

## **FUTURE-, OUTSIDE- AND INSIDE-FOCUSED DEVELOPMENT PATHS**

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The FOI model developed by the authors measures the future, outside and inside potential of a country. With the help of the model the OECD countries are evaluated, and four typical clusters are found which can represent four typical development models within the club of developed economies.

**Keywords:** development models, FOI-indices, FOI model

### **Introduction**

The main goal of the paper is to identify possible development paths by running tests on the data of the OECD countries. These development paths are distinguished from each other along three dimensions: future, outside and inside potential. The three potentials are clearly defined, and a measurement method is introduced with the help of which the so called Future, Outside and Inside-indices may be quantified. A factor analysis of the variables correlating with the indices is conducted, and homogenous country groups are formed based on the factor analysis. The groups of countries signify typical development paths within the OECD.

The paper finds that – as assumed – development paths are not unanimous as far as the significance of the three individual potentials is concerned. A developing economy may be steered into more than one direction, and it worth noting that significant trade-offs exist (e.g. some measures taken to boost the future or outside potential of the country might weaken the inside one).

### **Growth and development in economics**

The analysis of growth and development traces back its roots to the birth of modern economics, and it is probably the most important topic on the research agenda of economics. A substantial amount of theories has been formulated for the past 250 years, looking for an answer to two main questions. On the one hand they tried to explain the reasons of continuous growth in the Western countries, when growth was mostly measured as the increase in GDP per capita. On the other hand they have been looking for an explanation on the huge income differences among countries of the developed and underdeveloped world. All these theories point to critical factors the lack or the abundance of which leads to long term growth/development.

But before the development factors are introduced, it is inevitable to pan out about the contradiction between growth and development. Although we have been mentioning them together, the literature usually separates them. The simplest approach is to say that growth is the narrower, and development is the more complex class, as growth is usually defined as an increase in certain quantitative variables, while development describes a process of getting from

a lower level of quality to a higher one (Szentes 2011). As the measurement of the phenomena economics usually deals with is problematic anyway, the most popular, formalised growth-models ( e.g. Domar 1947, Harrod 1948, Solow 1956, Romer 1986, Lucas 1988) concentrate on the national income or on its per capita version. These models therefore map the problem of growth/development through the quantitative change of a single indicator, so they offer tools to analyse the problem of growth, the narrower category.

It is well known however that implications based on the change of the national income (and its main indicator, the GDP) can be misleading at times. It is debatable whether or not the extraction of certain non-renewable resources (like hydrocarbons), the commercialising of typically non-market activities (like household duties done at home), or the inclusion of the costs of certain public goods (like national defence) increase the wealth and well-being of an economy (a detailed discussion on the topic can be found in van den Bergh 2007). Apart from some obvious methodological issues, the GDP as a final indicator is highly aggregated, and because of the high aggregation level it can veil processes rooted deep in the heart of the society, are crucial to the development – defined in the wider, more complex context. Here are some examples to that:

- as different sectors of the economy have different profit levels, value added and resource intensity, their contribution to the national income and the change in the contribution rate over time is very important (the problem of economic structure);
- changes in the structure of the economy lead to the restructuring of the labour market as well (the problem of employment);
- both as a result of structural and labour market changes, there will be changes to the original and secondary distribution of incomes, which in turn can initiate a whole series of social fluctuations (the problem of income distribution);
- the evolution of the state regulation, and the shift in the quantity and quality of state services (the problem of institutions);
- the processes listed above, and some other phenomena determine the long term economic, social and political sustainability of the economy (the problem of sustainability).

Usually when the topic of economic growth is touched upon, a wider concept is implicitly assumed even if the change in real GDP is used as a method of measurement. Besides a sensible increase in the national income, among the desirable economic developments are included (implicitly or explicitly) such phenomena as the decrease in social inequalities, the changes in the consumption patterns, the creation of a more comfortable environment, the reduction of corruption etc. For this reason, from now on, we will use the more complex approach to development whenever we touch upon issues of growth and/or development paths, factors of growth and/or development, meaning that we interpret development as a combination of two things: growth in the indicators of national income, and the modernising of the socio-economic structures.

### **Theories of development**

Economics has produced a lot of development theories partly because different schools of different eras had different ideas about the rules of the economy, and partly because they could not agree on the basic assumptions of the field either. There is still no general agreement on these

basic assumptions, so we shall now continue by presenting the focus areas along which the approaches of the main schools confront each other.

- Limits of the economic model

Economics is a Western discipline. It was born in the most developed parts of Western Europe, and the most influential theories were also developed in the West. As a result of it, the models of economics attempt to describe the functioning of the Western economies. Yet, most schools implicitly assume that the models used are universal, meaning that they are equally as well suited to analyse the Western economies as well as the economy of any other country or region around the world. Classical economics, based on the theory of comparative advantages developed by Ricardo (1817), claimed that free trade, and the strategy of *laissez-faire* in general, is equally beneficial for all countries, doesn't matter if they are developed or underdeveloped. The followers of the German historical school of economics however did not agree with this assumption. List (1841) was convinced that the classical teachings can only be applied to the most developed economies, while for developing countries other principles, like that of protectionism (in case of List: the protection of infant industries) are much more favourable.

