

Brancaccio, Emiliano; Califano, Andrea; Cristofaro, Fabiana De

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Migrant inflows, capital outflows, growth and distribution: should we control capital rather than immigration?

Emiliano Brancaccio*
DEMM Università del Sannio, Benevento, Italy

Andrea Califano
Università di Milano, Italy

Fabiana De Cristofaro
Scuola Superiore Sant'Anna, Pisa, Italy

Liberalization policies of international movements of capital and labour have represented a crucial feature of the so-called 'globalization' era. More recently, however, several restrictions on migratory movements have been adopted to face the alleged negative effects of immigration. On the contrary, free movement of capital has almost always been preserved. This paper aims to verify whether this current framework of international economic policy can be justified in economic terms. We propose an unprecedented direct comparison between the macroeconomic and distributive impacts of 'extreme' episodes of net capital outflows and net migrant inflows in OECD countries between 1970 and 2017. Applying a fixed-effects approach and an event-study approach, we show that GDP growth and functional income distribution have null or even positive statistical relationships with immigration, while they have largely negative statistical relationships with capital flights. More specifically, extreme migrant inflows are not related or in some cases are positively related to real GDP growth, real GDP per capita growth and the wage share, while extreme capital outflows are negatively related to real GDP growth and real GDP per capita growth. These results contrast with current policy agendas and seem to suggest that controls should concern capital movements rather than migratory flows of people.

Keywords: migrant inflows, capital outflows, GDP growth, GDP per capita, wage share, controls of capital movement or immigration

JEL codes: F21, F22, F32, F62, F68

1 INTRODUCTION

Liberalization policies of international movements of capital and labour have represented a crucial feature of the so-called 'globalization' era (IMF 2000; 2008). Between 1970

* *Corresponding author:* email: emiliano.brancaccio@unisannio.it. We would like to thank Eduardo A. Cavallo, Giorgio Fagiolo, Gennaro Zezza and two anonymous reviewers for their useful comments and suggestions. The usual disclaimers apply.

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and 2008, national borders' openness to both people and capital flows increased significantly in the OECD countries. However, since the beginning of the twenty-first century – and most notably after the Great Recession started in 2008 – there has been growing concern about the potentially negative effects of excessive immigration. In advanced economies, citizens' attitude towards immigrants has become more and more negative (Meltzer et al. 2018; Dennison/Dražanová 2018; Alesina et al. 2018). Often justified by the idea that uncontrolled immigration adversely affects sustainable development, economic growth and income distribution, various restrictions on the inflows of people from abroad have thus been adopted. However, none of this happened on the side of financial flows. Despite frequent turmoil in international capital movements, often in concomitance with slowdowns in economic activity, there has hardly been any political action towards restoring controls on the free circulation of capital. Moreover, this asymmetric political reaction to migratory and capital movements does not seem to have been altered by the crisis triggered by COVID-19: in fact, to some extent, it seems to have been accentuated. This evolution of capital and people flows is of tremendous importance for the international political economy. After a long phase of hegemony of so-called neoliberalism and the related doctrine of *laissez-faire* applied more or less indiscriminately to all markets, today a more sophisticated ideological structure of international relations seems to assume historical relevance. In general terms, it is sometimes referred to as 'neoliberal nationalism' (Harmes 2012) but in a more specific – and aporetic – sense it could also be defined as a more or less surreptitious form of 'xenophobic neoliberalism'.

As a matter of fact, the sharp asymmetry in the political attitude towards movements of capital and movements of people represents one of the most distinctive elements of this new international order. The key issue, however, is that such an asymmetry does not find strong support in scientific evidence: several studies show that the effects of immigration are not as negative as the political debate seems to suggest (Kerr/Kerr 2011), while unconstrained capital movements can have harmful effects (Grabel/Gallagher 2015). Nevertheless, it must be recognized that the literature on these issues prevailing so far has shown a significant limit. Until now, in fact, research expressly oriented towards a *direct comparison* between the macroeconomic phenomena associated with capital movements on the one hand and movements of people on the other has been lacking. This paper is a first step in this direction.

By adopting an unprecedented criterion of comparison between capital and people international movements, we analyse a set of 'extreme' episodes of net capital outflows and net migrant inflows in OECD countries between 1970 and 2017. Then we assess the statistical relationships emerging between these phenomena on the one hand and the dynamics of real GDP growth, real GDP per capita growth and the wage share on the other. As we shall see, our results do not support current conventional wisdom and policy priorities, which insist on the detrimental macroeconomic impact of immigration, while neglecting the potential negative implications of capital movements on the dynamics of growth and distribution.

The paper is organized as follows. In Section 2, we provide an overview of OECD policy lines on capital and people international movements; we show their respective trends since the early 1970s and remark that in the decade following the Great Recession of 2008 there have been many tightening immigration policies, while capital controls have been rare, limited and mostly temporary. In Sections 3 and 4 we situate our paper in the literature, highlighting the peculiarities and the innovative empirical strategy adopted in this work with respect to existing analyses. In Section 5 we select a technique for the study of 'extreme' financial movements and explain how we apply the same technique to migrant flows as well. In Sections 6–8 we test the relationships between extreme capital

inflows and migrant outflows on the one hand, and the dynamics of real GDP growth, real GDP per capita growth and the wage share on the other; we use a fixed-effects approach with several robustness checks and an event-study approach. Section 9 concludes the paper.

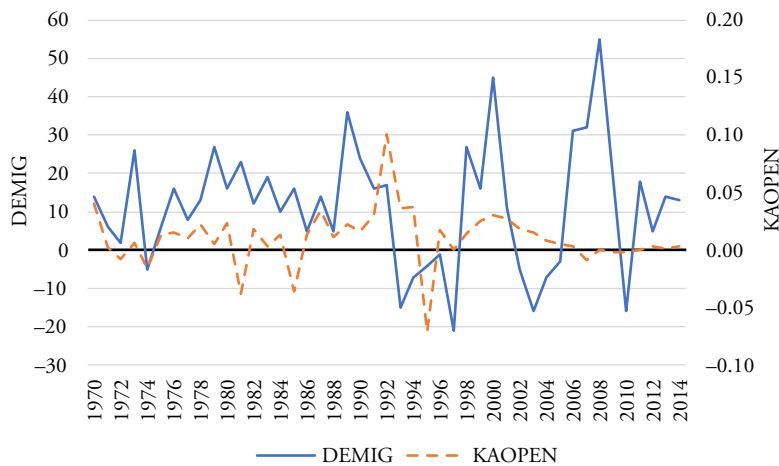
2 MIGRANT FLOWS AND CAPITAL FLOWS MANAGEMENT POLICIES IN OECD COUNTRIES: A COMPARISON

One way to examine the pattern in the management of international flows of people and capital may consist of the analysis of the quantitative indices which seek to summarize the prevailing policy lines: whether they move towards restriction or towards liberalization.

