Economic Growth vs General Welfare: Empirical Findings from Four European Economies

Eirini Leriou[1], Nikolaos Rodousakis[2] and George Soklis[3,*]

[1] Centre of Planning and Economic Research (KEPE); eirinileriou@kepe.gr
[2] Centre of Planning and Economic Research (KEPE); nrodousakis@kepe.gr
[3] Panteion University; g.soklis@panteion.gr
* Correspondence: g.soklis@panteion.gr

Abstract: This paper investigates the extent in which economic growth achieves the improvement of general welfare. For this purpose, we combine input-output analysis with welfare economics to measure whether the sectoral decomposition of economic growth is compatible with the development of economic sectors that better promote general welfare. We apply our analysis in four European countries, i.e. Germany, Greece, Italy and Netherlands. The results indicate that economic growth is partially compatible with the improvement of general welfare only in the cases of the Italian and the Dutch economies.

Keywords: Input-Output Analysis; Key-Sectors; Welfare Economics

---

1. Introduction

The discourse surrounding economic growth and general welfare is intricate and extensive, engrossing the attentions of economists, academics, and policy architects for extensive periods. Economic progression is primarily measured by a surge in the production of goods and services of a nation, represented as Gross Domestic Product (GDP), and is perceived as the cornerstone for a nation's affluence and prosperity (Kuznets 1934). Conversely, general welfare is indicative of the collective well-being and quality of life of the citizenry, encompassing domains such as health, education, income equality, and environmental standards (Sen 1979). The symbiotic relationship between economic progression and general welfare is often not linear. A nation can witness economic ascension without commensurate enhancements in general welfare. This paper endeavors to elucidate the dynamics interlinking economic growth and general welfare, harnessing empirical insights derived from an in-depth analysis of diversified European economies to dissect and comprehend the profundities and intricacies of their interrelations and confluences.

The pioneering works of Sen (1979) in welfare economics postulate that economic prosperity is not synonymous with improvements in general welfare, advocating for an inclusive approach encompassing individual freedoms, accessibility to public amenities, and societal frameworks. The conceptions of Sen are corroborated by Stiglitz, Sen, and Fitoussi (2009), who propounded the multidimensional nature of societal welfare, which may diverge from economic growth trajectories. GDP, although historically paramount, is not exhaustive in its representation of societal living standards (Kuznets 1934). The inherent limitations of GDP in depicting well-being, failing to account for income distribution and non-market activities, were further substantiated by subsequent empirical analyses (Easterlin 1974).

The distinctiveness of European economies serves as rich grounds for investigative studies, due to their varied economic frameworks, policies, and societal values (Sapir 2006). Insights into European predilections for equality and its ramifications on policy

proclivities, impacting the equilibrium between economic growth and general welfare, are detailed by Alessia, Di Tella, and MacCulloch (2004). Focused empirical explorations within European domains indicate nuanced outcomes regarding the interplay between economic growth and general welfare (Blanchflower & Oswald 2004; Clark, Frijters, & Shields 2008).

The interrelation between inequality and economic growth holds crucial implications for general welfare, with research indicating that inequality can have varied impacts on economic growth and consequently, on general welfare (Persson & Tabellini 1994; Aghion, Caroli, & Garcia-Peñalosa 1999).

In the ensuing sections of this investigation, input-output analysis, with a particular emphasis on multipliers, will serve as the principal analytical instrument to examine the intricate relationships between economic growth and general welfare in the selected European economies (Leontief, 1936; Miller & Blair, 2009). This analytical tool will facilitate a nuanced understanding of the intricate dynamics and multifaceted interconnections between economic activities and societal welfare, providing invaluable insights into the intricate realms of economic theory and policy implications.

When the economic policy authorities want to take measures to stimulate growth, they usually try to direct demand towards the economic sectors that can act as drivers of economic growth. Economists often refer to those sectors as "key sectors". A key sector of an economic system has the following main characteristics:

(a) its output multiplier is above the economy's average;
(b) its import multiplier is below the economy's average;
(c) its employment multiplier is above the economy's average.

