced domestically and imported. (...) However, the total value of the tradable goods produced will equal the value of tradable goods consumed under balanced trade. Thus, the expression "the ratio of "tradable" to "non-tradable" goods" can apply unambiguously to production or consumption". (*See Mc Kinnon, 1963. For a description and a more detailed classification using the criterion of "international tradability" see Harrod, 1933).

As it becomes clear from the above quotation, the group of "internationally tradables" (from now on T) should include agrarian goods, industrial goods, tourism, international transportation and certain services on the "technological edge" (for instance: software development). The group of "internationally non-tradables" or "Home goods" (from now on N) should include buildings and land property, services offered either in person by individuals or by legal entities (with the exception of "cutting-edge technology" services and tourism), and, also, services that are provided by the public sector ("public goods"), speculation activities, etc. One particular feature that differentiates the products of the two groups is that while T have a price that is determined internationally and is internationally unique, N, on the contrary, have a price that is locally determined. As a result the ratio of the prices T/N varies according to the particular attributes of each national economy. Another specific feature that distinguishes the two groups is that the sector of T has the capability to integrate in its productive process much faster than the sector of N the advances of scientific development and technological progress (for an empirical documentation see Mano-Castillo, 2015).

Theoretically, if for simplification purposes we assume that no autonomous movements of capital in and out of a national economy occur, the point where a balance between demand and supply of the two sectors' output is reached is also considered to be the point corresponding to the "natural exchange rate" of the economy, since, theoretically at least, at this point deficits or surpluses in the balance of trade do not exist.

The relative prices of T counted in units of N are low in developed countries and high in developing ones. This manifestation is relevant to the fact that the national currencies of the former are considered "strong" and those of the latter "weak". The first theoretical explanation for this issue was proposed by Balassa (1964), and it was of Ricardian inspiration. According to his scheme, while in two unequally developed countries productivity in sector T differs significantly (of course at the expense of the less developed country), in sector N it is almost equal due to the fact that the productive methods that are applied are almost similar. Yet, since the prices of T are identical in the two countries (plus or minus transportation costs), but the prices of N are different, the ratio T/N, which is determined separately in each one of the two countries, is different as well. Given that salaries are higher in the more developed economy (because of its higher productivity) and, in parallel, given that within both countries salaries are equal in both sectors (T and N), and taking also into consideration that N products are labour intensive, it follows as a natural consequence that the ratio T/N will be smaller in the more developed country and, as a result, N products will be more expensive there. Balassa used this conclusion to demonstrate that by calculating the international purchasing power of national currencies (that is, assessing their purchasing value using as a measure only T products), we tend to underestimate the real purchasing power of less developed economies' currencies (and therefore their real per capita income), because in this way we tend to ignore the possibility, within the boundaries of their national economy, to purchase relatively more N goods than the currency

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of the more developed economy can purchase within its own borders. Conversely, always according to Balassa, by referring to the purchasing power of a national currency only within its national economy, in order to evaluate its real exchange parity, we tend to underestimate the purchasing power of the more developed countries because, due to the relative expensiveness of N locally, their currencies appear to have smaller purchasing power relative to what they would have, had they been used to purchase a basket of exclusively "internationally tradables". (Balassa does not give a mathematical formulation of his model. One can be found in Aftalion-Losq, 1985, pages 34-35).

Since N goods cannot be produced with methods of high productivity, it seems rational to presume that the intertemporal trend would be towards a decline in the share of N in consumption, to the benefit of T. However, something similar does not occur, for two main reasons: first, because there exists an autonomous propensity to consume N, which determines the demand for N irrespective of their relative prices, and, second, because there is always a minimum of N which should be used so that T could be useful and operational as well (for instance, more cars need more and wider roads to move, more parking spaces to station and more garages to conduct repairs. More complex productive systems call for more training for operators; the consumption of more material goods corresponds to more transactions and therefore requires deeper retail and wholesale trade channels). In developing economies, due to the low productivity and the, accordingly, lower wages and salaries, N are relatively cheap and this generates a high propensity for their consumption. In developed economies, on the other hand, where a different pattern of consumption is dominant, N usually happen to be either goods of high positive income elasticity, which means that increasing income leads to higher demand or –at least– to the stabilisation of it (cultural goods, for instance), or goods for which the demand is inelastic under any circumstances and at any relative price (medical care, security, education). But then, if the relative demand for N remains elevated, the consequence is that the growth rate of the economy diverges from its potential to inverse proportionality than the share of N. This particular conclusion has been substantiated very convincingly by Baumol in his seminal paper of 1967, even if, in said paper, Baumol does not distinguish the goods and services in T and N. Instead, he uses a more abstract distinction where all economic activities are classified into two categories: the first is the one where the productive process benefits from continuous technological progress and innovation, the accumulation of capital and economies of scale and the second is the one where improvements in productivity are but rare and sporadic. Essentially this distinction is very similar to the one used by Balassa in his (earlier published) paper, about T and N. Also the general concept and method are similar (of Ricardian inspiration), with the sole difference being that Baumol's paper has a broader scope as it neatly illustrates the "decelerating" role that high demand for the output of the less productive sector can play, which at its limit could draw the economy to a halt of growth in spite of the existing technological and scientific prowess.

Nevertheless, one should admit that Baumol's assumptions are debatable, given that in the long run there is always substitution between the goods of the two groups. When, for instance, the salary of servants in an aristocratic house of the past became very expensive (relatively), the employee could be replaced by a set of home appliances that performed the same "duties". Namely there is a trend of substituting capital to labour that has become more expensive which results in a decrease of demand for the output of the less productive sector, and, at the same time, in an increase of demand for the output of the more productive one. Yet, according to Baumol, the intertemporal inelastic demand for goods of the less productive sector ends up in the concentration of the majority of the labour force in this sector.

In economic literature there are two often quoted examples that "illustrate" the models of Balassa and Baumol. For Balassa's model, and the different T/N ratio in two countries with unequal level of productivity, there is the "barber" example: a barber in New York and a barber in Nairobi supposedly trim hair and shave their clients in an identical way, using identical tools. The first one, though, even if he is in no way more productive than the second, earns 30 times more. The reason is that he takes advantage of the fact that in the sector of tradables his country is 30 times more productive as well, but also of the fact that nobody considers travelling to Nairobi to have a less expensive haircut. For Baumol's model and the change in the intertemporal relative prices of goods and services due to the constant improvement of productivity in the sector of technological edge of the economy, there is the parable of the symphonic orchestra that performs, let say, Berlioz's "Symphonie Phantastique": the musicians who performed it for the very first time in 1830 for sure spent the same amount of time to rehearse it and worked with the same average productivity as the musicians of a symphonic orchestra that performs the same piece in a concert nowadays. However, the contemporary performers, without being more productive than their colleagues of the 19th century had been,

earn a lot more money in real terms of income. This is because their remuneration is able to "capture" the whole of the productivity development that in the interval of almost two centuries occurred in other branches of the economy and in particular in the technologically and productively advanced sector.