There are several indexes which try to measure the degrees of liberalization in migration and capital-flow management policies. Regarding migration, the IMPIC database is among the most relevant sources, built through questionnaires given to experts in migration law (Helbling/Kalkum 2018; Helbling et al. 2017); another relevant indicator draws on the DEMIG database, which captures migration policy turning points and labels them as ‘more restrictive’ or ‘less restrictive’ changes (De Haas et al. 2016). These indexes describe a long-lasting trend towards liberalization, but also indicate more contrasting dynamics in recent years, with more permissive rules in terms of integration and family reunification, as opposed to more restrictive and selective policies in terms of border controls and repatriation (see Beine et al. 2016; De Haas et al. 2016; Helbling/Kalkum 2018). With respect to financial flow management policies, two widely used quantitative measures are the KAOPEN Chinn–Ito index of capital openness (Chinn/Ito 2006; 2008) and the External Wealth of Nations index developed by Lane/Milesi-Ferretti (2001; 2007; 2018). The former is a *de jure* measure based on the IMF’s Annual Report on Exchange Arrangements and Exchange Restrictions. The latter is a *de facto* measure based on the estimation of external assets and liabilities (the international investment position), divided into six categories. Both indexes show a progressive long-term trend towards capital liberalization: in recent years, this seems to have eased because the maximum levels of freedom of movement had already been reached, rather than due to a rethinking of policies.

In Figure 1, the dotted line describes the yearly change of the KAOPEN index of capital-flow openness while the continuous line plots DEMIG data on changes in migration policies. The period examined goes from 1970 to 2014, the latest data available in the DEMIG database. For both flows, policy changes towards liberalization or towards restriction are above and below the zero line respectively. Both indices show a clear historical prevalence of positive values, which points out a marked trend towards the deregulation of movements of capital and people. The rate of change of the KAOPEN index tends to stabilize around zero starting from 2006, in correspondence with an almost perfect capital liberalization, and does not seem to move significantly after the Great Recession of 2008. The rate of change of the DEMIG index, on the other hand, shows greater instability in recent decades, with more frequent shifts towards migratory flow restrictions.

The differences in the management of flows of people and capital, which have emerged in recent years especially, is detectable through a more detailed examination of policies. Accordingly, we analyse measures taken by the OECD countries since the 2008 recession. This allows us to provide information on the years following 2014 as well, adding to the presented indices.



Sources: Our elaboration from DEMIG and KAOPEN databases. Data can be downloaded from <https://www.migrationinstitute.org/data/demig-data/demig-policy-1> and http://web.pdx.edu/~ito/Chinn-Ito_website.htm.

Figure 1 Trends in migration (DEMIG) and capital (KAOPEN) flow management policies

The OECD annual International Migration Outlooks show that, since 2008, 32 out of the 36 OECD members have implemented several measures refining and tightening their system of control on incoming flows of migrants. These policies range from travel limitations from certain countries (as ruled in the USA, for example) to stricter requirements for the acceptance of asylum seekers (for example, Belgium, Hungary and Norway); from the introduction of language or cultural tests in order to acquire a residence permit or citizenship (for example, France, Poland, Spain and the UK) to the militarization of border control and even the construction of walls at the borders (for example, Bulgaria, Greece, Hungary and the USA). In some cases, permanent stay visas or resident permit requirements have become more demanding (for example, Australia, Austria, Denmark, Latvia, the Netherlands, Slovenia and Sweden), and many countries have intensified and increased their repatriation policies (for example, Belgium, Estonia, Germany, Italy and the USA) (OECD International Migration Outlooks 2008–2018).

An overview of capital flows management offers a completely different picture. OECD countries have all been subject to capital movement liberalization trajectories in the last decades of the twentieth century, so that openness to capital flows is now the norm. When episodes of capital controls occur, they are considered as exceptions and temporary ‘steps backwards’ to be reversed. In a specular fashion, we have reviewed the years since the global financial crisis and confirmed that only two OECD countries have implemented such policies: Greece and South Korea (our policy review finds confirmation in Magud et al. 2018). Amid the most acute phases of the ‘debt crisis’, in 2015 withdrawals in Greece were limited to €60 per day and cash transfers abroad were limited as well; the policy was completely reversed in 2019. Between the end of 2009 and 2010, South Korea imposed a number of controls on foreign-currency exchange and tax on profits on treasury bonds for foreign investors.

Table 1 provides a summary of policies adopted by OECD countries in migrant flows and capital flows management between 2008 and 2018.

Table 1 Immigration controls and capital controls between 2008 and 2018

OECD countries which have implemented tightening measures in immigration policy since the GFC	OECD countries which have occasionally implemented capital control measures since the GFC
Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Israel, Italy, Latvia, Netherlands, New Zealand, Norway, Poland, Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States	Greece, South Korea

Sources: Our elaboration relying on OECD (2008–2018) and Magud et al. (2018).

3 ON THE COMPARISON BETWEEN MACROECONOMIC DYNAMICS ASSOCIATED WITH MIGRANT AND CAPITAL MOVEMENTS: A LACK IN THE LITERATURE

The previous section was devoted to a general examination of the economic policy context from which our study was inspired. In this sense, we have used a series of qualitative–quantitative indicators to evaluate the general trends of the regulation policies of migratory and capital movements. From this moment on, the analysis will instead be dedicated to identifying the possible correlations between these same movements and the macroeconomic trends in production and income distribution. To this end, we will use additional measures, suitable for the econometric analysis of the phenomenon. The literature on the possible macroeconomic impacts of capital and migrant movements is vast and variegated. A considerable part of the research focuses on the benefits of free movement of capital and labour in terms of better allocation of resources, technology transfer, greater convergence between countries (see for instance Bumann/Lensink 2016; Dreher 2006; Henry/Sasson 2008). However, several contributions highlight that capital movements can have negative macroeconomic implications, including greater exposure to capital flight caused by speculative dynamics, greater instability of interest rates, greater volatility of GDP and employment (Furceri/Loungani 2018; Furceri et al. 2018; Guzman et al. 2018; Jaumotte et al. 2013; Jayadev 2007; Kose et al. 2010; Reinhart/Rogoff 2009; Rodrik 1998) and even uncontrolled international capital centralization (Branaccio/Fontana 2016). As regards immigration, while some studies support the idea that it can have negative effects on wages, income distribution, per capita product and welfare sustainability (Angrist/Kugler 2003; Bauer et al. 2000; Borjas 2019), some others do not confirm the idea that migrant inflows have detrimental effects on income and distribution (Bove/Elia 2017; D’Albis et al. 2019; Ortega/Peri 2014).