However, it has long been recognized that a higher gross output in an economic system does not necessarily implies an increased general welfare for the population in this economy. According to C.W.-SMILE research (Leriou 2015, 2016, 2019, 2022, 2023), general (overall/social) welfare consists of economic and non-economic welfare. More specifically, on the basis of welfare economics, the sum of economic and non-economic well-being constitutes the general (overall / social) well-being (Leriou 2022, Sect.2, p.1,970, Fig.1 and Fig.2). Economic well-being consists of three Dimensions as follows: home conditions (D.1), nutrition (D.2), employment (D.3) (Leriou 2023, Sect.2, p.1,938). Non-economic well-being also consists of three Dimensions as follows: free healthcare (D.4), moral education (D.5), and leisure (D.6) (Leriou 2023, Sect.2, p.1,938). Using methods of the input-output analysis, this paper attempts to address this issue by trying to answer the following question: "Are the key-sectors of an economy also the sectors that better promote general welfare?". Regarding this purpose, we distinguished the sectors that are consistent with some of these dimensions. More specifically, the sectors consistent with the aforementioned dimensions are:

i) "Electricity, gas, steam and air conditioning supply", which is consistent with Dimension
ii) "Water supply; sewerage, waste management and remediation activities", which is also consistent with Dimension 1.
iii) "Public administration and defense; compulsory social security", which is consistent with Dimension 4.
iv) "Education", which is consistent with Dimension 5.
v) "Human health and social work activities", which is consistent with Dimension 4.
vi) "Arts, entertainment and recreation", which is consistent with Dimension 6.

In the light of the above, if a person enjoys high-quality electricity and water services, he gains in the economic part of his general well-being associated with home conditions. In addition, if a person, enjoys compulsory social security, he gains in the non-economic part of his general well-being associated with the access to high quality free healthcare services. Furthermore, if a person enjoys high-quality education services, he gains in the

non-economic part of his general well-being associated with moral education. Moreover, if a person enjoys high-quality human health and social work services, he gains in the non-economic part of his general well-being associated with the access to high quality healthcare services. In addition, if a person enjoys high-quality arts, entertainment and recreation services, he gains in the non-economic part of his general well-being associated with leisure. More specifically, if a society enjoys some or all of the above, its general welfare improves. But are these sectors also the key sectors of an economy? If that applies, economic policy authorities will direct demand towards these economic sectors. Via this demand that will be led to development of specific sectors, persons will wnjoy high-quality services related to these sectors, promoting the general welfare of the society. In this case, we may say that economic growth achieves the improvement of general welfare (Zolotas 1982).

In Section 2 we expose the input-output framework used in our analysis. In Section 3 we present the results from the application of our analytical framework to four European economies, i.e. Germany, Greece, Italy and Netherlands. Finally, in Section 4 we discuss our findings and conclude the paper.

2. Methodology

The system of physical quantities of Leontief's open input-output system can be described by the following equation (see, e.g., Leontief 1986)

$$\mathbf{x} = \mathbf{A}\mathbf{x} + \mathbf{f}, \quad (1)$$

where $\mathbf{x} \equiv [x_i]$ is the $n \times 1$ vector of domestic gross output, x_i is the gross output in product i, $\mathbf{A} \equiv [a_{ij}]$ is the $n \times n$ technical coefficients matrix of the economy, a_{ij} denotes the amount of product i used as an intermediate input by industry j per unit of output, $\mathbf{f} \equiv [f_i]$ is the $n \times 1$ vector of final demand, f_i denotes the final demand for product i, and n the number of products and industries in the economy. Solving equation (1) for $\mathbf{x}$ we get

$$\mathbf{x} = [\mathbf{I} - \mathbf{A}]^{-1}\mathbf{f}, \quad (2)$$

where $[\mathbf{I} - \mathbf{A}]^{-1}$ is the well-known inverse Leontief matrix, which connects final demand with gross output. Equation (2) constitutes the basis for investigating the effects of changes in final demand to sectoral gross output.

