

# Journal of Economics and Business

---

**Leven, Bozena. (2019), Sustainable Development vs. Middle-Income Trap. In: *Journal of Economics and Business*, Vol.2, No.1, 91-99.**

ISSN 2615-3726

DOI: 10.31014/aior.1992.02.01.70

The online version of this article can be found at:

**<https://www.asianinstituteofresearch.org/>**

---

Published by:  
The Asian Institute of Research

The *Journal of Economics and Business* is an Open Access publication. It may be read, copied and distributed free of charge according to the conditions of the Creative Commons Attribution 4.0 International license.

The Asian Institute of Research *Journal of Economics and Business* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Economics and Business, which includes, but not limited to, Business Economics (Micro and Macro), Finance, Management, Marketing, Business Law, Entrepreneurship, Behavioral and Health Economics, Government Taxation and Regulations, Financial Markets, International Economics, Investment, and Economic Development. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Economics and Business* aims to facilitate scholarly work on recent theoretical and practical aspects of Economics and Business.



ASIAN INSTITUTE OF RESEARCH  
Connecting Scholars Worldwide



## Sustainable Development vs. Middle-Income Trap

Bozena Leven<sup>1</sup>

<sup>1</sup> The College of New Jersey, Ewing, NJ 08807, USA. Email [bleven@tcnj.edu](mailto:bleven@tcnj.edu)

### Abstract

The middle-income trap (MIT) describes a situation faced by countries at a relatively mature stage of development that often poses an obstacle to sustainable long-term growth. The MIT is characterized by declining factor productivity from the exhaustion of labor-intensive, import and Foreign Direct Investment (FDI) based strategies when middle-income status is achieved. In this paper we focus on the MIT and Poland. In the past two decades, Poland experienced steady growth based largely on imported technologies and low-cost labor. Recently that economic growth has slowed, prompting economists to ask whether Poland is experiencing an MIT. To answer this question, we analyze changes in investment in Poland – specifically its growth and composition – as well as savings, FDI, educational attainments of the labor force, development of new technologies and products, the role of imports, diversification of exports, and product complexity. We also examine the development of modern infrastructure, institutions (including legal environment) and demographic changes in Poland that support growth. Our findings indicate that certain factors consistent with the MIT are gaining importance in Poland and that those factors represent a challenge to Poland's future growth rate.

**Keywords:** Middle-Income Trap, Total Factor Productivity Growth

### 1. Introduction

The middle-income trap (MIT) refers to a condition faced by countries at a relatively mature stage of development that often creates obstacles to sustainable long-term growth. The MIT is typically characterized by declining factor productivity from the exhaustion of labor-intensive, import and Foreign Direct Investment (FDI) based strategies when middle-income status is achieved. In this paper we focus on conditions associated with the MIT focusing on Poland's economy. Poland's is selected for this analysis because it has experienced steady growth based largely on imported technologies and low-cost labor in the last two decades. Recently that economic growth has become more erratic, prompting economists to ask whether Poland is experiencing an MIT. To answer this question, we analyze changes several factors supporting growth: investment – specifically its growth and composition – as well as savings, FDI, educational attainments of the labor force, development of new technologies and products, the role of imports, diversification of exports, and product complexity. Aside from factors that are quantifiable, we also examine the development of modern infrastructure, institutions (including legal environment) and demographic changes in Poland that support growth. Our findings indicate that certain factors consistent with the MIT are gaining importance in Poland and that those factors might challenge to Poland's future growth rate.