We do not provide a thorough review of the vast literature on the subject (for surveys on capital movements see Guichard 2017 and Obstfeld 2009; for surveys on immigration, see Edo 2018 and Kerr/Kerr 2011). Here, the scope is limited to noticing that there is a clear lack of studies comparing directly the macroeconomic trends associated with capital movements and with migratory movements.¹ The only exception is represented by Podrecca/Rossini (2015). These authors show that both migrant inflows and capital

1. There is a strand of empirical literature which uses migration inflows and capital movements together, but it is concerned only with the capital *inflow* needed (if it is) to balance the capital–labour ratio following immigration flows (see for instance Hatton/Williamson 2008 and Lange/Gollin 2007).

outflows negatively affect real wages. However, their study analyses regular flows of migrants and capital, focuses on capital movements represented by foreign direct investments only, and does not examine the possible relationships with macroeconomic variables other than the real wage.

A need to broaden the analysis and fill the gap in the literature therefore emerges. To this end, we shall follow those scholars who have remarked upon the relevance of the so-called ‘extreme’ episodes of international inflows and outflows in order to examine their possible relations with macroeconomic dynamics (Calvo 1998; Cavallo et al. 2015; Forbes/Warnock 2012; Ghosh et al. 2014; Hwang et al. 2017; Reinhart/Reinhart 2008; see also Brancaccio/Garbellini 2015 for a further view of ‘extreme’ crises associated with capital flights). In this sense, we shall extend and adapt to migratory movements a technique for selecting extreme episodes derived from capital flights literature. The use of this method allows us to analyse a series of extreme episodes of net capital outflows and net inflows of migrants that occurred in OECD countries between 1970 and 2017. Hence, we will propose a comparison between the dynamics of real GDP growth, real GDP per capita growth and the wage share associated with the two types of extreme episodes examined.

The main novelties of our work are the following: to the best of our knowledge, this is the first paper in the literature which provides an extended analysis on the relation between extreme episodes of immigration and growth and distribution variables; moreover, this is the first work comparing directly income growth and distribution dynamics associated with extreme people inflows and extreme capital outflows.

4 DATA SET AND RESEARCH DESIGN

In the next sections, we shall analyse whether and how real GDP growth, real GDP per capita growth and wage share dynamics are correlated with extreme episodes of migrant inflows and extreme capital outflows in OECD countries between 1970 and 2017 (the analysis cannot be extended further due to data limitations). We consider those OECD countries showing at least one extreme migrant net inflow and one extreme capital net outflow in the period. The OECD economies for which the complete time series are available are the following 26: Belgium, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Latvia, Lithuania, Luxembourg, the Netherlands, Norway, Poland, Portugal, Slovenia, the Slovak Republic, Spain, Sweden, Switzerland, Turkey, and the United Kingdom. All the variables are derived from the following databases: the International Monetary Fund’s BOP/IIP; AMECO/Eurostat; OECD.Stat; External Wealth of Nations by Lane/Milesi-Ferretti (2018).

As mentioned, our paper innovates since it is concerned with extreme episodes not only in the case of capital movements, but also with respect to migration. Indeed, empirical research on the macroeconomic impacts of immigration has usually focused on regular flows (Boubtane et al. 2018; Damette/Fromentin 2013; Docquier et al. 2014) while scarce attention has been devoted to the consequences of extreme migrant inflows. On the contrary, research on extreme capital flows is quite abundant. After earlier contributions focusing on normal capital movements (Borensztein et al. 1998; Calvo et al. 1993), Calvo (1998) initiated episode-based analysis of large capital flows.

Our strategy consists of taking a criterion borrowed from the capital movements literature and using it to identify episodes of both extreme capital outflows (ECO) and extreme migrant inflows (EMI). Identification of such extreme events is more extensively discussed in the next section. Then we will analyse these episodes by using two different approaches: standard panel data fixed-effects estimation and an event-study-like analysis. The former

approach represents the standard for longitudinal macroeconomic data. We propose a fixed-effect (FE, henceforth) estimation – which assumes that unobservable country characteristics can affect our dependent variables – and a battery of robustness checks of the baseline FE estimates. In both cases, the relationship is analysed not only over the whole time horizon available but also for sub-periods. In the event-study-like analysis, instead, the relationships of interest are investigated within a three-year time window in order to test whether a significant break in the series occurs after immigration or capital episodes.

5 IDENTIFICATION OF EXTREME CAPITAL OUTFLOWS AND EXTREME MIGRANT INFLOWS

Prior to the discussion on the identification of extreme events, it is necessary to deal with the issue of the measurement of capital and migrant movements. In the literature, a wide discussion has developed on the suitability of using financial-account net flows rather than gross flows and vice versa (Alberola et al. 2012; Borio/Disyatat 2011; Calvo et al. 2004; 2008; Cavallo/Frankel 2008; Forbes/Warnock 2012; Ghosh et al. 2014; Shin 2012). For the goal we pursue in this work, data limitation imposes the choice. On the migration side, an internationally harmonized direct measurement of annual immigration and emigration gross streams is currently unavailable for long time spans (for an overview of available data sources and coverage, see Amran/Urso 2016). Thus, in order to maximize the time width, we are forced to rely on the net migration measure as derived from the basic demographic equation, and defined as the difference between immigration flows and emigration flows as a percentage of population (see Boubtane et al. 2013; 2018). This implies that we are forced to neglect relevant features of migrant population, such as education. However, the focus of this research does not necessarily need going into such a level of detail (and in the related literature). Accordingly, we measure capital movements in net terms; more precisely, we adhere to the prevalent existing literature and define net capital flows as the difference between assets and liabilities in foreign direct investments, portfolio investments and other investments, all of them as a percentage of GDP (see Cavallo et al. 2015; Ghosh et al. 2014; Hwang et al. 2017). It must be stressed that net flows are consistent with the scopes of our analysis. Our goal is in fact to investigate some macroeconomic dynamics in the occurrence of a massive net migrant inflow or a massive net capital outflow, resulting from a sharp change in either gross inflows or outflows. Moreover, we will not investigate whether capital comes from the investments of residents or non-residents, as we are not concerned with the determinants of the net capital outflow (assets or liabilities).

