Monetary policy, Target2 imbalances and poverty in the Eurozone

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Abstract

The aim of this paper is to investigate theoretically and empirically the relation between the common monetary policy strategy, external imbalances and poverty in the Eurozone. As registered by the Target2 (T2) mechanism of compensation, external imbalances are found to be negatively correlated with the share of the population living in absolute poverty. To reduce the asymmetries, policy reforms should include, together with restrictive fiscal measures for deficit countries, a set of measures for creditor countries such as fiscal expansion, increases in money wages, and foreign direct investment in peripheral countries.

Keywords: Poverty, Target2, monetary policy, growth, Eurozone, dynamic panel data

JEL classification: F45, I30, C33

1. Introduction

Following the prevailing paradigm, the policy framework in the Eurozone assigns a central role to monetary policy as an alternative to the decreasing role of fiscal policy. Following the principle of "one size fits all", the ECB is the sole policy authority with the task of promoting convergence among countries. Since the financial crisis in 2007, despite current positive outcomes overall, there have been hidden consequences on single countries due to asymmetric effects revealed by external imbalances.

This paper explores the relation between the common monetary policy strategy, external imbalances and poverty in the Eurozone. The main thesis is that the easy monetary policy strategy and the very low interest rates implemented since the financial crisis have been unable to ensure growth convergence among Eurozone countries. Asymmetric effects are observable in the growing T2 imbalances which, as in any fixed exchange rate regime for foreign reserves, reflect divergence in the expected growth of individual countries and further fuel the distance between core and periphery. Positive T2 imbalances are associated with lower levels of poverty, while negative T2 corresponds to higher levels of poverty.

The effects of monetary policy upon income distribution have been widely explored (Furceri et al. 2016). In recent times, increasing attention has been devoted to the effects

of low policy rates and open market operations on income distribution in the Eurozone (Ampudia et al. 2018). Low rates directly generate income loss for savers, while asset purchases positively affect their prices and are beneficial for the owners of such assets. From a macroeconomic perspective low policy rates and asset purchases increase aggregate demand, reduce unemployment and boost economy in the negative phases of the cycle. A faster return to full employment should in turn contribute to lower future inequality (Draghi 2016).

We adopt a macroeconomic perspective and focus on absolute poverty rather than inequality: easy monetary policy during the negative phases of the cycle is expected to reduce poverty and inequality and increase room for fiscal policy. However, in the European Monetary Union (EMU) without alternative compensation mechanisms it favours resource inflows towards more stable, richer countries, thereby increasing discrepancies with the external balances of peripheral countries.

For the purposes of our paper the T2 balances of single countries are connected with the share of population living in absolute poverty. T2 balances are the net credit, if positive, or net debit, if negative, which each country has in respect of other countries belonging to the Eurozone, and is therefore a measure of balance of payments discrepancies within the currency area. When measured as a percentage of GDP they represent the weight of such positive or negative values with respect to the whole economy. Poverty is measured by the indicator "material deprivation", that is, the number of people prevented by a lack of basic resources from having a "decent life" in a modern country (see below for a detailed explanation) or who have a very low per-capita real income.

Our investigation follows two routes: the first is theoretical, aiming to ascertain how the relation between T2 imbalances and poverty arises. It is shown that T2 balances lead to differences in interest rates, whatever the policy rate the ECB sets. Such differences in interest rates cause gaps in growth and therefore in absolute poverty in each country. Secondly, we empirically verify the relation in question through dynamic panel techniques applied on 11 Eurozone countries: the generalized method of moments (GMM) and pooled mean group (PMG) estimators. The former provides consistent estimates in the presence of both path dependence and endogeneity issues. The latter (PMG) adopts the error correction (EC) form: it provides reliable estimates and allows a stable relationship among the variables to be detected even in the presence of a small number of explanatory variables.

Our main argument pivots on the different effect on interest rates arising from T2 imbalances. They have the opposite sign effect on poverty through its effect on output and employment and therefore on the number of those belonging to the lower end of income distribution. Indeed, the indicator of absolute poverty employed can be considered a proxy of the per capita income growth rate of the poorest living in the countries considered.

The paper is organized as follows: section 2 focuses on T2 imbalances and the corresponding differences in long-term interest rates (LTR). Section 3 presents the stylized theoretical model in order to show how the presence of T2 imbalances affect poverty. Section 4 contains the empirical analysis. After data description and a first look at the supposed relation, 4.1 contains methodology and results. Finally, section 5 derives conclusions and suggests policy reforms.

2. The issue of TARGET balances

The Eurozone is comparable to a fixed exchange rate regime. However, because there is only one currency, a particular settlements mechanism, namely TARGET[1] - which evolved into T2 in November 2007 - was devised as an alternative to the purchase and sale of foreign exchange reserves. With T2, countries with a balance of payments surplus receive, via their national central bank, the net credit coming from the balance of payments deficit of another country. Deficit countries, in turn, have a net debt with surplus countries, the cost of which is determined by the refinancing rate set by the ECB for the European banking system.