(Without being directly linked, Baumol's and Balassa's models could be considered as relative, regarding the elucidation of the main forces driving economic growth, with Arrow's seminal paper of 1962 about "learning by doing", and with the models of "endogenous growth" proposed by Romer from 1986 onwards).

2. The potential asymmetry of a "small open economy"

Another important attribute that distinguishes the goods and services coming from the T sector from those coming from the N sector (but, also, from another point of view binds them together) is the following: in the event that, due to expansionary fiscal or monetary policy for instance, an "excessive demand" episode occurs in a "small open economy", the prices of the two kinds of products behave in totally different ways. An economy is considered "small open" because, due to its limited relative weight in the context of the global economy, it cannot alter the "terms of trade" by which it exchanges with the rest of the world. Therefore, the prices for T that face both its national producers and consumers are determined exogenously (as is the case in the model of "perfect competition" where economic agents are "price takers"). A representative, current example is the case of the iron ore market. If the Chinese steelmakers, for instance, who cover more than half of the global steel production, increase their demand for iron ore, their act will have a grave impact upon its price. It is well known that the average iron ore price globally is mainly determined by Chinese demand. On the contrary, if the Greek steelmakers increase their demand for iron ore in order to step-up their production, they will not impact the average global price in the least, as the increase in global demand that this will generate will be absolutely insignificant. As a consequence, in a "small open economy" like Greece, T products prices, either as inputs or outputs of the economic circuit, are totally determined exogenously and this reverberates in the margin of profits for national producers, in the behavior of consumers, etc.

On the other hand, in a situation of "excessive demand", the N products behave in a totally different way. ("Excessive demand" is meant to be the case where total demand surpasses the volume that can be supplied by the economy). In the short term, and given that an increase of consumption due to imports is not possible, the increase in demand can result only in higher prices. Under these circumstances the economy will enter a stage of inflationary pressure, the particular nature of which will be conditional upon its specific exchange rate regime. If it happens to be a regime of fixed exchange rate (like the case of the Greek economy within the European Monetary Union), inflationary pressure will appear through an increase in the level of N prices. (Imported T is not possible to appreciate, while every attempt of local T producers to raise the "factory gate" price of their output will put them instantly out of the market).

Not unexpectedly, this asymmetrical reaction of the two groups of products in the face of excessive demand, and in particular when it takes place in a regime of fixed exchange rates, exerts another effect. This regards the balance of trade: it increases the propensity to import (as the relative price of T in relation to N decreases, and the demand for them increases). Certainly, one can claim in this case that it is not unavoidable that the increased demand will turn towards imports. Maybe it could move towards locally produced T, increasing the rate of employment and the turnover in particular branches of the economy. (This is exactly what is invariably proposed, including at the present economic conjuncture, by all those who deem fiscal expansion as the best and only way to deal with the problem of the underemployment of productive resources). Unfortunately, in this simple theoretical model, something similar cannot occur for a very simple reason: because, following the diverging path of T and N relative prices, the margins of profit in the two sectors also diverge. In the productive sector for T, the margin of profit remains stable (which is not a motivation for additional investments), while in the sector of N, following the increase in nominal and real prices, the margin of profit rises in the short-run, attracting new investments. If the particular circumstances (that is, excessive demand) in the economy remain unaltered for a longer period, the rate of profit in the N sector will reverse to its previous "natural" level only when, due to the large-scale investment, a point of saturation is reached.

3. Retardation of development because of the asymmetrical expansion of N

From both Balassa's and Baumol's models (and from their further development), the inference can be made that in spite of the fact that a national economy consists of the sum T+N, its configuration and the percentages of each sector are of key importance.

While sector T generates by itself the rate of growth of national income (by the constant increase of productivity), sector N does not really contribute to this growth; it just "captures", through the intertemporal increase of its relative prices, a considerable fraction of the increase of productivity achieved in sector T. The reason for this lies in the fact that, on the one hand, demand for N products is intertemporally inelastic and, on the other hand, the market for N functions under specific constraints that do not allow reaching a point where the remuneration of agents of production would be proportionate to their productivity in "physical" terms. (The more articulate parallel for the two sectors' relation could be found in the relation of the most and the least fertile lands in Ricardo's theory of differential rent).

Thus, there are two important reasons that it is of particular importance for economic policy to pay attention to the relation of T and N, regarding the structure of the national economy:

The first, and very obvious, pertains to the central idea of the Balassa and Baumol models: economic growth emanates from sector T, where "real" average productivity rises intertemporally. Therefore, it is this sector that should lie at the center of interest of all those framing and implementing economic policy –even if this is not always easy to integrate into a theoretical model in a clear and revealing way.

There are many cases of countries that at a certain period of time appeared as having a fast rate of growth but very soon this turned out not to be true as the apparent take-off progressively but steadily became stagnation due to the fact that these countries proved unable to transform their economic structure in the "good times". (Most representative examples are the oil-producing countries, OPEC members, especially in the period 1973-1982; Argentina in the first two decades after the eruption of WWII; Romania in the sixties or the recent, almost tragic, case of Nauru). In light of this experience, the ideal objective pursued by development strategies has come to be a model where the production of a vast array of T is the locomotive of the whole economy (in both theory and policy practice –yet, until today, the cases where this ideal of economic science has materialized are very rare). Less coveted is considered a model of development largely based on an extensive monoculture in the T sector. However, even less coveted would be a model of an economy in which a brief and ephemeral increase of GDP results from the swelling of the N sector, and particularly services and parasitic activities: it is predictable that such an economy, after a short period of euphoria, would face declining or even stagnant growth rates, turbulence in the price level and elevated external debt. This outcome is related to the second reason for which the structural relationship between the sectors T and N is of utmost importance.

The second reason that the structure of an economy, as regards T and N sectors, should be of major concern to economists is much less evident, but not less important all the same. It is akin to the fact that the N sector functions in an economy as "inert ballast". The bigger it is, the more productive capacity confines to suboptimum uses and, therefore, the more potential growth subtracts from the whole economy. Furthermore, apart from the repercussions that a swelling of the N sector can have upon long-term growth dynamics, there is also a problem with the implementation of a short-run economic policy aiming at the economic conjuncture: such an economy cannot be healthy and cannot follow a steady macroeconomic trajectory.

To deem such an economy as "non healthy" does not emanate from considering N goods as inferior or of lesser importance for social well-being, but from understanding that its structure contains the possibility of strong, spiraling disequilibrium movements that can be triggered even by a moderate disturbance in the terms of its initial equilibrium. Why this? Because the N sector, besides its "lazy" productivity, also displays the following traits, which, by the way, built up in a collinear way with its relative weight: first, this is a sector that "recycles" income within the interior of the economy and, therefore, it cannot amortize the loans of fiscal expansion if they have been raised abroad. Second, and most important, is that by transforming most of the fiscal expansion to mere increases of the price level, it exerts overvaluation pressures to the real (even if not necessarily to the nominal) exchange rate by which the economy functions, harming its international competitiveness and burdening its external balance.