The second step of our analysis consists of the identification of ‘extreme’ capital outflows and ‘extreme’ migrant inflows. While the scientific literature is quite abundant as regards exceptionally large capital movements, a definition or technique for the identification of extreme migrant flows for longitudinal studies is not available. Earlier contributions identify two main methods to select exceptionally large capital flows: the definition of a threshold (Ghosh et al. 2014; Reinhart/Reinhart 2008); the computation of deviations from time-varying means (Calvo et al. 2004; Forbes/Warnock 2012). The former criterion brings a relevant advantage, as it establishes a constant cut-off value over the sample period, ensuring that exceptionally large capital movements are always coded as extreme. By contrast, using time-varying means may not allow the detection of an extreme episode if it lasts for only a few years, while conversely it may code a flow as extreme when small in absolute terms but occurring in a period of low tide. Our choice, therefore, is to rely on the ‘double threshold’ approach proposed by Ghosh et al. (2014) to identify capital surges. Following the aforementioned scholars, we define extreme capital outflows as those falling

Table 2 *Episodes of extreme migrant inflows and extreme capital outflows in the sample*

	1970–1979	1980–1989	1990–1999	2000–2009	2010–2017
<i>Extreme migrant inflows</i>					
Number of episodes	4	6	19	51	42
Frequency	3%	5%	16%	42%	34%
<i>Extreme capital outflows</i>					
Number of episodes	4	6	16	61	21
Frequency	4%	6%	15%	56%	19%

within the 20th percentile of the country's own net capital flows distribution as a percentage of GDP *and* within the 20th percentile of the whole sample's distribution of net capital flows as a percentage of GDP. We adopt the same algorithm to net migration symmetrically; in this case, the top 20th percentile to identify extreme migrant inflows is weighted on the population. Applying this algorithm to our sample of countries, we identify 122 episodes of extreme migrant inflows and 108 episodes of extreme capital outflows, accounting for 9 per cent of the total population and 11.6 per cent of GDP on average, respectively. Table 2 resumes the distribution of the sample. Due to data availability, we report only cases when both the variables are non-missing. This helps to explain why episodes at the beginning of the sample are scarcer. However, from 1990, approximately 70 per cent of the countries are included in the exercise.

6 A STANDARD APPROACH: FIXED-EFFECTS ESTIMATIONS

As previously discussed, we aim to evaluate whether and how extreme capital outflows and extreme migrant inflows are associated with three key macroeconomic variables: real GDP growth, real GDP per capita growth and the wage share.

Therefore, we use the extreme episodes detected as our major regressors, building two dummy variables taking the value '1' during the episode (extreme migrant inflow or capital outflow) and '0' otherwise. In further specifications, we also include post-shock dummies to allow for delayed effects of the shock on GDP growth, GDP per capita growth and wage share developments. Post-shock dummies coefficients, indeed, can be interpreted as the average value assumed by the dependent variable in the period $t: t+k$. A positive sign of these regression coefficients would imply a higher value, on average, of the dependent variable during the time interval with respect to other periods. A negative sign would imply the opposite. The general specification of the models we estimate is the following:

$$Y_{it} = \beta_0 + \beta_1^k EMI_{i,t:t+k} + \beta_2^k ECO_{i,t:t+k} + \beta_3^j \sum_j Z_{j,i,t} + \beta_4 trend + \varepsilon_{it}. \quad (1)$$

The dependent variable Y_{it} represents alternatively real GDP growth, real GDP per capita growth, or the wage share. The terms $EMI_{i,t:t+k}$ and $ECO_{i,t:t+k}$ with $k = 0, \dots, 5$ indicate the dummy variables with forward lags capturing extreme migrant inflows and extreme capital outflows respectively, at the time of the shock and up to five years ahead. The term $Z_{j,i,t}$ is the matrix of the control variables – we use those conventions in the literature. Namely, we control for the size of the actual changes in net migration and net financial account measured in first difference and lagged values of trade openness (import plus export over GDP); financial openness (measured by net foreign assets as a

percentage of GDP); and labour productivity (GDP per employee in logarithm). Lagged total population is added in both the equations for GDP growth and GDP per capita growth. Initial real GDP level (in logarithm) is considered in the equation for GDP growth while initial real GDP per capita (in logarithm) is added to the equation for GDP per capita growth. When testing for the wage share, a further control is represented by lagged GDP growth. Finally, given the non-negligible time-series dimension of the panel, we also control for time effects. To preserve efficiency, we do not include time dummies, as this would imply the estimation of a parameter for each year; instead, we add a linear trend, exploiting the natural ordering of time (Cameron/Trivedi 2010: 267).

In this section, we report the estimates of standard panel data models for GDP growth, GDP per capita growth and the wage share. We show FE estimations in Tables 3, 4 and 5. The estimator chosen is the result of the usual model specification tests outlined as follows. *F*-tests on the relevance of the individual effects and estimated correlation between the unobserved factor and regressors suggest that the ordinary least squares (OLS) estimator is biased and inconsistent, whereas the FE estimator is suitable to our case. This is true especially for GDP growth and per capita growth, for which the correlation between the individual effect and the disturbance term is around -0.9 in all the specifications, while it is lower, -0.13 approximately, for the wage share. Next, we perform the Hausman test adopting Mundlak's (1978) approach, because of the presence of heteroscedasticity and dummy variables. We estimated the auxiliary regression for each of the proposed models and found that the null hypothesis of non-autocorrelation between the unobservables and the regressors is rejected at the highest level of significance, implying that the within estimator is preferred to the random-effects estimator. Indeed, there might be unobserved countries characteristics correlated with the macroeconomic factors included as regressors in the estimated equations that can affect our dependent variables as well. FE estimation will account for omitted variable bias due to these neglected time-invariant characteristics. Before discussing the estimation results, it is worth noticing that the number of extreme episodes is similar within each time window, as shown in Table 2, therefore in order to exclude a possible collinearity issue between the two dummies, EMI and ECO, we compute the pairwise correlation coefficient and perform the variance inflation factor (VIF) tests that ultimately confirm the absence of collinearity.