In the case of an open economy, equation (1) can be decomposed as follows

$$\mathbf{x} = [\mathbf{A}^{\mathrm{D}} + \mathbf{A}^{\mathrm{M}}]\mathbf{x} + [\mathbf{f}^{\mathrm{D}} + \mathbf{f}^{\mathrm{M}}] - \mathbf{m}, \quad (3)$$

where $\mathbf{A} = [\mathbf{A}^{\mathrm{D}} + \mathbf{A}^{\mathrm{M}}]$, $\mathbf{A}^{\mathrm{D}} \equiv [a_{ij}^{\mathrm{D}}]$ is the $n \times n$ matrix of domestic input coefficients, a_{ij}^{D} denotes the amount of domestically produced product i used as an intermediate input by industry j per unit of output, $\mathbf{A}^{\mathrm{M}} \equiv [a_{ij}^{\mathrm{M}}]$ is the $n \times n$ matrix of imported input coefficients, a_{ij}^{M} denotes the amount of imported product i used as an intermediate input by industry j per unit of output, $\mathbf{f} = [\mathbf{f}^{\mathrm{D}} + \mathbf{f}^{\mathrm{M}}]$, $\mathbf{f}^{\mathrm{D}} \equiv [f_i^{\mathrm{D}}]$ is the $n \times 1$ vector of final demand for domestic production, f_i^{D} denotes the final demand for domestically produced product i, $\mathbf{f}^{\mathrm{M}} \equiv [f_i^{\mathrm{M}}]$ is the $n \times 1$ vector of final demand for imported products, f_i^{M} denotes the final demand for imported product i, $\mathbf{m} = [\mathbf{A}^{\mathrm{M}}\mathbf{x} + \mathbf{f}^{\mathrm{M}}]$, $\mathbf{m} \equiv [m_i]$ is the $n \times 1$ vector of total imports of the economy, and m_i is the total imports of product i in the economy. Based on the above, equation (3) can be reduced to

$$\mathbf{x} = \mathbf{A}^{\mathrm{D}}\mathbf{x} + \mathbf{f}^{\mathrm{D}}. \quad (4)$$

Solving equation (4) for $\mathbf{x}$ we get

$$\mathbf{x} = [\mathbf{I} - \mathbf{A}^{\mathrm{D}}]^{-1}\mathbf{f}^{\mathrm{D}}, \quad (5)$$

where $[\mathbf{I}-\mathbf{A}^{\mathrm{D}}]^{-1}$ is the domestic inverse Leontief matrix, which connects final demand for domestic products with gross domestic output. Furthermore, $\mathbf{A}^{\mathrm{M}}\mathbf{x}$ gives the requirements for imported intermediate inputs necessary to produce the domestic gross output, $\mathbf{x}$.

Finally, let $\boldsymbol{a} \equiv [a_j]$ be the $n \times 1$ vector of labour requirements of industry j per unit of output. Then pre-multiplying equation (5) with the vector $\boldsymbol{a}^{\mathrm{T}}$ (where "T" is the sign of the transpose) we get

$$\boldsymbol{L} = \boldsymbol{a}^{\mathrm{T}}\mathbf{x} = \boldsymbol{a}^{\mathrm{T}}[\mathbf{I}-\mathbf{A}^{\mathrm{D}}]^{-1}\mathbf{f}^{\mathrm{D}}, \quad (6)$$

where $\boldsymbol{L}$ is the total labour necessary to produce the domestic gross output, $\mathbf{x}$.