In these circumstances it is highly probable that an expansionary fiscal policy, instead of bringing a recovery and full employment, could cause a deep structural crisis with recession, unemployment and high external deficits. The said fiscal expansion that will create an inflationary spiral could be the outcome of a misguided act of the central bank or of the fiscal authorities. But, equally, a sudden influx of speculative capital from abroad could have the same inflationary, and, in a second time, structural, repercussions (especially if it reverts its course as suddenly as it appeared). A cost inflation, as well, can have similar results. Of course, it is well known and understood that all "open" economies –irrespective of their size– expose certain vulnerabilities regarding fiscal policy. The main difference, though, between all other cas-

es and the case of a "small open economy" with an overgrown N sector is that an inflationary incident that in the former can be considered as a somehow trivial and transitory episode, in the latter could potentially wreak havoc.

Certainly, one could respond to all these with a simple question: What does a "swollen sector of N" mean and how do we measure how "swollen" an economic sector is? This is a question to which a clear-cut and precise answer does not exist. Indeed, the relative hyperplasia of the N sector cannot be counted with an exact mathematical formula or be evaluated with a specific methodology. Fortunately, though, there is a possibility to assess this phenomenon, indirectly but clearly, by turning to other criteria combined with economic theory. For instance, an indicative criterion emerges from the level of income of different economies in comparison with their sectoral structure (see Ioannou C. and D., 2013 [a]). An equally useful indication could be found in the existence or not of coterminous to the unhealthy enlargement of N sector conditions, such as a large external balance, or high external borrowing and high external debt (when the problem does not emanate from the "Dutch disease", which is the case in the oil producing countries). Yet, after the recent experience from the eurozone economies of the South, the strongest indicator cannot be other than the intensity, the width and the characteristics of any GDP fluctuation in a crisis. There is a structural asymmetry stemming from the N sector when these fluctuations are wide and intensive, producing permanent and not temporary effects. This all being the result of the fact that the "inert ballast" of N, in a "small open economy", has the particular property to capture all the additional liquidity that enters into the economic circuit and transform it to remuneration for the economic agents that it employs, generating in this way temporary sectoral "bubbles", the fate of which (first up, then down) drives the economy from the (temporary) boom to the (enduring) bust.

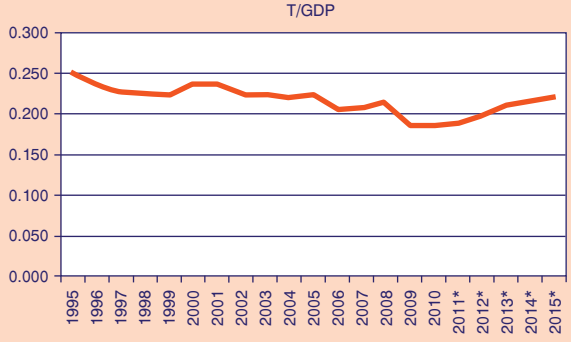
4. Is the crisis of the Greek economy a consequence of the asymmetry between T and N?

With the recent adoption by the Hellenic Statistical Authority of the NACE Rev. 2 methodology for measuring net added value per industry, it is even easier to estimate the percentages of T and N in the Greek economy. (Which branches should be included in every group is a somehow subjective issue that could be debated. Our opinion is that sector T consists of 1-33, 50, 51, 55-56, 62, 63, 72 branches of the Table "Gross Value Added by Industry (A64)").

In light of the division of economic activities in T and N, the crisis of the Greek economy could be interpreted as the result of an asymmetrical growth of the two sectors in a currency regime of fixed exchange rates and a concurrent situation of continuous excessive demand present in the economy. Or (in a different articulation) it could be interpreted as the result of the collapse of sector N after an unhealthy enlargement during a first period of volcanic nominal growth of GDP (2001-2009), generated by the massive entry of monetary means from abroad through lending, that has been followed by a second period (2009 onwards) of violent contraction of the same sector. The motive force in both periods being fiscal and monetary policy –overactive in the first period and, unavoidably, contractionary in the second, due to the debt default of Greece.

Starting from 1995 (the year NACE data begin) until 2001 (a period that happens to be one of primary surpluses in national fiscal accounting), the share of T and N (as a percent of GDP) varies slightly between 25% to 24% for T and 76% to 75% for N (see Table 1 and Figure 1). However, from year 2001 until 2009 these shares progressively change. The share of T decreased, reaching its lowest point for the whole period 1995-2017 in 2009 (the year the Greek crisis broke out): 18,7%. Conversely, the share of N went up, surpassing 80% of the GDP. (It is to be noted, as well, that this shrinkage of T occurred in spite of the explosion of the income from shipping and maritime activities that was fast growing in this period following the trends of the global economy).

FIGURE 1
The share of the tradable sector (T) in Greek GDP, 1995-2015



Source: ELSTAT Gross Value Added by Industry (A64) Code NACE Rev.2, T = 1-33, 50, 51, 55-56, 62, 63, 72 from table (A 64).

Note: * Provisional data.

TABLE 1 The share of the tradable sector (T) in Greek GDP 1995-2015, current prices (million €)

Year	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004
GDP	93,063.6	103,036.6	114,712.2	125,262.6	133,788.7	141,247.3	152,193.8	163,460.8	178,904.9	193,715.8
T	23,161.45	24,270.09	25,940.62	28,047.41	29,731.45	33,232.62	36,176.17	36,798.38	39,964.4	42,323.85
T/GDP	0.25	0.24	0.23	0.22	0.22	0.24	0.24	0.23	0.22	0.22
N	69,902.16	78,766.55	88,771.57	97,215.15	104,057.3	108,014.7	116,017.7	126,662.4	138,940.5	151,392

Year	2005	2006	2007	2008	2009	2010	2011*	2012*	2013*	2014*	2015*
GDP	199,242.3	217,861.6	232,694.6	241,990.4	237,534.2	226,031.4	207,028.9	191,203.9	180,654.3	177,940.6	175,697.4
T	44,985.9	45,232.18	48,652.9	51,850.46	44,447.13	42,127.34	39,160.47	37,735.02	38,066.86	38,446.74	38,972.18
T/GDP	0.23	0.21	0.21	0.21	0.19	0.19	0.19	0.20	0.21	0.22	0.22
N	154,256.4	172,629.4	184,041.7	190,139.9	193,087.1	183,904.1	167,868.4	153,468.9	142,587.4	139,493.8	136,725.3

Source: ELSTAT Gross Value Added by Industry (A64) Code NACE Rev.2, T = 1-33, 50, 51, 55-56, 62, 63, 72 from table (A 64).

Note: * Provisional data.