Table 3 presents the within estimation of GDP growth equation in its six specifications, in which the investigated effects are measured at the time of the shock and up to five periods ahead. Columns 1 and 2 show a positive association between GDP growth and extreme immigration at the time of the shock and up to one year ahead, though less statistically significant in the latter case. We find no statistically significant relations in subsequent years. Turning to extreme capital outflows, column 1 shows that the coefficient of the dummy ECO is not statistically different from zero. We find no statistical correlation between GDP growth dynamics and extreme capital outflows when the shock occurs, meaning that the average GDP growth during the episode of capital outflow is not different from the average growth in normal times. Correlations from two to five years after the shock are instead statistically significant with an estimated slope of about -1 : this means that extreme capital outflows are associated with a loss in output growth of approximately 1 per cent.

The results for GDP per capita growth are outlined in Table 4. Whichever is the post-shock time interval considered, massive immigration is not associated with GDP per capita growth dynamics. When we look at extreme capital outflows, instead, we find a negative correlation between per capita growth and capital flights. This correlation holds when the episode occurs and up to five years later, implying an average loss in GDP per capita growth of approximately 1 per cent, with respect to normal periods.

Table 3 FE estimations of the relationships between GDP growth, on one side, and extreme migrant inflows (EMI) and extreme capital outflows (ECO) on the other

GDP growth	t + 0	t + 1	t + 2	t + 3	t + 4	t + 5
<i>EMI_{t+k}</i>	1.300*** (0.426)	0.882* (0.470)	0.077 (0.385)	-0.316 (0.404)	-0.411 (0.435)	-0.179 (0.517)
<i>ECO_{t+k}</i>	0.842 (0.538)	-0.082 (0.371)	-0.823** (0.355)	-1.041*** (0.353)	-1.064*** (0.313)	-0.865*** (0.241)
Δ Net Migration	0.004 (0.070)	0.019 (0.072)	0.013 (0.072)	0.012 (0.072)	0.011 (0.072)	0.013 (0.073)
Δ Net Financial Account	-0.038 (0.025)	-0.051* (0.030)	-0.051* (0.030)	-0.051* (0.029)	-0.050* (0.029)	-0.051* (0.029)
<i>L.Trade Openness</i>	0.427 (1.209)	0.121 (1.123)	-0.274 (1.070)	-0.496 (1.060)	-0.484 (1.039)	-0.287 (1.049)
<i>L.Financial Openness</i>	0.023** (0.009)	0.023** (0.010)	0.024** (0.010)	0.026** (0.010)	0.028** (0.010)	0.027** (0.010)
<i>L.Labour Productivity</i>	6.979** (2.647)	6.297** (2.596)	5.157* (2.608)	5.091* (2.637)	5.548** (2.670)	6.012** (2.643)
<i>L.Population</i>	0.002** (0.000)	0.002** (0.000)	0.002** (0.000)	0.003** (0.000)	0.003** (0.000)	0.003** (0.000)
<i>L.Real GDP</i>	-12.801*** (3.384)	-11.360*** (3.188)	-9.481*** (3.073)	-9.321*** (3.217)	-9.978*** (3.277)	-10.682*** (3.197)
Trend	0.078 (0.051)	0.065 (0.049)	0.051 (0.049)	0.051 (0.051)	0.058 (0.050)	0.065 (0.049)
Constant	-75.354 (79.850)	-59.027 (76.713)	-41.124 (77.239)	-43.618 (78.995)	-54.835 (78.263)	-63.433 (76.152)
Observations	795	795	795	795	795	795
R-squared	0.138	0.115	0.117	0.125	0.127	0.119
Number of id	26	26	26	26	26	26
R ² within	0.138	0.115	0.117	0.125	0.127	0.119
R ² between	0.276	0.291	0.323	0.338	0.334	0.321
R ² overall	0.0381	0.0399	0.0475	0.0513	0.0498	0.0458
R ² adj.	0.127	0.104	0.106	0.114	0.116	0.108

Notes: Trade openness, financial openness, labour productivity, population, (log of) real GDP, (log of) real GDP per capita and GDP growth are lagged one period. Clustered standard errors reported in parentheses. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$ indicating significance at 1, 5 and 10 per cent levels, respectively.

Table 4 FE estimations of the relationships between GDP per capita growth, on one side, and extreme migrant inflows (EMI) and extreme capital outflows (ECO) on the other

GDP per capita growth	t + 0	t + 1	t + 2	t + 3	t + 4	t + 5
<i>EMI_{t+k}</i>	0.004 (0.364)	-0.433 (0.374)	-0.657 (0.387)	-0.700 (0.468)	-0.444 (0.589)	0.375 (0.764)
<i>ECO_{t+k}</i>	-0.943** (0.434)	-1.257*** (0.389)	-1.365*** (0.370)	-1.169*** (0.351)	-0.872*** (0.295)	-0.832*** (0.285)
Δ Net Migration	0.106*** (0.029)	0.100*** (0.029)	0.102*** (0.028)	0.103*** (0.029)	0.104*** (0.029)	0.106*** (0.029)
Δ Net Financial Account	-0.021 (0.024)	-0.011 (0.020)	-0.011 (0.020)	-0.011 (0.020)	-0.011 (0.020)	-0.012 (0.020)
<i>L. Trade Openness</i>	0.845 (0.795)	0.491 (0.801)	0.214 (0.848)	0.260 (0.848)	0.544 (0.825)	0.794 (0.795)
<i>L. Financial Openness</i>	-0.018** (0.007)	-0.014* (0.007)	-0.012 (0.007)	-0.012 (0.008)	-0.014* (0.007)	-0.014** (0.007)
<i>L. Labour Productivity</i>	1.648 (2.627)	1.141 (2.616)	1.396 (2.535)	2.043 (2.515)	2.587 (2.515)	2.794 (2.543)
<i>L. Population</i>	0.001 (0.000)	0.001 (0.000)	0.002 (0.000)	0.002 (0.000)	0.002 (0.000)	0.002 (0.000)
<i>L. Real GDP per capita</i>	-7.723*** (2.361)	-6.957*** (2.395)	-7.281*** (2.483)	-8.113*** (2.501)	-8.862*** (2.421)	-9.311*** (2.387)
Trend	0.053 (0.035)	0.053 (0.036)	0.058 (0.038)	0.061 (0.038)	0.063* (0.036)	0.064* (0.034)
Constant	-46.013 (55.955)	-47.837 (57.740)	-56.899 (59.694)	-62.784 (59.199)	-64.441 (56.665)	-64.720 (53.899)
Observations	815	815	815	815	815	815
R-squared	0.110	0.126	0.137	0.129	0.116	0.113
Number of id	26	26	26	26	26	26
R ² within	0.110	0.126	0.137	0.129	0.116	0.113
R ² between	0.305	0.257	0.233	0.245	0.275	0.268
R ² overall	0.0513	0.0463	0.0427	0.0419	0.0443	0.0430
R ² adj.	0.0987	0.116	0.126	0.118	0.105	0.102

