STUDIES IN INTERNATIONAL ECONOMICS

Special Issue of Külgazdaság

December 2016
Volume 2, No. 2

KOPINT Foundation for Economic Research

Studies in International Economics

Special Issue of Külgazdaság

Volume 2, No. 2

Publisher: KOPINT Foundation for Economic Research

The publication was supported by the **Hungarian National Bank.**

Contents of the latest issue of Külgazdaság (2016, Vol. LX, No. 9–10)

CONTENTS

LEGAL SUPPLEMENT

The Hungarian and the English versions of the journal can be purchased at the Editorial Office.

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The Editor-in-Chief is *Edit Landau.* Published by Kopint Foundation for Economic Research.

Budapest, Nagymező utca 37–39. Hungary 1065.

Chairman of the Board is *Éva Palócz.*

HU ISSN 2416-3805

Lay-out: Király és Társai Kkt.

Printed by *mondAt Kft.* • www.mondat.hu

The Structural Change of Manufacturing in Hungary, 2008–2014

BENEDEK NAGY – IMRE LENGYEL

*After the financial crisis of 2008, there was an increased focus on industrial restructuring and reindustrialization in many countries including Hungary. In our study, with the adaptation of Tregenna's method, we analyze the transformation of the structure of Hungarian manufacturing based on employment and gross value added, considering the 13 manufacturing sub-sections from 2008 to 2014. We classify the sub-sections into growing, stagnating and weakening groups. Following the analysis of the sub-section groups, we also describe the changes of particular background factors, such as investments, export, foreign direct investment and the composition of employment.**

Journal of Economic Literature (JEL) code: E22, E23, E24, J21, L60.

Introduction

After the crisis originating from the financial sector in 2008, the economic policy of several countries focused on promoting the real sector, manufacturing in particular. Various resolutions were taken in the European Union on boosting manufacturing activities, on "reindustrialization" (EC, 2010; 2014). The current 16% share of manufacturing activities is proposed to be increased to 20% by 2020, the

* The Hungarian version of the article was published in *Külgazdaság,* 2016, Vol. LX, No. 9–10, pp. 3–27 (*Nagy Benedek – Lengyel Imre:* A feldolgozóipar szerkezetváltása Magyarországon 2008 és 2014 között).

Translation checked by *Chris Swart.*

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explanation emphasizing that 80% of the EU's export is provided by industry and that industry can stimulate a wide range of related services (*Győrffy*, 2015). This shift can be observed in the majority of developed countries, the former deindustrialization was replaced by reindustrialization in economic policies, encouraging high value added knowledge-intensive activities, rather than traditional manufacturing ones (*Westkamper*, 2014).

Reindustrialization as a governmental concept emerged in Hungary as well: industry's 26.7% share of the country's GVA in 2014 (out of which manufacturing represents 23.5%) is intended to be increased to 30%; to this end the Irinyi Plan was introduced in the spring 2016. The professional opinions on reindustrialization concepts are mixed, there are skeptical and opposing opinions besides supporting ones (*Botos*, 2010; *Bod,* 2013; *Lux*, 2012; *Uliha–Vincze*, 2014; *Valentinyi*, 2014).

In our paper, we examine the changes in the structure of Hungarian manufacturing based on the methodology applied by *Tregenna* [2009; 2013]. In her research on de- and reindustrialization she relied on data on employment and GVA analyzing labor productivity and labor intensity, and the changes of these indicators. *Tregenna* studied the structural change of different countries and the role of manufacturing in this process; we adapt her method on the sub-sections in manufacturing in Hungary. In the analysis, we consider 2009 as the base-year. Due to the switch to the TEÁOR'08 (NACE 2008) classification, comparable data at sub-section level are consistently available from 2008, but as a result of the downturn caused by the crisis, in 2008–2009 there is a so-called "structural break" in the data, thus the processes of the previous period changed fundamentally. First we describe the situation of manufacturing and its sub-sections in Hungary, then we present our calculations related to the structural transformation of the sub-sections, as well as our typifying of the sub-sections and their specificities. The end of the study reviews some important background factors of the presented structural change of manufacturing such as investments, export, foreign direct investment and the composition of employment.

Hungarian manufacturing and its sub-sections

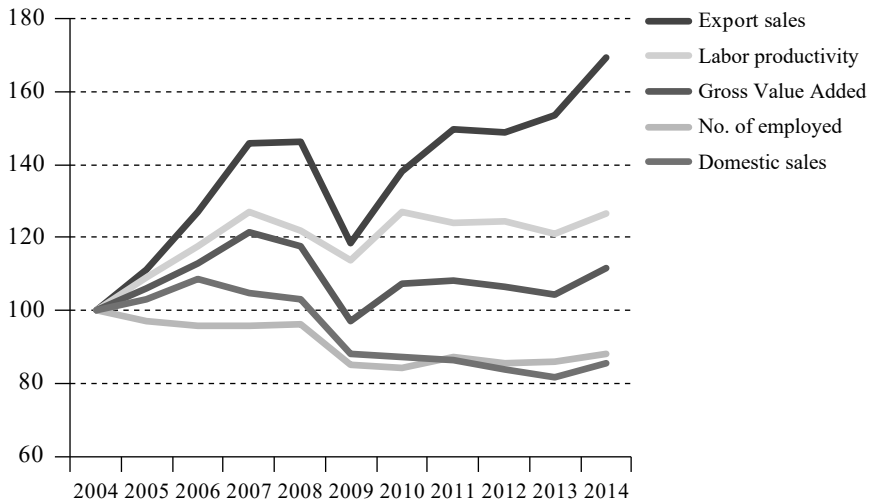
In the analysis of the structural change of manufacturing, as well as de- and reindustrialization, usually two basic indicators are taken into consideration: number of employees and GVA (*Barta et al.*, 2008; *Cristopherson et al.*, 2014; *Szirmai*,

2012; *Tregenna*, 2014; *Weiss*, 2002). In the detailed analysis, we also analyze labor productivity calculated from these two indicators, and will also use further indicators, e.g., the change of sales and export in particular.

Figure 1

Change of the main indicators of manufacturing

(2004 = 100%)



Note: The data of manufacturing export, labor productivity, domestic sales and GVA are volume indices.

Source: Authors' calculation based on the HCSO STADAT 2.1.30; 3.1.4; 3.1.5; 4.2.8; 4.2.10 tables (downloaded: 03/21/2016).

The evolution of domestic manufacturing can be divided into three different stages, if we consider a longer period, from the accession to the European Union in 2004 (see: *Figure 1*). Between 2004 and 2007, GVA, labor productivity and export sales increased dynamically, while employment gradually decreased. Manufacturing was halted in 2008, and substantially dropped in 2009; there is an evident "break" in the case of each indicator. The third stage takes place from 2010, export became dynamic again, while the other indicators essentially stagnated, it was only in 2014 that GVA increased and labor productivity improved. In our opinion, however, the tendency indicated by the data is not reindustrialization; the boost in export refers primarily to a transformation within manufacturing, to a structural change.

Apparently, structural change is continuously ongoing in industry, but a substantial transformation usually takes place over a longer period, only particular signs are present in the shorter period we analyze.

In our study, we examine the *structural change in manufacturing* for 13 sub-sections based on the TEÁOR'08 (NACE 2008). We considered the employment number as the number of staff, our database includes full-time and part-time manual and non-manual workers employed by organizations with more than 4 employees from the dissemination database of the Hungarian Central Statistical Office. GVA is real value added on a 2008 base, which we calculated using price indices calculated from values added at current prices and at the price of the previous year for each year, taken also from the dissemination database of the Hungarian Central Statistical Office.

Employment number decreased substantially (by 3.7%) in the total national economy in 2009 (see: *Table 1*). Following slight fluctuations, nationwide employment exceeded the level of 2008 by about 60 thousand people in 2014. *Employment number in manufacturing* was below the value of 2008 in both 2013 and 2014, however, it outperformed the value of 2009 in both years, by 28 thousand people (by 3.6%) in 2014. The share of manufacturing in employment amounted to 24.8% in 2008, while only 22.7% in 2014, thus manufacturing declined in the national economy (although its proportion slightly increased in 2014 compared to the previous years).

By manufacturing sub-sections, *employment number* changed to a minimal degree between 2009 and 2014 (see: *Table 1*). There are four sub-sections [Manufacture of machinery and equipment (CK), Manufacture of transport equipment (CL), Manufacture of chemicals and chemical products (CE) and Manufacture of pharmaceuticals, medicinal chemical and botanical products (CF)] where the figure of 2014 exceeds that of both 2008 and 2009, i.e., in these sub-sections the number of employees grew, while in others it stagnated or substantially decreased [Manufacture of textiles, apparel, leather and related products (CB), Manufacture of wood and paper products, and printing (CC), Manufacture of coke and refined petroleum products (CD), Manufacture of computer, electronic and optical products (CI) and Manufacture of electrical equipment (CJ)].

Table 1

Employment number in manufacturing sub-sections

(Person)

Sub-section	Code	Number of employees, ’000							Change, %	
		2008	2009	2010	2011	2012	2013	2014	2014/ 2008	2014/ 2009
Manufacture of food products, beverages and tobacco products	CA	101.6	96.4	97.4	95.7	94.2	94.0	97.0	95.5	100.6
Manufacture of textiles, apparel, leather and related products	CB	54.5	46.0	43.2	43.2	43.1	42.0	41.9	76.9	91.0
Manufacture of wood and paper products, and printing	CC	43.5	39.0	39.8	38.6	36.4	36.3	38.4	88.2	98.4
Manufacture of coke, and refined petroleum products	CD	6.5	6.4	6.3	6.4	6.4	6.1	5.9	90.6	92.8
Manufacture of chemicals and chemical products	CE	13.5	13.0	12.5	13.8	12.6	12.7	13.5	100.1	103.5
Manufacture of pharmaceuticals, medicinal chemical and botanical products	CF	16.1	15.7	15.9	16.6	16.7	17.1	17.6	109.4	111.8
Manufacture of rubber and plastics products, and other non-metallic mineral products	CG	74.9	63.4	60.7	62.5	60.3	60.4	63.7	85.1	100.5
Manufacture of basic metals and fabricated metal products, except machinery and equipment	CH	85.9	71.0	67.2	73.0	73.0	74.9	79.1	92.0	111.4
Manufacture of computer, electronic and optical products	CI	60.3	51.6	57.6	57.5	51.7	48.2	41.5	68.9	80.4
Manufacture of electrical equipment	CJ	54.2	45.7	37.2	37.0	36.2	37.1	38.9	71.8	85.1
Manufacture of machinery and equipment n.e.c.	CK	45.2	43.1	48.0	57.9	57.3	56.1	56.8	125.8	131.7
Manufacture of transport equipment	CL	86.0	66.9	67.9	70.0	72.4	78.8	86.6	100.8	129.5
Other manufacturing, and repair and installation of machinery and equipment	CM	43.5	48.0	46.7	49.4	49.1	48.9	47.3	108.7	98.4
Manufacturing	C	685.4	606.3	600.3	621.5	609.4	612.6	628.2	91.6	103.6
Total	A-S	2761.9	2660.7	2701.9	2691.5	2674.1	2700.2	2823.1	102.2	106.1

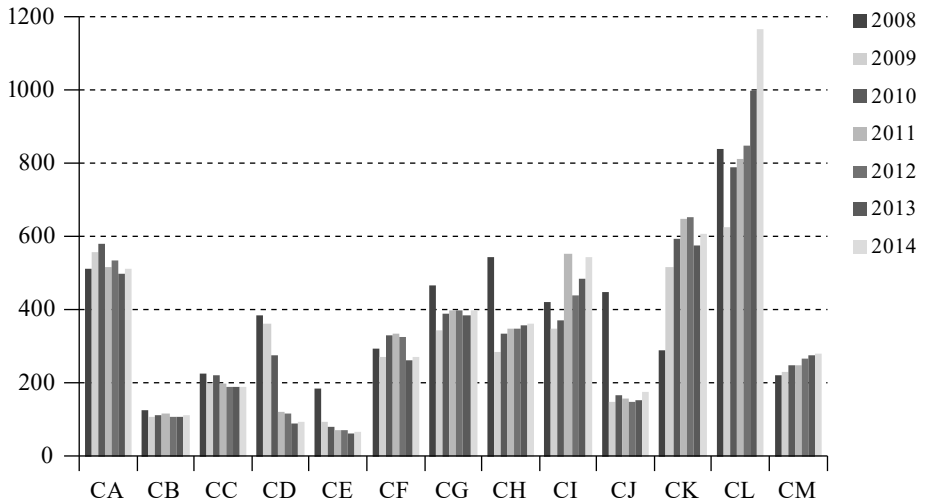
Source: Authors’ collation from the dissemination database of the HCSO (downloaded: 09/04/2015).

In the case of the data on employment number, two influencing factors need to be mentioned: public employment and people working abroad. As our study is limited to manufacturing, we consider that the influencing effect of these factors is not significant in this context.[1]

Figure 2

GVA in manufacturing sub-sections, at prices of 2008

(Billion HUF)



Note: CA = Manufacture of food products, beverages and tobacco products, CB = Manufacture of textiles, apparel, leather and related products, CC = Manufacture of wood and paper products, and printing, CD = Manufacture of coke and refined petroleum products, CE = Manufacture of chemicals and chemical products, CF = Manufacture of pharmaceuticals, medicinal chemical and botanical products, CG = Manufacture of rubber and plastics products, and other non-metallic mineral products, CH = Manufacture of basic metals and fabricated metal products, except machinery and equipment, CI = Manufacture of computer, electronic and optical products, CJ = Manufacture of electrical equipment, CK = Manufacture of machinery and equipment, CL = Manufacture of transport equipment, CM = Other manufacturing, and repair and installation of machinery and equipment.

Source: Authors' collation from the dissemination database of the HCSO (downloaded: 12/15/2015).

Only a few sub-sections were able to increase their *GVA* from 2010 (see: *Figure 2*). The manufacture of transport equipment (CL), the manufacture of computer,

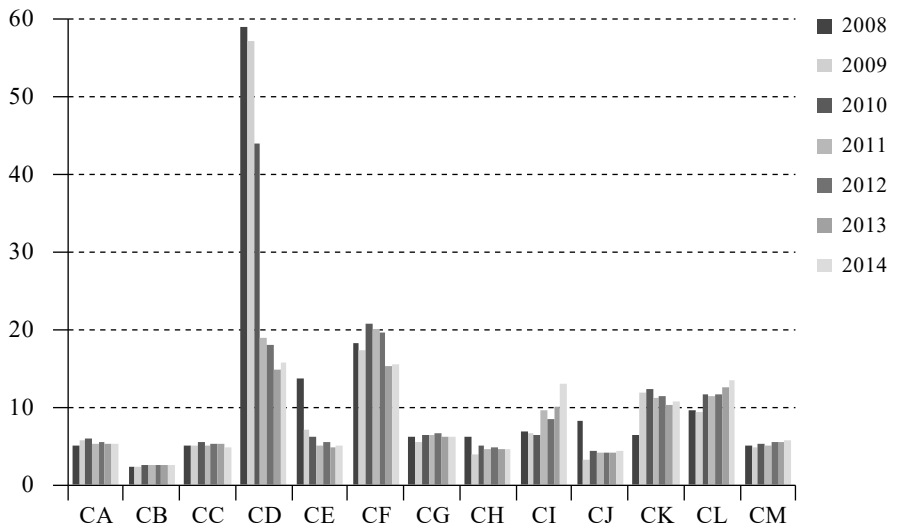
[1] For more details about the methodological issues related to taking account of the Hungarians working abroad and the foreign nationals working in Hungary, see *Lakatos* [2015].

electronic and optical products (CI) and other manufacturing, and repair and installation of machinery and equipment (CM) expanded with slight fluctuations but dynamically. The output of several sub-sections essentially stagnated (CA, CB, CE, CF CG, CH, CJ and CK), while the manufacture of wood and paper products, and printing (CC) and the manufacture of coke, and refined petroleum products (CD) dropped. The change in employment number and the development of GVA both imply that there is a structural change in progress in manufacturing; in particular, the manufacture of transport equipment strengthened its positions considerably.

Figure 3

GVA per employee in manufacturing sub-sections, at prices of 2008

(Million HUF)



Note: CA = Manufacture of food products, beverages and tobacco products, CB = Manufacture of textiles, apparel, leather and related products, CC = Manufacture of wood and paper products, and printing, CD = Manufacture of coke and refined petroleum products, CE = Manufacture of chemicals and chemical products, CF = Manufacture of pharmaceuticals, medicinal chemical and botanical products, CG = Manufacture of rubber and plastics products, and other non-metallic mineral products, CH = Manufacture of basic metals and fabricated metal products, except machinery and equipment, CI = Manufacture of computer, electronic and optical products, CJ = Manufacture of electrical equipment, CK = Manufacture of machinery and equipment, CL = Manufacture of transport equipment, CM = Other manufacturing, and repair and installation of machinery and equipment.

Source: Authors' calculations based on the dissemination database of the HCSO.

GVA per employee, i.e., *labor productivity,* developed in different ways in different manufacturing sub-sections (see: *Figure 3*). It increased significantly only in two sub-sections: in the manufacture of transport equipment (CL), where employment returned to the level of 2008, and in the manufacture of computer, electronic and optical products (CI) sub-section, where, on the other hand, employment significantly dropped. In the majority of the sub-sections, labor productivity stagnated, while it decreased in the sub-sections of the manufacture of coke, and refined petroleum products (CD), the manufacture of chemicals and chemical products (CE), and the manufacture of pharmaceuticals, medicinal chemical and botanical products (CF).

The review of the key indicators of manufacturing and its sub-sections shows that a structural change has started, but the various sub-sections are developing in different ways. This transformation can be grasped by examining the change in employment number and GVA.

The methodology of the analysis of the structural change in manufacturing

Tregenna [2009, 2013] studied de- and reindustrialization as the change of the employment number in manufacturing in various countries, decomposing it into two components. During a process of deindustrialization, employment in manufacturing in a country can decrease, on the one hand, because manufacturing produces less value added (i.e., the sector shrinks as a whole): she calls this the *sector-growth effect*. On the other hand, the number of employees in the sector can decrease because the productivity of workers has increased and the sector has become less labor-intensive: this is what she calls the *labor-intensity effect*. She argues that the situation in a country is more favorable if a decrease in the manufacturing employment number takes place so that the entire sector shrinks but labor productivity grows, rather than for example, if the opposites of these two happen.

We reinterpreted *Tregenna's* decomposition within Hungary and applied it to the change of employment number in each manufacturing sub-section. The previous chapter indicates that there was an increase in employment number in some of the sub-sections, while there was a decrease in others, and value added also changed in different ways for the different sub-sections.

The two effects mentioned above playing a role in the change of employment can be quantified as follows. Let L_{it}, be the number of employees in any sub-section over a period, and L_{it+1} in the next period (hereafter we apply the term "sector" to national

manufacturing). The value added generated by a sub-section is Q_{it} and Q_{it+1} in the two periods (in real terms). Based on these indicators we can determine the labor intensity in the two periods as $\Phi = L/Q$ (which indicator is the reciprocal of labor productivity[2]). Thus, for both periods $L = \Phi \cdot Q$ holds by definition.

The change of employment number in a sub-section can be resolved as follows:

$$\Delta L_i = \Phi_{it+1} \cdot Q_{it+1} - \Phi_{it} \cdot Q_{it} = (\Phi_{it+1} - \Phi_{it}) \cdot \left(\frac{Q_{it+1} + Q_{it}}{2} \right) + (Q_{it+1} - Q_{it}) \cdot \left(\frac{\Phi_{it+1} + \Phi_{it}}{2} \right) \quad (1)$$

The first term is the labor-intensity effect, and the second term is the sector-growth effect. From this the *labor intensity-effect* as a percentage change in employment for a given sub-section is:

$$(\Phi_{it+1} - \Phi_{it}) \cdot \left(\frac{Q_{it+1} + Q_{it}}{2} \right) \cdot \frac{100}{L_{it}} \quad (2)$$

The labor-intensity effect shows by what percentage the number of employees in the sub-section should have changed solely as a result of the change in labor productivity in that sub-sector over the given period. If production becomes more efficient at the end of the period than it was at the beginning, then at the end of the period fewer workers are required to generate the same value added. In this case the labor-intensity effect will be negative, pointing toward a decrease in employment.

Similarly, the *industry-growth effect* as a percentage change in employment for a given sub-section is:

$$(Q_{it+1} - Q_{it}) \cdot \left(\frac{\Phi_{it+1} + \Phi_{it}}{2} \right) \cdot \frac{100}{L_{it}} \quad (3)$$

The industry-growth effect shows by what percentage the employment number should have changed over the given period in the sub-section solely based on the sub-section generating more (or less) value added in the subsequent period compared to the earlier one, with all other factors remaining unchanged. If the value added generated increased, then assuming constant labor productivity more employees are required to generate this higher value added. In this case the sector-growth effect

[2] We adopted the concept of labor intensity in our paper in *Tregenna's* interpretation for comparability, even though the Hungarian literature uses this term in a different sense. For the same reasons, in order for our line of thinking to harmonize with the internationally renowned author's, instead of the intuitively more obvious labor productivity, we use labor intensity introduced as its "reverse indicator" in our analysis.

will be positive, pointing toward an increase in employment. The sum of the two effects gives the percentage change of the employment number in the industry. In our study, first we describe the decomposition of national economy and manufacturing, and then we address the sub-sections.

The structural change of manufacturing

In the period of 2009–2014 in the whole national economy, employment increased to an appreciable extent (by 6.1%) as we presented in *Table 1*. This increase was combined with a slight improvement in labor productivity, which was greater than the employment decreasing effect of productivity growth (see: *Table 2*).