Thus the ECB acts as a supranational monetary institution and uses the T2 mechanism as a multilateral clearing system; each international transaction within the Eurozone leads to a shift in the net creditor/debtor positions in euros of the national central bank involved with regard to the ECB. Therefore, T2 balances lie at the heart of the perfect functioning of the monetary union as, like other payments systems, they allow international payments in any kind of macroeconomic condition and even in the presence of large asymmetric shocks (Barredo-Zuriarrain and Cerezal-Callizo, 2019. Lavoie, 2015). In this respect, the compensation mechanism acts as a kind of credit line provided to countries experiencing a balance of payments crisis that makes the Euro-

[1] Trans-European Automated Real-Time Gross Settlement Express Transfer System

area more resilient as a currency union than either the gold standard or more traditional dollar pegs (Klein 2017).

The issue of target imbalances has been at the centre stage of the economic debate since the financial crisis. Some view the T2 system as a way to alter the "rules of the game" or the adjustment mechanisms among countries occurring in a fixed exchange rate regime through the increase in interest rates (Sinn and Wollmershäuser, 2012). The T2 system is considered by others to be a way to record discrepancies of an accounting nature, thereby respecting the banking principle operating in a closed economy (Gros 2017, ECB 2016). However, because of the banking nature of external deficits or surpluses, the system fuels the distance between core and periphery through its effect on interest rates. Therefore the "rules of the game" do not disappear, but rather are destined to be long-lasting, fed by a self-fulfilling mechanism of more (less) credit resources and lower (higher) interest rates.

Before the 2007 financial crisis, this settlement mechanism between countries functioned well in an integrated capital market. The difference between saving and investment was actually considered a good opportunity for capital from surplus countries to flow towards deficit states in order to gain better returns. Public bonds were considered to be safe and the spreads between them were almost negligible.

After the crisis, single Eurozone countries were not able to preserve their external equilibrium and T2 balances started to register discrepancies among internal performances. In the first period lasting from 2008 to 2013, once the crisis hit aggregate demand and differences between countries emerged, it was the current account which became the proxy for financial markets to evaluate a country's ability to repay its debts. Countries with a current account deficit experienced outflows of capital and increases in interest rates. National borders became important once again and suddenly T2 had to register discrepancies between components in the balance of payments. Countries like Germany and the Netherlands with current account surpluses experienced massive inflows of capital, while countries like Italy and Spain with current account deficits signalled their inability to pay their debt in the future and negative target balances increased sharply. As a result, long-term yields increased in peripheral countries, while decreasing in their core counterparts.

Starting from July 2012, the situation changed because of the policy measures implemented both at European and national level. First of all, the European Stability Mechanism (ESM) was created. Unlike previous bail-out funds, the ESM is a

permanent mechanism with an unlimited lending capacity, allowing peripheral countries to receive financial assistance under the strict condition of implementing Stability and Convergence Programmes. Secondly, many countries introduced the so-called "fiscal compact" in their constitutional law, thereby reducing the room for discretionary fiscal policy measures. Thirdly, the ECB reduced the interest rate on the main refinancing operations until the level of 0.00 points was reached (the marginal lending facility was reduced to 0.25 points and the deposit facility to -0.40 points). Finally, a massive injection of liquidity was implemented through so-called quantitative easing (QE). In particular, the public sector purchase programme (PSPP) allowed government bond yields to decrease and to reduce the pressure on peripheral countries' public accounts. Summing up, fiscal restrictions reduced the current account deficit in peripheral countries via decreased imports, thereby reducing the need to have capital inflows to reach the balance of payments equilibria. At the same time, the easy monetary policy lowered interest rates and absorbed the bonds which the market was unwilling to buy.

At first sight, these combined measures - implemented following the announcement of the ECB governor, Mario Draghi, to save the euro "whatever it takes" - reduced differences among countries and were supposed to lay the foundations for a new path towards convergence. From September 2012 to the beginning of 2015 target imbalances declined, signalling a sustainable path towards the balance of payments equilibrium. However, since the beginning of 2015 T2 balances have started to diverge once again and a question has arisen about the deep-rooted origins of these new imbalances. The official interpretation appears to lean towards the explanation that the recent increase in target imbalances is the automatic result of QE. They are of a technical nature since QE is implemented through both the ECB and National Central Banks (NCBs) (Gros 2017, ECB 2016), which are obliged to record in their financial statements any massive purchase of public bonds of countries in difficulty, such as Italy and Spain. Contrastingly, it is also held that, when observing T2 balances from the balance of payments perspective, they reflect the interaction between ECB policy choices and the private sector's wishes (Dosi et al. 2018). The presence of a T2 imbalance documents imperfect substitutability between internal and external assets and hence is the signal of non-perfectly integrated capital markets (Klein 2017, Minnenna 2017).

