

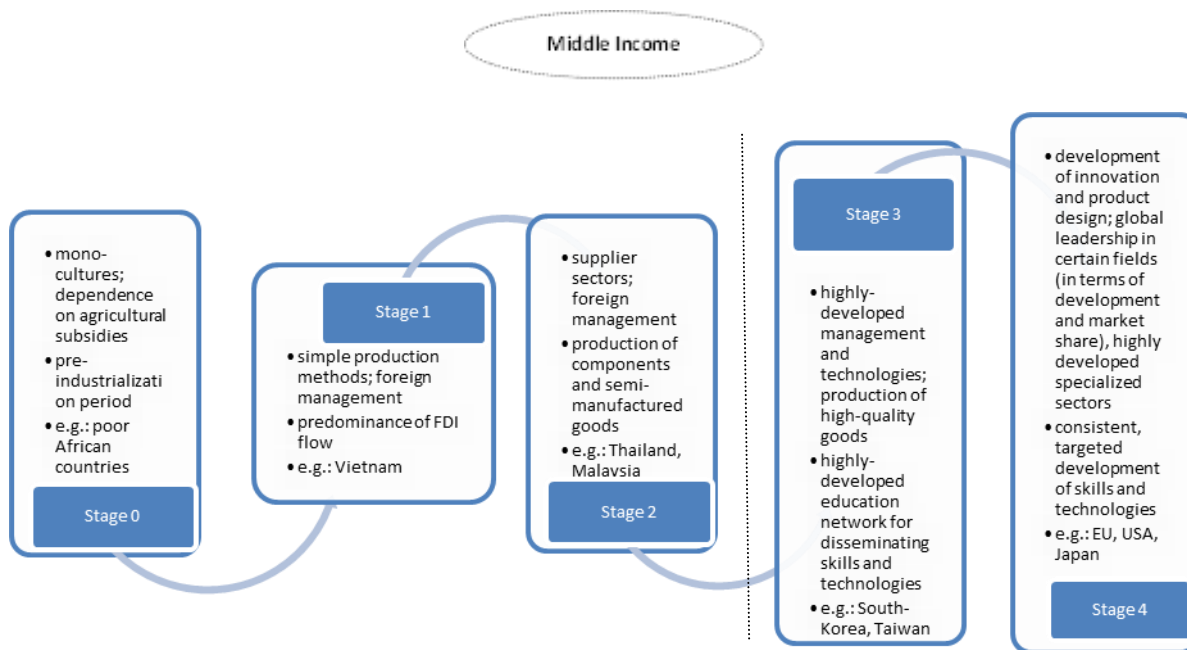


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*Hungary makes strenuous efforts to advance on innovation rankings and
avoid middle income trap*

The term “middle income trap” has been coined by Nobel-prize winning economist Robert Fogel. He states that the majority of countries find it easier to advance from the group of low-income states to that of middle-income ones than making the passage to the high-income category through further GNI growth. Reaching the middle-income status is relatively quickly achievable, provided – in most cases -- that the market is liberalized, labour is cheap and raw materials are available. These factors, however, prove insufficient after a while, as improving living conditions lead to rising wage costs and raw material reserves are depleted. Thus, other steps are required to maintain competitive edge and make further progress.

The following chart tries to answer the question of how and why economies end up in a middle-income trap. As it aptly demonstrates, in the initial stage of development the income of countries mainly stems from agricultural production and foreign aid. Reserves of raw materials and/or cheap labour provide comparative advantages that attract foreign capital to the country. In the second and third stages, FDI tends to gain weight which results in ever larger output of low-complexity supplier products, such as car or machinery components, made for export. **If a country only adopts ready technologies and fails to further develop them, or deepen technological knowledge and invest in education, or rely solely on FDI, it may easily fall into the middle-income trap.** Provided it makes the necessary measures and deepens or further develops knowledge acquired through the help of FDI (and thus generate more added value), the country’s comparative advantage will be bolstered by technological and productivity factors. In the third and fourth stages of development, the focus turns on the production of high-quality products and on essential determinants such as technical expertise, creativity and innovation.



