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3 Regions' trade openness

In this chapter, we will review the empirical literature on the complex nexus between trade and other aspects of openness of regions and their economic growth performance. We purposefully divide the review in discussing the two most important channels of impact – trade and FDI channel furthermore we present both the studies on the level of countries and then discuss the impact at the regional level.

3.1 Review of the empirical literature

In the empirical literature, two strands dominate – the macro approach with mostly cross-sectional or panel analysis of global or more homogeneous groups of countries and the micro approach – analysis for individual countries based on sectoral or firm-level data.

In both strands of literature, various variables are utilized as proxies for the overall extent of openness. These include openness ratio (trade/GDP), openness dummy – open/closed economy, rate of exports, the share of imports in GDP, real foreign exchange distortions, the average level of tariffs in general or the average level of US tariffs (Romalis, 2007), dummies for preferential and regional trade arrangements, the outward orientation index of the World Bank, the black market premium on foreign exchange, exports distortion index as well as various geographic variables (landlockedness, common border), etc. It is worth mentioning that even the openness dummy could have a rather complex structure. For instance, in Sachs and Warner (1995) an economy is referred to as open only if fulfils simultaneously the following set of conditions:

- (a) average tariff rate on capital and intermediate goods below 40%;
- (b) non-tariff barriers on less than 40% of import of capital and intermediate goods;
- (c) black-market premium does not exceed 20% of official foreign exchange;
- (d) non-socialist country;
- (e) lack of state monopoly in exports of key branches.

Nonetheless, the openness ratio defined as the ratio of total trade to GDP seems to be the most popular.

In his famous cross-sectional regression analysis, Barro (1992) identified a positive and statistically significant impact of the level of openness on economic growth in a cross-section of countries. Dollar (1992) noting a potential bias utilized an index of exchange rate disturbances, finding it to affect economic growth adversely. The

result was further confirmed by Easterly, Kremer, Pritchett, and Summers (1993) and Lee (1993) using similar approaches.

Sachs and Warner (1995) utilized a dichotomous index of openness conditional on meeting five criteria finding openness to matter for growth in a cross-section of countries. The index was also utilized by Gallup, Sachs, and Mellinger (2016), which led to analogous results even if deep-rooted geographical factors were considered. In his seminal study, Vamvakidis (1999) identified a positive and statistically significant effect of multilateral economic integration.

Wacziarg and Welch (2003) found the earlier studies applying the Sachs and Warner (1995) index to be sensitive to the period considered.

Edwards (1998) in his seminal study analysed the impact of nine different indices of openness /disturbances in the exchange rate on productivity as measured by TFP and thus indirectly on the real GDP per capita in a large cross-section of 93 countries. The impact was identified to be positive; however, its magnitude was found to be less significant in comparison to the traditional determinants of economic growth such as the initial level of GDP per capita (in line with the absolute/conditional convergence literature) or the initial level of human capital endowment (as postulated by the augmented Solow-Swan model of Mankiw et al. (1992) and some of the models of the new growth theory strand (Lucas, 1988, 1990). Human capital endowment directly affects the rate of domestic innovation (Romer, 1990) as well as the speed of adoption of technology from abroad or knowledge diffusion (Nelson and Phelps, 1966).

Due to a potential endogeneity, the instrumental variables (IV) approach is frequently utilized. For instance, Frankel and Romer (1996; 1999) propose an instrumental variable based on geographical factors that determine to a large extent the intensity of bilateral trade while being exogenous with respect to the level of income. The impact of openness proved surprisingly to be insignificant in two large cross-sectional datasets of countries considered by the authors.

Irwin and Terviö (2002) reiterated the test by Frankel and Romer (1999) in a slightly modified manner for a panel of countries. The results pointed to a positive relationship between the intensity of trade and the level of GDP per capita. Later on, Romalis (2007) found similar results using the IV approach in a large panel of countries (135) observed over 40 years (1960-2000).

In his comprehensive analysis, Vamvakidis (2002) tested six different measures of openness for an elongated period (1920-1999) finding that the positive relationship between openness and growth existed only after the 1970s. It could be related to a noticeable increase in the extent of openness with the beginning of the next phase of globalisation.