Table 2

Decomposition of the performance of national economy and manufacturing

	Labor-intensity effect (%)		Sector-growth effect (%)		% change of employment number	
	National economy	Manufacturing	National economy	Manufacturing	National economy	Manufacturing
2009	3.04	6.54	–6.70	–18.08	–3.67	–11.54
2010	0.75	–11.00	0.80	10.00	1.55	–1.00
2011	–2.29	2.66	1.91	0.88	–0.38	3.53
2012	1.15	–0.45	–1.80	–1.49	–0.65	–1.94
2013	–1.53	2.68	2.50	–2.15	0.98	0.53
2014	0.75	–4.35	3.80	6.88	4.55	2.54
2008–2014	1.92	–3.43	0.29	–4.93	2.22	–8.36
2009–2014	–1.23	–10.72	7.33	14.32	6.10	3.60

Source: Authors' collation from the dissemination database of the HCSO (downloaded: 12/15/2015).

The periods of 2008–2009 and 2011–2012 show different type of decrease in employment number. While in the former case, the decrease in employment number took place with declining labor productivity, in the latter case value added increased,

but it was outweighed by the decrease in employment number due to improved labor productivity.

The lowest point of the crisis was the year 2009; the sector-growth effect shows a substantial decline in this year in both total economy and manufacturing. 2010 and 2011 are clearly favorable in terms of the sector-growth effect. If we select 2009 as the base year, and we study the change of employment number in the period of 2009–2014, we can see an expansion in both national economy and manufacturing.

Table 3

A possible categorization/typology of sub-sections

Type number	Marking		Labor-intensity effect	Sector-growth effect	% change of employment number
1		(…)	–	+	+
2	*	(…)	+	+	+
3		(…)	+	–	+
4	*	(…)	–	+	–
5		(…)	–	–	–
6	*	(…)	+	–	–

Note: We will use the system in the "marking" column in *Table 4.* A sub-section falling into the first category will be written on a white background with no asterisk. A sub-section falling into the second category will be written on white background, but marked with an asterisk, etc.

Source: Own construction.

The decline in employment in 2008–2009 was so substantial in manufacturing, that even by 2014 it could not recover to its 2008 level, whereas the total national economy could. It is interesting to observe that while the increase in employment number took place together with labor productivity growth and a simultaneous value added expansion in terms of both total economy and manufacturing, both effects were stronger in manufacturing, but the percentage increase in employment number generated as their resultant is still lower. Due to the significant decline in both national economy and manufacturing from 2008 to 2009, we consider that we can

get a more accurate picture of the processes after the crisis if we take 2009 as the base year.

The labor-intensity effect, the sector (sub-section) growth effect and the percentage change of employment number can take positive or negative values. Overall, there are 6 mathematically possible combinations. If the key indicator of reindustrialization is that the number of employees is increasing, the following order seems most probable (1 – best case, 6 – worst case) (see: *Table 3*).

The most favorable case (1) is when employment number increases in a way that the value added of the given sub-section also increases, and at the same time it becomes more productive. The most unfavorable case (6) is when employment number decreases in the given sub-section in a way that, in addition to the shrinkage of the whole sub-section, even labor productivity decreases. In *Table 2* we found that while 2009 falls into the worst (6^{th}) category in the case of both national economy and manufacturing, the year 2010 can already be positioned into a better (the 4^{th}) category for manufacturing even though the outcome is still a decrease in employment (as is the case in the year 2011 for the whole national economy).

Performing the decomposition and categorizing each manufacturing sub-section based on *Table 3,* a differentiated picture emerges by sub-sections (see: *Table 4*). The marking (coloring with or without asterisk as in *Table 3*) of the cells indicates the industry growth and labor intensity effects explaining the percentage change in employment reported in the cells. The first column of the *table* shows that during 2009, employment number decreased not only in national economy and manufacturing, but also in almost every manufacturing sub-section (except for CM: other manufacturing, and repair and installation of machinery and equipment), moreover, this mostly happened in a way that the shrinkage of the sub-section was accompanied by a decline in labor productivity. In subsequent years, (in particular in 2011 and 2014) the employment figure of many manufacturing sub-sections was rising, but as the second-to-last total column shows, the decline of 2009 generally could not be regained. The situation is better if we start out from 2009 as the base year: thus in the period of 2009–2014, 7 out of 13 sub-sections could achieve a lesser or greater increase in employment number.

The percentage changes of employment in each manufacturing sub-section, which are given in *Table 4,* are received as the resultant of the industry-growth effect and the labor-intensity effect. *Figure 4* now only presents the direction and percentage of the change of employment for the entire period of 2009–2014 explained by the sector growth-effect (on the vertical axis) and the labor-intensity effect (on the horizontal

axis) separately for each sub-section. Let us take the sub-section Manufacture of transport equipment (CL) as an example. The decomposition reveals that labor productivity improved in this sub-section, because of which employment should have decreased by 44.12% ceteris paribus. The real GVA produced by the sub-section, however, increased, which by itself should have increased the employment number by 73.64%. The first is the labor-intensity effect, the second is the sector-growth effect. These two numbers as coordinates will locate sub-section CL in *Figure 4,* and the sum of these two numbers gives the 29.53% employment increase reported in *Table 4* for this sub-sector CL, and will put this into category one in *Table 3.*

Employment increases in the case of the points above the line drawn from the upper left corner to the lower right corner of the figure and it decreases in the sub-sections represented by points below the line. The portion of the second quadrant above this diagonal is the most favorable combination of a negative labor-intensity effect (increasing labor productivity) and the over-compensating industry-growth effect: sub-sections represented here are of the first category in *Table 3* (like sub-section CL we used above as an example). In a clockwise direction from here we can find sub-sections of the second category in the first quadrant, then of the third category in the shaded part of the fourth quadrant. The white area below the diagonal in the second quadrant contains sub-sections of the fourth category, the third quadrant those of the fifth and finally sub-sections of the sixth category will be found in the white area below the diagonal in the fourth quadrant (like, for example, Manufacture of wood and paper products, and printing (CC), where the number of employed decreased by 1.59% as a sum of a labor-intensity effect of 1.98 and a sector-growth effect of –3.57).

We consider strengthening sub-sections (at least in terms of employment expansion) in the period of 2009–2014:

- CK (Manufacture of machinery and equipment n.e.c.),
- CL (Manufacture of transport equipment),
- CF (Manufacture of pharmaceuticals, medicinal chemical and botanical products) and
- CH (Manufacture of basic metals and fabricated metal products, except machinery and equipment) sub-sections.

Out of the sub-sections we identified as strengthening, only CH and CL belong to the 1st category, the best in *Table 3,* and CK sub-section is included in category 2. We classified CF sub-section from the 3rd category as a strengthening one because the increase in its employment number is close to the other sub-sections listed here.

Table 4

Decomposition of the performance of manufacturing sub-sections

	2009	2010	2011	2012	2013	2014	**2008–2014**	**2009–2014**
Total	* –3.66	* 1.55	* –0.38	* –0.65	0.98	* 4.55	* **2.22**	**6.10**
C	* –11.54	* –1.00	* 3.53	–1.94	0.53	2.53	**–8.36**	**3.60**
CA	* –5.07	0.98	* –1.73	* –1.55	* –0.20	* 3.18	**–4.50**	**0.61**
CB	* –15.47	* –6.18	* –0.02	* –0.28	–2.52	* –0.17	**–23.05**	* **–8.97**
CC	* –10.36	1.96	* –3.01	–5.77	* –0.09	* 5.7	* **–11.79**	* **-1.59**
CD	* –2.36	* –1.05	1.60	* –0.06	* –4.88	* –2.92	* **–9.41**	* **–7.22**
CE	* –3.24	* –4.26	10.68	–8.42	0.77	5.81	**0.12**	**3.48**
CF	* –2.23	1.03	* 4.92	0.46	2.46	2.5	**9.35**	**11.85**
CG	* –15.29	* –4.26	* 2.88	* –3.43	0.09	* 5.55	* **–14.88**	**0.50**
CH	* –17.39	* –5.35	* 8.67	* 0.00	* 2.56	* 5.62	* **–7.60**	**11.42**
CI	* –14.38	* 11.68	* –0.30	* –10.10	* –6.64	* –13.94	* **–31.14**	* **–19.58**
CJ	* –15.57	* –18.72	* –0.54	* –2.09	2.63	4.75	* **–28.17**	* **–14.92**
CK	* –4.51	11.25	* 20.69	* –0.97	* –2.21	1.32	**25.80**	* **31.74**
CL	* –22.21	1.59	* 2.99	3.51	8.80	9.93	**0.77**	**29.53**
CM	* 10.47	* –2.81	* 5.83	* –0.62	* –0.45	* –3.32	**8.69**	* **–1.62**

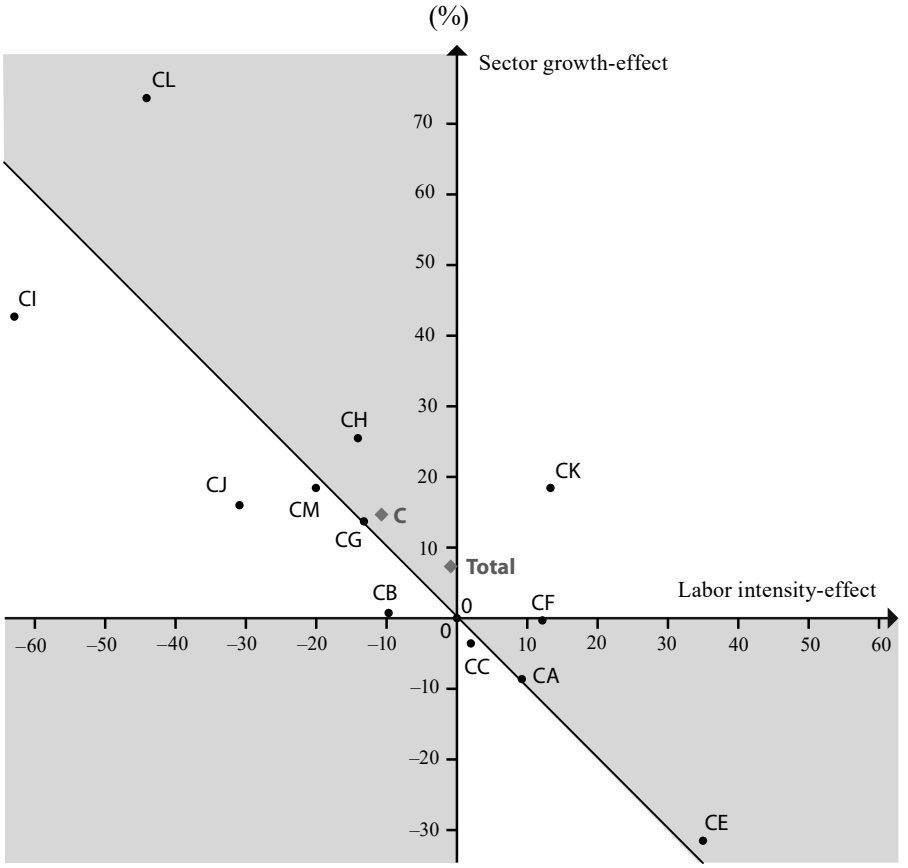
Note: The color and asterisk marking of cells indicate how the sub-section changed based on the marking system of *Table 3.*

CA = Manufacture of food products, beverages and tobacco products, CB = Manufacture of textiles, apparel, leather and related products, CC = Manufacture of wood and paper products, and printing, CD = Manufacture of coke and refined petroleum products, CE = Manufacture of chemicals and chemical products, CF = Manufacture of pharmaceuticals, medicinal chemical and botanical products, CG = Manufacture of rubber and plastics products, and other non-metallic mineral products, CH = Manufacture of basic metals and fabricated metal products, except machinery and equipment, CI = Manufacture of computer, electronic and optical products, CJ = Manufacture of electrical equipment, CK = Manufacture of machinery and equipment, CL = Manufacture of transport equipment, CM = Other manufacturing, and repair and installation of machinery and equipment.

Source: Own calculations based on the dissemination database of the HCSO.

Figure 4

Change of employment explained by sector-growth effect and labor-intensity in each sub-section in the period of 2009–2014



Note: Sub-section CD is not included in the figure due to its outlier values (its labor-intensity effect is 165.5 and its sector-growth effect is –172.7).

CA = Manufacture of food products, beverages and tobacco products, CB = Manufacture of textiles, apparel, leather and related products, CC = Manufacture of wood and paper products, and printing, CD = Manufacture of coke and refined petroleum products, CE = Manufacture of chemicals and chemical products, CF = Manufacture of pharmaceuticals, medicinal chemical and botanical products, CG = Manufacture of rubber and plastics products, and other non-metallic mineral products, CH = Manufacture of basic metals and fabricated metal products, except machinery and equipment, CI = Manufacture of computer, electronic and optical products, CJ = Manufacture of electrical equipment, CK = Manufacture of machinery and equipment, CL = Manufacture of transport equipment, CM = Other manufacturing, and repair and installation of machinery and equipment.

Source: Own calculations based on the dissemination database of the HCSO.

These four sub-sections in total accounted for 32.4% of manufacturing employment and 42.9% of manufacturing value added in 2009 (in nominal terms), and these shares increased to 38.2% and 48.1% by 2014. In these strengthening sub-sections, labor productivity increased from 128.0% to 133.8% of average labor productivity in manufacturing.

In contrast with the growing ones, we termed *weakening sub-sections* the following:

– CI (Manufacture of computer, electronic and optical products),
– CJ (Manufacture of electrical equipment),
– CD (Manufacture of coke, and refined petroleum products) and
– CB (Manufacture of textiles, apparel, leather and related products).

Each sub-section in this group has a common feature of decreasing employment. Out of these sub-sections, however, only one (CD) belongs to the worst (6th) category of *Table 3,* characterized by a negative sector-growth and a positive labor-intensity effect, the other three are included in the 4th category, where a negative labor-intensity effect prevails, over-compensating a positive sector-growth effect.

The weakening sub-sections in total generated 22.5% of manufacturing value added by employing 24.7% of manufacturing employees in 2009, and these shares decreased to 20.4% and 18.7% by 2014. In these sub-sections productivity fluctuated around 95.8% of average manufacturing productivity throughout the period.

The remaining 5 sub-sections we considered *stagnating*; these are characterized by an employment number that did not change substantially. The stagnating category includes a sub-section (CG, Manufacture of rubber and plastics products, and other non-metallic mineral products) where employment number increased and labor productivity improved, i.e., it can be categorized in the best (1st) category based on these two effects, but this growth is very small. At the same time, this group also contains CC (Manufacture of wood and paper products, and printing) sub-section from the worst (6th) category, where along a negative sector-growth effect and declining labor productivity employment number decreased but again only to a small extent.

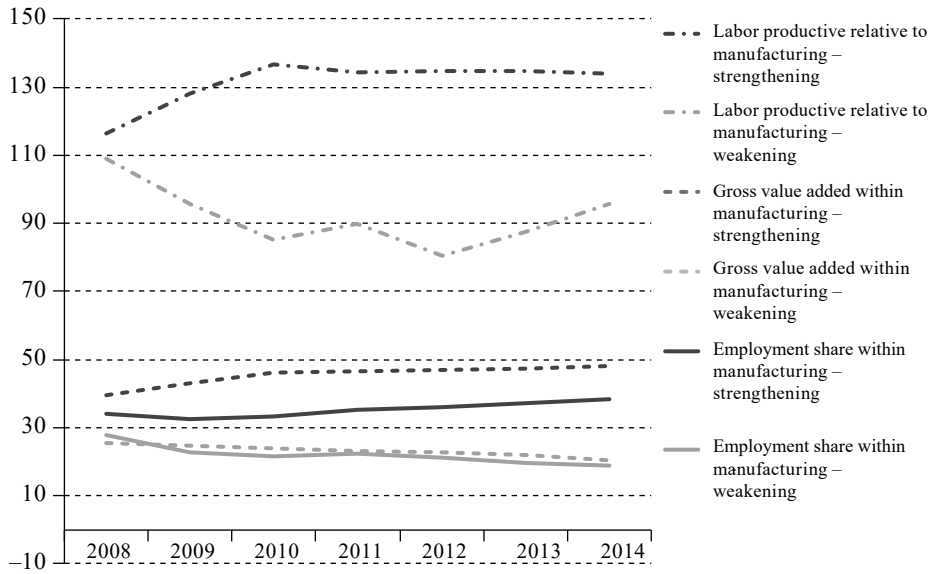
In the case of the four strengthening sub-sections, there is a strong positive linear correlation between value added and the share in manufacturing gross value added (Pearson's r coefficient values: 0.87–0.94). In the weakening group, only one subsection (CB) is characterized by a negative, but only moderate correlation (–0.59). Based on this, it does appear that by the internal structural transformation

of manufacturing, the weight of sub-sections generating (in real terms) higher value added is increasing.

Figure 5

Comparing growing and weakening sub-sections

(%)



Note: The solid lines on the figure represent the share of employed in the given group of sub-sections within manufacturing, the dashed line represents the share of GVA produced by them and the dot-dash line is to show average productivity.

Source: Own construction based on the dissemination database of the HCSO.

We can also observe the changes in the four strengthening and the four weakening sub-sections by each year in terms of their share in manufacturing and the average productivity (see: *Figure 5*). Looking at the sub-sections with the highest increase in employment we find that their share in GVA grows faster than their share in employment, so average labor productivity in these sub-sections exceeds the average of manufacturing. In *Figure 5,* the two dotted lines refer to the tendency of the average labor productivity compared to the manufacturing average, which is above 100% throughout the studied period, although a clear trend is not visible.

The solid lines compare the strengthening and weakening sub-sections in terms of employment number, while the dashed lines show their shares in GVA.

In our opinion, the increasing employment in manufacturing is more of a recovery to a former stage after a short-term halt, rather than reindustrialization. The value added of the national economy increased by 8% on average per year in the period of 2004–2008 at current prices, and only by 4.8% on average per year after the crisis, in the period of 2009–2014. Regarding the volume indices, we can also observe that the annual average increase of 3.3% in the pre-crisis years dropped by half in the years after the crisis. On the other hand, in manufacturing value added at current prices increased by 8.6% on average per year in the period of 2004–2008, and by only a slightly lower 8% after the crisis. The annual average increase of the volume index dropped by half in the post-crisis years from 6.4% of the period before the crisis, similarly to the tendency experienced in the total national economy. Consequently, value added in manufacturing increased faster than the value added of the total national economy in both the period before and after the crisis. The strengthening and weakening sub-sections are one of the signs of transformation and structural change in manufacturing.

Some background factors of the structural change of manufacturing

In manufacturing, we distinguished the strengthening and weakening sub-sections, essentially based on one of the indicators of reindustrialization, the change in employment. We compare the two groups in terms of their export, investments, foreign direct investments and the change in the composition of employment. For the sake of completeness, we add the indicators of the remaining, so-called stagnating sub-sections, as well as their changes.

If we study how *export-oriented* the growth of each sub-section group is, we find that in both the strengthening and the weakening sub-section groups the share of export sales within total sales increased. This share is higher for the strengthening group and the difference also increases (see: *Table 5*). While in the worst performing CH sub-section (Manufacture of basic metals and fabricated metal products, except machinery and equipment) of the strengthening group, the share of export sales within total sales is around 60% throughout, in the weakening group this share is below 34% for CD sub-section (Manufacture of coke and refined petroleum

products). It reveals even more if we look at the share of the two types of groups in total manufacturing export revenue: here the share of the first group constantly rises (from 40.4% to 53.8%), while that of the second group falls rapidly (from 40.9% to 24.2%). The two sub-section groups start from nearly the same value in 2009, but the share of the better performing sub-sections increased to more than double the share of the less well performing ones by 2014. The best performing CL (Manufacture of transport equipment) sub-section of the strengthening group has the greatest share in manufacturing export in total and its share constantly increases from 2009, while the best performing sub-section of the weakening group, CI (Manufacture of computer, electronic and optical products), which otherwise provides the second highest share of manufacturing export in total, keeps losing share. It becomes evident that the sub-sections termed strengthening are export-oriented. In the case of the third sub-section group, the stagnating one, the share of export is low but growing (changed from 40.7% to 52.1%), i.e., the share of domestic sales is still quite high.

Table 5

Export performance indicators of the different sub-section groups

	Share of export in total sales (%)				Share of export in manufacturing export (%)		
	Manufacturing	Strengthening	Stagnating	Weakening	Strengthening	Stagnating	Weakening
2008	66.7	79.5	39.3	76.0	43.5	17.1	39.4
2009	67.7	80.5	40.7	79.1	40.4	18.6	40.9
2010	70.2	84.0	43.8	78.2	42.2	18.2	39.6
2011	70.7	84.4	46.9	75.9	45.5	19.3	35.1
2012	70.8	85.3	48.9	74.1	48.0	21.3	30.7
2013	72.3	86.5	50.9	74.5	51.3	22.1	26.7
2014	73.4	86.5	52.1	75.7	53.8	21.8	24.4

Source: Own calculations based on the dissemination database of the HCSO.

The value of *investments* in the total national economy at current prices changed from 4,950 billion HUF in 2008 to 5,200 billion HUF in 2014 (we used sub-section level investment data requested directly from HCSO). In the same period, investments in manufacturing started from about 1,140 billion HUF in 2008 and it constantly increased following the decrease in 2009, and it reached 1,530 billion HUF by 2014. The share of manufacturing within national economy investments increased from 19.9% to 29.9% between 2009 and 2014.