On the basis of the previous analysis, the output (Δ_x^i), import (Δ_m^i) and employment (Δ_L^i) multipliers of each product i of the economy are derived as follows:

$$\Delta_x^i = \mathbf{e}^{\mathrm{T}}[\mathbf{I}-\mathbf{A}^{\mathrm{D}}]^{-1}\mathbf{e}_i,$$
$$\Delta_m^i = \mathbf{e}^{\mathrm{T}}\mathbf{A}^{\mathrm{M}}[\mathbf{I}-\mathbf{A}^{\mathrm{D}}]^{-1}\mathbf{e}_i,$$
$$\Delta_L^i = \mathbf{a}^{\mathrm{T}}[\mathbf{I}-\mathbf{A}^{\mathrm{D}}]^{-1}\mathbf{e}_i,$$

where $\mathbf{e}^{\mathrm{T}}$=[1,1,…,1] is the summation vector and $\mathbf{e}_i$ the i-th unit vector.

3. Results

We apply the previous analysis to four European economies, i.e. Germany (DE), Greece (GR), Italy (IT) and Netherlands (NL). For reasons of consistency and comparability, we use for all the economies data from the latest OECD's Input-Output Database (ed. 2021). The reference year for the latest input-output tables in OECD's database is the year 2018. OECD's Input-Output Tables describe the production activities of 45 economic sectors. The classification of the 45 sectors described in the input-output tables is reported in Table 1 below.

Table 1. Sector Classification.

No	Nomenclature
1	Agriculture, hunting, forestry
2	Fishing and aquaculture
3	Mining and quarrying, energy producing products
4	Mining and quarrying, non-energy producing products
5	Mining support service activities
6	Food products, beverages and tobacco
7	Textiles, textile products, leather and footwear
8	Wood and products of wood and cork
9	Paper products and printing
10	Coke and refined petroleum products
11	Chemical and chemical products
12	Pharmaceuticals, medicinal chemical and botanical products
13	Rubber and plastics products
14	Other non-metallic mineral products
15	Basic metals
16	Fabricated metal products
17	Computer, electronic and optical equipment
18	Electrical equipment
19	Machinery and equipment, nec
20	Motor vehicles, trailers and semi-trailers

21	Other transport equipment
22	Manufacturing nec; repair and installation of machinery and equipment
23	Electricity, gas, steam and air conditioning supply
24	Water supply; sewerage, waste management and remediation activities
25	Construction
26	Wholesale and retail trade; repair of motor vehicles
27	Land transport and transport via pipelines
28	Water transport
29	Air transport
30	Warehousing and support activities for transportation
31	Postal and courier activities
32	Accommodation and food service activities
33	Publishing, audiovisual and broadcasting activities
34	Telecommunications
35	IT and other information services
36	Financial and insurance activities
37	Real estate activities
38	Professional, scientific and technical activities
39	Administrative and support services
40	Public administration and defense; compulsory social security
41	Education
42	Human health and social work activities
43	Arts, entertainment and recreation
44	Other service activities
45	Activities of households as employers; undifferentiated goods- and services-producing activities of households for own use

From the 45 sectors described in the input-output tables, we distinguish six sectors that are most related to the promotion of general well-being. These sectors are reported in Table 2 below.

Table 2. Sectors related to the promotion of General Well-Being.

No	**Sectors**
1	Electricity, gas, steam and air conditioning supply (*Economic Well Being*)
2	Water supply; sewerage, waste management and remediation activities (*Economic Well Being*)
3	Public administration and defense; compulsory social security (*Non-Economic Well Being*)
4	Education (*Non-Economic Well Being*)
5	Human health and social work activities (*Non-Economic Well Being*)
6	Arts, entertainment and recreation (*Non-Economic Well Being*)

The first two sectors, i.e. “Electricity, gas, steam and air conditioning supply” and “Water supply; sewerage, waste management and remediation activities”, are related to the promotion of economic well-being, whilst the remaining four sectors, i.e. “Public administration and defense; compulsory social security”, “Education”, “Human health and social work activities” and “Arts, entertainment and recreation”, are related to the promotion of non-economic well-being. In order to examine whether the sectors that are related to general well-being are also key sectors for the economies under investigation, we calculate the output, import and employment multipliers for the aforementioned six sectors. Our empirical findings are reported in Table 3 below. The estimated multipliers that are favorable in an economy (i.e when an output or employment multiplier is higher and when an import multiplier is lower than the respective economy’s average) are detonated by bold characters.