To weigh the causes for the change in the shares of the two variables, one should take into consideration the following: 2001 was the last fiscal year with a primary surplus. From the next year onwards the Greek economy started to run large primary fiscal deficits that, in congruence with the sharp reduction of borrowing rates (due to the adherence of Greece to the eurozone) and the subsequent financial expansion, provided an environment of "excessive demand". Exactly as would have been foreseen by the economic theory for the case of a "small open economy" upon which a policy of continuous "excessive demand" has been implemented, the result was a steady growth of the share of N. Indeed, in current prices, in 2001 T were valued at 36 billion euros. In 2009, namely at the end of the euphoric period of the Greek economy, they reached a total value of 44,5 million euros. This is an increase of 24%. On the other side, in 2001 N were valued at 116 billion. In 2009 they would have reached 193 billion, which is an increase of 67%. The fast rate in the increase of N during the period that the Greek crisis was in the making, in no way could be an outcome of coincidence. Obviously, this is the result of the asymmetrical reaction of a "small open economy" to economic policies trying to raise the level of national income by boosting demand by all means and without restraint. Unfortunately, in this endeavor, the sector of N "captures" the whole increase in demand and grows unhealthily, since its growth does not come by the increase in its own productivity, and not even by the increase of the productivity in the T sector. As this growth was not, mainly, the result of a real improvement to some sector(s) of the national economy but simply the result of a temporary increase in the level of monetary demand, it, also, was a temporary and impermanent growth, destined to reverse its course as soon as the circumstances that buoyed it (namely borrowing from abroad) disappeared.

The fact that the growth of the Greek economy in the period 2001-2009 was nothing more than the product of an aberrant enlargement of the N sector becomes even more evident if we compare how the sectors T and N evolved during the unfolding crisis. They both decreased but if their decrease had been proportional and symmetric so that their share in the GDP contraction were equal, then the hypothesis that the main cause of the crisis was the irregular and unstable behavior of the N sector –namely its skyrocketing in the first period and then the unavoidable collapse in the second– could be challenged and disputed. But what happened in reality? What really happened is that T, starting from the level of 44,5 million in 2009, shrank slightly to 39 million in 2015, which corresponds to a percentage fall of a mere 12% (and this in spite of the fact that in the same period, because of the global crisis, shipping and maritime revenues had a steep decline). On the contrary, the total added value of N in the GDP, starting from 193 billion euros in 2009, shrank to 137 billion in 2015, which is a loss of 30%.

There are two inescapable conclusions that one can arrive at:

a) The collapse of the GDP of Greece from 2009 onwards to a large degree has been the result of the collapse of N (which, in turn, was the unavoidable outcome of its previous aberrant growth), and

b) The salvage of the Greek economy and the avoidance of a bigger disaster is due to the resilience of the T sector, and to its relatively moderate loss.

If the crisis of the Greek economy had not been structural, and had not been caused by the unavoidable collapse of the N sector (a collapse that is driving the sector to a more "natural" size), then the decrease of T and N shares in the GDP should have been comparable. But, the T sector, starting from its lowest point, that is 18,7% of GDP in 2009, is gradually gaining a bigger proportion of the GDP, showing a trend to return to its pre-2001 levels. Besides, even the moderate retreat of T could be explained as something very natural, taking the second-order repercussions of the crisis into consideration –that is credit shrinking, taxation increases, etc. Furthermore, even though this is difficult to prove by the means of data, a big part of the retreat of T after 2010 is more statistical than real because it corresponds to those products that, even if they are counted in the T branches of the economy (mainly in manufacturing), in reality are not "tradables". We refer mainly to products that are used in buildings (such as bricks and cement) and in the wholesale and retail trade (for instance products of manufacturers producing fixed equipment for stores), which, because of their low added value and their heavy weight, in reality are not objects of the international trade. The same could be said for companies that were active only as public sector suppliers, which, although classified in the industry branches that we consider as "internationally tradables", they hardly were such, because, in fact, they were monopolies selling to monopsonies (that is the public sector).

Instead of T, the N sector suffered a major collapse of all four pillars it was standing on, that is trade, other services, construction and the public sector. This was natural and expected given that their growth out of any proportion in the period 2001-2009 was mainly financed through external borrowing while the economic agents that were profiting from it were under the illusion that the level of income that they had reached was permanent and guaranteed. It is symptomatic that in the construction sector, in 2006, Greece appeared to invest the biggest percentage of GDP in the eurozone or that in 2009, in the wholesale and retail trade sectors, Greece employed 18% of its total labour force while the eurozone average was close to 12%. The comparison of the decrease of N with the decrease of T, in the period after 2010, leads to the conclusion that the main determinant for the crisis has been the collapse of the sectors of "internationally non-tradables", which previously had unnaturally grown beyond any point of long-term stability and structural equilibrium. The flip-side of this was that the T sector, due to its atrophy, was not able to provide enough income either to support the hypertrophic N sector or to service the debt burden that had been incurred in order to stimulate the "development of the economy through consumption".

The whole course of the irrational take-off and the unavoidable crash of the Greek economy, in the period 2000-2015 (a typical boom and bust story), as a result of the asymmetrical response of the T and N sectors to the excessive demand thoughtlessly infused into the economy, features additional aspects and traits, most of them of a structural nature with long-term reverberations. The most important has been the large-scale destruction of human capital that occurred in the period 2001-2009 and further, which will require decades to be corrected. While the capital investments were leaving the T sector to take advantage of the profit opportunities opening up in the N sector, the same was happening with employment: while productive units of "internationally tradables" (the places where human capital is formed through "learning by doing" practices) were closing down or were moved to neighbouring Balkan countries, more than 500.000 jobs were created in the sector of "internationally non-tradables". However, those were jobs that not only were doomed to disappear in the short run, but also required no particular skills and knowledge nor provided to the employed the opportunity to gain such things. (For instance, those were the cases of employees in retail stores that were offering consumers the flood of imports, or in the activity with the most meteoric rise and fall, that is "property development"). From a certain point of view the period 2001-2009 could be considered as a period of "genocide" for human capital in the economy of Greece.

5. Structural asymmetry is the main impediment to the development of the economy of Greece and must always occupy the centre of economic policy thinking

The theoretical debates that followed the "discovery" of the "Dutch disease" phenomenon in the seventies and the theoretical work and the papers written for the

same issue in the eighties, in essence accurately analyze and describe the structural crisis that was to hit the Greek economy starting in the year 2008 (and is still unfolding). Nevertheless, all this intellectual production was disregarded or forgotten on the road towards the establishment of the Economic and Monetary Union, and it stayed in total oblivion during the first euphoric years of the eurozone, that is the years until 2008-2009. The violent awakening though, with the triggering of the crisis at that moment, has probably terminated the optimistic illusions but in no way was able to influence economic thinking in such a way that will drive the eurozone out of its intellectual confusion. Nonetheless, the experience from the Greek crisis (but also from the other South Europe economies' crises), dictates some imperative lessons as regards the drawing of economic policy, and it is no longer permissible to avoid these lessons:

- "Small open economies" that are faced with exogenously determined terms of trade, are constantly exposed to the danger of suffering structural problems and functional disruption if the relation of sectors T and N is disturbed. The danger is even greater if these economies operate under a fixed exchange rate system and do not have the possibility to resort to an alteration of the external rate of the currency, which in the event of a crisis would be a useful tool to counter the destabilizing forces.
- The most common case of destabilizing influence upon the relation T/N is encountered when a considerable inflow of capital enters the economic circuit, which does not correspond to any increase of the production of the national economy or any improvement of its international competitiveness. Usually this is due to circumstantial reasons such as the discovery of raw materials, or a sudden increase in the price of already exploited and exported raw materials (both cases of "Dutch disease"), the entry of speculative capitals by investors searching for transitory opportunities of high profitability, or the abuse of the possibilities of external borrowing by a government that wishes to implement highly expansionary fiscal and monetary policies.
- Given that the stability and the balance of the relation T/N constitutes the main condition for the long-term growth rate endurance of a "small open economy", it is on this specific issue that the economic policy should focus its attention. Therefore, the development of this economy is an objective that cannot be successfully pursued by the means of expansionary fiscal and monetary policy. On the contrary, the development of the economy depends upon policies that concentrate on the permanent amelioration of human capital and on the unobstructed functioning of the labour, capital and goods markets. In view of the recent bitter experience of Greece, one has to conclude that monetary and fiscal equilibrium constitute the necessary prerequisites for economic development and that economic policy should be mainly directed to the microeconomic handling of market dysfunctions.

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Access to finance and firm growth of Greek SMEs before and during the economic crisis

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1. Introduction

Firm growth is widely recognized as a crucial factor for economic development at the country level with fast-growing firms being considered as major contributors to job creation (e.g. Wagner 1992; Delmar et al. 2003). The importance of firm growth becomes even greater in times of economic crisis and recession. In particular, in the case of the Greek economy, which is going through a deep and prolonged recession exhibiting very high unemployment rates, the issue of firm growth should be a priority on the country's political agenda in the context of programmes that aim to support entrepreneurship. Policies that facilitate and encourage enterprises to grow are considered essential for reducing unemployment and boosting overall economic activity (Wagner 1992).

Adequate access to finance is particularly significant for the survival, investment and growth of firms (e.g. Carreira & Silva 2010). The term "corporate finance" or "business finance" refers to all required activities in order for a firm to have access to financial resources to support its activity and increase the likelihood of survival and/or growth. "Financial constraints" refer to the difficulty an enterprise faces in raising sufficient funds to undertake investment opportunities, to cope with high operating costs or to pay its debts. Therefore, a firm is considered as financially constrained if the total assets are not sufficient to cover the total value of its liabilities (Korajczyk & Levy 2003).

Financing obstacles for firms stem from a number of factors that may be related to the adverse economic conditions in the country where the firm operates, the instability of the financial system, the existence of information asymmetries, the insolvency, firm age or size, as well as the high risk associated with the investment project to be funded. In times of crisis the importance of funding is even greater, with financial constraints often considered as a major obstacle to the effective operation and growth of firms, and especially SMEs (e.g. Beck & Demirgüç-Kunt 2006).

In this context, Greece is an interesting case study representing an economy in which the entrepreneurial system heavily relies on small and medium-sized enterprises (SMEs), which have been severely hit by the recent economic crisis (Dimelis et al. 2016; Athanassiou 2015). Being highly dependent on bank credit, Greek SMEs have faced increased financial constraints during the crisis period (e.g., Kontolaimou 2015). The small size of firms significantly hinders their access to alternative sources of finance, such as the international capital markets, to which only the established and larger Greek firms seem to have had access in recent years, in order to raise funds (e.g. Miyiakis 2014).

Given the above, this article examines the impact of internal and external finance on the growth of Greek SMEs which operate in the manufacturing and services sectors during the 2004-2012 period, considering also other financial factors at the firm level of analysis. The empirical analysis yields interesting results about the determinants of the growth dynamics of SMEs, focusing on the role of access to finance before and after the onset of the economic crisis.

The next section reviews the main literature focusing primarily on the role of access to finance and financial constraints on firm growth. Section 3 describes the data, the variables, the econometric model and the methodology used. The results of the econometric analysis are presented and discussed in Section 4. The last section summarizes the main findings of the study.

2. Literature review

Theoretical literature in financial economics highlights the role of credit risk and asymmetric information in the inefficient allocation of credit among firms, resulting in the inability of firms to finance their investments and growth (e.g. Stiglitz & Weiss 1981; Myers & Majluf 1984). A number of relevant studies distinguish between internal and external finance based on the source of financial capital. Internal finance refers to internally generated funds through equity and cash

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flows from existing assets and business activities, while external financing concerns the acquisition of financial capital from external sources, i.e. bank credit, trade credit, etc. External finance is necessary when the equity and the cash flows of firms are insufficient to cover their liabilities and investment needs. Moreover, intense market competition often leads to increased needs for additional funding (Demirgüç-Kunt & Maksimovic 1998).

A large part of the relevant literature also deals with barriers to financing and their impact on firm growth. According to Elston (2002), financial constraints lead to a lack of liquidity and significantly influence firm decisions, such as investment in capital or labour, and consequently affect firm growth. Internal financing constraints are not easy to manage because they require increased business efficiency and new shareholders. On the other hand, available cash holdings may be used to meet the needs of the firm without requiring external financial resources. Saving a greater portion of their cash flow as cash may be particularly significant for financially constrained firms in order to continue to invest and grow when external sources of finance are costly, limited or unavailable (Denis & Sibilkov 2010).

In this context, a number of studies focusing on firms' financial constraints provide an analytical framework according to which firms that encounter significant barriers to accessing external financial sources turn to internal funds in order to finance their investment (Fazzari et al. 1988; Carpenter et al. 1998) or their growth (Carpenter & Petersen 2002). These studies identify the existence of financial constraints based on the cash-flow sensitivity, arguing that a higher sensitivity of investment or growth to changes in cash flows signals increased difficulties in accessing external finance. However, these approaches, though largely influential, have received considerable criticism from studies which question the use of cash-flow sensitivity in measuring external financial constraints (e.g. Kaplan & Zingales 1997; Cleary 1999).

More recent empirical studies examine the role of firm finance (internal and external) along with various financial ratios (leverage, liquidity, profitability, solvency) and other characteristics (age and size of business) in firm survival or growth, exploring at the same time the impact of sectoral heterogeneity (Rahaman 2011; Tsoukas 2011; Garcia-Vega et al. 2012). The sector of economic activity has been recognized as an important source of heterogeneity that could affect to a great extent the relationship between financial constraints and firm growth (e.g. Westhead & Storey 1997).

3. Data and methodology

The data used in the empirical analysis derived from Infobank Hellastat SA, which is one of the major providers of financial and commercial information in Greece.[1] In particular, using Hellastat's online database, namely iMentor, we collected data from the financial balance sheets of 23.094[2] SMEs[3] operating in the manufacturing and services sectors in Greece during the 2004-2012 period. Within our sample, 28% of firms belong to the manufacturing sector and the remaining 72% to the service sector. The classification of SMEs in these two sectors was based on the NACE 1 statistical classification of economic activities of the European Community, used by Hellastat, which corresponds to the Greek classification 'STAKOD 2003'. For the purposes of our research, the reference period was divided into two sub-periods, i.e. 2004-2008 (pre-crisis period) and 2009-2012 (crisis period).