The dominant neoclassical growth theories (exogenous or endogenous) also share the assumption of a universal economic model. The members of the school of new institutional economics (e.g. Williamson 2000) on the other hand like to emphasise the importance of institutions in economic development, and they also show that the institutional structure of countries can be very different.

- Stages of development

Although the different branches of economics do not agree on the local or universal nature of their models, they tend to share the idea that all economies have to go through the same development stages. The general assumption thus is, that economic development is unilinear, which in other words means that the differences that can be observed among the economies of the world come from the fact that the countries are at different stage of a universal development path. Less developed countries have to go through the same development stages as did the Western ones, and will ultimately get to the stage which characterises the countries of the West. Hence the only difference between developed and underdeveloped economies is the pace at which they proceeded along the same universal path.

Probably the best known unilinear development theory was developed by Rostow (1960), who described five stages: traditional society; preconditions for take-off; take-off; drive to maturity; and the age of high mass consumption. According to Rostow the most important one of these stages is the take-off period, as it forms the confine between traditional and modern societies, and it is characterised by a sudden increase in investments.

Veblen (1919) a main figure of institutional economics on the other hand was against the teleological approach of economics. He suggested instead an evolutionary approach to the study of economic development. The new institutional school also adopted this view, and it established the notion of path dependence in economics (North 1992). A group of individuals holding key economic and political positions in a country can shape the institutional structure according to its interest, creating a sort of path dependent development. Path dependence works against unilinear development, as a slight initial difference in the structure of institutions can lead to completely different structures later on.

### **Dependency relations**

Economists are also undecided about the role other regions and countries play in the development of an economy. Mainstream theories do not pay attention to such things as national interests or interdependencies. These models concentrate on the decisions of the domestic agents. The outside world is connected to the domestic economy only through the flow of goods and factors of production, but transactions between domestic and foreign agents are treated the same way as are transactions between domestic ones. It is thus a general assumption of the mainstream theory that economies develop independent of each other, almost as if they were in a vacuum.

More heterodox theories tend not to accept the independent development assumption. Although there is no general agreement on the nature of the dependency, it is widely accepted that international economic relations cannot be treated as a simple extension of domestic transactions. Benefits coming from the international division of labour are not split equally among the parties (Grieco 1993), while international regimes established to regulate international relations tend to favour some nations over the others (Keohane 1984). Balogh (1963) points out that the parties involved in international trade are not equal. Many countries have to adapt to the dominant partner, which leads to their cumulative subordination. Myrdal (1957), when discussing the spread and backwash effects of development remarks that dominant economies (e.g. colonisers) can have an interest in preventing the economic modernisation of their partners. By doing so, they can secure export markets for the domestic economies, which in turn leads to one-sided specialisation (Prebisch 1964), an ever declining terms of trade and increasing defencelessness.

### **Unit of analysis**

When the reasons of long term growth or development are analysed, it may seem natural to choose the countries and national economies as the unit of analysis. And indeed this is the most common approach in economics – although it is not the only one. Wallerstein (1974a) when describes the economic history of the medieval Europe, concludes that modernisation cannot be understood within the national economy framework. He chooses the world-system as the unit of analysis instead, and the division of labour within it is determined by the dependency relations. Dependencies lead to the emergence of a core region, around which the periphery and semi-periphery is built. The level of development thus is largely dependent on the regional position of the country in the core-periphery system.

### **Factors of development**

Theories of development also differ from each other in the nature of their answers: some of them focus on one or very few factors as the main causes of development/underdevelopment; others include a series of factors in the explanation. The Harrod-Domar model regarded the savings rate and the high level of capital generation as the key to growth; the endogenous model of Romer (1986) was built on the positive externalities coming from research and development; after the rise of the rent seeking theory (Krueger 1974) bad governance became one of the main reasons of underdevelopment in the literature etc. Porter's diamond model (1990) on the other hand combines four quite complex factors; an empirical research by Barro (1998) spanning over 30 years and 100 countries detects seven factors (education level, life expectancy, fertility,

government spending, rule of law, inflation and terms of trade) that strongly correlate with the real GDP change rate.

The so called subtraction method is one of the most common ones used to determine the factors of development, extremely when the reasons of underdevelopment are looked at. When comparing developed and underdeveloped countries, it is easy to detect the factors that are present in the rich ones and are missing in the poor ones, so they can be listed as factors that explain the wealth of nations.

The factors of development identified in the economics literature can be categorised along many principles, but the location of factors is probably the most important division line. One camp of economists traces back differences in economic development to reasons that can be found inside the country. They point to factors the presence (e.g. physical or human capital) or the lack (e.g. government failures) of which enables high growth rates. It worth mentioning, that when experts name inside factors as causes of poverty, they do not necessarily mean that the problem of poverty can be resolved internally. For example one of the most commonly mentioned causes of poverty in the literature is the low savings rate, and the usual remedy for that is capital injections coming from abroad.