## 2. Literature Review

The concept of the middle-income trap (MIT) is relatively new and spurred some controversy in the literature. Analyzed first at length by the World Bank in the context of selected Asian economies' slowdowns focused mainly on their limited macroeconomic conversion problems (Gill, et al. 2007). Since then, literature expanded rapidly, including new versions of definition, causes, and policies preventing its occurrence. The attempts to define MIT can be condensed into two, not necessarily mutually exclusive groups: one focusing on statistical evidence indicating slowdown in macroeconomic measures of growth and development; the other one identifying economic slowdowns connected with the lack of structural and institutional reforms necessary for a country to progress past the middle-income stage of development. Generally, the MIT is associated with a relatively sustained economic slowdown based on systemic reasons, preventing income conversion to the level of the most developed economies. The term 'trap' resembles Nelson's 1956 "low-level equilibrium trap", though it was originally applied to diverse low-income countries unable accelerate their growth (Nelson 1956). The actual income at which the trap occurs, the specific decline in growth rate, as well as time involved are not well defined in the literature (Griffith 2011). However, as disputes regarding systemic problems of middle-income countries are common, most researchers agree that if a country found itself in an MIT, its per capita income levels would be in the 'teens' of thousands of dollars (Eichengreen 2011).

The discrepancies in definitions and characteristics of the MIT are further exacerbated by structural factors and changes among the countries that are potentially threatened by the MIT. In fact, it is easier to identify countries outside of the MIT threat: at the low GDP/capital level are those that have not yet reached that level of modern development and those that passed the danger of an MIT. The first category includes slow-growing developing economies that rely on low-skill labor-intensive production, natural resources, foreign capital supplementing low domestic savings and low diversification of exports (Baumol 1967). The second group includes most developed countries, with an accumulated stock of physical and human capital, rising total factor productivity, high-skill labor and capital-intensive production, are generating their own technologies and innovation, and have income exceeding \$20,000 per capita (Shahid et al. 2009).

Despite discrepancies related to the exact characteristics, the MIT seems to be a real threat for some countries (Rostow, 1990). For example, Brazil – following its strong economic performance in the 1950s through the 1970s – remains stuck at the income level attained in the early 1980s. In over two last decades, Brazil experienced slow productivity growth, limited export diversification and weak or declining institutional progress, as indicated by its Gini coefficient, governance and corruption indices (World Bank Annual Report 2015) The post 2009 slowdown in Chinese growth, accelerated in 2016-17 also fostered extensive research on whether China is likely to experience its own MIT and on factors that might contribute to it (Zhang 2017).

Table I generally summarizes selected characteristics of progression in growth. It ranges from low income at the left to the most advanced level of development at the right. Based on general characteristics cited by literature, an MIT is likely to occur between stages III and IV (Rostow 1990).

I. Reliance on subsistence agriculture, aid dependency	II. Introduction of simple manufacturing involving foreign capital	III. Complex manufacturing/continues reliance of foreign capital	IV. Quick absorption of foreign management and technology; starting to produce and develop own goods	V. Reliance on own innovation, product design; global leader in many products
1. low growth in per capita income	1. moderate growth of per capita income 2. moderate structural change	1. rising growth of per capita income 2. moderate structural change	1. fast structural change 2. shift of the employment share from the	1. steadily increase TFP growth 2. high capital and technology content

2. agricultural employment exceeding 80%	3. increase of labor outside of agriculture	3. increase of labor outside of agriculture	agricultural to the industry and services	of production and exports
3. government driven industrialization, wide use of subsidies	4. infrastructure build up	4. formation of domestic service industry (outside of traditional services)	3.increased labor productivity and participation	
4. limited structural change				
Rwanda, Ghana	Vietnam	Thailand Malaysia	Korea, Taiwan	US, Japan, most of the EU

Table 1. Major Stages of Economic Growth and Development

Source Rostow, 1990

In the early stages of development, an economy can generate growth by specializing in labor-intensive and low-wage production, and importing or imitating technologies from more advanced countries. Over time, a shift from stage I to II of economic development is associated with the reallocation of capital and workforce from the agricultural sector to the more productive industry or service sectors. This shift is often supported by the inflow of foreign capital and active governments supporting industrialization. With appropriate institutional adjustments and policies, inflow of capital, rise in savings and productivity, countries tend to move to stage III. It is roughly at this stage that the MIT challenge may arise as countries try to shift from an extensive growth, relying on existing comparative advantages concentrating mostly in labor to increasing total factor productivity and developing new technology and innovation-based growth engines (Porter 2002).