Following the relevant literature (e.g. Fotopoulos & Giotopoulos 2010), we measure firm growth rate based on the logarithmic differences of total assets between two subsequent periods. Graph 1 shows the average growth rate for the total sample of firms as well as for the two sector categories, i.e. manufacturing and services firms for the examined period (2004-2012). We observe that there is a sharp decline in growth rates in 2009, which become negative in 2010 for both categories, indicating decreases in average firm size. A recovery trend appears in 2012, which is more pronounced in the case of services, where a positive average growth rate appears again. Graph 1 also shows that the manufacturing sector has been hit more severely by the economic crisis compared to the services sector. Exhibiting an already decreasing

1. Hellastat's database provides financial and commercial information for approximately 90,000 Greek firms covering the entire range of Greek economic activities.

2. The initial sample consisted of 41,093 SMEs. However, SMEs were further selected using two criteria, that is (a) firms should belong either to the manufacturing or to the services sectors and (b) sufficient information should be available concerning the basic variable, i.e. the total assets used for the calculation of firm growth.

3. Following the relevant definition provided by the European Commission, we consider a firm as an SME if its total annual balance sheet does not exceed EUR 43 million.

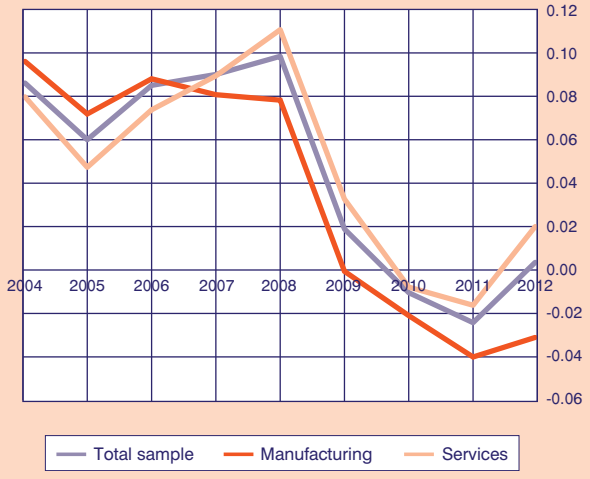
trend since 2007, the average growth rate in this sector seems to improve slightly in 2012 after its maximum drop in 2011.

Accordingly, based on recent literature (Rahaman 2011; Garcia-Vega et al. 2012; Tsoukas 2011) we constructed a set of independent variables to be included in our econometric model. The financial structure of firms is expressed through internal and external financing indicators that are defined as follows:

– ***Internal finance:*** Logarithmic difference of firm equities between two subsequent periods.

– ***External finance:*** The ratio of short-term bank liabilities to total liabilities at the firm level.

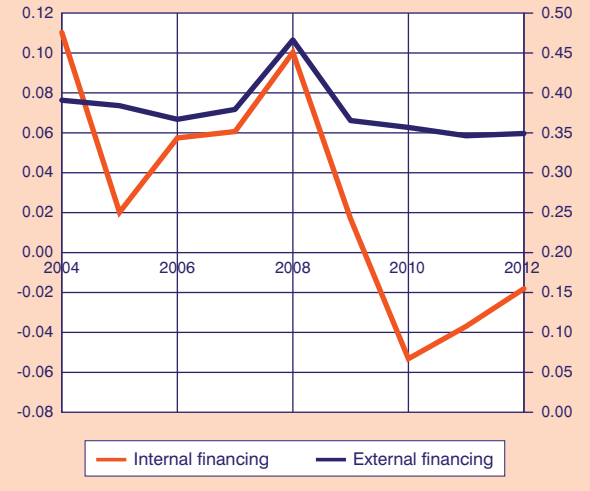
GRAPH 1
Average firm growth rates



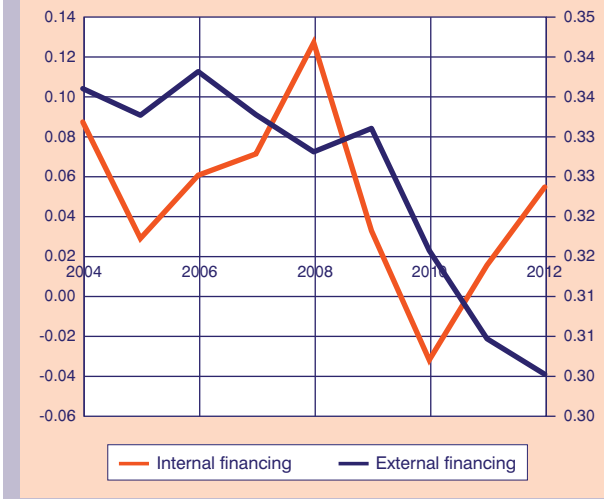
Graphs 2 and 3 show the evolution of these indicators in the examined period for the manufacturing and services sectors, respectively. The values on the left axis of each graph refer to internal finance, while external finance is measured on the right axis. Comparing the two graphs, we see variations in the financing structure and the evolution of the relevant indicators between the manufacturing and services sectors, especially in the post-2008 period. In particular, for SMEs operating in the manufacturing sector, we observe that they continue to depend on bank credit in the crisis period, as indicated by the relatively stabilizing trend recorded in the external financing ratio from 2009 onwards. On the other hand, the internal financing indicator shows a sharp decline during the first two years of the crisis period (2009 and 2010) indicating a considerable average contraction in the internal finance of manufacturing firms. A moderate improvement is observed in the next years.

In services, the internal financing ratio presents a similar trend, but the improvement seen after 2010 is much greater, revealing a significant increase in internal finance over the last years of the examined period. On the contrary, a sharp and persistent decline is observed in the case of the external financing indicator during the crisis period in the services sector. It therefore seems that SMEs operating in services, being unable to secure the required funds through bank credit, turn to internal sources of funding in the crisis period. This picture is not observed in the case of manufacturing firms, which, potentially due to the high capital intensity that characterize them, seem to continue to be dependent on bank loans even during the crisis.

GRAPH 2
Financing indicators of SMEs in the manufacturing sector



GRAPH 3
Financing indicators of SMEs in the services sector



We also included key financial indicators in our model as potential determinants of firm growth. Specifically, we used four (4) variables at the firm level defined as follows:

– ***Financial Leverage:*** The ratio of total debt to total assets.

– ***Liquidity:*** The ratio of current assets to current liabilities (current ratio).

– ***Profitability:*** The ratio of earnings before interest and taxes (EBIT) to total assets.

– ***Solvency:*** The ratio of earnings before interest and taxes (EBIT) to interest expenses.

Finally, we took into account the size and age of firms by constructing relevant variables. In particular, we used the natural logarithm total assets as a measure of firm size, while the firm age was computed based on the year of establishment and was also expressed in terms of natural logarithms.

The correlation matrix of the independent variables presented in Table 1 indicates the absence of any high correlation among the independent variables used, which in turn ensures that the econometric estimates are not biased due to multicollinearity problems.