Table 1. Development factors in the economics literature.

| Inside factors  | Outside factors  |
|---|--|
| Division of labour (Smith)                                  | Free trade – international division of labour (Ricardo)                                |
| Savings rate (Harrod-Domar)                                 | Protectionism  |
| Abundance-scarcity of capital                               | Defence of infant industries (List)  |
| Equal-unequal income distribution (Keynes)                  | Equal or unequal trade partners (Balogh)<br>Pressure to fit to moder patterns (Balogh) |
| Drive to innovate (Schumpeter)                              | Unilateral dependency - diversification (Myrdal)                                       |
| Entrepreneurial behaviour (McClelland)                      | One-sided specialisation (Singer)  |
| Rigid-flexible social structure (Meier)                     | Immiserizing growth – terms of trade (Bhagwati)  |
| Imported or organically developed social structures (Boeke) | Forced bilateralism (Myrdal)   |
| Dual-homogeneous economic structures (Meier)                | International wage division- mobility of labour (Emmanuel)                             |
| Investments into human capital (Marshall)                   | Geographical position – core and periphery (Wallerstein)                               |
| Human capital, as a renewable resource (Lucas)              |  |
| Positive externalities of R&D (Romer)                       |  |
| Institutional incentives (North)                            | Investment strategies of multinational companies (Furtado)                             |
| Path-dependent development                                  |  |
| Government failure (Tullock)                                | Demonstration effect   |
| Rent-seeking (Krueger)                                      |  |
| National diamond (Porter)                                   |  |
| Innovation systems (Freeman)                                |  |
| Rule of law, democracy (Barro)                              |  |

Another group of economists finds the causes of underdevelopment in outside factors. Usually these theories take the differences in the development level as given in the world economy, and they assume that these differences lead to asymmetric dependencies. The asymmetric dependencies on the other hand make it very difficult for underdeveloped countries to catch up with the rich world. The lack of convergence may either be explained with intentional obstruction (dominant countries have more say in international affairs, which enables them to secure better positions in the system of international division of labour – Wallerstein 1974b), or with spontaneous economic processes (e.g. the backwash effect described by Myrdal 1957).

The inside-outside distinction among the factors of development plays a crucial role in the model developed during our research. Table 1 sums up the most important factors to be found in the economics literature using this inside-outside distinction.

## The FOI model

To identify the crucial development factors of Hungary, and in order to sketch up potential development paths for the country, we developed the FOI model. The model is primarily based on the factors collected from the literature, but these factors are structured in a unique way which allows us to draw up characteristic development paths that can be clearly separated from each other. We have used the following assumptions when the FOI model was set up:

- The key to development is not a single factor, but rather a combination of many factors. According to our assumption there are several important motors of development; sometimes these factors do influence each other, and it is very difficult to determine, what causes what, still they can be equally important, and they all have to be used to draw up a potential development path for Hungary.
- Among the many factors considered in the model, the so called institutional factors play a primary role. Institutional factors are detected using the hierarchy put forward by Williamson (1998). In fact the model was developed with the aim to stress the importance of institutional factors in development.
- Development can take more than one shape and form. There are several feasible development paths, and Hungary is not constrained to only one of them, but may choose from a (limited) number of such paths. To determine these development paths, the FOI model was used to test the OECD countries.

## The Concept of the FOI-Indices

The FOI model offers a new typology of development factors, but it is also capable of structuring these factors along three clear development directions. As shown previously, the inside-outside typology of development factors is a standard part of the literature, the FOI model however is based on a three-dimensional structure. These three are:

- F, i.e. the future potential of a country;
- O, i.e. the outside potential of a country;
- I, i.e. the inside potential of a country.

All three dimensions are complex, composed of a large scale of factors. Yet they can still be clearly distinguished from each other, which is useful because the clear distinction can help in the formulation of distinctive development strategies.

The future potential includes factors that are regarded to be crucial for the sustainability and future competitiveness of the Hungarian economy. As sustainability has become one of the main paradigms of all social sciences, we felt that the inclusion of it as a separate development dimension was inevitable. In our case sustainability translates to ensuring that the typical signs and indicators of a developed country not only characterise the current state of the economy, but also in the relatively distant future. Our initial expectation was that factors describing the production, use and distribution of different human and natural resources would form the base of the future potential.

The outside potential includes factors that are crucial to the current world market position of Hungary. This second dimension can be treated as an equivalent of the outside factors listed

based on the literature. Some of the elements of the outside potential may not be influenced from the inside; others, like the conditions affecting the international flow of goods, services and factors of production, are a standard part of economic policy. Typically the areas of influence within the outside potential concern the environment within which larger companies operate, so our initial expectation was to have factors determining the quality of the companies' socio-economic environment featured in the outside potential.