Investment in the strengthening sub-sections shows an increase in nominal terms, while it more or less stagnates in the weakening ones. Accordingly, while the strengthening sub-sections concentrated only 37.2% of manufacturing investments in 2008, this share was already 53.6% by 2013 and 46.5% in 2014 (see: *Table 6*). Meanwhile, the share of the weakening sub-sections within total manufacturing investments decreased from 16.9% in 2008 to 12.3%. We can say that the strengthening sub-sections noticeably take an increasing part of total manufacturing investments; presumably this also contributes to their development and growth. The stagnating sub-sections group also made significant investments, particularly in later years (its share within manufacturing is 41.2% in 2014).

Table 6

Investments in manufacturing and its sub-section groups, at current prices

	Investments (bn HUF)				Share in manufacturing (%)		
	Manufacturing	Strengthening	Stagnating	Weakening	Strengthening	Stagnating	Weakening
2008	1135.8	422.4	521.3	192.0	37.2	45.9	16.9
2009	929.1	399.9	368.3	160.9	43.1	39.6	17.3
2010	995.0	440.8	377.6	176.6	44.3	37.9	17.8
2011	1286.8	678.5	427.2	181.2	52.7	33.2	14.1
2012	1369.4	817.8	379.7	171.9	59.7	27.7	12.5
2013	1366.4	731.8	476.8	157.7	53.6	34.9	11.5
2014	1530.1	712.1	630.6	187.4	46.5	41.2	12.3

Source: Own calculations based on HCSO data provision.

Table 7

FDI of foreign controlled enterprises in manufacturing and its sub-section groups

	FDI of foreign controlled enterprises (bn HUF)				Share within manufacturing (%)		
	Manufacturing	Strengthening	Stagnating	Weakening	Strengthening	Stagnating	Weakening
2008	5284.0	2847.2	1284.7	1152.1	53.9	24.3	21.8
2009	5718.4	3030.9	1380.3	1307.2	53.0	24.1	22.9
2010	6136.5	3103.8	1480.1	1552.6	50.6	24.1	25.3
2011	4327.4	1776.2	1521.3	1030.0	41.0	35.2	23.8
2012	4362.0	1670.5	1604.1	1087.4	38.3	36.8	24.9
2013	5051.5	2089.6	1840.6	1121.3	41.4	36.4	22.2

Note: BPM6 reporting groups together the sub-sections of CD (Manufacture of coke and refined petroleum products), CE (Manufacture of chemicals and chemical products) and CF (Manufacture of pharmaceuticals, medicinal chemical and botanical products), which belong to 3 different groups in our classification. We took the weights of the available BPM5 reporting as the basis for estimating each sub-section. We estimated the data of 2013, which is not included in BPM5, by assuming unchanged weights of 2012.

Source: HCSO STADAT 3.1.27.2 table.

The most current data on the evolution of the foreign direct investment of foreign controlled enterprises, composed based on BPM6 classification, are available for the period of 2008–2013 based on the tables of HCSO STADAT. Over this period, the FDI of foreign controlled enterprises constantly increased in the total national economy. In manufacturing, however, there is a decline from 2010, with a recovery only in 2013, but even then it reached only 82% of the value in 2010. There is a large fluctuation in nominal terms in the strengthening sub-sections, while the weakening sub-sections exhibit a much greater stability. The proportion of the latter group in manufacturing FDI broadly stagnates, but that of the former group decreases, for the benefit of the stagnating sub-sections positioned between the two groups. In terms of shares, the 2.5-times advantage of the strengthening sub-sections at the beginning of the period was reduced to 1.9-times by the end of the period (see: *Table 7*). FDI per

employee is similar in all the three sub-section groups, between 7.4 and 91.1 million HUF/capita.

One of the stagnating sub-sections, CG (Manufacture of rubber and plastics products, and other non-metallic mineral products) stands out, as it has a substantial share in both the investments and the FDI of foreign controlled enterprises within manufacturing over the whole period. This sub-section accounted for 17.8% of total manufacturing investments in 2008, and 13.3% in 2014, while in this sub-section the FDI of foreign controlled enterprises accounted for 9.6% within manufacturing in 2008, and 16.2% in 2013. As we have previously demonstrated (see: *Tables 1* and *4*), this sub-section shows a decline in employment, with an increase in demand unable to overcompensate the falling labor demand of the sub-section resulting from improving labor productivity. This capital-intensive sub-section generates 9.4% of GVA in manufacturing (this proportion is broadly unchanged in the studied period) with the help of 8.3% of manufacturing employment.

Table 8

The number and proportion of non-manual employment in manufacturing and its sub-section groups

	Number of non-manual employment (thousand people)				Proportion of non-manual employment in total employment (%)			
	Manufacturing	Strengthening	Stagnating	Weakening	Manufacturing	Strengthening	Stagnating	Weakening
2008	152.4	53.4	61.6	37.4	22.2	22.9	22.3	21.3
2009	145.8	50.4	61.0	34.4	24.0	25.6	23.5	23.0
2010	143.0	50.9	58.9	33.2	23.8	25.6	22.9	23.0
2011	155.3	56.9	61.3	37.0	25.0	26.2	23.6	25.7
2012	154.4	58.3	60.1	36.0	25.3	26.5	23.8	26.2
2013	156.0	61.6	60.0	34.3	25.5	27.2	23.8	25.7
2014	159.3	64.7	61.8	32.7	25.4	27.0	23.8	25.6

Note: Non-manual and manual employment both include full-time and part-time employment.

Source: Authors' compilation from the dissemination database of the HCSO (downloaded: 09/04/2015).

The transformation of manufacturing is also indicated by how the number of manual and non-manual employment and their proportion change in total manufacturing and in its sub-sections and sub-section groups (see: *Table 8*). Both in total manufacturing and in all the three subsection groups we identified, the proportion of non-manual employment increased between 2008 and 2014, but increased in different ways. In total manufacturing, the number of non-manual employment increased exceeding the expansion of manual employment, and the same applies to the strengthening sub-sections, only at a slightly higher level. In the stagnating sub-sections, non-manual employment number increased, while manual decreased in the studied period, and in the weakening sub-sections both non-manual and manual employment numbers decreased, but the latter did so to a greater extent.

The strengthening sub-sections include CF (Manufacture of pharmaceuticals, medicinal chemical and botanical products) sub-section, which differs from the other 3 sub-sections: the proportion of non-manual employment is high and increasing, 61.2% of the total employment of 18 thousand in 2014, which is the highest proportion within domestic sub-sections. Only 22.2% of the 222 thousand employees in the other three growing sub-sections is non-manual, which proportion is below even the average in manufacturing. This means that a growing tendency is present in the sub-sections employing mainly manual workers on a massive scale.

In terms of the proportion of non-manual employment, only one, CE (Manufacture of chemicals and chemical products) sub-section, stands out of the stagnating sub-sections, where the small increase of non-manual employment number in the studied period is accompanied by a decline in the number of manual employment. Out of the total of 13.5 thousand employees, the proportion of non-manual employment increased from 39.8% in 2008 to 41.8% in 2014.

Conclusions

In our paper we analyzed the change of domestic manufacturing and its sub-sections between 2008 and 2014 based on *Tregenna's* method. The study revealed that a significant structural change took place within manufacturing and based on the characteristics of change three sub-section groups can be distinguished. We identified a group of sub-sections in which employment number increased and labor productivity improved in total and called them *strengthening sub-sections* [these are: Manufacture of machinery and equipment n.e.c. (CK), Manufacture of

transport equipment (CL), Manufacture of pharmaceuticals, medicinal chemical and botanical products (CF), and Manufacture of basic metals and fabricated metal products, except machinery and equipment (CH)]. These sub-sections employ one third of manufacturing employees, 86% of their sales is export and 41% of the FDI of manufacturing foreign controlled enterprises is found here. Of the 4 sub-sections, the manufacture of pharmaceuticals, medicinal chemical and botanical products has an outstandingly high proportion of non-manual employment (it increased from 52% to 61% in the studied period).

In the second group of sub-sections both employment number and GVA decreased, and productivity also lags behind the average in manufacturing. We called these sub-sections *weakening* [these are: Manufacture of computer, electronic and optical products (CI), Manufacture of electrical equipment (CJ), Manufacture of coke, and refined petroleum products (CD) and Manufacture of textiles, apparel, leather and related products (CB)]. This sub-section group is also export-oriented, 75% of their sales is directed abroad. However, investments decrease and the amount of FDI stagnates. Nevertheless, it is interesting to see that the proportion of non-manuals within employment equals the average in manufacturing, with the values of CD highly above average (about 51%) and the values of CB highly below average (about 11%). The remaining sub-sections go to a group we called *stagnating* [there are 5 of them, namely: Manufacture of food products, beverages and tobacco products (CA), Manufacture of wood and paper products, and printing (CC), Manufacture of chemicals and chemical products (CE), Manufacture of rubber and plastics products, and other non-metallic mineral products (CG) and Other manufacturing, and repair and installation of machinery and equipment (CM)]. These are less export-oriented, half of their sales is directed at the domestic market, investments are moderate, while they took off only in 2014 with the increase in FDI.

Our analysis reveals that following the crisis of 2008 and the lowest point in 2009, there was no substantial reindustrialization until 2014. What is evident is a dynamic transformation within manufacturing, a significant structural change among the sub-sections. In this structural change, the export-oriented sub-sections have come into focus, besides the manufacture of pharmaceuticals which employs only relatively few people, the largest two out of the four machinery sub-sections, which employ manual workers predominantly and the role of FDI is of key importance.

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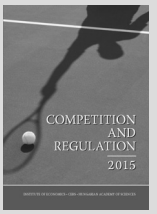
Competition and Regulation 2015

Editors:
Pál Valentiny,
Ferenc László Kiss,
Krisztina Antal-Pomázi,
Csongor István Nagy

360 pages

ISSN 1789 9702



The Institute of Economics (IE CERS) at the Hungarian Academy of Sciences launched a new series of publications entitled "Verseny és szabályozás" (Competition and Regulation) in 2007. Eight annual volumes have been published so far, all in Hungarian. The current volume is the first one in English, and it contains 12 selected translations from the crop of the first seven years. It offers the reader a glimpse into the current state of research in its chosen field in Hungary. The published studies covered a very broad range of topics. Some articles of general theoretical and methodological nature dealt with the background in the law and economics of regulated markets. Others investigated current legal, economic and policy issues and cases. Others again dealt with regulation and the regulators themselves. The functions, methods, analytical tools, the institutions and the impact of regulation were discussed in those articles. Special attention was paid to regulation by the European Union, and also to recently de-monopolized key industries such as communications, energy, media, the postal sector or water and sewage. Five of the 12 articles selected for publication in English in this tome deal with broad economic and legal issues of competition and regulation, while the remaining 7 discuss the state and specific problems of key industries in Hungary and, in some cases, in the surrounding region. The publication of this volume has been financially supported by the Hungarian Competition Authority.

CONTENTS

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Studies in International Economics, 2016, Vol. 2, No. 2 (pp. 29–51.)

Chronicle of a Revolution Foretold in Hungary – Industry 4.0 Technologies and manufacturing Subsidiaries

ANDREA SZALAVETZ

*The paper discusses the impact of industry 4.0 technologies on the value chain position of production. Another purpose is to investigate the impact of these technologies on a sample of ten manufacturing subsidiaries in Hungary. We find that the implementation of industry 4.0 technologies has neither led to the reshoring of production nor of activities that support production. Conversely, local production capacities have been upgraded: advanced manufacturing technologies deployed and integrated with existing systems. The new technologies have had a complex impact on skills: both de-skilling effects and skill-biased implications can be observed. Drawing on the empirical findings and on the reviewed literature, two predictions are developed regarding the implications of industry 4.0 technologies. First, the share of value chain activities considered operative (non-core) will increase, and the number of activities global value chain orchestrators consider as strategic (core-competence) will decrease. Second, differences in the value chain position (or rather, in the position along the smile curve) of individual operative activities will become smaller: the bottom of the smile curve will be broader and flatter.****

Journal of Economic Literature (JEL) code: O33, O14, F23.

* The Hungarian version of the article was published in *Külgazdaság,* 2016, Vol. LX, No. 9–10, pp. 28–48 (*Szalavetz Andrea:* Egy előre bejelentett forradalom krónikája Magyarországon – Ipar 4.0-technológiák és a hazai feldolgozóipari leányvállalatok).

Translated by *Anna Forgács.* Translation checked by *Chris Swart.*

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Manufacturing (processing and assembly) has long been considered a bottom-of-the-smile-curve,[1] operative activity within global companies. Manufacturing needs to be offshored or outsourced in order to minimise the related costs. Recently, however, some scholars (surveyed by *Dombrowski et al.,* 2016) posited that with the advent of advanced manufacturing technologies,[2] referred to as the fourth industrial revolution (henceforth industry 4.0), the value chain position of manufacturing might change: manufacturing might become a differentiating factor: a factor of competitiveness.

This statement needs to be scrutinised from the perspective of the competing definitions of industry 4.0. Most definitions lay emphasis on the technological aspects of the new era (*Brettel et al*., 2014),[3] since the implementation of production systems that represent the new technologies is expected to produce an unprecedented improvement in the performance indicators[4] of production (*Rüßman* et al., 2015).[5]

However, other scholars maintain that the definition of industry 4.0 should not be restricted to the technological novelties (*Bharadwaj* et al., 2013; *Erol* et al., 2016; *Kagermann* et al., 2013). The real novelty of the industry 4.0 era is better captured by analyses that adopt an organisational or a business model approach. According to these approaches, the most important attribute of industry 4.0 is that the new technologies make it possible for the orchestrators of global value chains (GVC) to control the whole value chain in an unprecedentedly integrated manner

[1] The differences in the value added of individual activities comprising the value chain were illustrated by a smile-shaped curve in *Mudambi* [2008] (see figure *1a* later in the text). According to *Mudambi's* model, the value added of activities that precede production (e.g. elaboration of the business concept, creation/coordination of the supply chain, basic and applied research, design), and the value added of post-production activities (e.g. marketing, product related services provision, sales, after-sales services provision) are much higher than the value added of the ones represented in the middle of the curve (processing, assembly).

[2] Advanced manufacturing technologies include among others cyber-physical systems, big data, artificial intelligence, collaborative industrial robots, 3D printing – see *Szalavetz* [2016].

[3] In the conceptual paper that introduced this empirical one (*Szalavetz*, 2016) I also used a *technological* definition drawing on *Monostori* [2015]: "…production takes place in smart factories, in other words, cyber-physical production systems are implemented. New technologies (for instance: nanotechnology, laser technology, industrial biotechnology, 3D printing, artificial intelligence) and new materials are used, and these latter have better physical features than the prior ones."

[4] For example, in the capacity utilisation rate, in the accuracy of processing, and in other qualitative operational performance indicators, such as lead-time and flexibility, and in costs.

[5] The title of this paper is paraphrasing *Gabriel García Márquez's* novel, suggesting that contrary to the other industrial revolutions that were identified as such ex-post (*Freeman–Louçã,* 2001), the fourth industrial revolution was foretold (for example *Bermann,* 2012; *Kagermann* et al., 2013; *Manyika* et al., 2013). This leaves the still undecided debate open, whether the experienced changes are in fact revolutionary or only incremental.

– provided that they adapt their organisational structure to the requirements of the new technologies.[6] The coordinators of GVCs will be able to monitor and further develop their products throughout the whole life cycle (*Erol* et al., 2016; see also *Porter–Heppelmann,* 2014, 2015) and they will gain competitive advantages from business model innovations.

In brief, according to this latter perspective, the revolutionary aspect of industry 4.0 is not the enhanced production capability originating from the digital transformation of manufacturing, but rather the competitive advantage originating from the digital transformation of business as a whole (including the business model).

These competing definitions constitute the point of departure of this paper. We investigate *Dombrowski et al.'s* [2016] cited prediction about the changing value chain position of manufacturing from the specific perspective of manufacturing subsidiaries in "factory economies" (*Baldwin,* 2012).

If the fourth industrial revolution really makes production activity a factor of competitiveness, in other words: if industry 4.0 is not only about a temporary competitive advantage gained from the costly modernisation of the production system, but *production itself moves upwards from the bottom of the smile curve*, then the factory economies that are able to keep the production activities that had been offshored to them, and preserve also the related advanced support activities, i.e. their prior upgrading achievements – will have uniquely favourable prospects.

If however, industry 4.0 also transforms headquarter functions (i.e. besides producing really spectacular improvements in the performance indicators of production, industry 4.0 is rather mainly about *the digital transformation of business*), then a conclusion about eventual changes in the relative value chain position of manufacturing can be drawn only by examining, in parallel, the moves along the smile curve of all business functions and activities that comprise the value chain.

Drawing on an overview of the literature and on interviews with local manufacturing subsidiaries, this paper aims at uncovering the impact of industry 4.0

[6] There is a related, rapidly expanding literature that addresses the organisational consequences of digital transformation. More specifically, this stream in the literature is concerned with the specifics of the organisational changes that are considered necessary to make corporate organisations aligned with the requirements of the digital era. It is investigated, for example, how organisational silos could be bridged, across-silo collaboration and cross-functional business strategy implemented. How should the IT function be redesigned so that it becomes integrated with (rather than subordinated to) other business processes: how should a digital business strategy designed and corporate organisation transformed accordingly? – See for example: *Agarwal–Brem* [2015]; *Bharadwaj* et al. [2013]; *Porter–Heppelmann* [2015].

technologies on the value chain position of production, and on the upgrading of the surveyed manufacturing subsidiaries.

Corporate interviews can, evidently, provide no clear and direct answer to the former question. Moreover, we cannot even claim that the interviews provide solid answers to all the questions raised in the theoretical paper (*Szalavetz,* 2016) introducing this research. For instance, nowhere near enough time has passed to clearly state that the reshoring of production activities to home countries has not happened.

Consequently, the results of interviews about the diffusion of, and the first experiences with industry 4.0 technologies permit only hypothesis development and conceptual analysis of *Dombrowski* et al.'s [2016] prognosis that technological progress will prompt changes in the relative value chain position of production.

The remainder of the paper is structured as follows. This introduction will be followed by a brief overview of the related literature. Next, the research method will be presented and the sample of the surveyed companies introduced. Following the presentation of the results, the paper concludes with a conceptual analysis and with hypotheses about the eventual changes in the value chain position of production.

Theoretical background

The topic of technological revolutions can be associated with virtually all strands of (international) economics and business. The theories that are the most relevant for this research address the factors that determine the diffusion of new technologies and the impact of technological development on the structure of employment and on the skill-set required by employers.[7] Furthermore, the literature discussing the tertiarisation of manufacturing, i.e. the integration of production and service activities, and the global value chain literature, more specifically, the stream that focuses on subsidiary upgrading versus the charter loss of local subsidiaries, and finally, the literature that investigates the attributes of industry 4.0 technologies and their impact on business are also closely connected to the question at hand.

Here, we will only highlight some conclusions from the above-mentioned directions of the literature.

[7] This latter topic was discussed in my previous theoretical paper (*Szalavetz,* 2016).

An important finding of the literature discussing the diffusion of new technologies is that this process has considerably accelerated over the past century (*Comin–Hobijn,* 2010). Accelerating globalisation is the key explanatory factor of enhanced technology diffusion, since international trade and foreign direct investment are not only the main drivers of globalisation, but also important channels of technology diffusion (*Eaton–Kortum,* 2001; *Keller*, 2004). Nevertheless, technology diffusion is not automatic: successful technology absorption requires indigenous technology development efforts by the recipients (*Cohen–Levinthal,* 1990; *Fu* et al., 2011). Altogether, the lag with which new technologies are adopted across countries is seemingly diminishing: new technologies are adopted increasingly rapidly also in peripheral economies, far from the countries where innovative activity is concentrated.[8] If however, the intensive margin of technology adoption is examined, cross-country differences are much larger. *Comin–Mestieri* [2013] showed that even though cross-country differences in adoption lags (extensive margin of technology diffusion) have spectacularly diminished, if the penetration rate of new technology (intensive margin) is examined, i.e. the share of economic actors that have adopted the new technologies and the intensity of technology use, cross-country differences have rather widened in the 20th century. According to the cited authors, cross-country differences in the intensive margin of technology adoption account for a large share of the differences in countries' income levels.

The title of *Comin–Mestieri's* paper [2013] (If technology has arrived everywhere, why has income diverged?) recalls a classical theoretical thesis, the theory of appropriate technology selection (*Basu–Weil,* 1998). According to this theory, countries' selection among competing technologies is determined by their relative factor endowments.

These theoretical arguments are particularly interesting for our topic. In our case the question arises: what is the time lag in middle-income factory economies, of adopting the most advanced manufacturing technologies? Frontier technology may not be appropriate for the current factor proportions and especially at the current level of human capital stock in these countries. If technology is not appropriate, nevertheless it is widely used in selected segments of the economy that are characterised by a high share of foreign equity, what explains foreign investors' technology transfer?

[8] Technology generation is, however, still very much concentrated in a couple of advanced economies (*Eaton–Kortum,* 2001), and it is still true that few countries can effectively approach the world technology frontier (*Eichengreen* et al., 2013).