Detailed observation of the T2 calculated as a percentage of GDP and long-term interest rate dynamics in EMU countries from 2008 to 2017 sheds light on the flaws lying behind currency union and the inefficacy of the common monetary policy strategy. In

Figure 1 T2 balances as % of GDP (left) and long-term interest rate dynamics (right) are represented for the 11 Eurozone countries considered.

Figure 1 about here

In panel (a), the T2 balances are represented as percentages of GDP and LTR for the so-called core countries. For Germany, the Netherlands and Finland the balance of payments always shows a surplus as the three lines describing the behaviour of T2 are always above T2=0. From 2008 to 2012 they show an increasing trend. In the aftermath of the crisis their current account surplus was the signal that their economies were safe and able to ensure safe returns. Capital flowed into the above countries, increasing the amount of resources available within state borders. The common policy measures adopted after 2012 caused a fall in the positive imbalances: the sharp reduction in ECB interest rates, QE and especially the austerity measures implemented in peripheral countries reduced the external imbalances in the strong belief that these combined measures would be enough to preserve the stability of the Euro. However, since 2014 a new increase in positive T2 as a % of GDP has been registered, signalling that something is lacking in the common policy strategy. To the right, the respective LTRs are reported: all three are below the average EMU value, signalling for Germany, the Netherlands and Finland a lower cost for resources to be invested and spent on consumption for the whole period considered, whatever the common policy strategy.
In panel (b) countries with an intermediate position are represented together with Italy. Austria, Belgium and France have a negative but small T2. If we exclude the first two years for Belgium, they all hover around or below -0.01% of GDP with long-term interest rates below and very near the average of the whole currency union. The case of Italy has to be examined separately. In the first two years, positive and moderate T2 are observable together with long-term interest rates very close to, albeit higher than, the average value. From 2010 to 2012 T2 turned from positive into negative and interest rates recorded a sharp increase, high above the EMU average. In subsequent years, Italy registered a reduction in external deficit as a consequence of the austerity measures implemented. They reduced the current account deficit and signalled to investors that the debt would be repaid in the future. Interest rates also decreased, albeit always remaining above average. Since 2015 a new inversion has been detectable on the left-hand-side of panel (b) by increasing negative values of T2, and on the right-hand side

by increasing interest rates. It should be recalled that since 2013 the monetary policy has not changed its overall strategy.

Finally, in panel (c) countries with always negative T2 are reported, namely Greece, Ireland, Portugal and Spain. On the left it is shown that the settlement mechanism registered negative and decreasing values until 2012. The negative values shifted towards zero in the subsequent years. The direction of the movement is persistent for Ireland, which benefited from a financial assistance programme in 2011, after which the country experienced a period of ever-increasing growth able to offset its external imbalances.

For the remaining three countries another story can be told: for Portugal the negative external imbalances widened in 2014 and then reduced in 2015, while for Greece and Spain the negative trend is still moving downward. The behaviour of LTRs for the countries considered is consistent with the hypothesis formulated with regard to the relation with T2 imbalances. Until 2012 they increased for all the countries, while in subsequent years they started to decrease and to approach the average of all EMU countries. Predictably, the last values for Ireland are very close to the EMU average.

To sum up, the dynamic of T2 seems associated with specific LTR values. In countries with positive T2 the average LTR is always below the average, while in countries with negative T2 imbalances, interest rates stay above the average. Considering the different policy choices of the whole period it may also be stated that these divergences were not smoothed as a consequence of the easy centralized monetary policy. On the contrary, for some countries, despite the persistence of the ECB monetary policy strategy and the austerity measures suggested by the European Commission, the negative imbalances and higher interest rates remained unaltered or even increased.

3. Material deprivation and target imbalances: a stylized model

The hypothesis of the paper is that QE and the interest rate set by the European Central Bank is unable to smooth differences among countries. T2 reveals the asymmetric effects. Differences in T2 arise as a result of differences in national interest rates which, in turn, have different effects on equilibrium income. Since the number of people materially deprived is inversely proportional to the rate of growth, different levels of absolute poverty are registered. To explain how the model works let us start from a very simple equation defining the equilibrium income on the demand side:

$$y = \rho\left[A - b(i - \pi^{e}) - \xi(\pi_{I} - \pi_{E}) \right] \quad (1)$$

Equation (1) states that the rate of growth y increases, according to the value of multiplier ρ, as autonomous demand increases, as nominal interest rates *i* decrease or if inflation expectations π^{e} increase. The last term of the equation measures the reaction of the aggregate equilibrium income to the degree of competitiveness measured as the difference between internal π_{I} and external prices π_{E}. An equation explicitly defining how internal prices are set is omitted as it would add little to the working of the model. The nominal exchange rate is not included as the equation refers to a country belonging to a monetary union and its increase or decrease is supposed for the sake of simplicity to have homogeneous effects on all the countries belonging to it.