The purpose of focusing on a potential MIT stems from the recognition of unique challenges faced by countries at the third stage of development and from a necessary shift in policies and sources of growth to avoid a potential MIT. Thus, while the MIT may not be clearly defined and lacks strong empirical evidence for it being a systemic problem, it is useful as a concept for guiding policy discussions.

### 3. Some reasons responsible for MIT

The major factor behind the MIT is the need for changing role of factors that support growth in low-income countries who have achieved middle-income status. Reliance on labor-intensive processes, imported technologies and foreign investment becomes less viable as growth pushes domestic prices and wages upward. Thus, it becomes necessary to increase productivity of labor and/or capital and to create modern economies that rely on rising total factor productivity, development of new technologies and innovation. In the following section, we explore changes in some of the factors which threaten a country's sustained growth and movement to higher stages of development (in Table I, from stage III to stages IV and V).

While searching for potential causes of an MIT and a country's inability to move to sustainable modern development literature focuses on declining total factor productivities (Fernando 2017), other factors are often considered in the literature: slow growth and composition of investment (particularly where previous high and unsustainable investment rates are not supported by domestic savings (Hayat 2014), extensive reliance on FDI in funding domestic investment, lack of rising educational attainments of labor force (Leibfritz 2008), failure to develop domestically new technologies and products, reliance on imported capital and technology-intensive goods (Zakia 2007), insufficient R&D, lack of diversification of exports, and limited product complexity. In addition, slow development of modern infrastructure, weak institutions (including legal environment), and unfavorable demographics tend to exacerbate the growth problem (Douglass 1989).

#### 4. Poland's case study

Poland has recently been a subject of literature focusing on sources of growth and its sustainable, (Radwan 2014). Following its transition to a market economy in the 1990s, Poland has often been viewed as a model of growth, and was the only country maintaining positive growth rates amid the global recession. However, Table II shows us that, after the recession ended, Poland's growth has fluctuated and tended to decline. The average rate of growth from 2001 to 2008 was 4.1%, but it declined to 2.9% during 2009 to 2016. Such decline alone is not alarming and must have been partially associated with the global recession, but it becomes more problematic when it coincides with existence of systemic factors that may contribute to the MIT. Although the time frame examined is too short to provide definite trends, and Poland's economic slowdown does not necessarily imply any systemic threats, we will examine changes in some economic factors associated with a potential MIT to assess its likelihood.

<i>year</i>	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
<b>growth</b>	1.2	1.3	3.7	5.6	3.4	5.8	6.6	4.8	1.7	3.8	4.4	2	1.3	3.3	3.7	3.1
<b>prod/hr, \$</b>	14.4	15.7	16.5	17.8	18.1	19.1	20.3	21.4	22.7	22.5	27.5	28.8	29.9	30.4	31.2	32.0
<b>I</b>	90.5	82.1	83.5	87.5	94.2	108	126	138	149	154	168	164	156	166	173	175
<b>VA</b>	101	103	106	112	116	123	132	138	142	147	154	157	160	165	171	176
<b>X</b>	103	108	123	129	142	164	181	193	182	206	222	232	246	263	283	308
<b>I/GDP</b>	20.6	18.4	18.8	20.2	19.2	21.7	25.2	24.6	20.6	21.3	22.4	21.0	19.0	20.4	205	19.6
<b>Ed</b>	1.1	1.3	1.4	1.5	1.6	1.9	2.0	2.0	2.0	2.2	2.5	2.5	2.5	2.5	2.7	2.6
<b>R&amp;D</b>	0.62	0.56	0.54	0.55	0.56	0.55	0.56	0.60	0.66	0.72	0.75	0.88	0.97	0.94	1.00	
<b>Pate</b>	22.3	21.8	16.1	20.4	27.6	29.4	41.3	38.0	40.3	36.0	51.6	48.0	60.8	64.7	62.5	66.7
<b>L</b>	61.5	62.2	62.9	63.4	64.0	64.2	64.4	64.5	64.5	64.4	64.2	63.9	63.4	63.0	62.4	61.9
<b>Lprod</b>	73.4	77.4	80.9	84.0	85.4	87.8	90.1	90.8	93.7	100	105	107	108	112	113	
<b>FDI</b>	5283	3991	2897	2750	2223	4027	2689	6696	3799	3181	2424			9900	12200	