Another topic that is closely related to our research is the integration of manufacturing and service activities (the servitization of manufacturing). It is not a new phenomenon: it can be observed both at the input and the output side[9] for a long time (*Pilat–Wölff,* 2005; *Szabó,* 2006; *Tomlinson,* 2000; *Vandermerwe–Rada*, 1988). Nowadays the servitization of manufacturing is accelerating: "products" that used to be the basic unit of output in manufacturing firms have long been replaced by "bundles of products and services", "product–service systems", or "integrated solutions". In the industry 4.0 era (in certain industries) a new term signalises the strengthening of the servitization trend: the emergence of the business model of a "product-as-a-service". In this model, a sales transaction does not cover the ownership of the product, thus the buyer pays only for the functionality of the product.[10] In other words, the product is the platform of the related services.[11]

On the input side, one of the key technological novelties that reflect the unprecedented development of IT supporting and controlling manufacturing is that smart production systems can take autonomous decisions (without human intervention). Manufacturing activity is controlled by adaptive, self-organising and self-optimising systems that are also capable of self-learning due to inbuilt artificial intelligence (*Váncza et al*., 2011). Another, less frequently mentioned but just as significant novelty is that ubiquitous information technology has radically increased the integration and transparency of activities along the value chain, thus the coordination and control of value chains have become easier. These latter activities are typically headquarter functions, similarly to systems integration. Applications supporting business decisions – another corporate centre function – have also rapidly spread. This is an important new development in an age, when the costs

[9] Manufacturing uses more and more services and a greater variety of services are integrated in, or accompany and add value to products.

[10] For example, it is not the price of the product the customer pays, he/she pays (a predetermined fee) rather for the improvement of the performance indicators (efficiency increase, cost reduction) that occur as a result of implementing the given solution (*Iansiti–Lakhani,* 2014; *Lacy–Rutqvist,* 2015). Similarly, sales transaction is not about ownership transfer, if customers purchase cloud-based IT services. These services exempt customers from investing in (the ownership of) high-performance servers and data centres. The most famous example of product-as-a-service is the performance-based pricing of the air-plane engine of Rolls-Royce ("power by the hour", i.e. based on the hours flown).

[11] The term platform refers, on one hand, to the possibility of product lifecycle management and incremental development using product embedded information technology. On the other hand, it refers to the phenomenon that not the product itself is valuable for the buyer but the related services, for example the data extraction and business analytical solutions embedded in the production equipment (*Porter–Heppelmann,* 2015).

of integration and coordination have increased for decades due to the increasing complexity of the value chains (see: *Larsen et al.*, 2013 for an overview).[12]

Lastly, another line of the literature worth mentioning here addresses the evolution of subsidiary mandates, and analyses the factors that influence this evolution. The relevant literature abounds in case studies about subsidiary learning and about the upgrading of "entrepreneurial subsidiaries" (*Birkinshaw,* 1996, *Birkinshaw–Hood,* 1998; *Contractor et al.*, 2010; *Manning et al.*, 2008). These papers demonstrate that it is possible to extend the range of locally performed business functions and activities. They underscore that the division of labour within the global company is not rigid: manufacturing subsidiaries can gain responsibility for advanced, sophisticated tasks that are more knowledge-intensive than their previous responsibilities and generate higher value added.

The changes, however, are not one-way: the extension of responsibilities can be followed by the loss of certain mandates. Changes in the external environment, for example

- a downturn in the business cycle, which prompts parent companies to consolidate the value chain;
- if a competitor acquires the parent company;
- if the parent company decides to change its business model;
  or if – and this is the most relevant for our topic:
- new technologies emerge that represent a radical change compared to the previous technological paradigm – may provoke fundamental changes in the functional division of labour within the global company (*Cano-Kollman* et al., 2016*; Dörrenbächer–Gammelgaard,* 2010; *Gereffi,* 2014).

Research method and corporate sample

Since the research questions – firms' first experiences with industry 4.0 technologies – require qualitative investigation, an interview-based method seemed

[12] In a previous study (*Szalavetz,* 2013), I referred to the services that contribute to the integration and coordination of geographically dispersed value adding activities, as *value chain integration services.* These services are on the input side of manufacturing activities, and include corporate- and value chain-specific IT and logistics services, services related to supply chain development, organisation development, technical support for subsidiaries, etc.). These services represent a new, third category, in addition to (a) the services that support the core activity (logistics, human resource development, R&D and design, testing, etc.) and (b) product embedded services.

a suitable approach. Selecting the sample of companies to be interviewed, my point of departure was *Comin–Mestieri's* [2013] cited finding, that there are significant cross-country differences in the penetration rate of new technologies (in the intensive margin of technology diffusion). In Hungary, for example, the situation is not very positive: according to the Digital Economy & Society Index (DESI, 2016) of the European Commission, Hungary ranks twentieth out of the EU-28 Member States in terms of digital performance. One of the DESI Index dimensions Hungary scores worst on – much below the EU-average – is the "Integration of Digital Technology by Business".

In light of these statements, it seemed appropriate to look for local manufacturing subsidiaries of global companies to be interviewed: they are the ones that account for the diffusion of advanced manufacturing technologies in Hungary. I focused on industries where industry 4.0 technologies are the most relevant and widespread: automotive industry, electronics and machinery industry (PWC, 2014).[13] I selected information-rich cases, referred to by *Patton* [1990] as a purposeful sampling method. The cases of the companies in the sample are unique, they cannot be generalised, but their experiences promise insightful observations about issues related to this research.

The interviewed companies have been selected from two databases: the articles and case studies published either in the journal called *Techmonitor* and the related website (see: http://techstorym2m.hu), or in the journal called *Gyártástrend.* The managers interviewed were asked to answer open-ended questions based on a previously composed interview protocol. The written questions were led up by questions constructed on the basis of the *Techmonitor/Gyártástrend* case study of the given company, and by other company-specific questions, related to information gained from the given company's notes to the financial statement or from its website.

The first group of questions inquired about the industry 4.0 solutions implemented by the given companies; the level of production automation; the specifics of their recent technological investments; and the key novelty of the new technologies – as perceived by the managers interviewed. The next group of questions investigated the drivers and motivations of industry 4.0 technology implementation. Lastly, I inquired about the impact of new technological solutions on employment and on the nature of work, on corporate performance indicators and on the position of the given subsidiary within the global company. I asked, whether the implementation of

[13] According to the cited PWC study, the pharmaceutical and chemical industries are also among the intensive users of industry 4.0 technologies.

the new technologies prompted any changes in the responsibilities of the subsidiary, whether there was an example of a prior upgrading achievement that had vanished as a consequence of industry 4.0 technology adoption (if yes, what specifically?), or, conversely, whether the new technological solutions have rather opened up new opportunities for upgrading.

As the investigation was anonymous, only a couple of aggregate data will be provided about the composition of the sample. Interviews were made with ten manufacturing subsidiaries in the automotive (n = 5) and electronics industries (n = 4), and with a local machinery subsidiary of a global multi-divisional company. The companies interviewed are large: with an average number of employees of 1,239 in 2015, and average turnover: € 305 million (*n* = 9). They are export-oriented: 96 per cent of the turnover comes from export (*n* = 9). All the companies have been operating in Hungary for a long time, on average for twenty-one years in 2016.

Results

Industry 4.0 technologies at the subsidiaries in the sample

The experience of the companies in the sample provides convincing evidence that local subsidiaries are the main drivers of the diffusion of new manufacturing technologies in Hungary. The cases of the surveyed companies, and other cases in the two databases demonstrate a rapid diffusion of industry 4.0 technologies in Hungary, and also an intensive use of these technologies. This overall positive picture is, however, partly due to a biased sample selection.

The surveyed companies are not only intensive users (and early adopters) of industrial automation solutions, RFID technologies, cyber-physical systems and intelligent decision support systems. They are, to some extent, also *producers* of the technology, as local experts participate in the customisation and in the related adaptive development of the cyber-physical production systems. Subsidiary engineers take part in the programming of industrial robots and in some cases they also undertake corporate-level software development tasks.

Nevertheless, the interviews have also made it clear that the observed speed and scope of technology diffusion and intensity of use cannot be solely explained by a biased sample selection. The managers interviewed called attention to two additional factors. The first one is the gradual and cumulative nature of industry 4.0

implementation. Switching to industry 4.0 is a long *process*, there is no such thing as one single investment decision for "transition to industry 4.0". A key principle applied when designing the new technological solutions was that they should be compatible with the existing production systems, so that the functionality of existing systems should not be endangered by the automation and digitalisation of selected processes, and by the deployment of industrial robots, sensors, data extraction solutions and smart algorithms that control production. This makes the integration of new technologies in the production system easier and cheaper: there is no need to implement large-scale greenfield investments. Note, however, that the most comprehensive industry 4.0 systems (pilot applications) have been implemented at new greenfield facilities built to expand production at some companies in the sample.

The compatibility of industry 4.0 technologies with legacy systems is favourable for Hungary, as a factory economy. If existing production facilities can be developed gradually by integrating new technological solutions into the existing systems, parent companies would not necessarily consider the issue of location (whether to reshore production): this question would immediately arise if the deployment of industry 4.0 technologies required large-scale greenfield investments.

Another issue emphasised during the interviews was that the technological solutions labelled as industry 4.0 are in fact not that radically new as business press articles on the subject suggest. In the automotive industry, the traceability of the products, product parts, and of all components of the production process has long been a standard rule.[14] Computer-operated production equipment, connected machines, simulations used for process development, virtual product design and development cannot be regarded unprecedented novelties either.

Nevertheless, it is new that the price of industrial robots has significantly decreased, which promises good return on investment even in low-wage locations. Another novelty is the emergence of collaborative industrial robots (contrary to conventional robotic applications where robots are fenced, i.e. completely separated from human workers, collaborative robots are not locked away but share a common work space with human operators). According to some interviewees, collaborative robots are expected to significantly reduce the number of jobs on the shop floor (in certain physical activities).

The real novelty of industry 4.0 technologies is, however, the enormous amount of data that can be extracted about various parameters of the production process,

[14] Producers have long been using track and trace systems to be able to identify and locate potentially faulty items in the supply chain that could pose a hazard to consumers.

as this has radically transformed: enhanced and optimised a number of business functions, including quality control, production scheduling, maintenance of the production equipment, logistics, etc. As for quality control, for example, nowadays there is no need to pick product samples and inspect their quality parameters to uncover potential defects. There is no need to examine defected products and try to find the causal relation between defects and eventual deficiencies in the production process. Data are collected about every single product, every processing step, and about the condition (e.g. the potential degradation) of the machines and tools involved in the production process. These data are processed by the computing algorithms that are integrated in the cyber-physical production system. Big data analysis has produced qualitative changes: it has become easier to understand the root causes of production problems and provide rapid feedback.

Another novelty is the unprecedented computerised integration of production (i.e. of heterogeneous production equipment controlled by a variety of software applications): this has made the production process much more transparent than previously.

Altogether, the surprisingly intensive use (among the interviewed companies) of industry 4.0 technologies can be explained by the fact that "industry 4.0" builds on *already existing solutions,* it improves, unifies and supplements them, and (in some fields) it brings them to the next level.

A third explanation of the rapid extensive and intensive diffusion of industry 4.0 technologies needs to be mentioned, beyond the ones told during the interviews. Digitalising production is much easier, faster and cheaper than digitalising business (shifting to a digital business model, i.e. transforming the framework of competition). It could even be claimed that it is easier, faster and cheaper to transform production units in "factory economies" into industry 4.0 pilot applications (at least in the case of actors that operate in segments that had been modernised by foreign direct investment and are characterised by a high share of foreign equity) than to transform the companies in "headquarter economies" so that they fulfil the requirements of the digital age: introduce new work models, new organisational structures and transform their business models (see the case studies by *Agarwal–Brem,* 2015 and *Iansiti–Lakhani,* 2014 about the transformation of GE, and *Burmeister* et al., 2015; *Porter–Heppelmann,* 2014, 2015 on digital transformation).

Motivations regarding the adoption of industry 4.0 technologies

According to the corporate interviews, when investing in industry 4.0 technologies, in most cases, the surveyed companies did not act according to a predetermined "digital strategy". The purpose of investments was rather to find a solution to a specific technological problem. Examples include system malfunctions, machine failures, unplanned shut-downs, poor cycle times, earlier-than-expected tool wear and a shorter than expected lifespan of tools, excessive number of product defects, long changeover time, poor process stability, inefficient process scheduling and bottlenecks in production.

Some managers emphasised other (non-technological) factors, namely that the new requirements set up by customers in terms of quality, deadline and flexibility were so high that they could be fulfilled only by radically transforming the production system and introducing digital solutions, e.g. a real-time control of the production process.

Others mentioned the increasing complexity of production as a key motivation for introducing industry 4.0 solutions. The rapid expansion and diversification of production reduced the transparency of the system, which provoked multiple problems. In order to prevent the accumulation of problems, the implementation of IT solutions (big data analysis, optimisation of multiple parameters, capacity planning and production scheduling software) proved indispensable.

One of the companies gave a surprising answer to the lack of adequately trained workforce, which is a common problem across the sample. According to the chief executive officer interviewed, it was mainly the shortage of labour that motivated the deployment of collaborative robots. Another reason was the significantly reduced price of this new generation of industrial robots, which promised unprecedentedly favourable returns on investment. Conversely, other managers interviewed maintained that hiring additional workers is still more cost-effective than automating production.[15] New technologies have been introduced not to replace workers, or solve the problem of labour shortage, but rather to enhance workers' capabilities. The referred solutions reduce the expensive training period of new operators and minimise the possibility of human error. One example is the introduction of advanced process control solutions, a digital supervisory and information provision

[15] This is obviously a function of technology: the cost effectiveness of automation depends on the features of the given activity and on the possibility/ease of labour replacement by robots.

system that support operators' compliance with the technical specifications of the manufacturing process.[16]

Two other generally mentioned objectives, which the surveyed firms tried to achieve by implementing industry 4.0 solutions are operational excellence and productivity increase. As one interviewee noted: *"The implementation of automated optical inspection technology and production planning software will boost our productivity to reach 95 per cent of the respective indicator of our owner's manufacturing subsidiary in Germany."*

It is worth noting that the objective of reducing costs was never mentioned explicitly. Even if unit labour costs decreased[17] as a result of technology adoption, the purpose of investing companies was not the reduction of costs, rather the *increase in cost efficiency*. As the main positive impacts of cyber-physical systems are manifested in adopting firms' improved resource efficiency and optimised production, the goal of enhancing cost efficiency was achieved by the surveyed companies.

The effect of industry 4.0 technologies on employment and on the upgrading of the Hungarian subsidiaries

The interviews have made it clear that although industrial automation solutions indeed reduce the unit labour input of production, industry 4.0 technologies are not about saving labour, but rather about achieving operational excellence. When investigating the impact of the new technologies on employment, it should not be forgotten that advanced manufacturing technologies transform the activities of engineers as well. For example, some activities that are based on engineers' routine and on their prior experiences will be automated, including production organisation, production planning and scheduling, capacity planning, maintenance scheduling.

The findings of the literature on the effects of industry 4.0 technologies on the nature of work and on the labour market (discussing whether the recent technological progress is skill-biased or just the contrary) are quite ambiguous. Corporate experiences were a good illustration of this ambiguity.

[16] Another example is the use of augmented reality glasses that provide process instructions. The companies in the sample have not introduced this technology yet, though some managers interviewed mentioned this technology as one that may be introduced in the future to enhance physical operators' capabilities.

[17] As a result of production expansion and the relocation of new tasks to Hungary, the number of employees has rapidly increased at the surveyed companies over the past couple of years (average employment increased by 20 per cent between 2012 and 2015). Consequently, the labour-saving effects of industry 4.0 technologies can be observed only in relative terms.

The experience of the surveyed companies illustrated, for example, that new technologies will increase demand for a workforce capable of carrying out knowledge-intensive, complex tasks (*Acemoglu–Restrepo,* 2015; *Autor,* 2015). As one of my interviewees stated: *"Daily production reports are not prepared for the management (for general or production managers, or process development engineers) any more, they are rather used by the operators."*

The first experiences of the companies in the sample also confirm that new technologies will make some components of skilled employees' knowledge redundant. In other words, what most authors maintain, namely that automation will affect not only low-skilled, physical activities, but some routine knowledge work will also be automated, and smart algorithms will take over selected knowledge-intensive activities as well (*Chui* et al., 2015; *Frey–Osborne,* 2013)[18] – was confirmed. One example is production scheduling that used to be carried out based on production engineers' routine and accumulated experience. Another skill that has become obsolete is the ability to prepare summary production reports based on the analysis of daily production data. Smart algorithms have taken these, relatively high-skilled activities over.

In other cases, smart systems have not taken the given activity over, but have significantly simplified the related knowledge work. The analysis of production data has become easier: smart algorithms prepare the primary evaluation of massive amounts of production data. These algorithms identify "nodes" and "patterns" which should be observed and considered when planning production and capacities, and when taking maintenance scheduling decisions.

3D visualisation techniques have enhanced new product design. The virtual representation of the production system has enhanced operational transparency and simplified production control. Process supervisory techniques combined with advanced visualisation solutions facilitated blue-collar employees' compliance with the technical specifications of the assembly process. The flipside of the coin was an overall improvement in process discipline and a reduction in the defect rate.

Examined from another angle, industry 4.0 technologies can be considered skill-biased, since their operation and maintenance requires employees' absorption and mastering of these technologies. According to one informant, one engineer was fired

[18] A related thesis in the literature is that the labour market will be increasingly polarised with demand remaining significant for low-skilled, standard activities. At the same time, medium-level routine activities will gradually disappear, and demand for outstanding expertise and qualifications will strongly increase (*Acemoglu–Autor,* 2011; *Degryse,* 2016; *Hirsch-Kreinsen–ten Hompel,* 2015).

for being unable to make the necessary transition from experience- and routine-based production scheduling to a task execution determined by the results of the newly implemented computing algorithms.

As for the relation between industry 4.0 technology deployment and the upgrading/downgrading of the local subsidiaries, the interviews produced ambiguous results. There were no examples for the loss of subsidiary mandates or for the reshoring of activities to the host country. Just the contrary: there were abundant examples of the location of additional production activities to Hungary. Nevertheless, according to the interviewed managers, the causal link between new technology deployment and further relocations to Hungary is not obvious. According to a consensus finding of several managers interviewed, *"new relocations to Hungary have been going on for years. Similarly, production technology is being developed continuously. The adoption of industry 4.0 technologies is, in this sense, 'business as usual': part of the ongoing organic development process."*

Elsewhere, the expansion of production required the construction of a new, greenfield facility. Consequently, it seemed evident that the new facility should be equipped with the most up-to-date technological solutions. In some instances, the management of the Hungarian subsidiary initiated – using the budget available for the subsidiary to use autonomously for investment, or using the amount of government support awarded in the framework of policy programmes supporting companies' technology development initiatives – that cyber-physical solutions should be implemented to optimise certain parameters of the production process. Other examples of subsidiary-driven investment included the digitalisation of certain manufacturing processes and their connection to the network, and the implementation of business analytics software that permitted the local processing and analysis of locally collected production-related big data.

In some instances, the local subsidiary proposed certain investments at a multinational company-level brainstorming on the application possibilities of industry 4.0, and the given technological solutions have been adopted.

In other cases the parent company standardised and unified its production system within the global network, and in doing so, the best practices were implemented by each manufacturing subsidiary.

All in all, however, the managers interviewed did not see a causal link between the adoption of industry 4.0 technologies and subsidiary upgrading. At most, as some have mentioned, openness towards the implementation of the new technological solutions gives an opportunity for the Hungarian subsidiary to pioneer

the introduction of these applications and to become the "pilot project" and the "best practice" that is adopted later elsewhere.

Following the presentation of the results of the interviews, we now return to the questions raised in the introduction, about the impact of industry 4.0 technologies on the value chain position of production in general, and on the upgrading of the surveyed manufacturing subsidiaries, in particular.

Discussion and conclusions

The rapid adoption and intensive use of industry 4.0 technologies, at least in a well-delineated segment of the Hungarian corporate ecosystem, is only seemingly surprising. The surveyed cases of technology diffusion and use are not intended to suggest that the theory of appropriate technology selection needs to be refuted as outdated. Neither do they suggest that the current factor endowments and factor proportions would generally necessitate frontier technology in Hungary.

Instead, the surveyed cases rather serve as an illustration to a new phenomenon, described by *Baldwin* [2014] and by *Whittaker et al.* [2010]. Once integrated in global value chains through foreign direct investment, economic actors do not need to go through all stages of organic development, i.e. of capital and knowledge accumulation. The fast lane of foreign direct investments can make them leapfrog to the technological frontier, at least in terms of production capabilities.

A related argument is provided in *Kravtsova–Radosevic* [2012]. These authors have presented convincing evidence that the spectacular modernisation driven by foreign direct investment has been confined to the production capabilities of economic actors in Central and Eastern Europe. The technological (innovation) capabilities of these actors have, however, hardly improved.

Another issue to be considered when evaluating the results of our research is that these cases represent anecdotal evidence (a couple of pilot projects). The intensive margin of technology adoption is still very low as demonstrated by the poor scores of the Digital Economy & Society Index (DESI, 2016).

Nevertheless, the specific effects of industry 4.0 technologies on the surveyed local subsidiaries only seemingly confirm *Kravtsova–Radosevic's* [2012] cited argument. Advanced manufacturing technologies have, indeed, uniquely positive effects on adopting actors' production capabilities: the cost efficiency, accuracy

and reliability of processes improve, resource utilisation becomes optimised, and companies approach operational excellence.

Still, the arguments of *Tassey* [2014] are also confirmed, namely that in the industry 4.0 era production capabilities and technological capabilities are becoming more strongly integrated than ever. This is demonstrated by the fact that the surveyed subsidiaries are not only users of industry 4.0 technologies, but subsidiary experts participate in the customisation and adaptive development of the given solutions, and also in several partial supplementary development tasks. There is a bigger need for the experiences and the expertise of subsidiary engineers than ever before with respect to the manufacturability of new product design, and/or in the deployment, operation and further development of industry 4.0 technologies, and in the development of the manufacturing processes.