It may be assumed that T2 imbalances initially arise as a result of the difference between internal and external expected rates of growth. Once capital starts to flow out towards richer countries, the availability of credit resources in peripheral countries is reduced. In core countries banking resources increase, such that the internal interest rate is set by the following:

$$i = i_{ECB} - \chi T2 \quad (2)$$

according to which the interest rate which private banks apply in each single country is equal to the interest rates which the central bank sets, minus a term which is proportional to T2. In other words, in the absence of a national monetary policy designed to preserve the exchange rate via the increase in interest rates, the higher or lower resource availability produces the same effect on internal interest rates. If T2 balances are positive, the internal interest rate decreases; if T2 balances are negative, the internal interest rate increases.

Absolute poverty is assumed to depend negatively on growth and is described by the following:

$$MD = \lambda_{0} - \lambda_{1} y \quad (3)$$

where MD is material deprivation or the measure of absolute poverty, λ_{0} is the component not depending on growth, but rather on national policies, and λ_{1} measures the growth effect on poverty conditions.

Substituting equation (2) and (3) in equation (1) we have the following relation between absolute poverty and T2:

$$MD = \lambda_{0} - \lambda\rho\left[A - b\left(i_{ECB} - \chi T2\right) - \xi\left(\pi_{I} - \pi_{E}\right) \right] \quad (4)$$

Hence:

$$\frac{\Delta MD}{\Delta T2} = -\lambda \rho b \chi \qquad (5)$$

Material deprivation is inversely correlated with the target balance. The magnitude of the effect depends on the effects of LTR on aggregate demand.

This supposed relation can be examined through a graphical representation. In Figure 2 the theoretical link between T2 and absolute poverty is presented according to the hypotheses presented in the paper. Panel (b) describes equation (1): it is a kind of Mundell-Fleming model in which aggregate equilibrium income is set through the matching between the IS curve and the interest rate set at the level of the whole currency area. However, if T2>0, it follows that $i<i_{ECB,}$ while if T2<0, then $i>i_{ECB}$ (panel (a) equation (2)).

Figure 2 about here

External imbalances fuel the difference between core and periphery through the effects on interest rate spread. In panels (a) and (b) the links between internal interest rates, GDP growth and target imbalances are described: the level of target balance expressed as a percentage of GDP generates the internal interest rate. In turn, the internal interest rate results in a level of growth differing from country to country in accordance with the money growth coming from the external channel. From the stylized representation of the graph it may be seen that, for peripheral countries, when T2<0, the interest rate is i_P and the growth rate is y_P, while for core countries, when T2>0, the interest rate is i_C and the growth rate is $y_{C.}$ In the bottom section of Figure 2 the connection with absolute poverty is described: the growth rate defines, other things being equal, the percentage of materially deprived people (Panel (d) equation (3)) and finally (panel (c) equation (4)) the interconnection between T2 balances and material deprivation. It appears to be lower in countries with positive target balances and higher in countries with negative target balances ($MD_C<MD_P$).

4. Empirical analysis

The empirical model is built on the hypotheses formulated in the theoretical section i.e. that target balances are inversely correlated with poverty. The sample contains eleven Eurozone countries: Austria, Belgium, Finland, France, Germany, Greece, Ireland, Italy,

the Netherlands, Spain and Portugal. From the 12 Eurozone countries which adhered to the common currency from the beginning, Luxemburg was removed due to its special features. The time span goes from 2008 to 2017. The year 2008 coincides with the onset of T2 imbalances after the financial crisis. Before that year the balance of payments was almost in equilibrium as current account surpluses or deficits were compensated by capital flows. The year 2017 is the last available observation for the indicator of absolute poverty.

Data regarding T2 balances were obtained from the ECB website at http://sdw.ecb.europa.eu/browse.do?node=9691112 where they are posted on a monthly basis. To make the data comparable with "material deprivation" collected annually, the average value of 12 months per country was calculated. Furthermore, to make cross-country comparisons T2 balances were calculated as a percentage of GDP.

Material deprivation is the number of people materially deprived, expressed as a share of the total population. This indicator refers to physical conditions and is based on the availability of specific physical assets (Crettaz, 2015). It is therefore a measure of absolute of poverty rather than inequality. It represents the percentage of the population that cannot afford at least four of the following nine items: 1) to pay their rent, mortgage or utility bills; 2) to keep their home adequately warm; 3) to meet unexpected expenses; 4) to eat meat or protein regularly; 5) to go on holiday; 6) a television set; 7) a washing machine; 8) a car and 9) a telephone (Eurostat, 2016). Data concerning material deprivation were collected from Eurostat EU-SILC statistics http://ec.europa.eu/eurostat/web/income-and-living-conditions/data/database.

Initial examination of the behaviour of the two indicators can be useful to obtain a straightforward picture of the relation between T2 imbalances and absolute poverty.