The inside potential is made up of factors that are regarded to be crucial to the current well-being and development of Hungary. Most of the inside factors listed in Table 1 fall into this potential. Countries that offer favourable conditions to local entrepreneurs, and provide a high level of quality of life to their inhabitants, can have a remarkable inside potential. We expected to have the factors influencing the economic well-being, the employment and the socio-economic and political environment featured highly in the inside potential.

It is not difficult to spot that certain trade-offs exist among the three potentials. Higher wage levels, for example, are absolutely favourable from the perspective of the inside potential, but they can be dangerous for the outside potential of the country. They can also be threatening to the future potential, if the result of a high wage level is overconsumptions. If a country is well endowed with natural resources, that can boost its inside and outside potentials, but the abundance of resources usually leads to high proportions of waste, which again harms the future potential. The three potentials were drafted with these trade-offs in mind.

To measure the future, outside and inside potential of a country, the FOI-indices were developed. The FOI-indices bear some resemblance to major indices measuring competitiveness, like the World Competitiveness Index (published by IMD), or the Global Competitiveness Index (compiled by the World Economic Forum), but there are some significant differences as well:

- WCI and GCI both follow a thematic structure (creating homogenous groups like education, health care, financial sector etc.), while the FOI-indices only distinguishes three fairly heterogeneous potentials (indicators of education, government sector, entrepreneurship etc. can all be included in one of the potentials).
- Just as the GCI and WCI, our indices are also partly based on hard data and partly on expert estimates. The role of experts in the compilation of the FOI-indices is rather special though, as they were used to sort out the different development factors among the three potentials.
- The FOI-indices are made up of a lot less factors, which helps us in avoiding multicollinearity among the influencing variables.
- Our approach is focused on Hungary, and was developed with the aim to identify typical development paths, while WCI and GCI are compiled with a global approach in mind.

## Methodology

The FOI-indices were compiled in a multi-step process. The relevant literature was processed as a first step, leading us to a list of development factors that can influence Hungary's development potential (see Table 1).

The development factors were operationalized in the second step. During a brainstorming session a list of 50 indicators was compiled with the help of experts. These 50 indicators were to measure the relevant development factors, and they were all included in a questionnaire.

During the third step experts were asked to rank all 50 indicators on a 1-7 scale (1=not relevant at all; 7=is of highest significance). Every indicator received three separate scores: one for future potential, one for outside potential and one for inside potential. The respondents had to

give a high score to an indicator, if they believed it greatly contributed to the sustainability and future competitiveness (F potential), current world market position (O potential) or current well-being (I potential) of Hungary. The questionnaire was filled by 28 experts.

The processing of the questionnaires was the fourth step. Every indicator was put into the group (of three: F, O and I potential) where it scored highest, meaning that an indicator could only be part of one of the potentials. In order to eliminate some of the unimportant factors (which received low scores in all three dimensions), we disregarded everything that had a score below average. The final transformation lead us to 26 factors: 11 of them influences the future potential, 10 the inside one, and 5 the outside one.