This line of arguments takes us back to the theoretical question raised in the introduction: Can the revolutionary manufacturing technologies change the position of manufacturing within the global value chain? Can it be expected that production will move upwards from the bottom of the smile curve?

The point of departure of our analysis is that due to the specifics of the new technologies, the activities that comprise the value chain have become more strongly integrated than ever. Consequently, production has also become more interwoven with development than previously. The number of development tasks that need to be co-located with production has multiplied, though virtual reality-powered technologies have made engineering support provision possible also from distance sites.

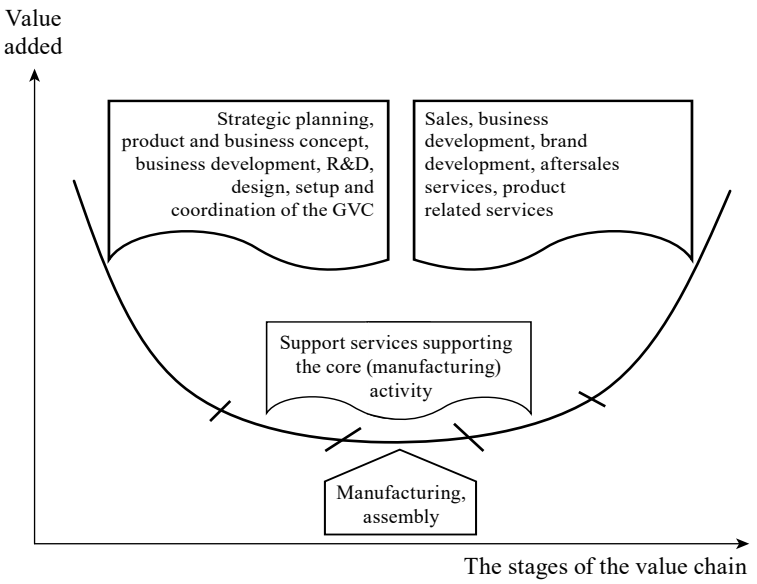
What also needs to be taken into account is that the integration of value chain activities cannot be confined to production: cyber-physical systems integrate the whole value chain (*Kagermann* et al, 2013). Moreover, digital technologies support not only production but also traditional headquarter tasks, such as supply chain management, value chain integration and coordination. Furthermore, these technologies enhance a variety of advanced business functions, such as product and process development, and logistics planning. They simplify and even automate other business functions, such as quality control, maintenance, accounting and order processing.

These arguments are strongly related to the reasoning about the competing definitions of industry 4.0 presented in the introductory section. They substantiate the "business model perspective" of industry 4.0, namely that industry 4.0 should not be restricted to technological novelties in manufacturing: it is rather about the competitive advantage gained from the digital transformation of business as a whole.

These arguments make us advance the proposition that it is not the importance (the value chain position) of production that will be altered by the new manufacturing technologies. Individual business functions will seemingly move in the opposite direction along the smile curve: more and more knowledge-intensive support activities will be pushed to the bottom.

Figure 1a

The original smile curve



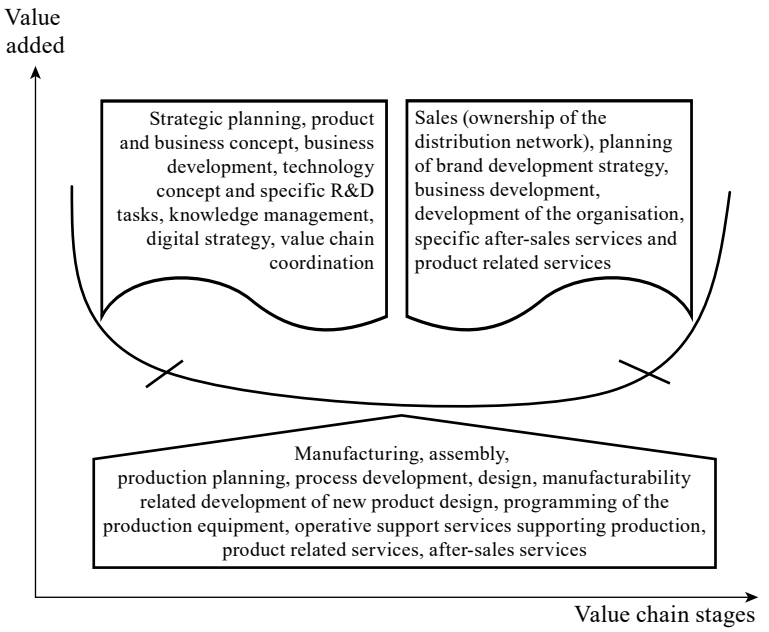
Source: Based on *Mudambi* [2008] with own supplements.

Altogether, the positions of individual business functions will become more uniform: the smile will rather take the shape of a bathtub (see *figure 1a* and *1b*). At the bottom it will be wide and flat, at the sides shorter and steeper. The changed shape of the curve represents that

- more and more activities supporting production have become standard inputs that can be procured anywhere (*Davenport,* 2005);
- production has become tightly integrated with the related knowledge-intensive support activities, hence its value added increased;
- the scope of strategic activities that determine companies' *ownership-specific advantages* (*Dunning,* 1993) decreased.

Figure 1b

Industry 4.0-triggered transformation of the smile curve



Source: Author's editing.

Finally, some limitations of our research needs to be mentioned: first and foremost the modest and not representative, also very special corporate sample, as well as the shortness of the analysed period of time. Additional research, the increase of the number of surveyed companies and industries, and international comparisons will be needed to establish

- the balance of the skill-biased and skill destroying effects of new technologies;
- the direction and the balance of the geographical reconfiguration of value adding activities
- the impact of new manufacturing technologies on the specialisation, task portfolio and mandates of manufacturing subsidiaries.

Increased and more diversified corporate samples and longer time periods will be needed to convincingly conclude that

- global companies' implementation of industry 4.0 technologies targets existing local manufacturing subsidiaries: instead of reshoring production

and the related support activities to advanced economies, existing offshore production capacities are upgraded;
- the labour force (at least the white-collar employees) that becomes redundant as a consequence of production automation and robotisation will be absorbed by the newly created tasks;
- industry 4.0 technologies will increase the number of value chain activities that are considered "operative" and, conversely, value chain coordinators consider fewer activities really strategic;
- industry 4.0 technologies will reduce the differences in the value chain position (or rather, in the position along the smile curve) of the individual operative activities.

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Breakthrough or Dead End? What Can we Learn from Abenomics?

LÁSZLÓ MURAKÖZY

*The "Japanese miracle" after World War II was the one of the most magnificent periods of modern Japanese history. The rapid economic growth brought rising living standards, social harmony and satisfaction. By the 1980s Japan became one of the most developed countries in the world. However, as the 90s progressed the relative position of the country gradually deteriorated. On the surface Japan had seemed to manage the global crisis of the 1970s much better than other developed countries. At that time they implemented the same measures that had proved to be so successful before, and which although dampened the negative external effects prevented the country from adapting to the new situation thoroughly. It took leading countries two decades to get over this by adopting drastic measures and procedures and usher in the era of Great Moderation bringing an economic boom in the 90s and early 2000s. But not in Japan. The country that had been considered a success story for a long time faced a period of economic hardships, which is by no means a passing phase in the history of the country. The reasons for this were very deep and unique structural problems going back several decades. The quarter-of-a-century-long agony of Japan could be rightly called the era of Great Stagnation. The objective of Abenomics is to break out of this hard situation. (The ambitious prime minister of Japan Shinzo Abe announced his comprehensive economic programme in 2012, which is now known as Abenomics.) In this paper we examine what new elements the Abe Shinzo administration has introduced to manage the crisis, what he has achieved so far and what are the prospects for the third largest economy of the world (Walatabe, 2015; Muraközy, 2016).**

Journal of Economic Literature (JEL) codes: E6, P1, O23.

* The Hungarian version of the article was published in *Külgazdaság,* 2016, Vol. LX, No. 5–6, pp. 27–60 (*Muraközy László:* Quo vadis Japán? – Megtörheti-e a Great Stagnation korszakát az abenomics?).. Translated by *Gergely Markó.* Translation checked by *Chris Swart.*

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The exhaustion of the Japanese developmental state

In the decades following World War II Japan underwent unrivalled development and caught up with the most developed countries of the world. This is of historic significance as it was the first non-European country that achieved this, and it served as an example to other countries in Asia, that were to follow suit. The Japanese model was a unique combination of formal and informal institutions. Japanese culture having ancient Chinese roots was the perfect basis for development controlled by a remarkably strong and efficient state, and this manifested itself even in the behavioural patterns of economic players. On the one hand it is true that it laid the foundations of rapid economic growth, but on the other two of the most important institutions of developed economies – namely the market and political democracy – remained underdeveloped. With regard to the latter, the scheme that developed in the mid-fifties has remained unchanged. A sort of one-party system with formal democratic institutions is in existence, which is tightly intertwined with the extremely rigid and strong state administration[1]. Effective democracy, as historical evidence strongly suggest, is not only a value in itself but also an important condition for the development of various competing strategies, and to make it possible for the political elite most suitable to implement the best strategy to take the helm. This can be especially crucial in such crisis-ridden and critical situations that Japan has got into over the past few decades.

The effect of market processes in the Japanese model was lessened by the fact that the economy was dominated by gigantic *keiretsus*, which replaced the previous *zaibatsus* after World War II. These types of corporate groups centred on a well-capitalized core bank. The key role of these great banks, cross-shareholding, interlocking directorates and interdependence significantly reduced the responsibility as well as the risk of corporations. The profit orientation of member companies was quite weak. The banks in the centre of *keiretsus* provided financial assistance or bailout facilities to member companies that were failing or making a loss. As a result the soft budget constraint formulated by *János Kornai* manifested itself in the Japanese private sector in a special way with all its negative effects. This – due to the unique nature of *keiretsus* – had to do with the strong state control over industries and monetary policy. The Japanese administration traditionally considered banking

[1] The fact that the seats of representatives in parliament are even today handed down from father to son – often publicly and ceremonially – lending an air of feudalism to the system is very indicative of the state of democracy in Japan.

as a means of achieving various economic policy objectives. This would lead to providing loans that were not profitable investments. As a result a gigantic amount of bad loans accumulated in the banking industry over the decades, which had by the 1980s fundamentally weakened the Japanese financial system. This contributed significantly to the crisis unfolding in the 1990s, and even has a ripple-on effect today.

A lot of retired state bureaucrats got key positions on the boards of corporations, further strengthening the intensive relationship between them and the state. The state interfered with both economic and financial processes through both formal and informal means. In Japan the unique situation of interlocking of state administration and businesses was an integral part of the organic network, as many state administrators – having attained high state positions – retired and then got top jobs with corporations, banks or other associations. This is the so-called *amakudari*, which can be translated as "descent from heaven". As *amakudari* became an integral part of the system, it became the breeding ground for corruption and favouritism. Over long decades the social network between state administration, businesses and banks became so dense that it was virtually impossible to untangle (*Muraközy,* 2016, *Abe–Fitzgerald,* 1995).

By the last decades of the 20th century we were faced with the paradoxical situation, that the key elements of the Japanese model that originally led to the spectacular economic success, were not only insufficient to secure the country a top position, but were actually the biggest hindrance to further development. With the spread of globalization this situation became increasingly more dramatic. By the nineties the economic growth of Japan became sluggish, the network of interlocking formal and informal institutions became a drag, and the deep structural problems and tensions became more and more visible. This led not only to the worsening relative position of Japan as a global economic power, but to grave crisis and a quarter-of-a-century-long agony.

In the Suffocating Grip of External and Internal Challenges

Issues that had been simmering under the surface burst out in the early nineties in the form of a financial crisis. In the eighties real estate and stock prices skyrocketed, and the situation was becoming more and more threatening. The inflated bubble reached its peak in the second half of 1989, and the majority of investors still did

not perceive that stocks and real estates were overvalued. When the overpriced real estate and stock market collapsed in 1990, the previous enviable dynamism of Japan gave way to decades of stagnation in the country. Such types of bubbles tend to develop as a result of loose monetary policy, distortions in the tax system and financial liberalisation. And Japan was no exception to the rule, but in addition there was a much more serious issue culminating, the Japanese model that was so successful previously came to a dead end. This also contributed to the fact that the bubble grew so huge, and the effect of the collapse so dramatic and long lasting.

Table 1

Annual changes in Inflation/Deflation 1982–2001
(Per cent)

	1982–1991	1992–2001	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
United States of America	3.7	2.0	2.4	2.4	2.1	2.2	1.9	1.9	1.2	1.4	2.1	2.4
United Kingdom	5.9	2.7	4.0	2.7	1.4	2.6	3.3	2.9	2.9	2.5	2.2	2.0
France	5.3	1.3	2.0	2.3	1.8	1.7	1.4	1.3	0.9	0.5	0.5	1.4
Japan	*1.8*	*–0.1*	*1.7*	*0.6*	*0.2*	*–0.5*	*–0.8*	*0.3*	*–0.1*	*–1.4*	*–2.0*	*–1.2*
Canada	4.2	1.5	1.3	1.5	1.1	2.3	1.6	1.2	–0.4	1.7	3.9	1.0
Germany	2.8	1.9	5.0	3.7	2.5	2.0	1.0	0.7	1.1	0.5	–0.3	1.4
Italy	9.5	3.2	4.5	3.9	3.5	5.0	5.3	2.4	2.7	1.7	2.1	2.6
Developed countries	4.9	2.0	3.2	2.7	2.2	2.3	1.9	1.7	1.3	0.9	1.3	1.8

Source: IMF [2000], p. 209, IMF [2002], p. 187.

Actually, the latter is the key issue here. Why was Japan not able to get over the financial crisis in a couple of years, like other countries and regions hit by such crises have been able to? What led to the decades-long agony characterizing the country even today, to sluggish growth and deflation returning to the country from time to time? We have not seen many cases of a financial crisis paralyzing the economy of a country for long decades, and in spite of the repeated attempts to break free of

the deflation and recession, the country has not been able to do so for a quarter of a century. This shows well that what we have at hand is much more than "simple" financial crisis. Due to external and even greater internal challenges, Japan had to face increasingly more serious problems. The structural problems, institutional weaknesses, the explosion of tensions that had been simmering under the surface – which are mentioned in the introduction – came to light when the bubble burst. This was but a spectacular and painful outcome of a quite complex and unique course of events, signalling that the Japanese developmental state was coming to an end (*Fukao,* 2003, p. 366, *Gibney,* 1998, *Garside,* 2012, p. 70, *Barsky,* 2011, p. 17).

Table 1 shows the peculiarity and ominousness of the situation after the collapse of the bubble. The very low rate of growth was accompanied by deflation. Already in the 1980 the annual rate of inflation in Japan was less than two per cent, while the average value in other developed countries was around five per cent. But the period between 1992 and 2001 saw a moderate annual decrease in prices, i.e. deflation in Japan. This was a unique moment in the history of the modern world economy, and posed an unprecedented challenge to Japanese monetary and fiscal policy.

Reform attempts in the two decades before Abenomics

By the seventies and eighties under the radically different external and internal conditions an economic development which focused only on short-term objectives and which was still controlled by state bureaucracy led to the weakening of fundamentals in Japan. This was a slow sinking process, the severity of which remained hidden, so the players did not notice it for a long time. The crisis of the early nineties, and the prolonged period of depression could have warned them of how grave the situation was, but people came to the realization very slowly. The once successful developmental model, the unmodified economic policy practice, and the continued existence of former institutions and structures were but a hindrance to growth. In spite of the dangerously deteriorating situation it proved to be difficult to change deep-seated attitudes and habits, which have pervaded all strata of Japanese business and society and have soaked into the minds of players over long decades and generations.

The sluggishness of the economic and political system, the inefficiency of instruments that were once so effective isolated Japan and caused the country to lag behind, while the majority of developed countries – through processes that

were sometimes painful and brought conflicts – adapted much better to the spread of globalization, and could enjoy the upswing brought by the Great Moderation. Another curious paradox about the Japanese situation is that it was the administration itself that was in charge of curtailing its own formal and informal power, which – needless to say – posed formidable challenges. Bureaucrats protected their positions in state administration, but what was even more detrimental was that its all-pervasive influence over the private sector was decreasing quite slowly. Although there were some attempts in the 80s and 90s at structural change, they were quite fragmented and had little impact (*Callen–Ostry,* 2003, *Alexander,* 2003, *Bailey–Coffey–Tomlinson,* 2007, *Beason–Patterson,* 2004).

The stagnation and deflation period following the crisis of the 1990s forced out the first reform concepts and measures that promised to be comprehensive and radical at least as far as its objectives went. All this occurred during the short term of *Ryutaro Hashimoto,* who was the prime minister of the country from 1996 to 1998. His objectives included loosening the harmful ties between the state and the private sector, strengthening the banking industry shaken by the financial crisis, introducing more transparent rules and statements, and opening the extremely closed Japanese economy. In fact businesses had adapted but little to previous involuntary global economy opening processes. *Ryutaro Hashimoto* believed that the harmonization of Japanese and international accounting standards in the corporate sector was crucial. He realized that the interlocking of government, corporate management and the financial sector was detrimental to competition, weakened the working of the market, making Japan less competitive. Administrative reform, the streamlining of the government, and reducing the power of bureaucracy were all key elements of *Ryutaro Hashimoto's* programme.

The financial crisis, the bursting of the bubble highlighted the weaknesses of the banking system. This fragility had developed much earlier, but could remain hidden for a long time due to the successes achieved. However, under the premiership of *Ryutaro Hashimo*to the initiative to reform the financial system, which appeared to be a very a pressing need indeed, produced quite unimpressive results. The proportion of bad debts accumulated over the previous decade within the banking system was so high that in the end even the government backtracked on its original concept, and did not dare to face the imminent danger of the collapse of the banking system. So it was the government itself that softened the planned measures. Although there was no breakthrough, but the transformation and stabilisation of the financial system

was started, even if in a lopsided way (*Rosenbluth–Thies,* 2010, pp. 95–154, *Ihori–Nakazato–Kawade,* 2003, *Ito–Patrick–Weinstein,* 2005, pp. 107–147).

Ryutaro Hashimoto was followed by *Keizo Obuchi* and then by *Joshiro Mori* as head of government, who in some areas tried to follow in the footsteps of their predecessor, even if half-heartedly. Having said that their tenure can be described as a period when no significant concepts were put forward and no decisive actions were taken. In 2001 *Junichiro Koizumi* took over as prime minister and remained in office until 2006. His was not in an enviable situation. In spite of the varying attempts at reform the interlocking, interdependence and network of relationships – verging on corruption – between state bureaucracy actors, politicians as well as corporate and bank managers was still strong. This minimized the impact of market forces very much. This greatly hampered recovery. *Junichiro Koizumi* – meeting the demands of the majority of the population – promised to bring radical changes. The main rallying cry was the effective implementation of structural reforms. This was an important turning point, because it indicated the realization that it was not merely a passing situation caused simply by some issues facing the financial system or bad economic policy, but the effect of deep-rooted, fundamental structural and institutional problems.

From an economic aspect structural reforms tend to increase the importance of the market and help create a smaller, more efficient and less intervening state. Another objective might be deregulation, trade liberalisation, increasing the role of competition and strengthening the financial sector. The part of the reform that most concerns the state is privatisation, fiscal and tax reform as well as the rationalisation of the welfare and pension system. The structural changes stated by *Junichiro Koizumi* – at least what the prime minister actually announced publicly – were to cover this whole spectrum. His premiership launched more powerful and comprehensive reform efforts, which have been trying to reverse the downward trend and get Japan out of the ditch with varying strength and intensity. These repeated efforts tried to get the country out of the deflation-recession spiral. The comprehensive efforts of *Junichiro Koizumi* were aimed at reforming the whole economic, social and political system of Japan, as he realized how tightly intertwined and interrelated these areas were. The multi-party system – only multi-party in name –, the cemented interlocking network has been able to block radical changes. In order to implement the economic reforms effectively *Junichiro Koizumi* tried to strengthen the role of prime minister as leader as well within the government structure (*Vietor,* 2007, pp. 221–244, *Mulgan,* 2013).

Junichiro Koizumi meant to intensify the market by assigning a central role to consolidating and transforming banks. What made it easier for the prime minister to make his plans about the strengthening of the bank system come true was that some significant changes had already been made in the regulatory and control institutions of the financial sector over the last few years. The most important of them being that the central bank law of 1998 made the Bank independent.[2] Another key measure was the consolidation of financial supervision (*Cargill–Hutchinson–Ito,* 2000, pp. 83–112, *Hutchinson–Westernman,* 2006, pp. 12–14, 33–156).

The legally independent central bank faced quite difficult challenges in the early years of the third millennium. The biggest challenge to monetary policy in Japan was not inflation but deflation. Which meant that the orthodox instruments of national banks could be used with either low efficiency or were completely ineffective. The interest rate, which was 8.2 per cent in March 1991, was lowered to virtually zero in eight years by March 1999, minimizing its role to influence the economy. In this situation decision makers had to find novel monetary assets. However, the central bank was slow to react, assessed the actual threats of deflation with considerable delay, and took a long time to identify the appropriate means. To the Bank of Japan's credit, it was a pioneer, taking a path never trodden before, or at least not in the period of modern finances since the end of World War II.[3] It only introduced the policy of quantitative easing after long years in March 2001. In this scheme the Bank of Japan increased the money supply significantly. Although the central bank declared that it was resolute to continue this policy as long as prices start increasing, even prolonged quantitative easing could not put an end to stagnation (*Hutchinson–Westerman,* 2006, pp. 10–11).