Figure 3 about here

In Figure 3 for each country, average T2 balances for the whole period considered are compared with average material deprivation. Three main groups of countries can be distinguished: the first including Germany, Finland and the Netherlands is at the bottom right of the figure. They all have positive T2 balances as a percentage of GDP and a corresponding lower level of material deprivation. In the centre of the graph Belgium, France and Austria are depicted: these three countries have moderate negative T2 imbalances and a higher percentage of materially deprived people than the previous

group. Italy and Spain also appear in the centre of the graph: Italy as shown in Figure 1 has a higher balance of payments deficit and long-term interest rates than the EMU average. This led to a greater effect on growth and therefore more people living with real GDP per capita below the absolute poverty threshold. The restrictive fiscal measures implemented to comply with fiscal rules increased such effects. With regard to Spain the relation between material deprivation and T2 imbalances seems to be less pronounced. During the time range considered, in 2012, Spain received financial assistance from the EFSM to save the banking sector. These helped reduce average interest rates to mitigate the effect of reduced growth and negative target imbalances on poverty. The last group of countries appearing on the upper left side of the picture consists of Greece, Portugal and Ireland. Portugal is close to the fitted values: despite receiving financial assistance, the problems of pubic accounts sustainability induced governments to limit the provision of public services, which in turn had negative effects on aggregate demand and growth. Ireland is a similar case to Spain: initial massive capital outflows occurring soon after the crisis, due to the crisis of the banking sector, were stemmed through financial assistance received in the period 2011-2013. The increase in interest rates was lower and hence the effect on growth was as well. Of all the countries examined, Greece was that with the largest percentage of people living in absolute poverty and the highest negative T2 imbalances. The country received funds almost throughout the whole period considered (from 2010 to 2018) from Eurozone countries, the IMF and the ECB in order to reduce problems related to the sustainability of public sector accounts and the unavailability of private investors to finance the additional public debt. The condition for receiving financial assistance was the implementation of structural public balance adjustment programmes, producing pronounced negative effects on GDP growth (Blanchard and Leigh, 2013; Fatas and Summers 2018).

4.1 Methodology and results

The empirical strategy relies on the idea of a linear relation between T2 balances and material deprivation. The methodologies adopted are two subsets of dynamic panel data techniques using an autoregressive process AR (1,1) which accounts for path dependence effects and other variables affecting absolute poverty. The first specification is the following:

$$MD_{t,i} = \alpha_i + \beta_1 MD_{t-1,i} + \beta_2 T2_{t,i} + \varepsilon_{i,t} \qquad (6)$$

where *MD* is the percentage of the whole population living in absolute poverty while T2 is the level of target balances as a percentage of GDP, and $\varepsilon_{i,t}$ represents the error term. The suffix *t* indicates the time period, and *i* represents each country. In equation (6) α_i is the constant term considering heterogeneity across countries and the betas are the coefficients of the independent variables. Equation (6) is estimated by implementing GMM dynamic panel methodology, whose specification accounts for autocorrelation (Arellano and Bond 1991) and is well suited in the case of i>t. This methodology removes the fixed country-specific effect α_i and uses moment conditions in which the lagged differences of the dependent variables are used as instruments in the level equation. To have unbiased coefficients the number of instruments has to be lower than or equal to the number of groups (Roodman, 2006). The Arellano–Bond test for first- and second-order autocorrelation (Arellano-Bond 1991) in the first-differenced errors is performed after estimation.

As a further step the baseline model is implemented through a special subset of dynamic panel data models. This empirical technique assumes the form of the pooled mean group (PMG) estimator. It relies on cointegration and the error correction form (EC), and is considered to be consistent for estimating dynamic heterogeneous panels, as the long-run dynamics is assumed to be equal across groups, while in the short run the process of adjustment may vary across the panel members (Pesaran, Shin and Smith 1997, 1999; Blackburne and Frank, 2007). It detects the possible presence of a stable relationship even in the presence of a reduced number of explanatory variables.

The long-run equation is described by:

$$MD_{i,t} = \alpha_i + \lambda_i MD_{i,t-1} + \beta_{i,0} T2_{i,t} + \beta_{i,1} T2_{i,t-1} + \varepsilon_{i,t} \qquad (7)$$

where again MD is the poverty rate indicator, while T2 represents target imbalances. The error correction equation describing the short-run speed of adjustment is:

$$\Delta MD_{i,t} = \phi_{i,j}(MD_{i,t-1} - \vartheta_i - \vartheta_{1,i} T2_{i,t}) - \beta_{i,1}\Delta T2_{i,t} + \mu_{i,t} \qquad (7')$$

It is easy to verify that ϑ_i and $\vartheta_{1,i}$ are the long-run coefficients calculated as a weighted average of the coefficient of the independent variables. Parameter $\vartheta_{1,i}$ for the long run and $\beta_{1,i}$ for the short run are the parameters to be estimated in the model. Parameter ϕ_i is the error correction speed of adjustment. It has to be significant and $-1 < \phi_i < 0$ must hold. The value and significance of coefficient ϕ_i is of the utmost importance since it

confirms the validity of the proposed empirical model: it shows that, in the long run, the dependent and independent variable converge toward a common path and that their difference in trend is progressively decreasing through time.