To sum it up, countries usually end up in the middle income trap when rising wages erase their competitive advantage gained from low incomes, and cheap labour is no longer enough for luring foreign investors. Hungary at the moment is in-between the second and third stages: some industrial sectors have already advanced to the third phase (pharmaceuticals, IT and food sectors), while others are about to leave behind the second phase (motor vehicle and electronic product manufacturing). This time is vital for making it to the third stage.

Hungary’s economic policy experts have often emphasised that a breakthrough must be achieved towards innovation-driven and high added value-producing industrial and services sectors in order to avoid the “trap”.

If one is looking at countries that have made a successful transition, good examples are hard to find. **In the past half-century, only a few countries have managed to escape the middle-income trap.** South-Korea, Finland, Ireland and Spain have become developed economies during this period, but all four of them have followed different economic paths and these are shaping the countries even today. **Three of these countries had had in the initial phase of development a protectionist and industry-focused economic policy that tried to replace**



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imported goods with their own products. This period was also characterized by the strong role which the state played concerning economic development.

In **Finland**, the government – through the central bank -- held exchange rates in check and it provided funding – generated mainly by forestry -- for investors at state-regulated interest rates. This facilitated that the country's industrialization. The country launched two reforms in this development phase which have proven to be crucial in the future: raising the quality of education and facilitating R&D&I investment were prioritized. In the period 1970-1990, the country saw average GDP growth of 3.5 percent per year. The Government's anti-cyclical economic policy held a lid on and fine-tuned this massive growth trend. The financial liberalization of 1985-1992, on the other hand, generated excessive lending, which led first to asset over-valuation and eventually to an overheated economy. The collapse of the Soviet Union (a major Finnish export market) caused a deep recession and a financial crisis in the country. Two factors facilitated a speedy recovery from the crisis: the government had gained broad political and social support, which enabled it to make the necessary macro-economic adjustments, and it identified high-tech industrial exports as a major economic priority. A comprehensive education and development policy launched in the 1970s laid the foundation for reaching this goal. In addition to that, fiscal consolidation, pension reform and tighter banking regulations were also necessary.

State intervention was also a distinctive characteristic of **South Korea** at the beginning of the development process. In 1960, a five-year plan was presented as a blueprint for establishing efficient cooperation between the state and private sectors. A state-controlled industrial policy stipulated continuous technological development as this was the precondition for obtaining state funding. In exchange for that, the state ensured the availability of masses of cheap labour (by, for example, ruling trade unions illegal). At the beginning of the 1980s, several problems (inflation, oil price shock, overcapacity due to the rapid growth of heavy industries and the chemicals sector) forced the country to change track and adopt to a more liberal economic policy line. The Asian crisis of 1997-1998 as well as severe indebtedness triggered by poorly regulated financial liberalization led to a major financial crisis in the country. Nonetheless, South-Korea made a relatively rapid recovery after the crisis, thanks on the one hand to a consistent contra-cyclical economic policy and on the other hand to comparative advantages stemming from mandatory technological development targets. As a result, the volume of exports soared and the economy



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posted annual average GDP growth of 5 percent in the period 1998-2008. During these boom years, several reforms were implemented, for example the business and financial sectors as well as the labour market were transformed and these facilitated a fast turnaround following the 2008 crisis.

The economic development of **Ireland** in 1970-2007 is usually referred to as the “Irish economic miracle”, but contrary to previous examples, Ireland could not make a speedy recovery from the crash of 2008. In 1960-1973, the Irish economy was driven by industrial and trade reforms as well as by an export-oriented attitude and trade liberalization that generated average annual economic growth of 4.4 percent. In this period, the quality of education came to the foreground. The growth trend of wages, however, was often stronger than productivity growth and that caused the economy to slow down and the inflation rate to rise rapidly (12.6 percent per year). As an ample sign of stagnation between 1973 and 1987 per capita GDP rose from USD 10 855 to only USD 15 300. To re-ignite economic growth, a tri-party agreement was reached on preventing large wage hikes, consolidating the state budget and implementing a tax reform. The drop in state revenues was skilfully compensated by EU funds. In the next period, the main growth engine of the Irish economy was the export of (predominantly financial) services and a construction sector boom, right until the onset of the crisis in 2008.