One of the main ambitions of *Junichiro Koizumi* was to stop or at least reduce state subsidies, aid, as this was the hotbed of political corruption and pulling strings[4]. State debt, which was increasing at a dangerous speed, made reforms in

[2] It is very telling of the continuity of the history of Japan that the Act on the National Bank of 1998 replaced a law enacted in 1942. For more than half a century the operations of the Bank of Japan were based on a law that was drafted to suit the then prevailing conditions of a war economy (*Cargill–Hutchison–Ito,* 2000, pp. 83–112).

[3] However, after a couple of years the instruments and practice of the up-till-then unique Japanese monetary policy began to be appreciated and received international attention. After the crisis of 2007/2009 other countries relied on the experience of Japan, of course adopting the monetary policy to be followed to their own situation (*Botman,* 2015; *Hoshi–Kashyap,* 2015).

[4] Even in 2006, at the end of the Koizumi era – in spite of rationalisation – state-owned financial institutions received 455 million yen (USD 4.5 billion) support from the budget. But the actual amount was much larger as state-owned banks did not have to pay corporate tax, and they got interest-free loans from the budget. According to some estimates if we calculated all these, state-owned financial

the public sector as well as stopping the practice of heavily subsidizing those rural constituencies that were the strongholds of the Liberal Party more and more urgent. Although these efforts were very popular with the majority of the population, they were strongly opposed by the representatives of the party (*Park,* 2011, p. 236–237; *Shinoda,* 2013, pp. 76–117).

The fundamental, wide-ranging reforms announced at the beginning of *Junichiro Koizumi*'s term were only partly carried through. What made implementation more difficult was that previous governments had introduced fiscal stimulus packages, which made the budgetary situation even worse and increased the indebtedness of the government. However, the necessary fiscal stringency measures understandably dented the popularity of the government. Partly as a result of the reforms carried out by *Junichiro Koizumi* and partly as a result of the global, and more specifically the Asian economic boom, the macroeconomic situation of Japan improved somewhat. Growth prospects, stock market indices and the position of the banking system became more favourable as well. *Junichiro Koizumi's* work was greatly appreciated abroad, but domestically opposition was growing, and the reform lost momentum. In 2006 *Junichiro Koizumi* announced that he would step down from office. *Shinzo Abe,* who was a close associate of his as head of the Prime Minister's Office, succeeded him as both the president of the party and as prime minister, albeit briefly, for only one year this time.

Shinzo Abe, at the beginning of his first premiership, took the helm at a time when the situation was relatively good. Although he announced the radical transformation of the post-war Japanese system – which suggested that he would continue what his predecessor started –, although not much of it was realized this time around. In the 2007 upper-house elections the Liberal Democratic Party suffered a historic defeat. This was mainly due to the party's own flaws and great corruption scandals. *Shinzo Abe* could still remain in office for a short time, but instead of implementing real reforms he was just fighting for his political survival. In the end he resigned after one year in office. The two prime ministers *Yasuo Fukuda* and then *Taro Aso* succeeding *Shinzo Abe,* and both serving a brief term, could not stop the declining popularity of the Liberal Democratic Party, and in the lower-house elections of 2009 the Democratic Party of Japan – formed when smaller opposition parties merged a year earlier – led by *Yukio Hatoyama* pulled off a landslide victory. What contributed

institutions cost the state nearly 1 billion yen a year around the turn of the millennium. This is one of the symptoms of soft budget constraint uniquely present the mixed economy of Japan (*Park,* 2011, pp. 236–237).

to the defeat was that the growth that began in the middle of the first decade of the twenty first century – which was partly due to the reform measures implemented by *Junichiro Koizumi* – was broken by the economic crisis of 2007–2009. The decades-long dominance of the Liberal Democratic Party seemed to be coming to an end (*Kiglics,* 2011, pp. 115–136).

The government led by the Democratic Party of Japan started reviewing budgetary expenditure with great vigour, trying to find opportunities for rationalisation and saving. However, it soon turned out that it was quite difficult to change things in a budget that developed over long decades and was quite complicated. And this meant there were no funds to fulfil election promises from. Although *Yukio Hatoyama* governed in the name of a new party, in many ways it was just continuing in the direction set by the Liberal Democratic Party administration. Like his reform-minded predecessors he also tried to reduce the power of bureaucracy and improve the efficiency of state control. The Democratic Party of Japan could only fulfil a small portion of the election promises it had made, and even *Hatoyama Yukio* came under suspicion in relation to a finance scandal, and was forced to hand over the reins to *Naoto Kan*. The governing party was defeated in the early upper-house elections, not least because contrary to what they promised in their campaign programme they were planning to raise the consumption tax to 10 per cent. This contributed to the defeat of the party in spite of the fact that the tax hike seemed undoubtedly necessary (*Koellner,* 2011).

Abenomics

In the 2012 elections – after a short detour – Japanese political system was back to normal, as had been since the mid 1950s, without any real challengers, to a one-party rule. The Liberal Democratic Party led by *Shinzo Abe*[5] returned to power. The new cabinet had to tackle the following interconnected challenges: deflation, moderate potential growth, massive deficit, increasing government debt, aging population, declining work force and acute social problems. The weight of the problems is clearly indicated by the fact that the nominal GDP of Japan decreased by more than seven

[5] *Shinzo Abe* is a member of one of the most prominent Japanese political dynasties. His father filled ministerial positions, his maternal grandfather was *Nobusuke Kishi,* who served as prime minister of the country between 1957 and 1960 – and played a key role in shaping the developmental state. *Eisaku Sato,* the second longest-running prime minister of Japan, was also a relative of *Shinzo Abe.*

per cent in the 16 years between 1997 and 2013, while government debt was around 230 per cent of the GDP in 2015 (OECD, 2015*a,* pp. 10–18, *Schiff,* 2015).

The economic policy dubbed Abenomics of the newly elected government of *Shinzo Abe* seemed rather novel, and received global attention, although if we look at what it consisted of, it was merely rehashing some of the Japanese recipes that had been used in earlier decades, and which had not achieved the necessary deep structural changes. Therefore it is crucial to look at the period of Abenomics in the context of the country's past quarter-of-a-century long history characterized by the struggle to fight deflation and stagnation and also look at its prospects this way and make clear that Japan would finally have to find a solution to problems that accumulated over the past 50 years. To understand *Shinzo Abe's* concepts, determination and programme it is absolutely crucial to see that he was one of the closest colleagues and then successor of *Junichiro Koizumi,* the most charismatic pro-reform prime minister of the previous two decades. If we look at the programme of Abenomics carefully, we can see that it is in many ways the continuation and further development of *Junichiro Koizumi's* ideas, drawing on the lessons of failures and with weaknesses corrected.

With all these things considered Abenomics was more radical, more comprehensive and more coordinated than the programmes that came before it. It identified more accurately the critical mass required to make a breakthrough and achieve real results, and assessed the main areas and their interactions much better. From the experience of *Junichiro Koizumi* as Prime Minister, *Shinzo Abe* learnt that he needed to secure a very powerful political majority to support him. He also realized that it was not only parliamentary power that was crucial to success, but credibility, persuasive communication that can help him get the support of the corporate world as well as the support of the population. This latter, excellent political marketing is one of the main strengths of his premiership. He took the helm armed with fierce determination and powerful nationalist rhetoric.

The great international interest in Abenomics was aroused not only by the decades-long agony of Japan and the charismatic personality of the prime minister or his strong statements. The 2007–2009 crisis forced the governments of developed countries all over the world to face the problem of what economic policy instruments can be used to break out of stagnation when state debt is high, growth is slow, inflation is low or there is deflation even, and all conventional instruments have failed. In the period of reflection and experimentation to find the way out, which characterized the past years divided members of the profession as well as politicians about what the

best way to success is. The crisis and slow growth would clearly require a fiscal and monetary economic policy to stimulate the economy.

However, conventional fiscal stimuli lead to greater and greater deficits, reaching budget limits and leading to further indebtedness. If equilibrium considerations are in serious danger, state expenditures need to be cut and/or taxes have to be increased, which may wreck growth that is fragile to begin with. Massive government debt means a great repayment burden, which makes the fiscal policy situation even more difficult. The crisis and the period following it led to low inflation or even near-deflation at many places. In such a climate near zero interest rate and monetary policy can no longer rely on orthodox instruments and channels. Novel, innovative, unorthodox measures have to be taken, as remarkably the Fed in America has done in recent years.

On the one hand increasing the quantity of the money may help start lending, and boost business activities. However, there are other factors that are also needed to do so, e.g. increasingly stronger positive expectations, growing demand, profitable investment opportunities and the like. However, enormous liquidity surplus has developed on national financial markets as well as globally as a result of monetary policies, increasing the chance of risks, bubbles and financial crises developing in the future. The situation is quite tense in Europe, the European Union and in the Eurozone in particular. The above may indicate that the decades-long problems in Japan have by now appeared, or are becoming visible, in developed countries worldwide. The problem of deflation, which seemed to be but a unique Japanese phenomenon, identifying the opportunities and limitations of monetary and fiscal recovery in a depressed economy with no inflation has by now appeared as a problem to be solved in other parts of the global economy. This is why Japanese economic policy experiments have become so valuable in global economic and economic policy thought shaken by the crisis of 2007–2009. Of course, we have to be very cautious about what seem to be parallels on the surface as well as examples and advice that seem to be apt and applicable to the situation at hand. This is especially true with the very unique Japanese economy. The causes as well as the social, political and economic background are very different in Japan, Europe and the United States, so we have to be very careful when we draw parallels between them (*Botban,* 2015, *Hutchinson–Westerman,* 2006).

The similarity of symptoms – with regard to the adoption and application of specific economic policy methods – may not mean that the outcome and the treatment of the problems should also be the same in countries that are in very different

situations. We also have to be careful with the undesired side effects of therapies, which often have a lot to do with the differences between the countries. Although the symptoms often appear to be the same, the nature of the underlying illness may be quite different. The challenge of overcoming a financial crisis in a country that has had a democratic market economy for centuries, like in the United States of America, is quite different from that facing Japan whose stagnation and deflation-related problems are the result of structures that were left unchanged for many decades. It is no accident that fiscal stimulus and monetary quantitative expansion seemed to be much more effective in the USA than in Japan, where repeated attempts were made with no apparent effects. All this may call for caution about our findings; what conclusions can be drawn and when we make an evaluation. However, comparing countries and regions with different locations and traditions adds to our knowledge about the opportunities of fiscal and monetary policy and how they work, and this can help us make a better use of them in the future (*Korniyenko–Loukoinova,* 2015, *Ueda,* 2012).

The enormous challenges facing the Shinzo Abe administration

When *Shinzo Abe* became prime minister of Japan for the second time, the position he found himself in was not better than it had been a couple years before, when he succeeded *Junichiro Koizumi* as premier of Japan. By then we could talk not about just a lost decade but about almost quarter of a century, in which the country could not break out of the circle of deflation, slow growth and losing its relative position on the global market. *Tables 2* and *3* show this quite well.

Table 2

Annual real GDP growth rate between 1991 and 2017

	1991–2001	2002	2003	2004	2005	2006	2007	2008
United States of America	3.5	1.8	2.8	3.8	3.3	2.7	1.8	–0.3
United Kingdom	2.8	2.5	3.3	2.5	3.0	2.7	2.6	–0.5
Finland	3.2	1.7	2.0	3.9	2.8	4.1	5.2	0.7
France	2.2	1.1	0.8	2.6	1.6	2.6	2.3	0.1
Ireland	7.8	5.9	3.9	4.4	6.4	6.3	5.5	–2.2
Japan	*0.8*	*0.3*	*1.7*	*2.4*	*1.3*	*1.7*	*2.2*	*–1.0*

	1991–2001	2002	2003	2004	2005	2006	2007	2008
Korea	6.4	7.4	2.9	4.9	3.9	5.2	5.5	2.8
Germany	1.6	0.0	–0.7	0.7	0.9	3.9	3.4	0.8
Italy	1.6	0.3	0.2	1.4	1.1	2.1	1.4	–1.1
Switzerland	1.4	0.1	0.0	2.8	3.0	4.0	4.1	2.3
Sweden	2.4	2.1	2.5	3.8	2.8	4.9	3.5	–0.7
OECD average	2.8	1.7	2.1	3.2	2.8	3.2	2.7	0.2

	2009	2010	2011	2012	2013	2014	2015	2016	2017
United States of America	–2.8	2.5	1.6	2.2	1.5	2.4	2.4	2.5	2.4
United Kingdom	–4.2	1.5	2.0	1.2	2.2	2.9	2.4	2.4	2.3
Finland	–8.3	3.0	2.6	–1.4	–1.1	–0.4	–0.1	1.1	1.6
France	–2.9	1.9	2.1	0.2	0.7	0.2	1.1	1.3	1.6
Ireland	–5.7	0.4	2.6	0.1	1.4	5.2	5.6	4.1	3.5
Japan	*–5.5*	*4.7*	*–0.5*	*1.7*	*1.6*	*–0.1*	*0.6*	*1.0*	*0.5*
Korea	0.7	6.5	3.7	2.3	2.9	3.3	2.7	3.1	3.6
Germany	–5.6	3.9	3.7	0.6	0.4	1.6	1.5	1.8	2.0
Italy	–5.5	1.7	0.7	–2.9	–1.8	–0.4	0.8	1.4	1.4
Switzerland	–2.1	3.0	1.8	1.1	1.8	1.9	0.7	1.1	1.6
Sweden	–5.1	5.7	2.7	0.0	1.2	2.4	2.9	3.1	3.0
OECD average	–3.4	3.0	1.9	1.3	1.2	1.9	2.0	2.2	2.3

Source: OECD [2015d], p. 245 (2015–2017 forecast).

By 2012-2013 the temporary improvement that had occurred in the mid 2000s in the growth performance of Japan, which confirmed *Junichiro Koizumi's* reform efforts, and served as proof that the country was headed in the right direction, was long forgotten. The positive tendencies were curbed by the 2007–2009 global economic crisis and the involuntary resignation of *Junichiro Koizumi.* We have seen quite poor growth performance and even some downturn in 2011 and 2014. The real GDP growth was around no more than half a per cent in 2015, and the 2016 and 2017 prospects are not very promising either. Slow growth goes hand in hand with the gradually worsening position of Japan in the global economy over the past quarter of

a century. After decades of the economic miracle when Japan caught up with other developed countries, the country is now slowly but definitely lagging behind. The *Shinzo Abe* government was faced with slow growth and a near-deflation situation, improved temporarily only by the VAT increase in 2008 and 2014, but then low inflation returned. Although this does not make the problems of the current Japanese government any less serious, unlike in the years before and after the turn of the millennium – see *table 3* – low inflation, which was previously considered a unique Japanese phenomenon, is much less unique in the developed world, as today a lot of European countries and the Eurozone as well are in a near-deflation situation.

Table 3

Annual growth rate of the consumer price index between 1991 and 2017

	1992–2002	2002	2003	2004	2005	2006	2007	2008
United States of America	2.7	1.6	2.3	2.7	3.4	3.2	2.9	3.8
United Kingdom	2.1	1.3	1.4	1.3	2.0	2.3	2.3	3.6
Finland	1.9	2.0	1.3	0.1	0.8	1.3	1.6	3.9
France	1.6	1.9	2.2	2.3	1.9	1.9	1.6	3.2
Ireland		4.7	4.0	2.3	2.2	2.7	2.9	3.1
Japan	*0.4*	*–0.9*	*–0.3*	*0.0*	*–0.6*	*0.2*	*0.1*	*1.4*
Korea	4.6	2.8	3.5	3.6	2.8	2.2	2.5	4.7
Germany		1.4	1.0	1.8	1.9	1.8	2.3	2.8
Italy	3.3	2.6	2.8	2.3	2.2	2.2	2.0	3.5
Switzerland	1.5	0.6	0.6	0.8	1.2	1.1	0.7	2.4
Sweden	1.6	2.2	1.9	0.4	0.5	1.4	2.2	3.4
Eurozone		2.3	2.1	2.2	2.2	2.2	2.1	3.3

	2009	2010	2011	2012	2013	2014	2015	2016	2017
United States of America	–0.3	1.6	3.1	2.1	1.5	1.6	0.0	1.0	1.8
United Kingdom	2.2	3.3	4.5	2.8	2.6	1.5	0.1	1.5	2.0
Finland	1.6	1.7	3.3	3.2	2.2	1.2	–0.2	0.4	0.8
France	0.1	1.7	2.3	2.2	1.0	0.6	0.1	1.0	1.2
Ireland	–1.7	–1.6	1.2	1.9	0.5	0.3	0.1	1.6	2.0

	2009	2010	2011	2012	2013	2014	2015	2016	2017
Japan	*–1.4*	*–0.7*	*–0.3*	*0.0*	*0.4*	*2.7*	*0.8*	*0.7*	*2.3*
Korea	2.8	2.9	4.0	2.2	1.3	1.3	0.7	1.6	2.0
Germany	0.2	1.2	2.5	2.1	1.6	0.8	0.1	1.0	1.6
Italy	0.8	1.6	2.9	3.3	1.3	0.2	0.2	0.8	1.1
Switzerland	–0.5	0.7	0.2	–0.7	–0.2	0.0	–1.2	–0.5	0.1
Sweden	–0.5	1.2	3.0	0.9	0.0	–0.2	0.1	1.4	2.2
Eurozone	0.3	1.6	2.7	2.5	1.3	0.4	0.1	0.9	1.3

Source: OECD [2015*d*], p. 262 (2015–2017 forecast).

A brief review of the symptoms indicates that two decades after the bursting of the Japanese financial bubble, in spite of the numerous reform attempts the Japanese economy has not been able to overcome the crisis it is in, and has not been able to solve its basic structural problems. All this is coupled with current issues, a great government budget deficit, enormous government debt as well as complex demographic and social problems, and to make things worse, all this in a global environment where it is increasingly more difficult to keep up with others in a cut-throat competition. What made the twenty-year-long agony of Japan even more striking is that meanwhile the part of Asia nearest to Japan has become one of the most dynamically growing regions of the world. Former followers have become the fiercest and at the same time closest competitors in the global economic competition.

The "three arrows" programme of Abenomics

In the difficult economic-demographic situation – having learnt a lot from earlier failures – Shinzo Abe launched his "three arrows" programme aimed at the recovery of the country with great determination. The three arrows are (1) aggressive monetary policy, (2) flexible/expansionary fiscal policy and (3) structural reforms. The continuity between Abenomics and earlier reform efforts is obvious. It is enough to call to mind the plans and actions of *Ryutaro Hashimoto* but especially *Junichiro Koizumi*. The objective and purpose of this as well as previous reform efforts was to get Japan out of the deflation spiral and set the country on a sustained growth path. The most difficult issue and at the same time the cornerstone of "three arrows" programme was (and still is) the structural reforms that were aimed

at solving and resolving inherited historical problems. Based on earlier Japanese as well as international experience it is clear that only structural and institutional transformation can create a basis for greater and sustainable growth. And this is the central issue of the economic policy of every country. Without this expansionary fiscal policy and monetary expansion, important as they may be, are only scratching the surface, and cannot achieve the desired effect. In the first decade of the 21st century we registered only 0.8 per cent annual growth, much lower than what the majority of developed countries had.

The situation of *Shinzo Abe's* government was and still is made even more difficult by the fact, that what we are facing is not a cyclical slump, but the rate of potential growth is also quite low. In the 90s after the bubble burst the decline of investment and the decrease in total factor productivity caused the level of potential output to drop significantly as well. As of the turn of the millennium total factor productivity began to grow, but investments still remained at a very low level. Another blow for long-term growth was connected to demographic problems: workforce was declining in Japan's rapidly aging society. Sustained deflation also hindered economic growth and limited the scope of monetary policy.

It became clear to *Shinzo Abe* – based on the experience gained, and the failed attempts of the past decades – that sustained results can be obtained only through a comprehensive, extensive, coordinated and concerted reform process. Only this can lay the foundations for sustained, dynamic growth, without which – as international experience shows – not even the much needed fiscal consolidation measures can be implemented. The action programme launched in 2013 is based on the assessment of synergies of the simultaneous implementation of the building blocks of the "three arrows" programme. It is assumed that monetary expansion and expansionary fiscal policy can help break out of the deflation spiral, which in combination with low real interest rates can create a favourable climate for investment, consumption, and with the depreciation of the yen, exports as well. The above may give a short-term boost. If comprehensive structural reforms are launched simultaneously, this may bolster confidence and heighten expectations about the future. All this can induce more rapid growth on the long run as well, which may facilitate fiscal consolidation, decrease government deficit and slow down the dynamic increase of government debt. The idea is that through the growth triggered the considerable cost of aggressive monetary and fiscal expansion and its equilibrium risk can be reimbursed (*Botman–Danninger–Schiff,* 2015, *Hamada–Kashyap–Weinstein,* 2011).