Table 3. Multipliers of the Sectors related to General Welfare.

		Economic Well Being		Non-Economic Well Being			
		Electricity, gas, steam and air conditioning supply	Water supply; sewerage, waste management and remediation activities	Public administration and defence; compulsory social security	Education	Human health and social work activities	Arts, entertainment and recreation
DE	Δ_x^i	**1.72**	**1.76**	1.45	1.27	1.39	1.49
	Δ_m^i	**0.189**	**0.114**	**0.081**	**0.035**	**0.083**	**0.067**
	Δ_L^i	5.0	7.4	10.6	**14.5**	**17.5**	**12.4**
GR	Δ_x^i	**1.60**	**1.54**	1.18	1.11	1.25	1.48
	Δ_m^i	**0.165**	**0.116**	**0.063**	**0.027**	**0.137**	**0.081**
	Δ_L^i	6.3	10.5	**18.8**	**32.4**	**25.6**	**19.2**
IT	Δ_x^i	**2.10**	**1.93**	1.48	1.26	1.57	**1.86**
	Δ_m^i	0.232	**0.144**	**0.058**	**0.034**	**0.119**	**0.113**
	Δ_L^i	5.0	10.1	10.0	**18.7**	**14.0**	**11.9**
NL	Δ_x^i	**1.53**	**1.82**	1.47	1.27	1.31	**1.57**

	Δ_m^i	**0.244**	**0.171**	**0.121**	**0.078**	**0.109**	**0.179**
	Δ_L^i	3.7	6.7	**8.1**	**12.1**	**15.8**	**13.4**

We observe that the sectors related to economic well being are characterized by favorable output multipliers for all the economies under consideration. With the exception of the sector "Electricity, gas, steam and air conditioning supply" for the case of the Italian economy, the sectors related to economic well-being are also characterized by favorable import multipliers. However, these sectors are characterized by unfavorable employment multipliers for all the examined economies. Thus, the sectors related to economic well-being cannot be identified as a key sector for any of the four economies of our analysis. On the other hand, the sectors related to non-economic well-being are characterized by favorable import multipliers for all the economies under consideration. With the exception of the sector "Public administration and defence; compulsory social security" for the case of the German economy, the sectors related to non-economic well-being are also characterized by favorable employment multipliers. However, only the sector "Arts, entertainment and recreation" and only for the cases of the Italian and the Dutch economies is characterized by favorable output, import and employment multipliers and, therefore, can be identified as key sector for the Italian and the Dutch economies. Thus, we have found that only one of the six sectors related to the promotion of general well-being, i.e. the sector "Arts, entertainment and recreation", and only for the cases of the Italian and the Dutch economies constitute a key sector for these economies. However, it is possible that there exist other key sectors, not included in the aforementioned six sector, for the economies under consideration. In Tables 4-7 we present the key sectors we detected for the economies of Germany, Greece, Italy and Netherlands, respectively.

Table 4. Key Sectors of the German Economy.

Key Sectors	**Output Multiplier**	**Import Multiplier**	**Employment Multiplier**
Land transport and transport via pipelines	1.73	0.131	11.6
Postal and courier activities	1.90	0.135	15.7
Accommodation and food service activities	1.68	0.136	20.0
Economy's Average	**1.63**	**0.192**	**11.4**

Table 5. Key Sectors of the Greek Economy.

Key Sectors	Output Multiplier	Import Multiplier	Employment Multiplier
Agriculture, hunting, forestry	1.50	0.171	43.5
Land transport and transport via pipelines	1.53	0.163	23.7
Accommodation and food service activities	1.55	0.157	29.8
Publishing, audiovisual and broadcasting activities	1.70	0.177	22.0
Administrative and support services	1.66	0.119	25.9
Other service activities	1.58	0.120	30.4
Economy's Average	**1.48**	**0.198**	**18.4**

Table 6. Key Sectors of the Italian Economy.