Table 2. Changes in Poland's Major Indicators in the Period 1999 to 2016

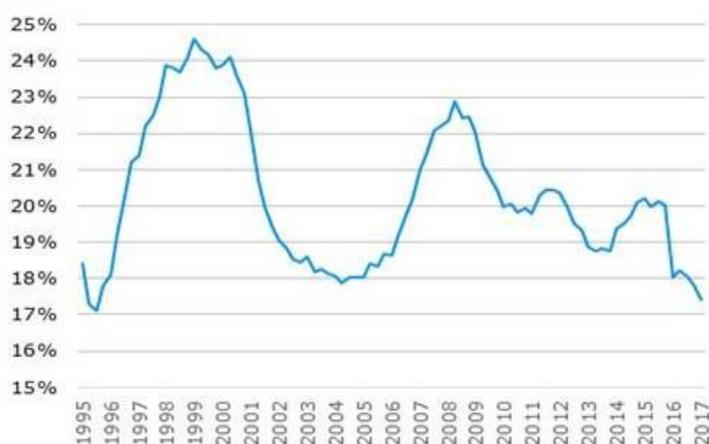
Sources: own calculations based on: CIA Country Factbook, OECD Statistics and Rocznik Statystyczny GUS Wskazniki Makroekonomiczne.

Indicators are as follows: (1) growth: percentage growth rate of GDP (2) prod/hr, \$: total factor productivity per hour in dollars (3) I: investment index, year 2000=100 (4) VA: value-added index, year 2000=100 (5) X: exports index, year 2000=100 (6) I/GDP: share of investment in GDP (7) Ed: number of graduates with tertiary degrees outside of arts and sciences per 1000 (8) R&D/GDP: share of Research & Development in GDP (9) Pate: Number

of patents/1000 (10) L: percent of population age 18-64 (11) Lprod: GDP per hour worked index, year 2000=100 (12) FDI: total FDI in million Euros

The high and rising share of public investment results from Poland's reliance on the EU funding designated primarily for large capital-intensive projects, such as infrastructure (highways), environment-friendly transport (railways, public transport), projects related to investment in broadband internet access, and development of renewable energy sources. The EU funding is usually transferred to various levels of government responsible for infrastructure and is classified as public investment. Throughout most of 2008 to 2015, Poland was among the top three largest recipients of EU funds, reaching first place in 2013 with over \$20 billion in funding for domestic investment. However, the absorption of those funds has often been problematic, threatening its future inflows and is blamed for the recent cuts in such EU funding (Szymański 2017).

Figure 1. Poland's Share of Investment in GDP



Source: own calculation based on Rocznik Statystyczny GUS Wskazniki Makroekonomiczne various years.

A The high share and reliance on public investment funded by the EU is so far the strongest concern when considering sustained growth and a possibility of Poland succumbing to an MIT. To successfully move to modern, sustainable development a country needs to facilitate private sector growth and investment. Even though construction of modern infrastructure, which is necessary to support modern growth, typically relies largely on public funding, low and declining share of private investment could be a sign of concern. However, given the relatively short time period examined and major global macroeconomic decline occurring during that time period, further analysis of trends and factors affecting private investment is needed to assess whether investment composition and its changes are likely to contribute to a systemic slowdown.