Notes: Trade openness, financial openness, labour productivity, population, (log of) real GDP, (log of) real GDP per capita and GDP growth are lagged one period. Clustered standard errors reported in parentheses. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$ indicating significance at 1, 5 and 10 per cent levels, respectively.

Table 5 FE estimations of the relationships wage share, on one side, and extreme migrant inflows (EMI) and extreme capital outflows (ECO) on the other

Wage share	t + 0	t + 1	t + 2	t + 3	t + 4	t + 5
<i>EMI_{t+k}</i>	1.098* (0.584)	1.250* (0.657)	1.295 (0.769)	1.323 (0.842)	1.225 (0.844)	1.170 (0.794)
<i>ECO_{t+k}</i>	0.725 (0.611)	0.898 (0.578)	0.849 (0.581)	0.780 (0.578)	0.617 (0.620)	0.383 (0.691)
Δ Net Migration	-0.097 (0.074)	-0.075 (0.062)	-0.074 (0.061)	-0.077 (0.062)	-0.078 (0.063)	-0.080 (0.064)
Δ Net Financial Account	-0.006 (0.015)	-0.013 (0.011)	-0.015 (0.013)	-0.013 (0.012)	-0.014 (0.012)	-0.014 (0.013)
<i>L. Trade Openness</i>	3.332 (2.162)	3.484 (2.113)	3.715* (2.063)	3.854* (2.017)	3.755* (2.002)	3.527* (2.043)
<i>L. Financial Openness</i>	-0.022 (0.020)	-0.023 (0.019)	-0.024 (0.018)	-0.025 (0.018)	-0.024 (0.018)	-0.022 (0.018)
<i>L. Labour Productivity</i>	-4.217 (3.306)	-3.862 (3.302)	-3.745 (3.327)	-3.701 (3.347)	-3.850 (3.354)	-3.994 (3.372)
<i>L. GDP growth</i>	-0.186*** (0.052)	-0.193*** (0.053)	-0.178*** (0.052)	-0.167*** (0.052)	-0.163*** (0.052)	-0.164*** (0.053)
Trend	-0.209*** (0.058)	-0.221*** (0.058)	-0.226*** (0.059)	-0.228*** (0.060)	-0.223*** (0.060)	-0.218*** (0.059)
Constant	518.454*** (92.688)	537.458*** (90.651)	544.740*** (92.944)	549.746*** (94.466)	541.301*** (93.672)	532.357*** (92.719)
Observations	760	760	760	760	760	760
R-squared	0.456	0.465	0.469	0.469	0.464	0.460
Number of id	26	26	26	26	26	26
R ² within	0.456	0.465	0.469	0.469	0.464	0.460
R ² between	0.0247	0.0159	0.0205	0.0234	0.0260	0.0220
R ² overall	0.0995	0.112	0.109	0.106	0.102	0.104
R ² adj.	0.449	0.459	0.462	0.463	0.458	0.454

Notes: Trade openness, financial openness, labour productivity, population, (log of) real GDP, (log of) real GDP per capita and GDP growth are lagged one period. Clustered standard errors reported in parentheses. *** $p < 0.01$, ** $p < 0.05$ and * $p < 0.1$ indicating significance at 1, 5 and 10 per cent levels, respectively.

Finally, we discuss FE estimation results for the wage share:² they are shown in Table 5. Extreme migrant inflows are positively associated with wage-share dynamics, although with a modest level of statistical significance; this correlation holds at the time of the shock and up to one year ahead, while it becomes insignificant in the following years. Extreme capital outflows, instead, seem not to be correlated with the wage share.

To sum up, according to these estimates, episodes of massive migrant inflows are either not associated or even positively associated with the dynamics of GDP growth, GDP per capita growth and the wage share. Occurrences of extreme capital outflows are instead associated with a significant average loss in GDP growth and GDP per capita growth, of about 1 per cent in the following five years.

7 ROBUSTNESS CHECKS

In what follows, we test the robustness of the previous estimations looking at model specification, time sub-samples, country sub-samples and variations in the thresholds used for identifying the 'extreme' events.

Let us start by addressing a few issues related to the specification of the model. If the assumptions of constant variance across time and non-autocorrelation of the idiosyncratic errors are violated, FE method produces an improper variance matrix estimator, so that the usual standard errors can be misleading (Wooldridge 2010: 310). The Wooldridge test rejects the null hypothesis of absence of serial correlation for all the model specifications presented. Next, we estimate the models again assuming first-order autoregressive disturbance. Finally, in order to account for serial correlation of higher order we apply the Driscoll/Kraay (1998) standard errors, which also account for the presence of cross-sectional dependence as indicated by the Pesaran (2004) test rejecting the null hypothesis of non-autocorrelation at the highest level of statistical significance.

For the sake of clarity, in Table 6 we report β_1^k and β_2^k coefficients and corresponding standard errors only. Previous results are overall confirmed. Estimates highlight null or positive association between GDP growth, per capita GDP growth and the wage share on the one side, and extreme immigration on the other side. Instead, a negative correlation emerges between GDP growth and GDP per capita growth on the one hand, and extreme capital outflows. With respect to the previous results, the only exception is the relation between capital outflows and the wage share, which turns out to be positive here (based on Driscoll/Kraay's estimations).