Based on the above and following recent studies (e.g. Rahaman 2011), the general form of the firm growth model to be estimated can be written as follows:

$$GR_{i,t} = \beta_0 + \beta_1 GR_{i,t-1} + \beta_2 Size_{i,t-1} + \beta_3 Age_{i,t-1} + \\ + \beta_4 Lev_{i,t-1} + \beta_5 Liq_{i,t-1} + \beta_6 Prof_{i,t-1} + \beta_7 Solv_{i,t-1} + \\ + \beta_8 IntFin_{i,t} + \beta_9 ExtFin_{i,t} + \varepsilon_{i,t} \quad (1)$$

where $GR_{i,t}$ is the growth rate of firm i in period t, $GR_{i,t-1}$ is the growth rate of firm i in period t-1, $Size_{i,t-1}$ denotes the size of firm i in period $t-1$, $Age_{i,t-1}$ is the age of firm i in period $t-1$, $Lev_{i,t-1}$ represents the financial leverage ratio of firm i in period $t-1$, $Liq_{i,t-1}$ denotes the liquidity index (current ratio) of firm i in period $t-1$, $Prof_{i,t-1}$ is the profitability index of firm i in period $t-1$, $Solv_{i,t-1}$ represents the solvency ratio of firm i in period $t-1$, $IntFin_{i,t}$ is the internal financing index of firm i in period t, $ExtFin_{i,t}$ is the external financing index of firm i in period t and $\varepsilon_{i,t}$ is the error term for firm i in period t.

For the estimation of equation (1), we used the Generalized Method of Moments (GMM) system as developed by Blundell & Bond (1998). This method is suitable for panel data that include a large number of firms and a relatively small number of time periods. There are two main advantages of the GMM system. Firstly, it takes into account the unobserved individual effects of the firms and, secondly, it takes into account the existence of possible endogeneity of the independent variables. To take into account the potential correlation of independent variables with the disturbance term, the GMM system constructs instrumental variables using time lags of the included independent variables.

To estimate the model using the GMM system estimator we used two (2) lags for each endogenous variable as instruments. The second lag is necessary since, unlike the first lag, it is not correlated with the disturbance term. We opted for a small number of lags, though, in order for the instruments to be consistent and valid.[4] Furthermore, we used asymptotically robust standard errors, since the errors resulting thereby are corrected for autocorrelation and heteroskedasticity in panel data.

TABLE 1 Correlation matrix of independent variables

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
Size (1)	1.000							
Age (2)	0.234	1.000						
Leverage (3)	0.136	-0.030	1.000					
Liquidity (4)	-0.030	0.008	-0.036	1.000				
Profitability (5)	-0.001	-0.006	-0.064	-0.010	1.000			
Solvency (6)	0.006	0.009	0.000	0.000	0.028	1.000		
Internal financing (7)	0.030	-0.045	-0.121	0.001	0.299	0.011	1.000	
External financing (8)	0.068	0.082	0.353	-0.073	-0.001	0.006	-0.033	1.000

4. Tests were also performed with a larger number of lags. However, we ended up with two lags since the use of a larger number of lags caused validity problems in both the instrumental variables and the GMM system method as indicated by Sargan tests and the tests for the absence of second order serial correlation (Arellano & Bond 1991).

4. Results

Table 2 presents the econometric results for the total sample of SMEs under examination for the total period and for both sub-periods, before and after the onset of the crisis. Focusing first on the effects of financing on firm growth for the total period, econometric estimates show that SMEs are based on internal financing in order to grow, since the corresponding coefficient is positive and statistically significant at the 1% level of significance. This result, taking also into account the absence of a significant relationship between external financing and growth (non-statistically significant coefficient), can be explained using the conceptual framework provided by Carpenter and Petersen (2002). In particular, it appears that firms which face difficulties in accessing external finance use internal financing resources to support their growth.

Moreover, the profitability of SMEs in the previous period, which can be considered an alternative source of internal financing (Rahaman 2011), seems to have a positive and significant impact (at the 5% significance level) on firm growth. This result is in line with the international literature on corporate finance which emphasizes the role of profitability in firm growth (e.g. Rahaman 2011).

In addition, our results show that the past growth $GR_{i,t-1}$ of SMEs seems to encourage their current growth at the 1% significance level. In other words, firms with high growth rates over a time period tend to have high growth rates in the next period. However, it should be noted that the positive effect of past growth

TABLE 2 Empirical results for the total sample

	Total period (2004-2012)	Pre-crisis period (2004-2008)	Crisis period (2009-2012)
Past growth ($GR_{i,t-1}$)	0.032***	0.043***	0.028**
	(0.010)	(0.012)	(0.011)
Size	0.008	0.030	-0.031
	(0.014)	(0.031)	(0.022)
Age	-0.031**	-0.012**	-0.010
	(0.015)	(0.025)	(0.019)
Leverage	0.051	0.058	0.144**
	(0.089)	(0.096)	(0.068)
Liquidity	-0.001	-0.001	0.0004
	(0.003)	(0.004)	(0.006)
Profitability	0.216**	0.467*	0.152
	(0.108)	(0.251)	(0.142)
Solvency	0.00002	0.000	0.0004***
	(0.00003)	(0.000)	(0.000)
Internal Financing	0.128***	0.153**	0.342***
	(0.037)	(0.067)	(0.029)
External Financing	-0.015	0.020	-0.026
	(0.053)	(0.113)	(0.059)
Constant term	-0.023	-0.420	0.456
	(0.212)	(0.512)	(0.355)

Notes:

*** The null hypothesis that the parameter is equal to zero is rejected at the 1% significance level.
** The null hypothesis that the parameter is equal to zero is rejected at the 5% significance level.
* The null hypothesis that the parameter is equal to zero is rejected at the 10% significance level.

Robust standard errors reported in parentheses.
Sargan tests are accepted in most cases, indicating the validity of the instruments used.
The statistical tests for the absence of second order serial correlation are accepted, confirming the key identifying assumption for the consistency of the GMM method according to Arellano and Bond (1991).

on current growth appears to be weak since the size of the estimated coefficient is rather small (0.032). The link between the current firm performance and its past growth has been investigated in the relevant literature with a significant number of studies highlighting the importance of the persistence of growth over time (e.g. Chesher 1979; Wagner 1992; Almus & Nerlinger 2000; Fotopoulos & Giotopoulos 2010; Giotopoulos 2014).

On the contrary, the *age* coefficient exhibits a negative sign at the 5% level of significance. This negative effect of firm age on SMEs' growth indicates that young firms tend to grow faster compared to their older counterparts. This result is confirmed by the majority of relevant studies (Farinas & Moreno 2000; Beccetti & Trovato 2002; Calvo 2006). A possible explanation can be provided based on the model developed by Audretsch and Mahmood (1994, 1995) who argue that small and young firms usually operate below the minimum efficiency scale and consequently they have relatively smaller chances of survival. Therefore, these firms struggle to achieve high growth rates, mainly in the first stages of their life, in order to reach the minimum efficient size and exploit economies of scale, thus increasing their likelihood of survival.