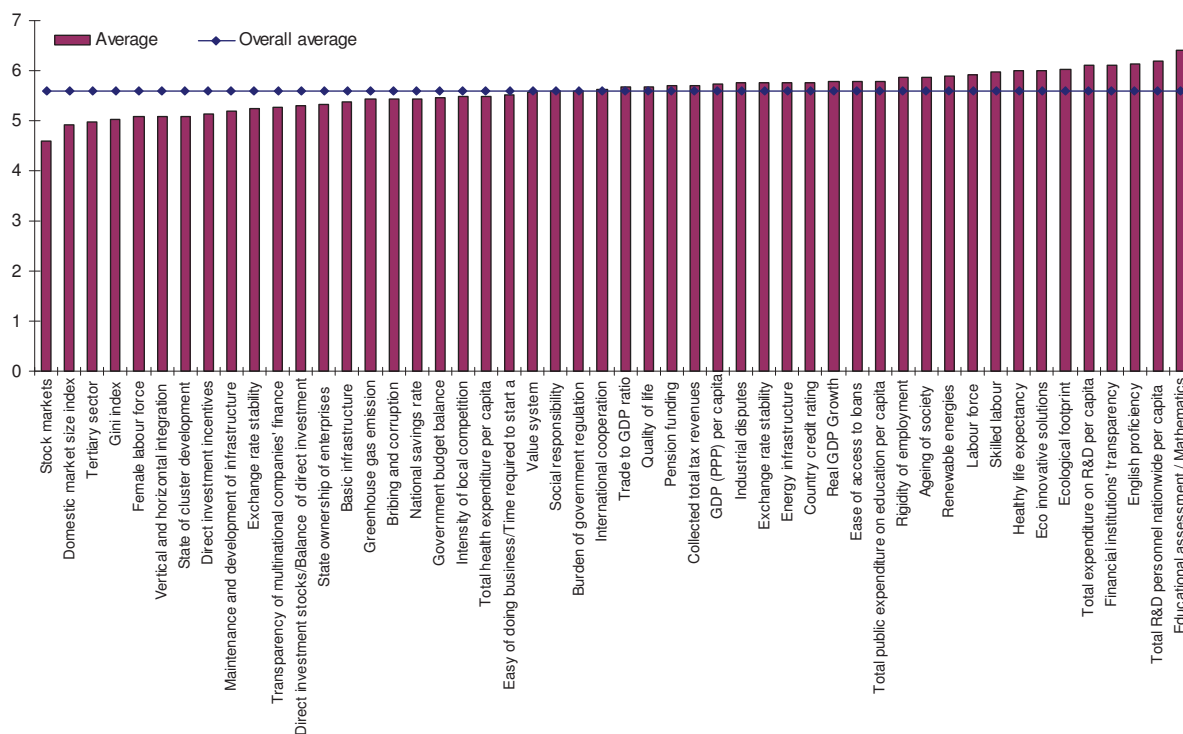


Figure 1. The scores of the 50 indicators put on the questionnaires.

Factors of the future potential:

- Social responsibility
- Industrial disputes
- Energy infrastructure
- Total public expenditure on education per capita
- Ageing of society
- Renewable energies
- Healthy life expectancy
- Ecological footprint
- Total expenditure on R&D per capita
- Total R&D personnel nationwide per capita
- Educational assessment / Mathematics



Factors of the outside potential:

- Trade to GDP ratio
- Country credit rating
- Exchange rate stability
- Financial institutions' transparency
- English proficiency

Factors of the inside potential:

- Burden of government regulation
- Quality of life
- Collected total tax revenues
- Pension funding
- GDP (PPP) per capita
- Real GDP Growth
- Ease of access to loans
- Rigidity of employment
- Labour force
- Skilled labour

The next task was to quantify the newly established future, outside and inside potentials. Hence the F, O and I-indices were calculated, which are basically quantified as the average of the standardised value of those components that were found to have a strong influence on one of the potentials of Hungary after the evaluation of the questionnaires. As the OECD countries were selected as the base of the research, the indicators used to measure the potentials were collected for the 34 member states, and the value of them were standardised to a 1-7 scale using the formula below:

$$6 * (\text{indicator value} - \text{sample maximum}) / (\text{sample maximum} - \text{sample minimum}) + 1$$

In case of indicators where the higher value represents a worse outcome the above formula leads to misleading results, an other formula had to be used therefore:

$$-6 * (\text{indicator value} - \text{sample maximum}) / (\text{sample maximum} - \text{sample minimum}) + 7$$

After converting the original values to the 1-7 scale, the F, O and I-index may be calculated as the average of the standardised values. A high index value is a sign of a country's high potential in that given area.

Once the value of all the FOI-indices was calculated, we checked for a variety of variables that were not include in the core components (so their value did not have an effect on the value of the indices), but correlated significantly with them. These additional variables were assigned to one of the indices; namely to the one that produced the highest linear correlation coefficient with a given variable. With these additional factors a factor analysis was conducted for each of the three indices, which shed light on valuable below the surface relationships.

Table 2. FOI-indices of the OECD members.

| Country         | F-index | O-index | I-index |
|-----------------|---------|---------|---------|
| Australia       | 4,20    | 5,32    | 4,35    |
| Austria         | 4,70    | 5,41    | 4,05    |
| Belgium         | 3,90    | 5,56    | 3,47    |
| Canada          | 3,90    | 5,41    | 4,50    |
| Chile           | 3,80    | 5,03    | 4,13    |
| Czech Republic  | 3,10    | 4,97    | 3,57    |
| Denmark         | 4,80    | 5,77    | 4,30    |
| Estonia         | 3,00    | 4,94    | 3,08    |
| Finland         | 5,00    | 5,72    | 4,02    |
| France          | 4,40    | 4,46    | 3,04    |
| Germany         | 4,30    | 5,26    | 3,73    |
| Greece          | 2,90    | 3,66    | 2,50    |
| Hungary         | 2,90    | 4,56    | 2,55    |
| Iceland         | 5,90    | 2,33    | 4,42    |
| Ireland         | 3,90    | 4,17    | 3,91    |
| Israel          | 3,60    | 4,89    | 4,13    |
| Italy           | 3,50    | 3,82    | 2,66    |
| Japan           | 4,80    | 3,68    | 4,01    |
| Korea           | 4,00    | 4,26    | 3,33    |
| Luxembourg      | 5,30    | 6,56    | 4,45    |
| Mexico          | 2,70    | 3,98    | 2,85    |
| Netherlands     | 4,40    | 5,54    | 3,83    |
| New Zealand     | 4,20    | 4,52    | 4,00    |
| Norway          | 5,20    | 5,70    | 4,13    |
| Poland          | 2,90    | 4,42    | 3,07    |
| Portugal        | 3,50    | 4,33    | 2,91    |
| Slovak Republic | 3,00    | 4,82    | 3,25    |
| Slovenia        | 3,40    | 5,08    | 2,70    |
| Spain           | 3,40    | 4,23    | 2,99    |
| Sweden          | 5,10    | 5,22    | 4,13    |
| Switzerland     | 5,40    | 5,37    | 4,89    |
| Turkey          | 3,30    | 3,63    | 3,14    |
| United Kingdom  | 3,90    | 4,35    | 3,60    |
| USA             | 3,80    | 4,27    | 4,47    |

### Factor analysis of the FOI-indices

The factor analysis was done with SPSS 19. The method makes it possible to reveal background relationships among a large number of variables. Factor analysis offers double advantages: important influencing factors can be discovered with it, and the number of observed variables can be decreased significantly as well.