In contrast to aforementioned empirical studies, Wacziarg and Welch (2003) utilized a different approach to analysing the effects of cases of significant trade-policy liberalisations and finding that they were on average followed by an increase in the investment rate of 1.5 to 2%, and in the share of trade in GDP by 5% (increase in

openness) while the ex-post growth rate was higher than ex-ante growth rate by a mean of 1.5%.

Using the extreme bounds analysis approach, Levine and Renelt (1992) found the index of openness to be one of the variables indirectly affecting the growth rate in a cross-section of countries through the impact on the process of accumulation of capital (investment rates). In the same study, they rejected the existence of the direct linkage.

In contrast, Doppelhofer, Miller, and Sala-i-Martin (2000) using the Bayesian averaging of classical estimates approach for a balanced panel of 88 countries and 68 significant determinants of economic growth found the time since the liberalisation of an economy to affect economic growth positively. It could mean that the benefits of liberalisation or openness accumulate in time and thus, short-run and the long-run impact could significantly differ. In the same study, the impact of the overall openness level was found to matter significantly less.

The quick review of the most important empirical studies on the nexus considered leads to the conclusion that the results obtained to a large extent depend on: dataset – scope and period (duration), the methodological approach adopted (cross-sectional vs panel), allowing for linear or non-linear impact, the choice of the openness proxy, taking care or not of potential endogeneity, the choice of the correct instrumental variable, taking care of outliers and other standard econometric problems (sample selection bias, heteroscedasticity, potential co-linearity).

3.2 Studies at the regional level

In comparison to the vast empirical literature on the nexus between openness and economic growth, the analyses conducted at the regional level are surprisingly rather scarce.

Soukiazis and Antunes (2011) conducted the analysis on the role of openness, export shares, or trade balances on the regional growth in Portugal at the NUTS 3 level over the period 1996-2005 further conditioning for the role of the human capital. The dynamic panel model estimated with the use of GMM proves that factors associated with external trade, including openness, human capital endowment, and sectoral labour shares (in particular in the industrial sector) are important determinants of regional growth affecting the conditional convergence processes as well. Furthermore, the interactions between the key variables also play an important role and to a large extent, explain different performances between regions of the Portuguese Littoral and Interior.

Boschma and Iammarino (2009) analysed the impact of trade linkages for Italian provinces at NUTS 3 levels and three-digit sectors over the period 1995-2003 looking for the impact of the so-called related variety. The hypothesis was positively verified – related variety contributed to regional economic growth. Well-endowed in

complementary sectors Italian provinces showed superior performance. Boschma and Iammarino (2009) postulate furthermore that openness alone (more trade or more knowledge flows) does not affect growth, but this is due to the presence of related extra-regional knowledge which leads to intersectoral learning across regions.

Petrakos, Kallioras, and Anagnostou (2011) analysed the determinants of regional economic growth and convergence of 249 NUTS 2 regions of the EU in the period 1990-2003. Using the absolute β -convergence concept, the paper detected a mirror-image J-shaped relationship between regional growth and regional development levels. According to the authors, regional divergence factors are getting stronger, and, eventually, dominate at more advanced levels of development. Factors such as agglomeration economies, geography, economic integration, and economic structure create an overall unfavourable economic environment for lagging regions. More advanced regions of the EU tend to grow faster, as they are characterized by high levels of openness and high levels of structural similarity to the dominant economic paradigm.

Polasek and Sellner (2011) analysed the impact of three different types of globalisation variables, namely trade openness, EU integration (structural funds expenditures in the percentage of GDP) and technology transfer on the regional growth on GDP per capita in a panel of NUTS 2 EU-27 states in a period 2001-2006. Using the spatial Chow-Lin procedure they construct regional indicators, resulting in data predictions on a regional level for trade openness (referred to as a global indicator) and FDI inward stocks (referred to as a technology indicator). Using these, they analyse a cross-sectional spatial growth regression model. The results for the convergence model allowing for interactions (and thus GDP dependent convergence elasticities) show that higher openness to globalisation favours initially less developed regions. The convergence process in European regions follows a non-linear pattern and is furthermore exposed to heterogeneous influences. In addition, the authors have found the effects of trade openness to be higher than for the technology transfers (proxied by the inward FDI flows). An interdependence between FDI inward stocks and the human capital endowment of a region has also been detected.

In recent years several studies have been performed on Asian economies and their regions. Sun, Hone, and Doucouliago (1999) show in a study of Chinese regions at the manufacturing industries level that openness to trade (trade orientation and FDI) has a positive effect on technical efficiency.