In the analysis of Hungary’s present state first it has to be ascertained at which development stage the country’s economy currently is. According to World Bank’s categorization, Hungary is belongs to the high-income group. Data of 2014 show GNI per capita at USD 13 340, and thus the country has exceeded – albeit narrowly – the “magic” threshold of USD 12 735 in 2014, and it has placed the country within the high-income group. If we take a look on GDP per capita, the result is different. Foxley and Sossdorf (2011) drew the line for entry at USD 23 000 per capita GDP at purchasing power parity. This indicator in Hungary was USD 18 841 in 2010 with which Hungary could be categorized as middle-income country in 2011. Although this inflation-adjusted indicator has risen ever since, the country is likely not to have surpassed the mark, which has meanwhile also risen. In light of relative incomes compared to the USA, Hungary also belongs to the group of middle-income countries. In the period 2007-2009, Hungary’s per capita GDP at purchasing power parity was some 40 percent of the figure in the USA, a clear indicator of middle-income status.



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Having established the fact that Hungary is a middle-income country, the question remains if it has fallen in the middle-income trap. The per capita GDP figure alone cannot determine whether this certainly is the case. Even in the 1970s, Hungary was on a higher level of development than Malaysia, Thailand or the Latin-American countries, and we are well above their level also today. Argentina is a special case from this aspect, as it has taken a unique route: while in the 1970s Argentina's per capita GDP was similar to Hungary's, by now this indicator has fallen to some 70 percent of the Hungarian figure.

FDI data do not help either in determining without a doubt whether incoming foreign capital assists or hampers efforts to exit the middle-income trap. Hungary is certainly a highly attractive destination for FDI: in the period of rapid growth (in 1990-2008) incoming FDI averaged 5.53 percent of GDP per year, and it accounted for 25.25 percent of gross fixed capital formation – a figure similar to Ireland's.

The low or high level of FDI is not a decisive factor on its own, as FDI-triggered ripple effects on technologies, spill-over and changes in productivity tell us more of a country's development potential than the volume of FDI.

<i>Country</i>	<i>Period of rapid growth</i>	<i>Average incoming FDI/GDP</i>	<i>Incoming FDI/gross fixed capital formation</i>
Finland	1970-1990	0.22	0.83
Ireland	1987-2000	5.47	26.03
Korea	1980-1997	0.25	0.8
Spain	1982-1992	1.64	7.19
Argentina	1990-2008	2.46	13.7
Brazil	1990-2008	2.06	12.55
Chile	1990-2008	5.31	24.78
Hungary	1990-2008	5.53	25.25
Malaysia	1990-2008	4.95	16.33
Mexico	1990-2008	2.48	12.60
Thailand	1990-2008	3.17	11.81

Competitiveness and productivity are two aspects that must be examined. The 2011 ranking aptly shows that successful countries are well ahead of Hungary in terms of productivity: while Taiwan, Finland and South-Korea occupy ranks 8, 15 and 23, respectively, Hungary only reaches place 47. Among our regional peers, the Czech Republic and Poland come ahead of Hungary (ranked as 30th



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and 34th, respectively), whereas Slovakia and Slovenia are behind us (ranked as 48th and 51st, respectively). With regard to the IMD sub index on productivity and efficiency (GDP per person employed), Hungary has a more favourable ranking (34th), but each successful country has an even better place, including our regional peers, except for Poland. Countries placed by academic literature within the group of countries in the middle-income trap such as Chile, Argentina, Malaysia, Brazil and Thailand are well behind Hungary in terms of productivity ranking (as they are the 38th, 41st, 43rd and 52nd, respectively). This sub-index signals that countries that have managed to escape the trap have better productivity indicators than those that haven't. In this respect, Hungary is in the no-man's-land between successful and unsuccessful countries, slightly closer to the former group in light of this indicator.