Another factor potentially contributing to an MIT is rooted in education (Jimenez, 2012). Here Poland has been making steady progress, as evidenced by the number of people with tertiary degrees outside of arts and sciences (Ed), which increased 2.6-fold in the examined period. When comparing Poland's overall share of population with tertiary degrees – which was 28% in 2015 – to other OECD countries, we see that it is on par with Germany, and exceeds those of Hungary, Portugal, Italy and the Czech Republic. This heavy investment in human capital should be definitely helpful in sustainable growth and development, consequently diminishing the threat of the MIT.

An additional factor often examined when analyzing signs of an MIT is innovation. Measuring the role of innovation in growth is typically problematic, but we can rely on two proxies: the share of Research and Development (R&D) in GDP and the number of patents granted per 1000 people (Pate). Poland's GDP share of spending on R&D has been increasing throughout the entire period, though it remains the lowest among the European OECD countries, hovering around 1% of GDP. The equivalent numbers for Germany, Hungary, Portugal, Italy and Czech Republic are 2.9, 1.4, 1.3, 1.3 and 2% of GDP, respectively.

The other proxy used to measure innovation and the modernization of economic engines of growth is the number of patents granted per 1000 people. This number increased in Poland from 22.5 to 66.7 in the 2000 to 2016 period. However, according to the World Intellectual Property Organization, Poland still ranks 20th in filings for intellectual property protection rights, behind most European countries at a similar level of development (Khan, 2016). The low number of patent applications is consistent with Poland's low spending on R&D and could be partially due to limited government funding for private innovation.

Two more factors that sometimes contribute to economic stagnation are an aging labor force and a consequent rising dependence of the elderly on the working population. In Poland, however, the share of working-age population remained over 60% throughout the examined period, peaking in 2008-2009 and declining slightly afterwards. While examining related data, we stumble upon labor participation rate, which followed an inverse trend to average population age – peaking at 57% in 1999 and falling to 53% in 2007, only to recover to 56.3% in 2016 – and does not appear to cause immediate MIT concerns (Trading Economics, 2017). Another popular measure is the dependency rate, which reveals the number of dependents, ages up to 14 and over 65, to the total population. Poland's dependency rate is 43.8% (IndexMundi, 2017), which is lower than Germany (51.62%), Czech Republic (49.52%) and Hungary (47.91%), indicating that a higher percentage of labor is working age and thereby a lesser strain on the state budget (IndexMundi 2016). Although, this short trend might be reversed because in 2015 Poland reduced the retirement age to below 65, which is below the retirement age in most EU countries. However, due to currently limited data it is hard to support a hypothesis that Poland's demographics constitute an immediate systemic threat to its economic growth.

Another major engine of economic growth is exports. To attain modern sustainable growth a country needs to switch from labor-intensive exports and or exports relying on FDI and imported technology to capital and technology-intensive products, based on domestic innovation. Between 2000 and 2016 Poland's exports both tripled and experienced a change in structure. In 2016 the following ten categories dominated Poland's exports: machinery (including computers) (13.1% of total exports), vehicles (12.2%), electrical machinery and equipment (11.5%), furniture (6%), plastics (4.7%), articles of iron or steel (3%), mineral fuels including oil (2.6%) and meat (2.2%) (Workman, 2017). In 2004 Poland's exports were also dominated by machinery and equipment (21.9%), followed by metals and semi-finished metal products (12.57%), minerals (5.73%), plastics and rubber products (5.14%), chemicals (5.06%), textiles (4.9%), food and tobacco products (3.73%), and wood and paper products (3.21%) (Exports/Imports, 2017).

These are highly aggregated categories and therefore it is difficult to determine the extent of value added generated by skilled labor or technology in those exports, which is necessary in the long run to avoid an MIT. However, some structural changes in Poland's export composition are worth noting: in 2016, the largest categories of Poland's exports included computers and vehicles, which were absent in 2004. This itself is not necessarily a sign of higher innovation content in Poland's exports; in fact, EU firms frequently rely on Poland's less expensive labor to produce their vehicles and other machinery. However, there are some indications that Poland's exports have become more advanced and contain higher value added. For example, metals and semi-finished metal products, minerals, and textiles, all of which are typical low value-added exports, were absent from 2016's top ten exports; and these low value-added exports have been replaced by a higher share of equipment and machinery, indicating an increase in Poland's sophistication of exports. Nevertheless, Poland's current exports still rely highly on foreign capital and technology, so such a shift from textiles, minerals and food products to more technology-based exports does not necessarily protect Poland from an MIT.