Leong (2013) analysing the impact of SEZs as cases of liberalisation on regional economic growth in China and India found that both FDI and export positively affect growth. The presence of SEZs increases regional growth; however, an increase in the number of SEZs has a negligible effect on growth. Leong (2013) finds greater openness (wider liberalisation) as a precondition of further growth. Wei, Yao, and Aying (2007) in a panel of Chinese regions over the entire period 1979-2003 proved that FDI inflows were one of the forces behind the observed regional discrepancies in growth. The authors claim, however, that FDI cannot be blamed for the extent of regional inequality as it was due to the uneven distribution of FDI and not the FDI itself.

Anwar and Nguyen (2010) using a simultaneous equation model found in a panel of 61 Vietnamese provinces from 1996-2005, a mutually reinforcing two-way process between FDI and regional economic growth. The benefits of FDI inflow could be further strengthened by more investments into education and training, development of the financial market, and reducing the technology gap between foreign and local firms.

Shafiullah, Selvanathan, and Naranpanawa (2017) in a recent paper analysed in the export-led growth hypothesis in Australia taken as a whole and its regions at the sectoral level over the period 1990-2013 using quarterly data. The authors state in particular that the mining and fuel sector's exports played a crucial role in driving the economic growth of Australia and in three of its regions in the long run – namely New South Wales, Queensland, and Western Australia. Shafiullah et al. (2017) identify each Australian region's experience with ELG as region-specific. Traces of ELG in the short run were identified for South Australia, Tasmania, and Northern Territory. It, in turn, seems to depend on the composition of exports (product or sectoral-structure).

According to Kanbur and Venables (2005), rising spatial disparities in regional development in many developing states are mostly due to the uneven impact of increased trade openness and globalisation. It leads to efficiency gains mostly due to the concentration of economic activity in major cities and coastal districts adversely affecting inland regions. In a study on Latin America, Serra (2006) argue that regional disparities modestly increased, at least temporarily, in the wake of trade liberalisation. It was especially marked for Mexico.

Redding (2016) used a version of the quantitative spatial model to investigate the effects of a fall in trade costs between the US and Canada, leaving internal trade costs unchanged and allowing for heterogeneous worker preferences across locations. The analysis is conducted at the regional level. He states that given greater trade intensity with US states, Central Canada would gain more than Western Canada under population immobility. But in the case of a mobile population across regions, the improved market access of Central Canada would cause it to gain population. At the same time, Western Canada would see a decline in population. The reallocation of the population would continue until all Canadian regions gain equally from the fall in trade costs, in the absence of costs to mobility. In analysing counterfactuals, Redding (2016) states the welfare gains from trade (liberalisation) depend on changes in both domestic trade shares and reallocations of the population across locations. Furthermore, factor mobility introduces quantitatively relevant differences in the counterfactual predictions of the constant and increasing returns to scale models. Therefore, models excluding spatial interlinkages and factor mobility at the regional level of analysis can lead to falsified results. It is not the case for studies performed at the country-level where the estimates for welfare are correct.

When analysing the nexus between openness and economic growth at a regional level, we must note the direct or indirect impact of other accompanying variables or processes.

For instance, Sachs, Bajpai, and Ramiah (2002) studying σ -convergence, and β -convergence show that more than 80% of the cross-state variation in growth rates among Indian states can be explained solely by an urbanisation variable. Agglomeration factors are also strongly postulated by NEG theories.

The role of human capital accumulation is clear on theoretical and empirical grounds; however, the scope of the definition of human capital differs. For example, in the study by Boschma and Fritsch (2009) point in line with Florida (2005) to an important contribution of the so-called creative class for regional growth in seven European countries. They are, however, not able to determine whether human capital as measured by the creative occupation, outperforms standard indicators based on formal education and whether formal education has a stronger impact. The creative class endowment is positively affected by the regional climate of tolerance and openness as well as regional job opportunities.

Other factors could matter as well, such as the economic structure or the size and the share of an industrial sector. For instance, the study by Hansen and Zhang (2010) points to the key role of the industrial sector in explaining the regional variation in growth among Chinese province. The result supports the Kaldorian approach to regional economic growth with cumulative causation between trade liberalisation, the rise in export demand, the growth of the industrial sector (industrialisation) and its impact on overall productivity and thus increases in international competitiveness.