The development of knowledge and human resources are probably the most important factors for escaping the middle-income trap. Therefore, again, Hungary must be evaluated in light of the relevant indicators – education and R&D -- of countries that have proven capable or incapable of exiting the trap.

Considering the number of students in or the volume of expenditures on tertiary education, no obvious difference can be detected between successful and unsuccessful countries. In 2009, data show that the share of students in tertiary education was 4016 per 100 000 inhabitants. This is similar to the Irish and Spanish figures, but falls far below that of Finland and South-Korea. On the other hand, if we examine the indicator at the period when these countries had Hungary's current GDP per capita, we find that the share of tertiary education students was only higher in South Korea, but not in the three other countries. In terms of this indicator, Hungary is in the very middle of countries stuck in the middle-income trap.

While education indicators cannot manifestly reveal a distinction between the countries that did it and those that didn't, research indicators clearly highlight the difference. The R&D expenditure-to-GDP ratios of successful countries (Ireland, Spain, Finland and South-Korea) were above 1 percent on average in the past 20 years. Finland's case is special, as in 1996-2008 the country spent on average more than 3 percent of GDP on this field, but South-Korea also had a remarkable figure of more than 2.6 percent annually. However, unsuccessful countries – with the exception of Brazil – have all devoted relatively little to R&D.



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As far as Hungary is concerned, this indicator is lower than those of successful countries but higher than those stuck in the trap. Accordingly, Hungary is once again in the very middle: it neither fully belongs to stagnating countries nor to progressing ones. Unfortunately, there are no available long-term R&D data; therefore the current Hungarian situation is not comparable to the former indicators of successful countries.

	Number of R&D researchers, per 1000 population,	R&D expenditures-to-GDP ratio 1996-2008, average
Finland	7678	3.26
South-Korea	4187	2.63
Ireland	2853	1.23
Spain	2657	1.02
Hungary	1745	0.86
Thailand	311	0.22
Argentina	896	0.45
Brazil	620	0.97
Chile	772	0.53
Mexico	340	0.39
Malaysia	372	0.50

Overall, it can be concluded that although Hungary's economic growth is lagging behind that of countries of a successful transition, it is surpassing the pace of growth characteristic of countries still in the trap. Examining the share and size of incoming FDI leads to the conclusion that these factors do not decidedly determine the capacity of a country to leave the trap, but in light of these indicators Hungary rather resembles laggards. When it comes to competitiveness and productivity indicators, productivity sub-indices as a whole show that the country is closer to unsuccessful countries, while efficiency and work productivity indicators signal that we more similar to successful ones. IMD competitiveness proves insufficient for marking the line between stagnating and progressing countries. R&D indicators, however, can clearly establish a fault line between successful and unsuccessful countries and from this aspect Hungary seems to be lagging far behind the level of countries that have made the transition but perform better than countries that have so far failed to escape the trap.

Other factors, such as the level of corruption or reserves of raw materials, are equally crucial but by no means all-important. Escaping the middle-income trap requires the largest possible reduction of corruption levels, but there is no obvious dividing line between the two



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observed categories. **Taking a closer look on the reserves of raw materials of various countries in most cases shows that the reserves of natural resources do not necessarily determine a country's economic potential. On the contrary: if incomes generated from these resources are only used to improve the living conditions of the population instead of the level of technological development, it may have an adverse effect on the country's sustainable economic development.**

The aforementioned facts do not lead to a conclusive answer on whether or not Hungary has fallen into the middle-income trap, but we can certainly state that the country needs innovation and adequate education -- an indispensable component -- as well as higher expenditures on R&D, the improvement of competitiveness concurrently with the reduction of corruption. In this way alone can we avoid to be stuck in the trap.

Having recognized this fact, the Government has repeatedly expressed determination to bring the domestic economy to a higher level of development in coming years, by placing strong emphasis on the development of these fields.