Another concern about the results reported in Section 5 is that they might change in sub-periods, possibly because of specific economic conditions. Thus, we check the robustness of FE estimates in sub-samples beginning in 1980, 1990, 2000 and 2010. In each time window, previous results are confirmed: massive immigration seems to have a null or positive effect on the three variables of interest, while extreme capital outflows are associated with an average GDP growth and GDP per capita growth fall of approximately 1 per cent. No association is detected between capital movements and the wage share.

In principle, the heterogeneity of the economies in our sample and the possibility that some of them might drive the results might also be an issue, perhaps due to peculiar legal frameworks with respect to people and capital movements, or very different institutional settings in general. We address this issue by performing the same empirical analysis, focusing on two sub-sets: members of the European Union (EU); and countries belonging to

2. A Fisher test for panel unit root rejects the null hypothesis of wage-share non-stationarity with a p -value of 0.004, so that we can model wage-share levels without differencing.

Table 6 Estimation results for equation (1)

	Disturbance term first-order autoregressive					Driscoll/Kraay's standard errors						
	$t + 0$	$t + 1$	$t + 2$	$t + 3$	$t + 4$	$t + 5$	$t + 0$	$t + 1$	$t + 2$	$t + 3$	$t + 4$	$t + 5$
<i>Real GDP growth</i>												
EMI_{t+k}	0.873*** (0.328)	0.493 (0.374)	-0.238 (0.434)	-0.353 (0.495)	-0.306 (0.571)	-0.331 (0.671)	1.300** (0.496)	0.882 (0.588)	0.077 (0.510)	-0.316 (0.572)	-0.411 (0.632)	-0.179 (0.749)
ECO_{t+k}	0.841*** (0.326)	-0.083 (0.318)	-0.706** (0.335)	-0.912*** (0.345)	-1.222*** (0.352)	-0.699* (0.376)	0.842 (0.577)	-0.082 (0.482)	-0.823 (0.564)	-1.041** (0.481)	-1.064** (0.452)	-0.865** (0.416)
Obs.	769	769	769	769	769	769	795	795	795	795	795	795
No of id	26	26	26	26	26	26	26	26	26	26	26	26
R^2 within	0.132	0.117	0.119	0.121	0.127	0.118	0.138	0.115	0.117	0.125	0.127	0.119
<i>Real GDP per capita growth</i>												
EMI_{t+k}	0.003 (0.319)	-0.250 (0.351)	-0.228 (0.404)	-0.052 (0.462)	0.107 (0.533)	0.716 (0.632)	0.004 (0.427)	-0.433 (0.462)	-0.657 (0.534)	-0.700 (0.578)	-0.444 (0.649)	0.375 (0.786)
ECO_{t+k}	-0.428 (0.330)	-0.912*** (0.308)	-0.998*** (0.315)	-0.950*** (0.325)	-0.449 (0.336)	-0.762** (0.351)	-0.943 (0.622)	-1.257* (0.639)	-1.365*** (0.460)	-1.169** (0.439)	-0.872** (0.386)	-0.832** (0.313)
Obs.	789	789	789	789	789	789	815	815	815	815	815	815
No of id	26	26	26	26	26	26	26	26	26	26	26	26
R^2 within	0.101	0.109	0.109	0.108	0.101	0.106	0.110	0.126	0.137	0.129	0.116	0.113
<i>Wage share</i>												
EMI_{t+k}	0.030 (0.188)	0.172 (0.197)	0.279 (0.203)	0.309 (0.218)	0.034 (0.229)	0.047 (0.241)	1.098*** (0.377)	1.250*** (0.405)	1.295*** (0.458)	1.323** (0.496)	1.225** (0.492)	1.170** (0.468)
ECO_{t+k}	0.199 (0.158)	0.655*** (0.158)	0.530*** (0.173)	0.605*** (0.186)	0.663*** (0.194)	0.540** (0.213)	0.725** (0.310)	0.898*** (0.303)	0.849*** (0.277)	0.780** (0.304)	0.617* (0.345)	0.383 (0.428)
Obs.	734	734	734	734	734	734	760	760	760	760	760	760
No of id	26	26	26	26	26	26	26	26	26	26	26	26
R^2 within	0.0297	0.0515	0.0433	0.0447	0.0434	0.0364	0.456	0.465	0.469	0.469	0.464	0.460

Notes: FE estimates with AR(1) disturbance on the left and FE estimates with Driscoll/Kraay's standard errors on the right. Standard errors are reported in parentheses. Estimated coefficients of control variables are available from the authors upon request. ***, ** and * indicate significance at 1, 5 and 10 per cent levels, respectively.

the euro area (EA). FE estimations for these sub-samples provide essentially the same results, thus giving further evidence of the robustness of the whole sample's estimation.

Finally, it is worth checking what happens when moving the thresholds for the identification of 'extreme' events from 20 per cent to 10 per cent and 30 per cent. With respect to previous results, the only difference is represented by GDP per capita growth, which seems to be negatively associated – with a 10 per cent statistical significance – with very massive flows of immigrants, as captured by the top 10 per cent of net migration distribution. In all other cases previous results are overall confirmed. With the same 10 per cent threshold, no relation between very extreme migrant inflows and wage share dynamics is detected, while they are associated positively with GDP growth at the time of the shock, with a statistical significance of 1 per cent. Milder migrant inflows, as captured by the top 30 per cent of net migration distribution, are associated positively at the time of the shock with both output growth and the wage share, with a 10 per cent statistical significance. Episodes of large capital outflows, captured by either the 10th or the 30th percentile of net financial-account distribution, are instead generally associated with reductions in GDP growth and per capita GDP growth. Consistent with the results of the previous section, no effect is detected as far as is concerned with the wage share. It is worth noticing that regression coefficients of extreme capital outflows when the threshold used is 10 per cent are statistically larger in magnitude (more than double) than the same coefficients when the threshold is set at 30 per cent. Very outstanding extreme episodes are associated with larger effects on the variables of interest.