One of the issues that cannot be overlooked is the issue of path-dependency in regional development. For instance, Felice and Vecchi (2015) indicate that the regional North-South variation in Italy was already present the moment the country was unified and then increased. The explanation of the present variation involves endogenous factors – natural resources, human capital endowment, and social capital.

Several studies have also been performed for Poland. Brodzicki (2015) attempted to identify shallow determinants of growth of Polish regions as well the sign and magnitude of macroeconomic education – externality and infrastructure externality. An augmented neoclassical growth model was constructed, incorporating a Mincerian approach to human capital accumulation, further assuming a direct impact of infrastructure on the overall productivity. The estimated panel model accounting for fixed region-specific effects was robust and explained approx. 90% of the observed variation in GDP per capita. The return to the accumulation of human capital through education and experience for Polish regions was found to be statistically significant, robust and positive. The macroeconomic infrastructure externality proved to be in turn positive however overall insignificant with the impact of the quality of railway.

In a recent article Ciołek and Brodzicki (2017) analysed the determinants of spatial variation and spatial spillovers of TFP at the level of local administrative districts. They utilized and tested an extended empirical version of the aforementioned Nelson and Phelps (1966) model accounting for potential spatial interactions among regions at a high level of spatial disaggregation. It required the use of dedicated spatial

econometric methods. The authors stress that the TFP assumes the highest values in the metropolitan centres and spreads out on their nearest surroundings with the maximum value for the capital region – Warsaw. The secondary local hills in TFP are located in cities or towns with county rights. The range of TFP spillover is found to be roughly 175-200 km and is nonlinearly decreasing from the local productivity hills. Furthermore, the rate of growth of TFP showed spatial autocorrelation and was found to depend positively on the rate of increase in human capital endowment and on the gap from the leader under certain assumptions. The result is in line with the postulated of Nelson and Phelps. Furthermore, Ciołek and Brodzicki (2017) accounted for two channels of productivity diffusion related to international trade and factor flows, namely through imports and through the inflow of FDI. The authors found no evidence of the channel through imports (trade relations). However, the FDI channel was found to be robust and strong. It points to the need for broadening of the concept of openness to account for FDI inflows and outflows as well.

For comparative purposes, it is worth mentioning the results of similar studies. Bottazzi and Peri (2003) using R&D and patent data for European regions over the period 1977-1995 found knowledge spillovers to be relatively weak and localized within a distance of 300 km. Bronzini and Piselli (2009) analysed the relationship between TFP, R&D, human capital and public infrastructure on a panel of Italian regions over the period 1980-2001. The results indicated the existence of a long-run equilibrium between TFP levels and the three types of capital with human capital affecting the TFP the most. Moreno, Paci, and Usai (2016) investigated the spatial distribution of innovative activity and the role of technological spillovers in the process of knowledge creation across 138 regions of 17 countries in Europe over the period of 1978-1997 at sectoral level (3 digit ISIC sectors). The authors identified a strong initial central-periphery pattern of distribution of innovation activity with concentrations in Northern and Central regions with a tendency to decline (diffuse). They identified furthermore a robust and positive spatial autocorrelation in the innovative activity. External effects were also identified pointing to the role of technology diffusion within a distance of roughly 250 and 500 km. Sterlacchini (2008) adopted Fagerberg's technology gap model of economic growth (Fagerberg, 1988) and examined the relationship between the economic growth of 12 European regions over the period 1995-2002 and their knowledge and human capital endowments. Sterlacchini (2008) took into account foreign and domestic knowledge, the ability to utilize both sources, and the distance from the technology frontier. He controlled for potential agglomeration effects by including the log of population density. Gross domestic expenditure on research and development and the share of the population with tertiary education were found to be the most important determinants of growth in incomes per capita.

3.3 Empirical studies on the role of openness to FDI in economic growth

One of the important aspects of openness is the extent of openness to the inflow as well as an outflow of FDI. The theoretical channels have been discussed above.