Further examination of Poland's FDI structure sheds only limited light onto the extent of modernization and reliance on domestic versus foreign innovation in Polish production. When comparing changes in accumulated stock of FDI in Poland between 2005 and 2015, we see that the total share of FDI in Poland's GDP increased from 24% to 40% (Ancyparowicz, 2009). Throughout the entire period manufacturing, transportation equipment, and food processing were the most attractive locations for foreign capital. By 2015 however, services – whose development is necessary to facilitate modern growth – gained a larger share in FDI, particularly through financial intermediaries (19%) and commerce (16%). Like the changing export structure, the changing FDI composition

indicates that Poland has not quite moved to Table I's stage IV of development and remains dependent on foreign capital for technology while providing cheaper manufacturing opportunities.

## 5. Policy Implications

Based on Poland's rapid growth and development in the last two decades, the question often considered is whether current engines of growth will continuously support transformation to a modern sustainable economy. While there are some signs of a macroeconomic slowdown, it is unclear if they result from systemic causes considered in the literature as typical triggers responsible for the MIT. On the positive side, some of the factors examined indicate a lack of systemic threats commonly associated with an MIT. Most importantly, Poland's productivity, as measured by total factor productivity and GDP growth per hour, does not reveal any signs of a slowdown. Also related to modern growth are data on Poland's education, which show a rapid increase in the share of those with tertiary degrees. As for population, both the dependency ratio and data on aging support modern growth needs.

A more problematic picture emerges when analyzing investment. The high and rising share of public investment financed through EU infrastructure funds is helping to build a modern economy. Since this investment is vital to modern development, Poland needs to address frequent criticism from Brussels about its limited absorption of funds (Kersan-Škabić, 2017). Some changes that could increase absorption include changes in Poland's institutional and regulatory framework involved in the absorption process. On the legal side, simplification of public procurement rules, elimination of the need for a ministerial-level regulation for all documents, and elimination of court appeals for all bids (for example, for those under a 100,000 Euro) could help the absorption process. On the financial side, absorption could improve by simplifying the process of refund claims.

However, assuming Poland will continue improving and building modern infrastructure, it also needs to increase the share of private investment. This may require more business-friendly regulation, streamlining business registration procedures, and monitoring the impact of the recent reform of insolvency law. In addition, restrictive labor laws and irregular work relationships often hamper small and medium-size business investment and growth, undermine labor productivity, and often prevent firms from hiring new workers (OECD, 2016).

Related to factors of labor contributing to an MIT is the potential impact of the recent change in Poland's retirement age, which was lowered to 60 for women and 65 for men, reversing an increase to 67 approved in 2012 by the former government. While it is too early to find its impact statistically, this policy will definitely harm Poland's future dependency ratios and may impact growth, particularly as the number of retirees increases (most of whom rely exclusively on the state for their pensions).

Poland's current spending on R&D also raises some concerns because it indicates a limited role of government in that area. While the government is highly involved in investment, private innovation and technology hardly rely on public spending. Experiences of countries that successfully moved to a modern stage of development all demonstrate that government-funded R&D is critical to support this process, particularly in areas where high costs and risks are involved in producing technological advances.

Changes in Poland's foreign trade structure indicate a shift from manufacturing low value-added exports to more advanced products, but it appears that both exports and FDI still rely on relatively lower labor costs to produce goods based on imported technologies. This implies that a shift to a modern growth based on domestic technologies and innovation has yet to occur.