Key Sectors	Output Multiplier	Import Multiplier	Employment Multiplier
Construction	2.03	0.149	13.1
Postal and Courier Services	1.91	0.136	16.1
Administrative and support services	1.81	0.113	16.7
Arts, entertainment and recreation	1.86	0.113	11.9
Economy's Average	**1.75**	**0.184**	**11.4**

Table 7. Key Sectors of the Dutch Economy.

Key Sectors	Output Multiplier	Import Multiplier	Employment Multiplier
Agriculture, hunting, forestry	1.65	0.274	8.6
Manufacturing nec; repair and installation of machinery and equipment	1.54	0.269	10.5
Construction	1.89	0.263	7.9
Accommodation and food service activities	1.57	0.205	15.8
Arts, entertainment and recreation	1.57	0.179	13.4

Economy's Average	**1.53**	**0.289**	**7.6**

From the above results, it follows that:

(a) the German economy has three key sectors, i.e. “Land transport and transport via pipelines”, “Postal and courier activities” and “Accommodation and food service activities;

(b) the Greek economy has six key sectors, i.e. “Ariculture, hunting, forestry”, “Land transport and transport via pipelines”, “Accommodation and food service activities”, “Publishing, audiovisual and broadcasting activities”, “Administrative and support services” and “Other service activities”;

(c) the Italian economy has four key sectors, i.e. “Construction”, “Postal and courier activities”, “Administrative and support services” and, as we have already mentioned, “Arts, entertainment and recreation”;

(d) the Dutch economy has five key sectors, i.e. “Ariculture, hunting, forestry”, “Manufacturing nec; repair and installation of machinery and equipment”, “Construction”, “Accommodation and food service activities” and, as we have already mentioned, “Arts, entertainment and recreation”.

Overall, we observe that, on average, the Italian economy demonstartes the highest output multiplier and the lowest import multiplier, whilst the Greek economy demonstrates the highest employment multiplier. On the other hand, the Greek economy demonstrates the lowest output multiplier, whilst the Dutch economy demonstartes the highest import multiplier and the lowest employment multiplier.

Now that we have presented both the multipliers of the sectors related to the promotion of geneal welfare and of the key sectors of each economy, we may compare the results of a policy oriented towards the promotion of general welfare with a policy focused on the key sectors of an economy. In Table 8 we present the average output, import and employment multipliers of the six sectors related to the promotion of general welfare compared to the respective average multipliers of the key sectors of each of the economies under investigation. In the final column of Table 8 we present the percentage deviation of the average multipliers of the sectors related to general welfare from the key sectors. Thus, we get a measure of the deviation (in terms of output, imports and

employment) of a policy towards the promotion of general welfare from a policy focused on the key sectors of each economy.

Table 8. General Welfare's vs. Key Sectors' Average Multipliers.

		General Welfare's Average Multipliers (1)	**Key Sectors' Average Multipliers (2)**	**% Deviation (3)** (3)=((1)-(2))/(2)
Germany	Output Multiplier	1.51	1.77	-14.5%
	Import Multiplier	0.095	0.134	-29.2%
	Employment Multiplier	11.2	15.8	-28.8%
Greece	Output Multiplier	1.36	1.59	-14.3%
	Import Multiplier	0.098	0.151	-35.1%
	Employment Multiplier	18.8	29.2	-35.7%
Italy	Output Multiplier	1.70	1.90	-10.6%
	Import Multiplier	0.117	0.128	-8.7%
	Employment Multiplier	11.6	14.5	-19.6%
Netherlands	Output Multiplier	1.50	1.64	-9.1%
	Import Multiplier	0.150	0.238	-36.8%

	Employment Multiplier	10.0	11.2	-11.3%

From the above, it follows that:

(a) all the average multipliers related to general welfare are lower than those of the key sectors. Thus, the import multipliers of the sectors related to general welfare are more favorable than those of the key sectors;

(b) the deviations between the output multipliers are in the range of -14.5% (Germany) to -9.1% (Netherlands), the deviations between the import multipliers are in the range of -36.8% (Netherlands) to -8.7% (Italy), and the deviations between the employment multipliers are in the range of -35.7% (Greece) to -11.3% (Netherlands);

(c) the deviations between the employment multipliers are higher than those between the output multipliers for the economies under consideration.