In a seminal paper Borensztein, Gregorio, and Lee (1998) in a cross-country regression framework analysed the channels of the impact of FDI on growth, utilizing data on FDI flows from industrial countries to developing countries over two decades. The results obtained supported the notion that FDI is an important vehicle for international technology diffusion affecting the growth rate directly a bit stronger than indirectly through the impact on domestic investment. The authors noted, however, that the impact is conditional on the existence of a minimum endowment of human capital or in other words on a sufficient absorptive capability for advanced technologies. Growth process and knowledge acquisition could thus be, therefore said to be skilled-biased.

Balasubramanyam, Salisu, and Sapsford (1996) stress the significance of trade openness in the case of developing countries to acquire the beneficial effects of FDI inflow. In particular, export promotion policy proves to be more conducive to the nexus than the import substitution policy. In turn, Blomstrom, Lipsey, and Zejan (1992) argued that FDI had a positive growth effect only when a country was sufficiently prosperous in terms of the level of development. Alfaro, Chanda, Kalemli-Ozcan, and Sayek (2004) analysed the linkage between FDI and growth in a cross-country data set over the period 1975-1995 controlling for the level of development of the financial market. The role of FDI was identified as ambiguous as such; however, countries with more developed financial markets benefited significantly from FDI. The studies point to positive; however, the conditional impact of FDI on economic growth. The analysis by Lee and Chang (2009) using panel cointegration and panel error correction models for a panel of 37 countries over the period 1970-2002 proved the result showing a fairly strong, long-run relationship. The short-run relationship was, however, identified as weak.

Carkovic and Levine (2002), using a novel statistical method, postulated in contrast that FDI inflows did not exert an independent influence on economic growth. The authors controlled for potential biases in the estimation process due to endogeneity, the omission of country-specific effects, and the initial level of income. In the words of the authors “, while sound economic policies may spur both growth and FDI, the results are inconsistent with the view the FDI exerts a positive impact on growth that is independent of other growth determinants”. Also, Mello (1999) in the non-OECD sample found no causation from FDI to growth based on fixed-effects regressions with country-specific intercepts, and even a negative short-run impact of FDI on GDP using the mean group estimator.

Mello (1997) stressed that the ultimate impact of FDI on output growth in the recipient economy depended on the scope for efficiency spillovers to domestic firms, by which FDI led to increasing returns in domestic production and increased in the

value-added content of the FDI-related production. Tang, Selvanathan, and Selvanathan (2008) point to the complementarity between FDI and domestic investments in China. No crowding out of domestic investment has been observed.

In a recent paper, Iamsiraroj and Ulubaşoğlu (2015) scrutinized 108 published studies (meta-analysis) and tested the relationship in a global sample of 140 countries in the period 1970 to 2009, proving the positive impact of FDI on growth both in developed as well as developing countries. Iamsiraroj and Ulubaşoğlu (2015) stress the role of regional variation and contemporaneous FDI rather than past FDI, for growth. Furthermore, trade openness and financial development rather than schooling (human capital) were identified as appropriate absorptive capacity indicators for positive growth (please compare to results of previous studies).

Nair-Reichert and Weinhold (2001) emphasize that FDI, on average, had a positive impact on growth; however, the result proved to be highly heterogeneity across the group of developing countries. Furthermore, there was some evidence that the efficacy of FDI was higher in more open economies.

Similarly to trade openness, we must address the issue of causality between FDI and economic growth. Asheghian (2004) stressed that the US economic growth was mostly driven by TFP growth and the growth in domestic investment as well as FDI. Furthermore, the relationship between FDI and economic as well as TFP growth (and thus indirectly affecting growth) is uni-directional and going from FDI. Similarly, Hansen and Rand (2006) analysed the causality between FDI and growth in a sample of 31 developing countries covering three continents over the period 1970-2000. They identify a strong causal link from FDI to GDP in short and the long run. And interestingly they state the long-term impact is independent of the level of development of the recipient.

There are also studies pointing to the bi-directional relationship, for instance, Choe (2003), Jayachandran and Seilan (2010) for India or Malaysia, and Thailand (Chowdhury and Mavrotas, 2005). The bi-directional nature of the relationship is further postulated by Iamsiraroj (2016) using a simultaneous system of equations approach of 124 cross-country data for the period 1971-2010. Furthermore, trade openness alongside the labour force and economic freedom are identified as key determinants of FDI, which in turn accelerates the economic growth process. Basu, Chakraborty, and Reagle (2003) stressed the existence of a cointegrating relationship between FDI and economic growth using a panel of 23 countries. Interestingly, trade openness is stressed as a key determinant of the beneficial impact of FDI on growth. The authors namely identified two-way causality both in short and the long run only in open economies, whereas unidirectional long-run causality from growth to FDI in closed economies.