## 6. Conclusions

The existence of the MIT and systemic factors that contribute to it are still debated in the literature, and the mixed results obtained upon examining those factors in Poland reinforce and deepen the controversy. While most factors that tend to inhibit economic growth, and shifts to modern stages of development are absent in Poland, some potential threats have been identified in the process of the analysis. The key elements include the low share and slow growth of private investment, declining absorption of the EU funds, limited spending on R&D, and an expected rise in

dependency rates. If left unaddressed, those factors alone will likely hamper Poland's economic growth and development.

## References

- "Age Dependency Ratio." (2016). IndexMundi - Country Facts retrieved from [www.indexmundi.com/facts/indicators/SP.POP.DPND/compare?country=de#country=cz:de:hu:pl](http://www.indexmundi.com/facts/indicators/SP.POP.DPND/compare?country=de#country=cz:de:hu:pl)
- Ancyparowicz, G. (2009). "The Impact of Direct Foreign Investments on the Growth of the Polish Economy in the Post-Accession Period." Central Statistical Office of Poland: Information Portal. GŁÓWNY URZĄD STATYSTYCZNY, Department Statystyki Finansów retrieved from [stat.gov.pl/cps/rde/xbcr/gus/pgw\\_wplyw\\_bezp\\_inwest\\_zagr\\_na\\_wzrost\\_pol\\_gosp.pdf](http://stat.gov.pl/cps/rde/xbcr/gus/pgw_wplyw_bezp_inwest_zagr_na_wzrost_pol_gosp.pdf)
- Baumol, W. (1967). Macroeconomics of unbalanced growth: the anatomy of urban crisis. *The American Economic Review* 57(3), 415-426.
- Eichengreen, B. (2011). Escaping the Middle-Income Trap. *Proceedings - Economic Policy Symposium - Jackson Hole*, 409-19. Federal Reserve Bank of Kansas City. Web
- Exports/Imports by Sections CN/SITC/CPA/BEC and Groups of Countries. (2017). Analyses and Decisions Support System (SWAiD). Central Statistical Office of Poland [http://swaid.stat.gov.pl/EN/HandelZagraniczny\\_dashboards/Raporty\\_predefiniowane/RAP\\_SWAID\\_HZ\\_3\\_12.aspx](http://swaid.stat.gov.pl/EN/HandelZagraniczny_dashboards/Raporty_predefiniowane/RAP_SWAID_HZ_3_12.aspx)
- Felipe, J. (1999). Total Factor Productivity Growth in East Asia: A Critical Survey. *Journal of Development Studies* 35 (4), 1-41. Web
- Fixed Assets in the National Economy in 2013. (2014). Poland. Central Statistical Office. Central Statistical Office & National Accounts Department, 29 December, Web.
- Gill, I. Homi K. (2007). *An East Asian Renaissance: Ideas for Economic Growth*. Washington, DC: World Bank.
- Griffith, B. (2011). Middle-income trap. *Frontiers in Development Policy: A Primer on Emerging Issues*. ed. Raj Nallari, Shahid Yusuf, Rwitwika Bhattacharya. World Bank, 39-43.
- Hayat A. (2014). FDI and Economic Growth: The role of Natural Resources. IES Working Paper 36/2014. IES FSV. Charles University.
- Jankowska, A. Nagengast, A.; Perea, J. (2012) . The Product Space and the Middle-Income Trap: Comparing Asian and Latin American Experiences, OECD Development Centre Working Papers, No. 311, OECD Publishing, Paris.
- Jimenez, E. Nguyen, V. Patrinos, H. (2012). Stuck in the Middle? Human Capital Development and Economic Growth in Malaysia and Thailand. Policy Research Working Paper; no. WPS 6283. Washington, DC: World Bank.
- Kersan-Škabić, I. Tijanić L. (2017) Regional Absorption Capacity of EU Funds. *Economic Research-Ekonomska Istraživanja* 30(1) 1191-1208. Taylor & Francis Online. Web.
- Khan, M. Bergquist, K. Lamb, R. Le Feuvre, B. Raffo, J. Torres, G. and Hao Zhou. (2016). "World Intellectual Property Indicators 2016: Economics & Statistics Series." *The Journal of World Intellectual Property* 19.5-6 Web.
- Leibfritz W. Roeger W. (2008). The Effects of Aging on Labor Markets and Economic Growth. In: Hamm I., Seitz H., Werding M. (eds) *Demographic Change in Germany*. Springer, Berlin, Heidelberg.
- Martin, F. (2017). Why Does Economic Growth Keep Slowing Down?. *On the Economy Blog*. Federal Reserve Bank of St. Louis, 9 Feb. 2017. Web.
- Mishal, Z. Abulaila, Z. (2007). The Impact of Foreign Direct Investment and Imports on Economic Growth: The Case of Jordan. *Journal of Economic and Administrative Sciences*. 23. 1-31. 10.1108/10264116200700001.
- Nelson, Richard R (1956). "A Theory of the Low-Level Equilibrium Trap in Underdeveloped Economies." *The American Economic Review*.46 (5), 894-908.
- North, D. Institutions and economic growth: An historical introduction. (1989). *World Development*, 17 (9), 1319-1332.
- OECD Economic Surveys: Poland. (2016). OECD Economic Surveys. Web.
- OECD Statistics. (2017). OECD Statistics. OECD. <http://stats.oecd.org/#>.
- Poland Dependency Ratios. (2017) IndexMundi: World Factbook. Retrieved from [www.indexmundi.com/poland/dependency\\_ratios.html](http://www.indexmundi.com/poland/dependency_ratios.html)
- Poland Labor Force Participation Rate 1998-2017. (2017). Trading Economics. Trading Economics, [tradingeconomics.com/poland/labor-force-participation-rate](http://tradingeconomics.com/poland/labor-force-participation-rate)
- Porter, M. Sachs, J. McArthur, J. (2002). "Executive Summary: Competitiveness and Stages of Economic Development." *The Global Competitiveness Report 2001-2002* 16(25). World Economic Forum. Web.