## Factors of the F-index

We were able to establish three main groups of indicators that showed a significant correlation with the index of the future potential of the OECD countries<sup>1</sup>. They were labelled as Human capital, Accountable corporations and Quality of the education system. The three factors retain 83.897 per cent of the information content of all the indicators involved, and they overall explain 76.4 per cent of the OECD countries' F-index values.

The Human capital factor is a combination of indicators measuring the education and health sectors, and the productivity. The Accountable corporations factor combines such factors as the ethical and social responsibility of organisations, the credibility of managers, and so it represents the social, ethical and environmental considerations of businesses. The third factor, Quality of education system shows the returns on efforts made in the education system.

### *1<sup>st</sup> factor: Human capital*

- Labour productivity (PPP)
- Overall productivity (PPP)
- Total health expenditure per capita
- Total public expenditure on education per capita
- Healthy life expectancy
- Total expenditure on R&D per capita

### *2<sup>nd</sup> factor: Accountable corporations*

- Ethical practices
- Social responsibility
- Credibility of managers

### *3<sup>rd</sup> factor: Quality of the education system*

- Educational assessment / Mathematics
- Educational assessment / Sciences
- Science in schools
- Educational system

## Factors of the O-index

Two factors were found with the factor analysis of the O-index (KMO value is 0.803, the explained proportion is 73.7 per cent), namely National goodwill and Investment conditions. The two factors explain 61.3 per cent of the OECD countries' O-index values. The main distinction between the two factors is the time frame within which their indicators may be influenced by the decision maker. The Investment conditions factor includes variables that can be influenced

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<sup>1</sup> The Kaiser-Meyer-Olkin (KMO) value helps us in telling to what extent are the chosen variables suited for a factor analysis. In this case the KMO has a value of 0.823, indicating that the variables involved in the analysis are very much suited for this method. Principal component analysis and Varimax rotation was used during the analysis.

relatively easily, even over the short term; the National goodwill on the other hand may only be changed over the very long term.

*1<sup>st</sup> factor: National goodwill*

- Parallel economy
- Investment risk
- Image abroad
- Country credit rating
- Brain drain
- Risk of political instability

*2<sup>nd</sup> factor: Investment conditions*

- Foreign investors
- Exchange rate stability
- Capital markets
- Investment incentives
- State ownership of enterprises

### **Factors of the I-index**

Variables having a significant correlation with the I-index can be separated into three factors (KMO=0.791; explained proportion 73.408 per cent). These factors were labelled as Business competitiveness, Government intervention and Availability of resources. They overall explain 81.7 per cent of the OECD countries' I-index values.

The Business competitiveness factor measures the microeconomic position of all businesses (small- and medium-sized enterprises and large corporations) along such dimensions as productivity, efficiency and R&D&I. The other two factors describe the macroeconomic environment of the businesses, where the Government interventions consist of the regulation part and the Availability of resources the allocation part.

*1<sup>st</sup> factor: Business competitiveness*

- Innovative capacity
- Productivity of companies
- Small and medium-size enterprises
- Information technology

*2<sup>nd</sup> factor: Government intervention*

- Subsidies
- Finance and banking regulation
- Protectionism
- Legal and regulatory framework
- Ease of doing business

- Bureaucracy

*3<sup>rd</sup> factor: Availability of resources*

- Labour force
- Total primary energy supply per capita
- Burden of government regulation
- Employment rate
- Gross domestic savings

### Clusters of OECD countries

The FOI-indices and the factors determined during the factor analysis were used to identify typical clusters within the OECD countries. These artificial clusters were created based on the values of the F, O, and I-index, with the so called half-scale method. As the indices can have a value between 1 and 7, 4 is the mid-value. So all three indices were split into two groups: the values between 1 and 4 went into the group labelled as “low”; while the values above 4 were labelled as “high”. Eight clusters could be set up with this method, shown in Table 3.

Table 3. Half-scale clusters of OECD countries.

| Cluster code | F-index | O-index | I-index |
|--------------|---------|---------|---------|
| 1            | 1       | 1       | 1       |
| 2            | 1       | 1       | 2       |
| 3            | 1       | 2       | 1       |
| 4            | 1       | 2       | 2       |
| 5            | 2       | 1       | 1       |
| 6            | 2       | 1       | 2       |
| 7            | 2       | 2       | 1       |
| 8            | 2       | 2       | 2       |

1=index value between 1 and 4; 2=index value above 4

Theoretically all 8 clusters could represent feasible combinations, but most of the 34 OECD members fall into 4 groups. The distribution is shown in Table 4.