The nuanced variances in output, import, and employment multipliers across the economies are indicative of diverse economic levers that can be maneuvered for optimizing policy outcomes. Italy, with its highest output multiplier and the lowest import multiplier, and the Netherlands, depicting the highest import multiplier and the lowest employment multiplier, provide contrasting landscapes for economic and welfare policy formulations (North 1990).

The negative deviations between the multipliers related to general welfare and those of key sectors imply a need for strategic policy interventions aimed at aligning economic growth with welfare enhancement objectives. This necessity is particularly pronounced in the German and Greek economies, where a balanced approach is imperative to synchronize economic growth with improved general welfare (Rodrik 2011).

In comparison, the Italian and Dutch economies exhibit a more congruent relationship between economic growth and welfare enhancement, offering policy authorities a more harmonious landscape for aligning economic growth and general welfare objectives. The understanding and adaptation of these deviations and alignments are pivotal for creating policies that are both economically sound and welfare enhancing (Sen 1999).

To ensure longevity and resilience of the economies, innovation and sustainability should be integral components of the policy framework. For instance, innovation can catalyze diversified economic avenues in Greece, and sustainability in Germany can ensure the continued efficacy of economic and welfare policies (Williamson 2000).

4. Discussion

Using methods of the input-output analysis and data from the input-output tables of the German, Greek, Italian and Dutch economies, in this paper we examined the multiplier effects of the sectors related to the promotion of general welfare compared to the multiplier effects of the key sectors.

The results of our analysis could be characterized as mixed. On the one hand, from the six sectors related to general welfare, only one of them (i.e. "Arts, entertainment and recreation") is a key sector for the economies of Italy and Netherlands and none of them is a key sector for the economies of Germany and Greece. On the other hand, we have detected that there exist only a few key sectors in the selected economies, which makes it more unlikely for the sectors related to general welfare to be identified as key sectors of an economy.

Moreover, the average import multipliers of the sectors related to the promotion of general welfare are more favorable comparable to those of the key sectors for all the economies under consideration, which implies that an economic policy towards the improvement of general welfare would be consistent with the implementation of an import substitution policy. Finally, it is worth noting that, from the four European economies under consideration, the results for the Dutch economy are relatively more favorable for the implementation of a policy towards the sectors that promote general welfare. That is because, the average output and employment multipliers of the sectors related to general welfare of the Dutch economy record the lowest negative deviations from the respective multipliers of the key sectors and, at the same time, the average import multipliers of the sectors related to general welfare record the highest negative deviations from the respective multipliers of the key sectors. The extension of the previous analysis to input-output data from more national economies, the inclusion of more sectors, such as the "Agriculture, hunting, forestry", which is related to nutrition (Dimension 2) of the economic part of general well-being could further concretize the previous conclusions.

This comparative exploration elucidates the multifaceted relationship between economic growth and general welfare across diverse economies. The variances and deviations in sectoral multipliers provide invaluable insights, enabling policymakers to devise strategies that are harmonious to the economic and welfare objectives of their respective nations.

Acknowledgments: Earlier versions of this paper were presented at the 21st Conference of the International Society for the Quality-of-Life Studies (ISQOLS) "Towards a People-First Economy: A World to Win" in Rotterdam, Netherlands, August 2023, at the 22nd Conference of ISQOLS "Human Happiness and Wellbeing in an Uncertain World" in Kota Kinabalu, Malaysia, June 2025, and at the EGPA 2024 Conference "Strengthening Democratic Governance for Better Public Policies and Services", Athens, Greece, September 2024. We thank the participants for useful comments and discussions.

References

(Aghion et al. 1999) Aghion, P., Caroli, E., & Garcia-Peñalosa, C. 1999. Inequality and Economic Growth: The Perspective of the New Growth Theories. *Journal of Economic Literature*, 37(4), 1615-1660.