Fidrmuc and Martin (2011) analysed the role of FDI, trade, and growth in 11 CESEE countries at the country level over the period 1995-2009. They tested for the hypotheses of ELG and FDI-led growth in the region. The authors found the stock of FDI to be positively related to industrial production and economic growth. In nearly all CESEE

countries exports and FDI had a significant impact on industrial growth performance, with exports playing a stronger role. The relationships between trade, FDI, and growth were identified as a complex with both variables identified as endogenous. Output growth for Poland, Romania, Slovakia, and Slovenia was found to profit from exports and FDI. The long-run industrial production was found at the same time not to be affected in Bulgaria, Croatia, Estonia, Hungary, and Lithuania, and as a result, the export-led/FDI-led growth hypothesis was rejected in these particular cases.

Summing up the empirical literature conducted at the level of countries brings rather mixed results on the nexus between FDI and growth in terms of existence, accompanying determinants, and direction of causality.

Chen and Fleisher (1996) identified the role of FDI in the process of conditional convergence of production per capita in Chinese provinces over the period of 1978-1993 alongside physical investment share, employment growth, human-capital investment, and coastal location of a region. The authors utilized an augmented Solow growth model framework. We can conclude that FDI could have a potential impact on the observed regional variation in the levels of productivity and thus, levels of development.

Sjöholm (1999) analysed productivity growth in Indonesian manufacturing companies across regions. He found that regional characteristics at the district level, rather than at the province level, seemed to explain productivity growth. This spatial scale seems to be more conducive to inter-industry knowledge spillovers. These, in turn, are positively affected by FDI as “domestic establishments benefit from a regional presence of foreign establishments in neighbouring industries”. Sjöholm (1999) also identified intra-industry spillovers from FDI at the national level as domestic establishments in industries with a large foreign presence have shown high productivity growth.

Buckley, Clegg, Wang, and Cross (2002) analysed the impact of FDI inflow into 29 Chinese provinces over the period 1989-1999 trying to identify the impact of host country conditions on the nexus with growth. They proved to matter both at the national and regional levels. FDI concentrated in economically stronger regions, and the benefits related to FDI were a function of the strength of local competition.

Lessmann (2013) studied the impact of FDI inflow on regional variation in China, and a wider sample of 55 countries over 30 years, 1980-2009. Economic theory says that the level of economic development could have an impact on the FDI – regional inequality nexus. FDI could increase the extent of regional inequalities as they are usually spatially concentrated (FDI agglomeration effect). Lessmann (2013) found that FDI inflows increased regional inequality in low and middle-income countries, while there were no negative distributional consequences observed in the high-income economies. Furthermore, he stated that the higher mobility of individuals in developed countries, as well as government policies (linked to better institutional quality), were likely to at least partially mitigate the adverse negative impact on regional inequality.

Su and Liu (2016), in their econometric analysis, a panel of Chinese cities over the period 1991-2010, identified the positive role of FDI on the per capita GDP growth rate. The effect was intensified by the human capital endowment of the city, which authors interpret as human capital contributing to growth is to serve as a facilitator for technology transfers stemming from FDI.

The number of studies on the role of trade and FDI channels (globalisation) on the growth of regions is steadily increasing. The results are not uniform; nonetheless, openness affects the prosperity of individual regional economies. The effects of greater openness are, however, not always positive. They can be adverse, as well.

The access to larger and better datasets together with better analytical methodologies and tools allows for progress in our understanding of this complex issue. We are now better able to address the direction of causality or to account for spatial interactions and thus interdependencies in the economic growth of neighbouring regions. The next step is the utilisation of data on heterogeneous firms, their production as well as innovation activities and evolution in space and time. Only then will we be fully able to account for heterogeneous regional economies with heterogeneous firms and their reactions to greater openness due to trade liberalisation. The recent paper by Forslid and Okubo (2018), for instance, brings first interesting evidence in favour of NNEG models with multiproduct firms. The emergence of dynamic NNEG models is only a matter of time. On the empirical side, the multi-level approaches allowing for the linkages between national, regional, and local contexts could also bring interesting insights.