Monetary policy

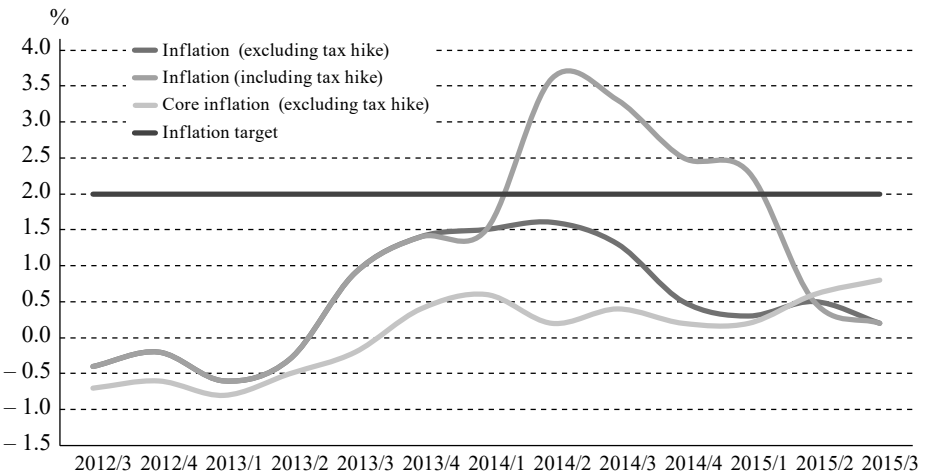
In March 2013 prime minister *Shinzo Abe* – without even pretending to respect the independence of the Bank of Japan – very aggressively nominated his own confidant *Haruhiko Kuroda,* former president of the Asian Development Bank as the governor of the central bank. The two-year target was to raise inflation to 2 per cent sustainably by 2015.[6] The Bank of Japan used various instruments to achieve this cognizant of the fact that all this will be insufficient without fiscal policy being adjusted to this target and without carrying out structural reforms. The instruments used were one called quantitative easing, which was used by the Fed in America after the 2007–2009 crisis and which received a lot of attention worldwide. Quantitative expansion, the first arrow of Abenomics to be implemented, set the target of doubling the monetary base in the period between 2013 and 2015. In the spring of 2013 the balance sheet of the Bank of Japan was around 34 per cent of the country's GDP, which was already higher than that of the USA (19 per cent), the United Kingdom (27 per cent) or the European Central Bank (28 per cent).

In two year's time, in the spring of 2015, as the result of aggressive monetary expansion the balance sheet total of the Bank of Japan was as high as 65 per cent of the GDP. In early 2015 in the United States it was 25 per cent of the GDP while in the Eurozone it was 21 per cent. However, the continuous expansion poses serious future risks. If the economic recovery really starts, this may run up interest rates in the future. But the failure of Abenomics, the loss of investors' confidence or external financial factors can have similar effects. If this happens the gigantic debt burden can skyrocket, which may rock the foundations of the whole financial system of Japan (OECD, 2015*a,* p. 33, *Hausman–Wieland,* 2014, pp. 23–25, *Rickards,* 2014, *Arslanalp–Lam,* 2013).

[6] Deflation is indeed a very unique problem of the Japanese economy. The GDP deflator decreased by 13 per cent between 2001 and 2013, and monthly consumer price index increased only in 12 months in this period. If there had been at least one per cent inflation in this period since 2001, the nominal GDP growth would have been 1.75 percentage points higher and public debt would be around 160 per cent of the GDP instead of the current 230 per cent. The Bank of Japan already tried really aggressive monetary policy to stop deflation between 2001 and 2006, but failed (*Koo,* 2015, pp. 153–198).

Figure 1

Consumer price changes between 2012 and Q3 2015



Source: OECD [2015*d*], p. 167.

Despite all its efforts the Bank of Japan did not hit the 2 percent inflation target by 2015 at all. As *figure 1* shows only the April 2014 consumption tax hike resulted in a volatile price increase, but its impact wore off soon, while it reduced domestic demand significantly. By the end of 2015 inflation rate was back at 0.5 per cent. Which is very telling, as core inflation is around that level. On the other hand, the gigantic quantitative expansion programme, while its impact is limited and only short term, involves major future risks. Japanese monetary easing was therefore exceptionally bulky compared to others using similar instruments like the Fed, the United Kingdom and the Eurozone which has partly started to follow suit. However, the scene in Japan, a country facing a prolonged and grave crisis was very different from that in the United States or Europe for that matter, so the oversupply of liquidity produced but unimpressive results (*Hausman–Wieland,* 2014, *Fujiwara–Nakazono–Ueda,* 2015).

Fiscal policy

The experience of Abenomics show that even the most powerful monetary policy may only produce limited results. The fiscal policy harmonised with it and

especially comprehensive structural reforms may bring about considerable changes in the economy as well as in the society, they may boost corporate borrowing and investment. As government debt is enormous and therefore very significant in the operation of Japanese financial markets, in many respects fiscal policy has had a greater impact on this sector as well, than monetary policy would be capable of. This again is a very important peculiar Japanese trait to consider. It is because of this as well as other factors that the role of monetary policy – in spite of its aggressiveness and extensiveness – is still quite limited. It is because of this – and the lessons learned from earlier failed attempts – that the Bank of Japan emphasises that monetary and fiscal policy and structural reforms need to implemented simultaneously (IMF, 2015*a*).

The other important pivot of the "three arrows" programme in addition to monetary expansion is expansionary fiscal policy. This has been used quite often before as well, but due to the enormous government debt and deficit the consideration of fiscal consolidation proved to be more important. The conflict between the two considerations has caused certain cyclicity in the financial affairs of Japan. As part of the Abenomics programme they implemented a stimulus package equal to 1.5 per cent of the GDP. As a result public investment grew by 8 per cent in 2013, in contrast to 2.7 per cent the year before, and especially to the 8 per cent decrease seen in 2011. However, public investment grew only by 3.8 per cent in 2014, while a significant drop in public investment is expected in 2015–2016.

This is a clear indication that with such high deficit and government debt fiscal stimulus and fiscal consolidation will come into conflict even in a short term. As the first measure of consolidation – as had been planned originally – consumption tax was raised from 5 to 8 per cent in April 2014. However, this stunted growth, which was quite modest to begin with. According to the original plans the consumption tax was to be raised a second time to 10 per cent in October 2015. However this second hike was delayed by 18 months to April 2017. This way however the fiscal balance will deteriorate further, which means that fiscal consolidation will be an even more painful process, with greater and greater sacrifice ratio. By 2015 it became clear that the scenario to solve fiscal disequilibria painted in 2012 by the Shinzo Abe government was overly optimistic (*Lech Valier,* 2014, pp. 51–54, IMF, 2015*b,* p. 32).

In spite of recent failures the importance of fiscal consolidation cannot be stressed enough in the ominous shadow of growing government debt. In 1990 the gross public debt of Japan was only 65.3 per cent of GDP, while in 2000 it was 136.1 per cent of GDP, and today the gross national debt of the country is the highest

among developed countries, at around a whopping 230 per cent of the GDP: Although funding the public debt has not been a problem so far, as Japanese investors and especially households prefer to invest in government securities. Domestic funding in the Japanese deflationary environment – due to low interest rates – even with such enormous government debt puts relatively little strain on the national budget. The net interest payment of the government is quite low in international comparison. However, if Japan is unable to make a sharp turn, and implement the "three arrows" programme, as a result of increasing government debt the country may need external funds, which would impose a heavy burden on the country and increase the risk. The situation is quite serious, according to OECD calculations if the trend continues the gross government debt of Japan may exceed 410 per cent of the GDP by 2040 (OECD, 2015*a,* p. 15, p. 32, pp. 109–115, *Arslanalp–Lam,* 2013, *Shigeki,* 2005).

Table 4

General government financial balances as a percent of nominal GDP, 1998–2017

	1998	1999	2000	2001	2002	2003	2004	2005	2006	2007
United States of America	–0.4	0.0	0.8	–1.4	–4.8	–6.0	–5.5	–4.2	–3.1	–3.7
United Kingdom	–0.2	0.7	1.1	0.4	–2.1	–3.4	–3.6	–3.5	–2.9	–3.0
Finland	1.6	1.7	6.9	5.0	4.1	2.4	2.2	2.6	3.9	5.1
France	–2.4	–1.6	–1.3	–1.4	–3.1	–3.9	–3.5	–3.2	–2.3	–2.5
Ireland	2.0	2.4	4.9	1.0	–0.3	0.7	1.4	1.3	2.8	0.3
Japan	*–10.3*	*–7.1*	*–7.5*	*–6.0*	*–7.7*	*–7.7*	*–5.9*	*–4.8*	*–1.3*	*–2.1*
Korea	0.6	1.6	4.4	3.0	3.5	–2.0	0.2	1.6	2.3	4.2
Germany	–2.5	–1.7	0.9	–3.1	–3.9	–4.2	–3.8	–3.4	–1.7	0.2
Italy	–3.0	–1.8	–1.3	–3.4	–3.1	–3.4	–3.6	–4.2	–3.6	–1.5
Switzerland	–1.9	–0.9	–0.4	–0.8	–2.7	–2.4	–2.2	–1.2	0.3	0.9
Sweden	0.9	0.8	3.2	1.4	–1.5	–1.3	0.3	1.8	2.2	3.3
OECD average	–2.3	–1.2	–0.4	–1.8	–3.6	–4.3	–3.6	–2.8	–1.6	–1.5

	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017
United States of America	–7.2	–12.8	–12.2	–10.8	–9.0	–5.5	–5.1	–4.5	–4.2	–3.7
United Kingdom	–5.1	–10.8	–9.7	–7.7	–8.3	–5.7	–5.7	–3.9	–2.6	–1.5
Finland	4.2	–2.5	–2.6	–1.0	–2.1	–2.5	–3.3	–3.3	–2.7	–1.6
France	–3.2	–7.2	–6.8	–5.1	–4.8	–4.1	–3.9	–3.8	–3.4	–2.8
Ireland	–7.0	–13.8	–32.3	–12.5	–8.0	–5.7	–3.9	–2.1	–1.1	–0.3
Japan	*–1.9*	*–8.8*	*–8.3*	*–8.8*	*–8.7*	*–8.5*	*–7.7*	*–6.7*	*–5.7*	*–5.0*
Korea	2.3	–1.3	1.0	1.0	1.0	1.3	0.9	0.0	0.5	0.8
Germany	–0.2	–3.2	–4.2	–1.0	–0.1	–0.1	0.3	0.9	0.6	0.9
Italy	–2.7	–5.3	–4.2	–3.5	–3.0	–2.9	–3.0	–2.6	–2.2	–1.6
Switzerland	2.0	0.8	0.3	0.8	0.2	–0.3	–0.2	–0.2	–0.3	–0.2
Sweden	2.0	–0.7	0.0	–0.1	–0.9	–1.4	–1.7	–1.1	–0.6	–0.3
OECD average	–3.6	–8.4	–7.9	–6.6	–5.8	–4.1	–3.8	–3.3	–2.8	–2.3

Source: OECD [2015*d*], p. 271 (2015–2017 forecast).

The high government debt has run up as a result of the combination of deficits incurred over decades of repeated but unsuccessful fiscal stimulus measures and the frequent decrease in nominal GDP due to deflation. *Table 4* shows that in the years around the turn of the millennium in Japan – unlike in other developed countries with relatively balanced budgets – the deficit was substantial, amounting to 8-10 per cent of the GDP. By 2006–2008 the country managed to reduce the deficit, but then the positive tendencies were broken by the unfolding global financial crisis. After this massive deficits of up to 7–9 per cent of the GDP returned in Japan. All this warns us that Japanese economic policy can only follow a quite narrow path, as if the government achieves one of its main targets, namely price increase, interest rates will also run up, making it more difficult to fund the enormous government debt, and at one point can even hamper the recovery of private investment as well (OECD, 2015*d,* p 271).

The complexity of the situation is illustrated by the estimate made by the OECD in 2015 modelling the paths for Japan in the 25 years between 2014 and 2040 (OECD, 2015*a*). The authors examined three possible scenarios, with differences – at first glance quite small differences – in the growth and inflation figures used in the calculations. However, because of the length of the period under scrutiny these little differences resulted in very different paths for the country, and after a quarter of a century they

produced very different results with regard to the position of Japan. The two key variables used in the calculations were real GDP growth and inflation rate. These two already determine how the third variable, nominal GDP will change. These three input values varied in the calculations, while the four output variables were long-term interest rate, current account and primary budget balance and gross government debt.

The first one is the baseline, which is the projection of the current growth path into the future, paints a rather gloomy picture. Here the one per cent real growth is accompanied by 1.75 per cent inflation. This combination would result in a growing current account deficit, which would be nearly one quarter of the GDP by 2040, while the gross government debt would reach 413 per cent of the GDP. The baseline indicates the danger noted earlier, i.e. that higher inflation – accompanied by moderate growth – due to the rise in interest rates may result in intolerable debt service burdens for the budget. Of course it is impossible to make accurate long-term predictions. And it was not even meant to be accurate. However, the baseline shows the rather dangerous outcome of what can happen if the current negative growth tendencies are not curbed, as this way Japan would rather sooner than later get into an economic situation that cannot be kept under control.

OECD experts looked at two other scenarios in addition to the baseline one. In Scenario 1 the real growth was 1 per cent, just like in the baseline scenario, but inflation was only 0.5 per cent, which is in fact a near-deflation situation. This is pretty close to the real situation, as the current period is also characterised by similar values. In this case, the relatively low interest rates would result in small current account deficit and even two per cent primary surplus after 2025. The gross government debt would take a sustained downward path, and by 2040 it could be 211.5 per cent of the GDP. This is a much more positive scenario; however, the achieving a primary balance surplus would require tax hikes and cutting expenditures drastically. And this is a quite difficult task as an ageing society and increasingly wider and deeper social problems may force the government to increase such expenditures.[7]

[7] The needs of the ageing population put increasingly greater pressure on the government to increase expenditures, including first and foremost pensions, social care, and health care. In addition – in spite of the fact that the average income of Japanese households is quite high – because of the significant differences in income, low-income families have difficulty making ends meet, while in 1985 12 per cent of the population lived in relative poverty, in 2009 16 per cent of the population. Even around the turn of the millenium it was one of the highest rate among OECD countries. Of the developed economies – with the exception of the United States – it is Japan that has the biggest difference between the top and bottom 10 per cent of the population with regard to income. At the end of the first decade of the new millennium the top 10 per cent earned only three or four times more than the bottom 10 per cent in the majority of European countries.

The most promising is Scenario 2, whose values are the furthest from current Japanese reality. A two per cent real growth is accompanied by a two per cent inflation here, meaning that the annual nominal GDP growth is four per cent. According to this optimistic scenario, the budget would improve gradually, and both the current account and primary balance would turn into large surplus. In the 15 years between 2026 and 2040 the current account balance would have an average surplus of 4.5 per cent of the GDP while the primary balance would have a surplus equal to 6.8 per cent of the GDP. If all these came true, government debt would decrease steadily, and by 2040 it would only slightly exceed the GDP. Currently this scenario does not seem to be very realistic, but it highlights the key importance of sustained economic growth.

The critical mass of structural reforms

Undoubtedly structural reforms are the most crucial of the three arrows, as it is only the reforms that can lay the foundations of long-term, sustained economic growth. As we have repeatedly stressed in this paper, the reasons behind Japan's prolonged stagnation are the fundamental structural and institutional problems, which developed over the previous decades. The third arrow of Abenomics is actually aimed at transforming these structures. In the course of this the economic policy has run into insurmountable obstacles and difficulties. However, if encouraging progress is made, the globally competitive private sector can have significant role instead of short-term state expansion and state intervention. Structural reforms are primarily aimed at boosting Japan's long-term growth potential. This in itself is of supreme importance, but it is also imperative for decreasing the extremely high public debt of Japan as well (IMF, 2012).

However, the current state and tendencies of Japanese economic growth are anything but encouraging. As *Table 5* shows that following the economic miracle, by the 90s potential growth was just 1.9 per cent, and in the first decade of the new millennium it was only 0.6 percent. And it continued to slump in the present decade. Currently the potential growth rate of Japan's economy is estimated to be around 0.4 per cent, which is the lowest in the developed world. The reason why real growth is so low is not the cyclical factors but rather fundamental institutional and structural ones. In its current position the economy of Japan will not be able to achieve higher level of growth sustainably (OECD, 2015*d,* p. 265, *Hausman–Wieland,* 2014, pp. 9–13).

Table 5

Annual growth rate of potential output between 1991 and 2017

	1991–2000	2001–2010	2011	2012	2013	2014	2015	2016	2017
United Kingdom	2.6	2.0	1.1	1.3	1.4	1.8	2.0	2.0	1.8
Finland	2.8	2.2	0.5	0.5	0.5	0.5	0.6	0.7	0.7
France	2.1	1.6	0.9	0.9	0.9	1.0	1.0	1.2	1.2
Ireland	7.2	4.6	1.5	1.7	1.4	1.7	2.1	2.4	2.6
Japan	*1.9*	*0.6*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*	*0.4*
Germany	2.1	1.2	1.3	1.2	1.1	1.1	1.3	1.3	1.3
Italy	1.6	0.7	–0.1	–0.3	–0.4	–0.3	–0.1	0.1	0.2
Switzerland	1.5	2.0	1.9	1.8	1.7	1.6	1.5	1.5	1.4
Sweden	2.3	2.4	1.9	1.8	1.7	1.7	1.7	1.8	1.8
United States of America	3.1	2.3	1.7	1.7	1.6	1.6	1.6	1.6	1.7
Eurozone	2.2	1.6	0.8	0.7	0.6	0.7	0.9	1.0	1.0
OECD average	2.8	2.1	1.5	1.6	1.5	1.5	1.6	1.6	1.6

Source: OECD [2015*d*], p. 265 (2015–2017 forecast).

Drawing on experience and learning from failures, the most essential areas, measures and achievements of the third arrow of Abenomics, namely structural reforms can be organized into ten groups. Reviewing them can give us a good picture about the problems that underlie the quarter-of-a-century-long stagnation (OECD, 2015*a,* pp. 19–20, OECD, 2015*b,* pp. 231–234, IMF, 2015*a,* IMF, 2015*b,* pp. 9–11, p. 28).

1. *Developing corporate management culture and knowledge and promoting this through the financial system.* In order to achieve this the JPX-Nikkei 400 index was launched on January 6, 2014, setting stricter rules, greater transparency and controllability for major corporations.

2. *The reform of governmental and quasi-governmental funds management.* Starting from 2014 they have been encouraging them to increase the proportion of securities in their portfolios as well as the transformation of the management system.

3. *Developing entrepreneurship and the corporate environment promoting it.* As of 2014 the taxation and the regulatory environment has been much more favourable to business angels than before. In 2014 the creation of six special economic zones with more flexible regulation was announced. These deregulation zones are to help double the import of foreign capital by 2020.

5. *Improving the scientific and technical conditions for innovation and making Japan the leading country in the robot revolution.* Government resources for science and technology, which were dispersed before, have now been centralized.

6. *Tackling employment problems by helping women get a job and help them get promoted.* The government increased kindergarten places by 400 thousand and school day care facilities by 300 thousand to make waiting lists shorter. The government believes that it was because of this measure that the employment rate of women grew by 3.9 per cent.

7. *Facilitating flexible working hours and promoting talents.* The government prefers to provide support for job maintenance where there is flexible job mobility. The government is determined to check and limit overtime. The government also wants to establish a system in which employees are paid according to performance rather than hours worked.

8. *Attracting foreign talents to Japan, and provide them with facilities to use their talents.* Foreign advisors and teachers who were given a three-year work permit can stay and work for another two years in Japan.

9. *Powerful agricultural policy.* The government would like to double the income of people working in agriculture, in a bid to promote economic growth. As of the fiscal year of 2013 the government decided to end its policy of limiting rice production for a five-year period.

10. *Improving the quality of health care.* The government would like to provide people eligible to state health care services with quick access to the latest approved medical treatments. They have set up a new institution to manage medical research and development.

As can be seen from the list, these are very general objectives and they cover the complete spectrum. All of them are aimed at promoting growth, eliminating bottlenecks and ironing out snags partly by increasing market competition and transparency and partly by overcoming labour problems. Promoting technical and technological development is also a key part of the reforms. However, when we look at the three years since *Shinzo Abe* has become prime minister, we see that the progress made has been slower than expected and planned originally. The key may be reforming the labour market and fully implementing measures offsetting the labour shortage caused by demographic processes. In 2014 80 per cent of Japanese businesses reported that it was getting increasingly more difficult for them to fill vacancies. In 2006 it was only 60 per cent of them who had such problems. In 2010 Japan had a 66.3 million-strong workforce, which is to go down to 56.8 million by

2030. The working-age population of Japan who are between 15 and 64 years old is decreasing by one million every year, and it is predicted to go down by 40 percent by 2050. The dependency ratio in Japan, which was 2.5 in 2013 will go down to 1.3 by 2050, which is giving the biggest cause for concern among OECD countries (IMF, 2015*c;* OECD, 2015*a,* pp. 21–23).

Women's employment in Japan is quite low, only 38 percent of women stay on the labour market after giving birth. The labour market participation rate of men is 85 percent, but that of women is nearly 20 percent point lower. If this latter were increased it would slow down the decline of working age population but not stop it altogether. The fact that the birth rate in Japan today is merely 1.4 percent, which implies further population decline as well as long-term demographic problems, is indicative of the gravity of the situation. By increasing the availability of nursery school, kindergarten and school day care facilities, and reducing or eliminating waiting lists the government would like to increase the number of women in the workforce as well as the number of births. In addition women's wages, which are far below the wages of men, should be raised, and make it easier for women to get promoted at their workplace. However, the social conditions underlying the phenomenon cannot be changed easily, traditionally Japanese women have a much more subordinate role than women in countries rooted in European culture. So it does not seem easy to integrate them more into the labour force.

Another – although much less substantial – internal resource could be the employment of the elderly. Compared to other developed countries the labour market participation of the elderly in Japan is already relatively high. The employment rate of people between 65 and 69 is 39 percent. However, if we look at the high life expectancy of Japanese people and how fit the elderly are, they could be reintegrated into the labour market by implementing an appropriate incentive scheme. The situation is further complicated by the fact that in Japan, just like in other countries, there are very considerable regional differences, and there are great differences in the demography of the urban and the agricultural population in rural areas.