Table 4. OECD clusters based on the half-scale method.

| Code | Country   |
|------|---|
| 1    | Greece, Italy, Mexico, Portugal, Turkey   |
| 3    | Chile, Czech Republic, Estonia, Hungary, Israel, Poland, Slovakia, Slovenia, Spain                                  |
| 5    | United Kingdom  |
| 6    | Iceland   |
| 7    | Belgium, France, Netherlands, Ireland, South Korea, New Zealand   |
| 8    | Australia, Austria, Canada, Denmark, Finland, Germany, Japan, Luxemburg, Norway, Sweden, Switzerland, United States |

The factor analysis presented earlier in the paper helps us in finding the main features of the four clusters consisting more than one country. These features will characterise the development model of those countries, which were put into group nr. 1, 3, 7 and 8 respectively.

*Cluster nr. 1: Outdated model with traditional structure*

The countries of the first cluster (Greece, Italy, Mexico, Portugal and Turkey) performed below average in all three potentials. Their handicap is largest in the Accountable corporations factor of the F-index, which represents the social, ethical and environmental considerations of businesses. They have the lowest score in the National goodwill factor of the O-index as well. As far as the I-index is concerned, cluster nr. 1 has the lowest average score in the Business competitiveness and the Availability of resources factor, while the factor average for the Government intervention is also negative (but not the worst among the clusters).

Cluster nr. 1 can hardly offer a development model for Hungary. The Index scores are very low for all three dimensions, that is why it is called the outdated model of development.

*Cluster nr. 3: The dual model*

The countries of the 3<sup>rd</sup> cluster (Chile, Czech Republic, Estonia, Hungary, Israel, Poland, Slovakia, Slovenia and Spain) have a 2 in the outside potential, so they have an above the average outside potential. Looking at the factors it becomes clear that the high outside potential is the result of very favourable Investment conditions, where they excel compared to the other countries. The top notch Investment conditions are enabled by liberalised FDI regulations, exchange rate stability, accessible capital markets and investment incentives-oriented economic policies. Interestingly enough the National goodwill of these countries is lower than average. They also perform poorly in two factors of the F-index (Quality of the education system and Human capital), while they barely fall behind the average in the Accountable corporations factor. As far as the I-index is concerned, cluster 3 is slightly above the average in Government intervention, but the other two factors show a poor performance yet again.

After a careful inspection of the factor structure of the cluster, one can easily spot the clear focus on outside resources. These countries provide favourable investment conditions to the world market-oriented firms, and there is a shift towards more liberalised regulations in their economic policy strategies. As a result of this, their economies show the signs of the classical dualism: an efficient, outside-oriented, foreign resources-based sector coexists together with the traditional sectors that are not so efficient, are at least partly insulated from the more efficient ones, and are mostly based on domestic resources. The main strategy of the dual model therefore is to change the traditional structure of the economy through a deliberate focus on the attraction of foreign capital.

*Cluster nr. 7: Large corporation-based, bureaucratic model*

The countries of cluster nr. 7 (Belgium, France, Netherlands, Ireland, South Korea and New Zealand) were defined as having high F and O-index values, and low I potential. But the high F-index comes in fact from an outstandingly good Accountable corporations factor value; the other two factor values are around the average. Although the O-index is also above the OECD average, the cluster does not stand out so strikingly in the outside potential as it does in the future one. The group scores above the average in the Business competitiveness factor of the inside potential, but falls below the average in the other two, Government intervention and Availability of resources.

The name of the model – large corporation-based/bureaucratic – comes from the observation that on the one hand these countries seem to excel in factors measuring the strength of businesses

(outstanding score if Accountable corporations, above the average one in Business competitiveness). The factor scores measuring the efficiency of the state sector on the other hand tend to be below average (the Government intervention and the Availability of resources are both below it, the Quality of education system just hits the average), which suggests a protectionist-statist approach from the government.

*Cluster nr. 8: Human capital or knowledge-based model*

The countries of the final cluster (Australia, Austria, Canada, Denmark, Finland, Germany, Japan, Luxemburg, Norway, Sweden, Switzerland and the United States) have outstanding scores in the F-index, especially in its Quality of education system and Human capital factors. They also score well above the average in the two factors of the O-index, and produce the best average in the National goodwill. Their performance in the three factors of the I-index is also very good.