Table 1 reports the results of the estimates. Panel (a) contains results from the GMM methodology of equation (6). T2 balances, when positive, reduce the percentage of people living in absolute poverty in each country by 4.6% while, when negative, they have the opposite effect. The number of instruments is lower than the groups and the Arellano-Bond (1991) test for zero autocorrelation of first-differenced errors accepts the null hypothesis of both the first and the second order no autocorrelation.

In Panel (b) results of the PMG error correction model are summarized. The first thing to observe is that the speed of adjustment or the way in which the two variables reach the long-run equilibrium is negative, greater than -1 and highly significant. In the long run these second estimates tell us that T2 negative balances increase absolute poverty by 5.1%. Nothing can be said about the dynamic of adjustment in the short run as the coefficient does not show any significance. If just the short-run parameter is not significant, the validity of the model is preserved although the adjustment path follows non-uniform dynamics.

Taking into account the results arising from these two dynamic panel estimation techniques, T2 imbalances increase divergences among countries, fuelling differences across countries in per capita GDP growth rate of those belonging to the lower end of the income distribution.

Table 1 about here

5. Conclusions and policy proposals

In the EMU T2 imbalances constitute the device to make an irrevocable fixed exchange rate regime work. It measures the external deficit or surplus of countries belonging to the currency union. Unlike a mechanism relying on foreign exchange reserves, it has no limits and can potentially sustain the existence of the Euro despite differences among members. However, if such differences do exist, it records how investors perceive the differences in question and may increase the distance among countries.

T2 imbalances are the result of the inability of the common monetary policy to fit the case of every Eurozone country. Soon after the 2007 financial crisis they rose to alarming levels as a consequence of current account imbalances. When after 2012 the

monetary policy strategy brought about lower interest rates and massive injections of liquidity, such differences did not disappear. This paper showed that this was due to the number of people living in absolute poverty. Indeed, T2 balances are inversely correlated with the “material deprivation” indicator.

The Eurozone policy framework relies on two main features: a single monetary policy and a fiscal policy based on strict budgetary discipline, left to the management of individual states. This model showed its limits in dealing with situations such as those of the 2007 financial crisis. The crisis also highlighted the greater fragility of some countries in respect of others and proved that the economic policy structure was designed unbalanced.

Despite attempts to fix such asymmetries since the financial crisis, the European policy recipe has not worked, differences are still evident and undermine the existence of the whole currency union. Fiscal retrenchments suggested to correct internal and external imbalances have been compromising growth: although they have corrected current account imbalances, they have made these countries less trustworthy in the eyes of the financial markets. This suggests the need to implement alternative strategies and policy reforms for European institutions.

To ensure convergence and reduce poverty across countries two routes can be followed. The first entails reviewing the role of fiscal policy: budgetary discipline wore some countries out, and left them entangled in a self-fulfilling mechanism of declining growth and increasing fiscal parameters. However, a switch towards a more expansive fiscal stance adopted separately by each country could generate perverse effects on interest rates and ever-increasing debt and deficit.

The second route should involve a mechanism of compensation between negative and positive T2 balances to offset differences between countries. This compensation mechanism is far from new, being inspired by Keynes's proposal (Keynes, 1942 in Horsefield, 1969) to reform the international monetary system after the Second World War. Under the mechanism, part of the responsibility for adjustment is to be borne by the creditor country as well as the debtor, and should be symmetrical. Currently, while retrenchments are imposed on debtor countries to respect fiscal parameters, creditor countries remain passive onlookers of the process of adjustment.

Policy reform should therefore include, together with restrictive measures for balance of payment deficit countries, a set of measures for creditor countries such as fiscal expansion, increase in money wages and foreign direct investment in peripheral

countries. If countries are unwilling to follow the suggested routes, they will be subject to sanctions. Such sanctions should be symmetric and regard both deficit and surplus members to ensure shared prosperity and a long life to this irrevocably fixed exchange rate regime.