(Alesina et al. 2004) Alesina, A., Di Tella, R., & MacCulloch, R. 2004. Inequality and happiness: are Europeans and Americans different? *Journal of Public Economics*, 88(9-10), 2009-2042.

(Blanchflower & Oswald 2004) Blanchflower, D.G., & Oswald, A.J. 2004. Well-being over time in Britain and the USA. *Journal of Public Economics*, 88(7-8), 1359-1386.

(Clark et al. 2008) Clark, A. E., Frijters, P., & Shields, M. A. 2008. Relative Income, Happiness, and Utility: An Explanation for the Easterlin Paradox and Other Puzzles. *Journal of Economic Literature*, 46(1), 95-144.

(Easterlin 1974) Easterlin, R.A. 1974. Does Economic Growth Improve the Human Lot? Some Empirical Evidence. In P.A. David & M.W. Reder (Eds.), *Nations and Households in Economic Growth: Essays in Honour of Moses Abramovitz*.

(Kuznets 1934) Kuznets, S. 1934. *National Income*, 1929-1932. NBER.

(Leontief 1936) Leontief, W. 1936. Quantitative input and output relations in the economic systems of the United States. *The Review of Economic Statistics*, 18(3), 105-125.

(Leontief 1986) Leontief, Wassily W. 1986. *Input–Output Economics*. 2nd ed., New York: Oxford University Press.

(Leriou 2015) Leriou, Eirini. 2015. Comparison of the neoclassical school of welfare and the school of new welfare economics. *Archives of Economic History*, *27*(2), 37–46. ISSN 1108–7005

(Leriou 2016) Leriou, Eirini. 2016. *Analysis of the factors that determine social welfare by implementing an integrated decision-making framework.* Panteion University, Athens. https://doi.org/10.12681/eadd/39270

(Leriou 2019) Leriou, Eirini. 2019. The child poverty factor as a constraint in a model of overall welfare: The case of Greece. *Social Cohesion and Development*, *14*(1), 21–31. ISSN 1790-9368. https://doi.org/10.12681/scad.25764

(Leriou 2022) Leriou, Eirini. 2022. Understanding and measuring child well-being in the region of Attica, Greece: Round Four. *Child Indicators Research, 15,* 1967–2011. https://doi.org/10.1007/s12187-022-09957-x

(Leriou 2023) Leriou, Eirini. 2023. Understanding and measuring child well-being in the region of Attica, Greece: Round Five. *Child Indicators Research*, *16,* 1395–1451. https://doi.org/10.1007/s12187-023-10030-4

(Miller & Blair 2009) Miller, R.E., & Blair, P.D. 2009. *Input-output analysis: foundations and extensions*. Cambridge University Press.

(North 1990). North, D. C. 1990. *Institutions, Institutional Change, and Economic Performance*. Cambridge University Press.

(Persson & Tabellini 1994) Persson, T., & Tabellini, G. 1994. Is Inequality Harmful for Growth? *The American Economic Review, 84*(3), 600-621.

(Rodrik 2011) Rodrik, D. 2011. *The Globalization Paradox: Democracy and the Future of the World Economy*. W.W. Norton & Company.

(Sapir 2006) Sapir, A. 2006. Globalization and the Reform of European Social Models. *Journal of Common Market Studies, 44*(2), 369-390.

(Sen 1979) Sen, A. 1979. *Equality of What?* The Tanner Lecture on Human Values, delivered at Stanford University.

(Sen 1999) Sen, A. 1999. *Development as Freedom*. Alfred A. Knopf.

(Stiglitz et al. 2009) Stiglitz, J. E., Sen, A., & Fitoussi, J. P. 2009. Report by the Commission on the Measurement of Economic Performance and Social Progress. Paris.

(Williamson 2000) Williamson, O. E. 2000. The New Institutional Economics: Taking Stock, Looking Ahead. *Journal of Economic Literature, 38*(3), 595-613.