The last two columns of Table 2 present the results obtained from the econometric estimates for the two sub-periods examined, i.e. before and after the onset of the economic crisis. The main conclusions drawn from the comparison of the estimated coefficients between the sub-periods is that the dependence of SMEs on internal funds for supporting their growth is much stronger during the crisis than the pre-crisis period, both in terms of statistical significance (1% and 5%, respectively) and in terms of the size of the estimated coefficient (the effect in the crisis period is twice that of the non-crisis period). This interest-

TABLE 3 Empirical results for SMEs in the manufacturing sector

	Total period (2004-2012)	Pre-crisis period (2004-2008)	Crisis period (2009-2012)
Past growth ($GR_{i,t-1}$)	0.055***	0.034	0.071***
	(0.013)	(0.033)	(0.017)
Size	-0.007	0.020	-0.032
	(0.015)	(0.028)	(0.021)
Age	-0.040***	-0.081	0.011
	(0.013)	(0.064)	(0.018)
Leverage	0.159***	0.150	0.252***
	(0.051)	(0.114)	(0.064)
Liquidity	0.003	0.017	0.000
	(0.002)	(0.023)	(0.003)
Profitability	0.420***	0.923***	0.441***
	(0.142)	(0.340)	(0.172)
Solvency	0.00002	-0.0002	0.0002*
	(0.00007)	(0.0005)	(0.000)
Internal Financing	0.101***	0.159	0.292***
	(0.028)	(0.154)	(0.035)
External Financing	-0.059	0.027	-0.064
	(0.041)	(0.158)	(0.060)
Constant term	0.111	-0.191	0.383
	(0.237)	(0.523)	(0.342)

Notes:

*** The null hypothesis that the parameter is equal to zero is rejected at the 1% significance level.
** The null hypothesis that the parameter is equal to zero is rejected at the 5% significance level.
* The null hypothesis that the parameter is equal to zero is rejected at the 10% significance level.

Robust standard errors reported in parentheses.
Sargan tests are accepted in most cases, indicating the validity of the instruments used.
The statistical tests for the absence of second order serial correlation are accepted, confirming the key identifying assumption for the consistency of the GMM method according to Arellano and Bond (1991).

ing finding, along with the absence of any supportive role of external funding in firm growth, reveals that the financial constraints faced by SMEs are particularly high in the period of economic crisis, hindering their growth patterns (Dimelis et al. 2017; Giotopoulos et al. 2017).

As far as the other financial variables are concerned, it seems that during the crisis SMEs that are characterized by a higher degree of solvency and leverage can achieve higher growth rates. This may suggest that any credit received (bank and/or trade credit) tends to be provided to reliable firms in order to finance investments characterized by either low risk or with high growth prospects (OECD 2014; ECB 2011). On the contrary, past profitability appears to play an important positive role in current firm growth only during the pre-crisis years, while no such effect is identified in the crisis period. This may be explained by the economic uncertainty that characterizes crisis periods, making SMEs reluctant to use profits accumulated in previous years in order to finance their investments or growth projects. In addition, the effect of past growth on current growth is weakened in the crisis period relative to the pre-crisis period. On the other hand, the effect of firm age appears to be negative on firm growth before the beginning of the crisis, while is insignificant during the crisis period.

Tables 3 and 4 present the empirical results obtained from the econometric estimations for the manufacturing and services sectors, respectively. In the case of manufacturing (Table 3 above) firm growth before the start of the crisis is mainly supported by past profitability, while in the crisis period it is significantly and positively affected (1% significance level) by internal finance, past profitability, past growth and leverage. It seems, therefore, that during the crisis SMEs operat-

TABLE 4 Empirical results for SMEs in the services sector

	Total period (2004-2012)	Pre-crisis period (2004-2008)	Crisis period (2009-2012)
Past growth ($GR_{i,t-1}$)	0.017	0.038**	0.023*
	(0.011)	(0.019)	(0.013)
Size	0.020	0.017	0.010
	(0.018)	(0.039)	(0.021)
Age	-0.028	-0.019	0.021
	(0.025)	(0.036)	(0.020)
Leverage	-0.041	-0.087	0.053
	(0.068)	(0.138)	(0.099)
Liquidity	-0.0004	0.001	-0.005
	(0.002)	(0.003)	(0.008)
Profitability	0.173	0.143	0.344**
	(0.151)	(0.374)	(0.171)
Solvency	-0.00002	0.000	0.000
	(0.00003)	(0.00002)	(0.000)
Internal Financing	0.117***	0.241***	0.258***
	(0.043)	(0.070)	(0.033)
External Financing	0.076	0.073	-0.086
	(0.059)	(0.116)	(0.080)
Constant term	-0.223	-0.210	-0.187
	(0.302)	(0.604)	(0.318)

Notes:

*** The null hypothesis that the parameter is equal to zero is rejected at the 1% significance level.
** The null hypothesis that the parameter is equal to zero is rejected at the 5% significance level.
* The null hypothesis that the parameter is equal to zero is rejected at the 10% significance level.

Robust standard errors reported in parentheses.
Sargan tests are accepted in most cases, indicating the validity of the instruments used.
The statistical tests for the absence of second order serial correlation are accepted, confirming the key identifying assumption for the consistency of the GMM method according to Arellano and Bond (1991).

ing in manufacturing try to finance their growth plans through internal funding sources (when available), while bank credits, even if they are received, are not used for growth purposes.

Finally, focusing on SMEs operating in the services sector (Table 4 above), internal finance seems to play an important role (at the 1% significance level) on growth, both before and after the onset of the crisis, with a similar effect in terms of coefficients' size. Profitability is also found to positively affect the growth of SMEs in the crisis period. As in the manufacturing case, it seems that given the external financial constraints during the crisis, SMEs turn to internal funds in order to support their growth prospects. Regarding the other variables examined, our results show that past growth positively affects current growth in both time periods, but the effect is weaker during the crisis in terms of both statistical significance and the coefficient's size.

5. Conclusions

The growth of SMEs is a top priority in economic development, especially for countries that have been severely hit by the crisis and rely heavily on SMEs. Access to finance is a factor that significantly affects the growth potential of SMEs, with financial constraints often considered as a major barrier to the efficient operation and growth of firms, especially in the case of smaller firms. In this context, this article explores the impact of internal and external sources of financing as well as other financial factors on the growth of Greek SMEs operating in the manufacturing and services sectors during the 2004-2012 period.

The main results of the empirical analysis indicate the existence of financial constraints from external sources and the absence of any significant relationship between external financing and the growth of SMEs in the period before as well as after the start of the economic crisis. SMEs in Greece seem to use primarily internal resources to finance their growth. The effect of internal financing on firm growth was found particularly significant in the crisis period in both sectors of economic activity, while in the case of manufacturing the role of internal financing does not seem to be important before the start of the crisis. Overall, our findings highlight the need to support firm growth through traditional and alternative financing tools appropriately adjusted according to SMEs' growth needs, in order to boost economic activity and create jobs in the context of the productive restructuring of the Greek economy.

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