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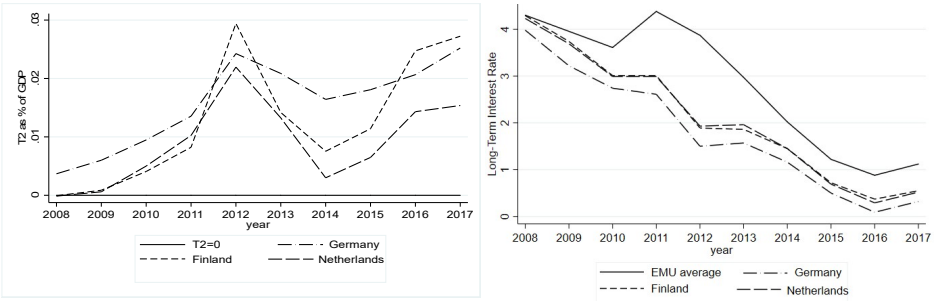
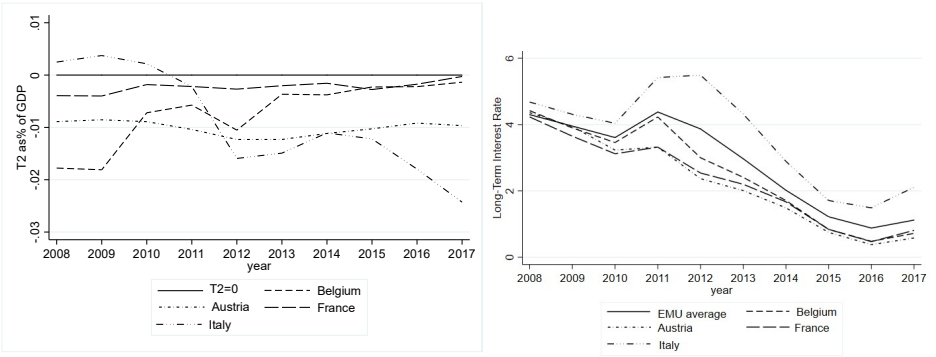
Figure 1. T2 imbalances as a % of GDP and long-term interest rates for convergence purpose in 11 Eurozone countries.

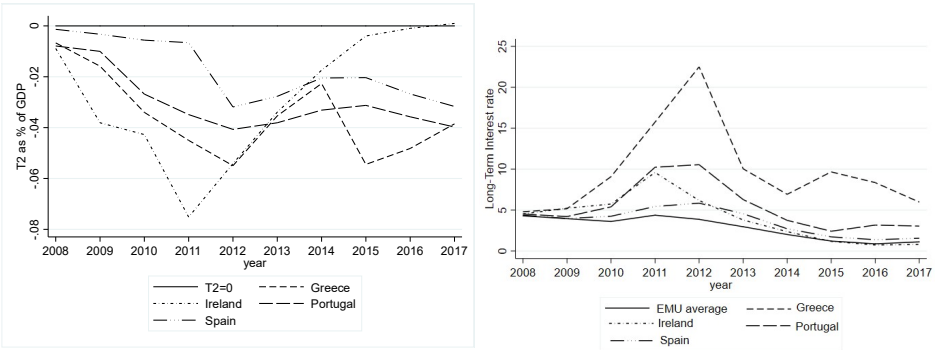
Panel (a). Countries with positive T2 balances