- Pruchnik, K. Toborowicz, J. (2014). Low Level of Innovativeness and the Middle-Income Trap Polish Case Study. *Journal of Entrepreneurship, Management and Innovation* 10(2), 141-57. Web.
- Radwan, I. (2014). "Avoiding the Middle-Income Trap in Poland." World Bank, 19 Aug. Web.
- Rostow, W. W. (1959). The Stages of Economic Growth. *The Economic History Review*, 12, 1–16.
- Rostow, W. W. (1990). *The Stages of Economic Growth: A Non-communist Manifesto*. Cambridge University Press.
- Sutz, J. (2012). Measuring Innovation in Developing Countries: Some suggestions to achieve more accurate and useful indicators. *International Journal of Technological Learning*. 5. 40 - 57.
- Syverson, C. (2011). What Determines Productivity? *Journal of Economic Literature*, 49 (2): 326-65.
- Szymański, D. (2017). "Plan Morawieckiego Na Razie Tylko Na Papierze. Polska Z Najgorszym Wynikiem Od 1996 R." *Business Insider Polska*. Business Insider, 01 Aug. Web.
- Van Biesebroeck, J. (2007). Robustness of Productivity Estimates. *The Journal of Industrial Economics*, 55: 529–569.
- Woo, Jung-Yeop; Uk Heo. (2009). Corruption and Foreign Direct Investment Attractiveness in Asia." *Asian Politics & Policy* 1.2 223-38.
- Workman, D. (2017). "Poland's Top 10 Exports." *World's Top Exports*. 12 October. Web.
- World Bank Annual Report. (2015). Washington DC. Web.
- Yusuf, S. Nabeshima, K. (2009). *Tiger economies under threat: a comparative analysis of Malaysia's industrial prospects and policy options*. Washington, DC: World Bank. Web.
- Zhang, L. Yi, H.; Luo, R. Liu, C. Rozelle, S. (2013). The Human Capital Roots of the Middle-Income Trap: The Case of China. *Agricultural Economics* 44 (1), 151-62.