In a nutshell, in this section we supported the results of our main specification through various robustness checks. We looked at model specification issues; time and country sub-samples; and different thresholds for identifying the extreme episodes. Even these alternative specifications are in line with the FE results presented.³

8 AN 'EVENT-STUDY' APPROACH

In this section, we provide a final robustness check by exploiting a different empirical strategy. In Cavallo et al. (2015: 56, 67), the authors analyse 'the macroeconomic impact' of 'different types of sudden stops' and discuss policy implications as well, such as the use of reserves both in a precautionary way and to 'ameliorate the costs' of these shocks once they occur. Borrowing the event-study-like approach from Cavallo et al., we reshape our data set such that we set $t = 0$ when the episode (either extreme migrant inflow or extreme capital outflow) began, in order to analyse the dynamics of our variables of interest in the three years preceding and following the shock. The aim of this simple test is to verify whether there is a systematic break in GDP growth, GDP per capita growth and wage-share series after immigration or capital shocks. The three variables of interest are explained by the same variables described in the previous sections. Country and time fixed effects are included.

Table 7 shows the estimation results. $EMI_{t:t+3}$ coefficients in the first three columns represent the relation between massive immigration and our three variables of interest in the three years after the immigration shock. Consistent with previous results, we find that large immigrant inflows are not related to GDP growth and the wage share. Looking at extreme capital outflows episodes, $ECO_{t:t+3}$ coefficients show a significant break in the series of all the variables of interest after the shock. We observe that massive capital outflows are associated with a 0.67 per cent average fall in GDP growth in the next

3. Results not reported in this section are available from the authors upon request.

Table 7 Estimated effect of EMI and ECO on GDP growth, GDP per capita growth and wage share within a three-year window

	Extreme migrant inflows			Extreme capital outflows		
	GDP gwt	GDP pc	WS	GDP gwt	GDP pc	WS
$EMI_{t,t+3}$	-0.184 (0.131)	-0.289* (0.146)	0.110 (0.232)	-	-	-
Δ Net Migration	-0.018 (0.038)	0.007 (0.028)	-0.011 (0.038)	-	-	-
$ECO_{t,t+3}$	-	-	-	-0.667*** (0.231)	-1.199*** (0.275)	0.610* (0.285)
Δ Net Financial Account	-	-	-	-0.007 (0.007)	-0.001 (0.005)	0.016* (0.006)
<i>L.Trade Openness</i>	1.184 (2.635)	2.444 (1.682)	-1.965 (2.813)	7.651*** (2.681)	7.985*** (1.921)	-1.983 (2.160)
<i>L.Financial Openness</i>	0.003 (0.016)	-0.019* (0.011)	-0.004 (0.017)	-0.023 (0.016)	-0.048*** (0.013)	-0.015 (0.025)
<i>L.Labour Productivity</i>	5.177 (4.990)	6.338* (3.270)	-4.521 (5.919)	-1.827 (4.164)	-2.152 (3.858)	-1.960 (4.668)
<i>L.Population</i>	13.908 (7.176)	0.001 (0.002)	-	5.337** (2.339)	0.002*** (0.001)	-
<i>L.Real GDP</i>	-6.597** (2.981)	-	-	-2.408 (5.220)	-	-
<i>L.Real GDP per capita</i>	-	-12.117*** (2.735)	-	-	-4.610 (3.962)	-
<i>L.GDP growth</i>	-	-	0.018 (0.097)	-	-	-0.062 (0.072)
Constant	21.309 (23.193)	52.769*** (17.705)	110.438* (62.637)	42.548 (43.034)	62.085* (34.362)	85.860* (48.008)
Observations	856	870	824	726	727	703
R-squared	0.723	0.705	0.945	0.655	0.677	0.891
Country fixed effects	Yes	Yes	Yes	Yes	Yes	Yes
Time fixed effects	Yes	Yes	Yes	Yes	Yes	Yes

Notes: Trade openness, financial openness, labour productivity, population, (log of) real GDP, (log of) real GDP per capita and GDP growth are lagged one period. Country-specific and time-specific effects included. Clustered standard errors reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$, indicating significance at 1, 5 and 10 per cent levels, respectively.

three years, whereas the average loss in per capita income growth is nearly double, approximately 1.2 per cent. With respect to the previous results, the only exception is that we find here a moderately significant positive correlation between extreme capital flights and the wage share.

The results of previous sections are confirmed almost entirely when analysing the sample using the event-study approach. The relation of massive immigration is essentially null with GDP growth and the wage share, while it tends to be modestly negative for per capita growth. Extreme capital outflows are instead related to a significant fall in GDP growth and, even moreso, GDP per capita growth.

9 CONCLUSIONS

This work did not focus in detail on the structure of causal links between the variables examined. Nevertheless, a consolidated practice in the literature allows us to draw some important indications from our empirical analysis (Cavallo et al. 2015; Guidotti et al. 2004; Podrecca/Rossini 2015; Reinhart/Reinhart 2008). Indeed, by proposing a fixed-effect approach and an event-study approach for the analysis of ‘extreme’ episodes of net capital outflows and net migrant inflows in OECD countries between 1970 and 2017, this paper shows that growth and functional distribution of income have a null or even positive statistical relationship with immigration, while they have a largely negative statistical relationship with capital flights. More specifically, extreme migrant inflows are not related or in some cases are positively related to real GDP growth, real GDP per capita growth and the wage share, while extreme capital outflows are negatively related to real GDP growth and real GDP per capita growth.

Future research may be devoted to assessing whether the empirical results obtained in this study are compatible with different theoretical approaches to globalization, most notably with regard to schools of thought that are alternative to the prevailing one (see, among many others: de Araujo Oliveira/Teixeira 2020; Moreno Brid 2003). It is nonetheless evident that the results have provided sharp contrast to the overwhelming emphasis in the political debate on the potentially detrimental effects of immigration, as opposed to a substantial neglect of the possible adverse impacts of capital movements. The evidence does not support the prevailing policies in OECD countries, which are characterized by a large use of immigration controls, while they seldom contemplate controls on international capital movements. In other words, the policy line that we have called ‘xenophobic neoliberalism’ does not find adequate confirmation in the empirical analysis, which seems to indicate that governments should ‘arrest’ not immigrants but rather capital.

The existence of a hiatus between empirical evidence and current policy agendas is not at all surprising: there are persistent gaps between analysis and practice in many other areas of economic policy (see for instance Brancaccio et al. 2020). Whether the scientific evidence contrary to the prevailing agendas will be able to pave the way for new and different lines of economic policy or not (Blanchard/Brancaccio 2019) is a question that today remains dramatically open.

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