Panel (b). Countries with moderately negative T2 balances and Italy



Panel (c). Countries with negative T2 balances



Source: own calculation on ECB and Eurostat data

Figure 2. T2 balances and material deprivation: a stylized representation

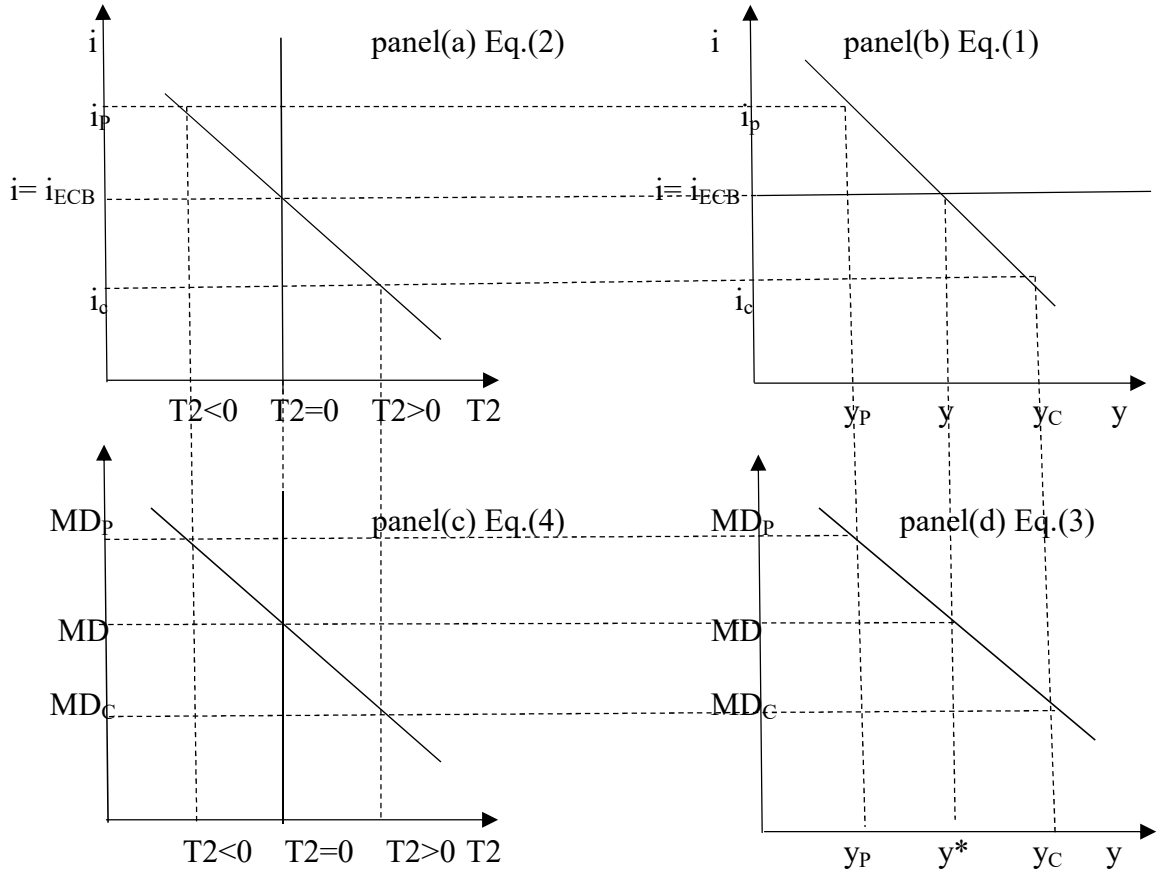
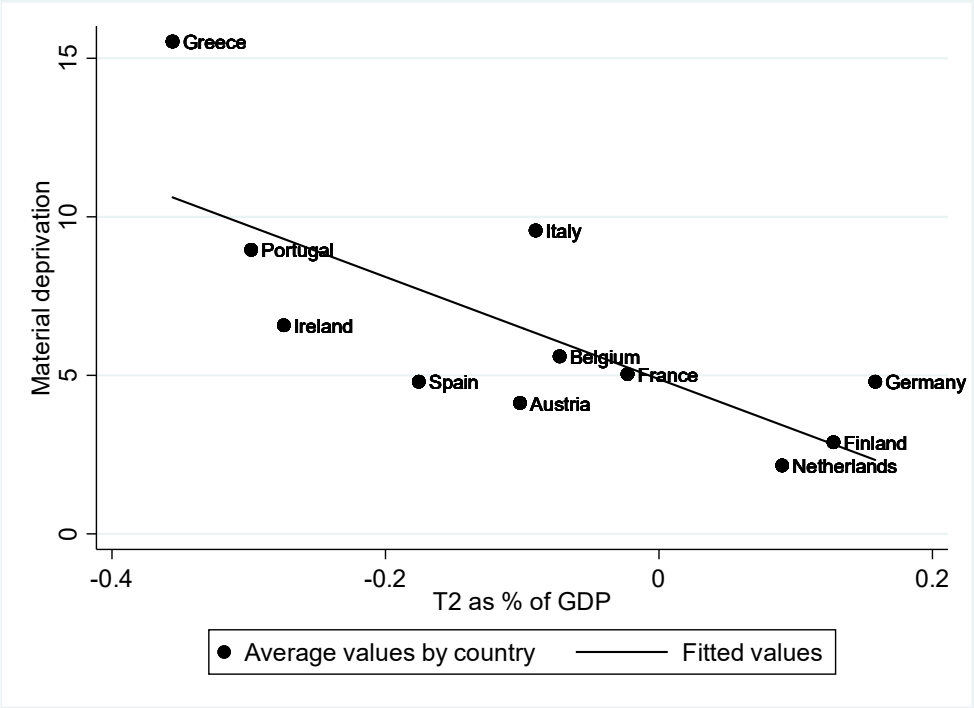


Figure 3. T2 as % of GDP and material deprivation (2008-2017)



Source: own elaboration on ECB and Eurostat data

Table 1. Material deprivation and T2 balances in 11 Eurozone Countries (2008-2017). GMM and PMG estimation results

Panel (a) ***GMM estimator: equation (6)***	
Material Deprivation$_{t-1}$	0.501** (0.219)
TARGET2	-4.669*** (1.039)
Intercept	1.230*** (0.748)
Number of Instruments	8
Number of groups	11
Arellano-Bond test for zero autocorrelation **(AR1)** **(AR2)**	 -1.602 0.397
Panel (b) **PMG estimator**	
Long run: equation (7)	
T2	-5.119*** (9.001)
ϕ_i: speed of adjustment.	-0.567*** (0.119)
Short-run: equation (7')	
***Short Run:* ΔT2**	1.063 (3.869)
Intercept	3.456*** (0.748)
Note:***, **, and * reject the null at 1%, 5% and 10% respectively: Standard errors are presented below the estimated coefficients.	