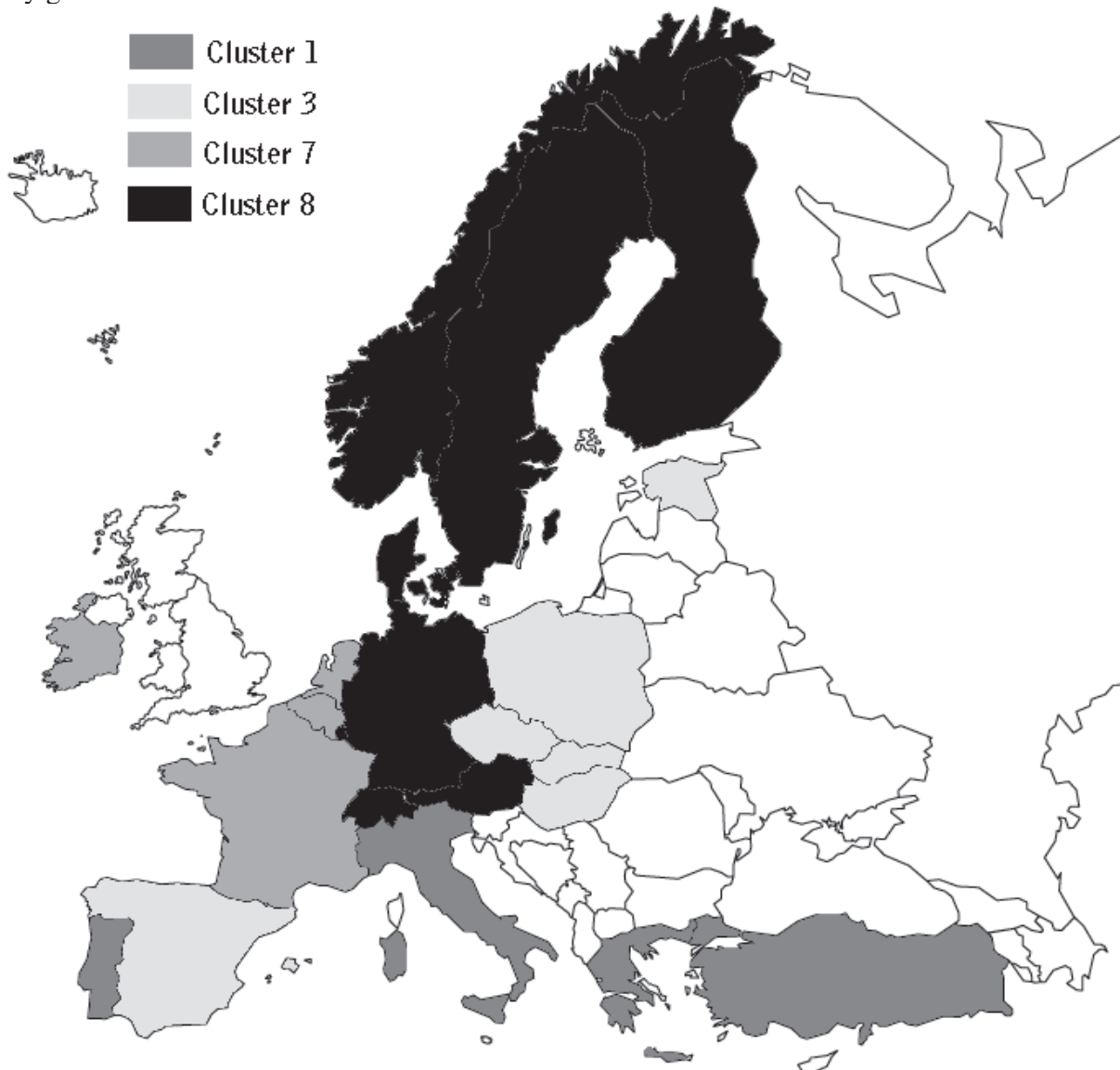


Figure 2. Clusters of European OECD members.

Without any doubt, cluster nr. 8 stands out from the rest of the OECD countries. There is not a single factor where they would score below the average, and they have the best average scores in many areas. The strength in human capital was chosen as the main feature of the cluster, as this is the area where its superiority to the other groups is most striking. While cluster 8 has the best scores in the Human capital and Quality of the education system factors, cluster 3 is weak in this field, and cluster 7 is around the average.

## Conclusion

The paper was built on five main actions:

- identifying the growth-development factors in the economics literature;
- developing the concept of the FOI model by defining the future, outside and inside potentials;
- operationalizing the growth-development factors, and splitting them among the three potentials;
- calculating the F, O and I-indices that measure the future, outside and inside potentials;
- identifying typical groups among OECD countries with the help of the FOI indices.

Using the FOI model we were able to detect four typical groups among OECD countries. Three of these (the dual model, the corporation-bureaucratic oriented model and the human capital oriented, knowledge based model) can represent viable development paths for an emerging economy. The dual model describes a strategy based on the attraction of foreign resources; the corporate-bureaucratic model represents a defensive strategy based on the creation of domestic safe havens; while the knowledge based model leads to an offensive, world market oriented strategy.

The initial assumption of the paper was that most countries will have the option to choose from more than one possible development paths. The findings presented in the paper make it clear that the choice can only be a long term one. The preconditions that make the knowledge-based model a feasible strategy, for example, are hard to establish, and they take a lot of time to develop even after the choice on the level of economic policy was already made.

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