Given the labour market and demographic situation the question arises naturally: should Japan increase immigration. In international comparison, because of its unique history and national characteristics immigration to Japan is quite low, they make up only 2 percent of the total labour force. It is extremely difficult to bring about change in this area as well, especially since the tendency between 2009 and 2013 was just the opposite. The net labour influx in this period decreased from 76 thousand to less than its half, 35 thousand people. The 35 thousand foreign labourers

make up for less than 0.03 percent of the population. Mind you, the majority of them were highly qualified professionals and consultants. In recent decades there have been a much larger number of foreign business people, often fluent in Japanese and with extensive knowledge of the country, who chose to settle down here. The national strategic special zones are designed to facilitate the influx of skilled foreign labour in the future. For the time being we can say only that the immigration issue which was a taboo earlier is now something that is open for debate (IMF, 2015*c,* OECD, 2015*a,* pp. 21–23).

When the areas of reform were listed, the widespread use of cutting edge techniques and technology, developing innovation facilities, improving the quality of corporate management and competitiveness were mentioned as important factors that could contribute to economic growth. Numerous measures have been taken in the past decade in this direction, but the transformation of behavioural patterns, and the internalization of knowledge take a long time. One of the highest priority structural reforms of Abenomics is aimed at accelerating this process, understanding the dynamism and innovativeness of the business sector. In order to do this businesses have been encouraged to adopt more professional corporate management styles and drawing on international experience. Making it easier for foreign professionals to stay serves this end. In addition, as of January 2014 they made it possible for corporations to receive corporate tax credit in return for investment, which is expected to increase corporate investment. The above mentioned special economic zones also serve this purpose; these zones are places where they experiment with flexible regulation, the optimal type of stronger deregulation, which can later be used in the whole economy. In order to strengthen the corporate sector it is absolutely essential to stabilise the financial sector further. Major transformation is imperative in this sector as well, in order for the sector to become the driver of growth. Currently trading with government securities is still predominant, but for accelerated growth corporate lending needs to take over.

The reform of the agriculture of Japan, which is still heavily subsidized, is of less significance, but can be a dynamizing factor. As is the case with agriculture the competitiveness of those sectors of Japan's dual economy that satisfy domestic demands is quite low. All this puts a heavy burden on the economy at the moment, using resources that would be needed in key export sectors. The Abe government plans to deregulate the agricultural, the energy, the environmental and the health care sectors, opening these markets to a wide range of private investors.

Throughout its unique development the Japanese economy has always been insular, not letting the effects of global economy penetrate into the country. While export-oriented development supported by the state by all means played a crucial role in the exceptional dynamics of the country, numerous obstacles were placed by the governments to stop the influx of products and capital into the country. The inevitable opening of the global economy in the seventies and the eighties pointed out the internal structural and institutional weaknesses, but could not bring real change, so it contributed to the Great Stagnation. First and foremost because there was no real internal adaptation. If we look at the facts and figures we can see that Japanese economy is still insular. This is why the impact and outcome of joining the Trans-Pacific Partnership (TPP) for Japan is double edged. Increased competition, the greater number of foreign investors may on the one hand force the country to implement much needed structural and institutional changes , but on the other hand, if these reforms are not progressing as they should, they may make the bad situation even worse. Not joining the TPP may have catastrophic consequences, so Japan along with 10 other countries[8] from the region signed the treaty with the United States in February 2016, but the parliament still needs to ratify it. The fact that Japan was the last country to sign the treaty is very telling, Japan is aware of the double-edged situation it creates for the country. If Japan did not join, it would just isolate the country even more, but its effect cannot be predicted at the moment (OECD, 2015*a,* pp. 23–24, IMF, 2015*c,* pp. 78–80).

Quo vadis Japan?

The diverse measures taken by the *Shinzo Abe* government still have not coagulated into a solid reform programme. Although the Abenomics measures are very spectacular, their political communication is very powerful, but they may not achieve the set targets: halting the deflation spiral and set the country on a sustained growth path. It is a very important sign regarding the future that the instruments used now are not without precedent, and when they were put to use earlier they did not produce sustained results either. Chances are a breakthrough can be achieved only if all the elements of the programme are fully implemented. If the targets are only partly achieved – and the structural and institutional reforms are especially critical in this respect – the second half of the decade will see stagnation or even

[8] Australia, Brunei, Chile, Canada, Malaysia, Mexico, Peru, New Zealand, Singapore and Vietnam.

worse, a decrease in real GDP instead of the growth planned (*Hausman–Wieland,* 2014).

The task facing the Japanese government is quite difficult after a crisis-ridden quarter of a century and – in spite of apparent similarities to other countries and regions – in many respects quite unique. What we have at hand is not simple financial or cyclical crisis management. If this was the case, the actions required would be managing recession and issues caused by it, recovery and overcoming weaknesses, correcting errors after which the specific economy can get back on the dynamic growth path it had been on before. However, in Japan the majority of structural reforms have wanted to transform areas that developed and solidified over many decades as well as formal and informal institutions, and their success is dubious. What we see here is the system crisis of a unique capitalist planned economy that has been operating for long decades.[9]

Expansive monetary and fiscal policy – at their best – can accelerate growth only temporarily. Long-term price changes, the rate of inflation/deflation are the results of deeper processes of the economy. However, both of these economic policy measures increased future risks significantly. The quantitative expansion program implemented by the Bank of Japan, the near-zero inflation rate, the sudden increase of the monetary base – in addition to the development of gigantic financial bubbles – which may put a heavy burden on the balance of the central bank, which in turn will affect government balance. Government policies stimulating growth increased government debt even more, creating harsher and harsher conditions for the implementation of fiscal consolidation (*Aoyagi–Ganelli–Murayama,* 2015).

If we do not look deeper the instruments used in Japan can be compared to the crisis management measures taken in the United States after 2007–2009. However, the results are radically different in the two economies. The United Sates is on an encouraging, upward path, while Japan's agony continues. It serves as just another clear example that the success or failure of economic policies depends essentially on their interaction with the real economy, but also on the patterns of behaviour of the players of the national economy and the nature of informal institutions. When the main targets of monetary policy and the instruments used to achieve these targets in different countries and regions are set and identified a lot of considerations, interests,

[9] In this regard, in spite of the basic differences, in some sense we can compare the situation of Europe to that of serious task facing Japan. On our continent the welfare state, the so-called "European model", which developed over long decades, is facing multiple challenges. And there are a lot of obstacles to the much-needed radical transformation, just like over there, but since the nature of problems is very different we have to find the way that suits us best separately (*Muraközy,* 2012).

particularities are taken into account. All this goes far beyond making simplified analogies based on similar features that appear in financial techniques. After 2007–2009 the overriding consideration was to keep the banking system shaken by the crisis alive and consolidate it, while in Japan it was breaking out of the spiral. Deflation and stagnation are actually the visible symptoms of the crisis of the Japanese developmental state model. Whereas in the United States the latest financial crisis was just another recession, after which growth can be continued. Japan has been mired in deep structural problems, writhing in the spider web of interacting formal and informal institutions for a quarter of a century, and it is still very uncertain whether the country knows how to get out of it. The model that helped the country catch up earlier, has by now become the hindrance to further development. In the case of Japan path dependence is extremely strong (*Muraközy,* 2016).

The European Central Bank has in recent years followed the practice of the United States of America, the United Kingdom and Japan in quantitative expansion, but the results are quite different from those of these countries. The Eurozone is in a fundamentally different situation than Japan or the United States. The one-size-fits-all policy of the European Central Bank has very different effects on countries that are independent from each other and are at different levels of economic and social development. This example illustrates that we need to look beyond the instruments used in the measures taken by governments and central banks, and do more than simply identify the apparent similarities in fiscal policy. What determines the final outcome tends to stay quite hidden. The nature of the economy and society, the underlying characteristics and traditions of countries and regions determine whether the measures taken will bring success or failure. Economic policy in itself has relatively little effect on them. Politicians often do not even assess – or do not care – how powerful the instruments in their hands are, instruments that can be used to improve the situation only a little even on the long term, but can make it a lot worse as well. It is true that, provided the instruments fit, the timing is right, there is synergy and harmony, they can help to boost growth opportunities, and find the right development path. However, it is also very easy to blunder in the complex network of economic, political and social relationships and make an inadequate assessment of the long-term consequences and effects (*Korniyenko–Loukoinova,* 2015).

There has been constant crisis management in Japan since the early nineties, while the rest of the world was enjoying the prosperity of the Great Moderation. In this respect Japan, with its deflation, economic stagnation and crisis management measures was ahead of its time, as it was before the years of recession in 2007–2009.

The attempts Japan made before and after the turn of the millennium were valuable lessons to economic policy makers in the United States as well as in Europe. But *Shinzo Abe* also drew on this experience when he formulated his "three arrows" policy. However, today Japan is not the only struggling country of global economy, the developed world and great developing economies display symptoms of crisis from Europe to the United States, China and Brazil. This, however, does not make the situation of Japan any easier, even if it has accumulated a wealth of experience. Japan has always taken its own course, and still is (*Hoshi–Kashyap,* 2015).

After the financial crisis of the nineties, bursting the real estate bubble, numerous attempts were made in Japan to get the country off the deflation-stagnation course. The reform measures taken after the turn of the millennium yielded little results. Since the middle of the decade, during the second term of *Shinzo Abe,* the country has made an attempt based on bolder and more ambitious concepts than before. The "three arrows" policy – expansive monetary policy, fiscal stimulus and structural reforms – has not met the expectations so far. Monetary and fiscal policy in itself is not enough to change the underlying processes of the economy and society. For in Japan the problems are deeply rooted in these. Comprehensive structural reforms, the third arrow of Abenomics, may take us one step closer to an effective solution.

The appropriate transformation of formal institutions and structural reforms are of course necessary and can facilitate the operation of the market, since if the old conditions prevailed, they would prevent that. However, these only provide the boundary conditions. It is much more intensive market mechanisms that can get the country out of the ditch, but this takes market players who have the mentality, values and skills that match these market mechanisms. And this is necessary at all levels, at the level of employees, businesses, managers, finance and insurance professionals and consumers as well. For it is of primary importance how flexible the economy and its players are, whether they are able to react to economic policy measures and market changes. What we also need to keep in mind is that a financial crisis is very different from a prolonged system crisis.

However, even if we assume that things will turn out best, and the comprehensive reform of the formal financial system is fully carried out, we still cannot be sure of success. For – and the long-term development of Japan provides us with plenty of evidence – all this is insufficient to change and transform habits, customs, behavioural patterns, traditions, in other words, informal institutions. Even if this transformation is started after the reforms of formal institutions have been carried out, and using these as a framework, it will still take years to bring about fundamental changes.

Or – and this is just as likely – informal institutions will modify the operations of formal ones in a way that is undesirable. Currently we cannot tell whether Japan will continue to writhe in the dead-end street of sustained stagnation and lag behind, or – as we hope – will undergo radical transformation.

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Legal Supplement

Studies in International Economics, 2016, Vol. 2, No. 2 (pp. 19–51.)

TTIP and Its Public Criticism: Anti-Globalist Populism versus Valid Dangers

TAMÁS DEZSŐ ZIEGLER

*The provisions of the proposed Transatlantic Trade and Investment Partnership (TTIP), the major trade agreement between the EU and the US received serious criticism from the public, some NGOs and even some scholars. Disputes surrounding many of its special provisions got highly emotional, with extreme commentaries in the media. There is a high chance the conclusion of the deal will be blocked because of public opposition. This article tries to analyse four of the most important questions, namely the transparency of negotiations, the issue of investor-state dispute settlement, and the agreement's effects on environment-sustainable development and regulatory issues/consumer standards. Based on the analysis, it concludes that even though TTIP may contain some serious pitfalls, there is a high chance it would not lead to the devastating results as is regularly portrayed, and most of the problematic points could be settled relatively easily.**

Journal of Economic Literature (JEL) kód: F1 Trade, K33 – International Law, K2 Regulation and Business Law.

* The author gratefully acknowledges the comments of *Wolfgang Benedek, Nicolas Hachez, Beáta Huszka, Zsolt Körtvélyesi, Balázs Majtényi* and *Anna Unger* on an earlier version of this paper.

The Hungarian version of the article was published in Külgazdaság, 2016, Vol. LX, No. 11–12, pp. 123–161 (Ziegler Dezső Tamás: A Transzatlanti Kereskedelmi és Befektetési Partnerség (TTIP) és annak nyilvános kritikája: antiglobalista populizmus kontra valós veszélyek).

Translation checked by *Chris Swart.*

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1. Introduction

The EU and the US are some of the major actors in international trade, and have a dynamic and intense relationship with each other. "The two sides account for nearly half of world gross domestic product (GDP), about 30% of global exports, and have investments of more than $3.7 trillion in each other's economies."[1] More than half of the outgoing US foreign direct investment (FDI) is directed to Europe, and European investors represent nearly three-fourths of US FDI inflow.[2] About one-third of EU FDI stems from the US.[3] "In 2013, the share of exports to the United States in total extra EU-28 exports was 18.5 %, the share of imports from the United States in total extra EU-28 imports was, at 11.6 %, somewhat lower than exports."[4]

Transatlantic cooperation in the field of commerce and trade has a longer history: between 1994 and 1996, the EU and US planned to create a Transatlantic Free Trade Area, but negotiations stopped because of the newly founded WTO. An official framework of transatlantic cooperation was established by the Transatlantic Declaration (TD)[5] in 1990 and five years later with the New Transatlantic Agenda (NTA).[6] After the NTA, many forms of so called "dialogues" had been established between the EU and the US to cooperate. Most of them were in connection with commercial and trade issues.[7] Such dialogues are the Transatlantic Business Dialogue (1995), encouraging trade and cooperation in different industrial sectors, which now includes a Transatlantic Business Council.[8] Dialogues also involve the Transatlantic Consumer Dialogue (1998)[9] and the Transatlantic Economic Partnership (TEP, 1998) in the field of trade and investment, and a Transatlantic Economic Council was also set up in 2007.[10] There exists a Transatlantic Legislators Dialogue (TLD), establishing a formal annual dialogue between the European Parliament and the US

[1] *Akhtar* et al [2014].

[2] *Weiss, Martin A. – Akhtar, Shayerah Ilias – Murrill, Brandon J. – Shedd, Daniel T.*: International Investment Agreements (IIAs): "Frequently Asked Questions." Congressional Research Service 7-5700 www.crs.gov R44015

[3] See: http://ec.europa.eu/eurostat/statistics-explained/index.php/USA-EU_-_international_trade_and_investment_statistics

[4] Ibid.

[5] See: https://eeas.europa.eu/us/docs/trans_declaration_90_en.pdf

[6] See: https://eeas.europa.eu/us/docs/new_transatlantic_agenda_en.pdf

[7] See: *Porsdam* [2009], *pp.* 63–64.

[8] See: *Chase–Pelkmans* [2015].

[9] Transatlantic Consumer Dialogue. See: http://tacd.org/?option=com_frontpage&Itemid=1

[10] Transatlantic Economic Council. See: http://www.state.gov/p/eur/rt/eu/tec/

Congress (1999).[11] Several other dialogues can be important as well, like the Trans-Atlantic Environment Dialogue (TAED, 1999), which got suspended in 2000. Later, the EU-US High Level Dialogue on Climate Change, Clean Energy and Sustainable Development was launched in 2006, and several meetings were held in 2006–2008, but no meetings were held after 2009.[12] There also exists a Transatlantic Labour Dialogue (2001), and some other cooperative fora, like the EU-US Working Group on cybersecurity and cybercrimes (2010).[13]

The EU and the US started the negotiations on the conclusion of a Transatlantic Trade and Investment Partnership (TTIP) in 2013. The aim of the TTIP is to connect these two regions, and create an international space by cutting most of the customs, and creating a more investor-friendly environment – partly through making joint efforts in altering regulatory barriers.[14] During the TTIP negotiations, there were protests all over Europe regularly. The biggest anti-TTIP demonstration was held in Berlin, where approximately 150–250,000 people went to the streets to protest against the agreement in August 2015. A European initiative was also started and 3.28 million people signed the petition.[15] In an EU level public consultation 150,000 replies were received in 2014.[16]

Regarding TTIP, a clash between worldviews is taking place. Critics of "neoliberal" "capitalism" got louder; attacks against international cooperation became harsher. The author of this article accepts the opinion that international cooperation is mostly beneficial for the participant countries, but it may also contain some dangers, like a backlash against trade, or social disintegration.[17] A kind of democratic dilemma also emerges: the more interconnected countries are, the less effect people will have on decision making, which becomes less democratic.[18] This is especially true in the EU, which has 28 Member States. As Article 3 of the Treaty on the Functioning of the European Union (TFEU) states, the EU has exclusive competence

[11] See: http://www.europarl.europa.eu/delegations/en/d-us/publications.html?tab=IPMs>

[12] Transatlantic Environment Dialogue suspended. See: http://www.euractiv.com/section/climate-environment/news/transatlantic-environment-dialogue-suspended/

[13] EU-US cooperation on cyber security and cyberspace. See: https://eeas.europa.eu/statements/docs/2014/140326_01_en.pdf; "Fact Sheet: U.S.-EU Cyber Cooperation" (White House). See: https://www.whitehouse.gov/the-press-office/2014/03/26/fact-sheet-us-eu-cyber-cooperation

[14] See: *Hamilton–Pelkmans* (eds.) [2015].

[15] See: https://stop-ttip.org/

[16] Online public consultation on investment protection and invest or-to-state dispute settlement (ISDS) in the Transatlantic Trade and Investment Partnership Agreement (TTIP). Brussels, 13.1.2015 SWD(2015) 3 final.

[17] See: *Rodrick* [1997], p. 69. et seq.

[18] See: *Rodrick* [2011], p. 120. et seq.

in commercial policy. According to Article 216, it also has the right to conclude such agreements, instead of its Member States ("MSs"). However, in certain countries like Germany TTIP became very unpopular. The fact that the European Commission ("Commission") has proposed the conclusion of a similar agreement with Canada (EU-Canada Comprehensive Economic and Trade Agreement, "CETA") as it would fall into shared competency with the MSs instead of exclusive EU competency[19] also shows that this is a democratic dilemma. There is a high chance the Commission will use a similar procedure concerning the TTIP negotiations, which means that MSs will have to ratify the treaty, and some of them will probably hold referendums, which could block the entry into force of the agreement.

Consequently, in a number of countries people will probably decide whether they will give a green light to the agreement, which highlights the importance of the information they receive. In the following, the readers find four of the most debated groups of problems regarding the present text of agreement: the case of transparency of negotiations, the general background of investor-state dispute settlement, and the agreement's effect on environment-sustainable development and regulatory cooperation/consumer standards. The list is arbitrary: it is based on the points that received the harshest criticism in the European mainstream media or from NGOs/academics. By analysing these problems, the paper tries to show whether mainstream claims regularly raised pro or contra the conclusion of the agreement are valid, partly valid or unfounded.

2. Transparency Issues

In this subchapter, this paper summarises the problems of transparency around TTIP, which has two main sub-problems: transparency during negotiations and transparency of research data about the possible results and benefits of such an agreement.

2.1. The Lack of Transparency of Negotiations

In the first phase of negotiations on TTIP, transatlantic meetings were held behind closed doors from 2013. There were great protests in order to come to know the negotiation mandate. According to the general procedure of such negotiations in

[19] See: http://europa.eu/rapid/press-release_IP-16-2371_en.htm

the EU, in the first period the public only came to know its summary. This process is similar to other negotiations on international agreements, but in this case it generated tensions. After the CJEU stressed the importance of transparency during negotiations in a case related to another international agreement and the European Ombudsman pressured the Council to publicise the mandate on TTIP,[20] it was published after a long time with a strong delay in November 2014,[21] and also additional materials got disclosed.[22] The Commission tried to prove its commitment to transparency by regularly publishing materials.[23] On the other hand, even now, the official European website[24] of TTIP still does not give enough, proper and user friendly information for the public.

As a result of the surrounding protests, the public support behind TTIP started to erode in certain countries. As a report of the Pew Research Center signalled, the number of those who are in favour of TTIP in Germany decreased from 55% to 41% between 2014 and mid 2015,[25] while at the end of 2015 it reached a low of 35%, according to other polls,[26] (Eurobarometer poll showed 39%, see below), and some statistics show the support of TTIP sank to 17% in Germany by the middle of 2016.[27] In the US, support remained nearly the same (50-54%). However, Eurobarometer poll results from the beginning of 2016 still show that fifty-eight per cent of EU citizens support the idea of TTIP, while a quarter are against it.[28] In the US, negotiations were put onto a fast track procedure by the Congress.[29] In this case, Congress may not modify the text, but can only accept or reject it, and the president

[20] See: *Horváthy* [2014], p. 19; Case C-350/12 P. Judgment of the Court (First Chamber) of 3 July 2014. Council of the European Union v Sophie in 't Veld. ECLI:EU:C:2014:2039

[21] European Council Document 2014 (OR. En) 11103/13 DCL 1 WTO 139 Services 26 FDI 17 USA 18 - ST 11103/13.

[22] See: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1477

[23] The Commission publishes further TTIP documents in ongoing transparency commitment. See: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1477

[24] See: http://ec.europa.eu/trade/policy/in-focus/ttip/

[25] PEW: Decreasing Support for TTIP in Germany. See: http://www.pewglobal.org/2015/05/07/germany-and-the-united-states-reliable-allies/u-s-germany-relations-06/

[26] Bundesregierung will TTIP-Verhandlungen schon 2016 abschließen. See: http://bundesdeutsche-zeitung.de/headlines/economy-headlines/bundesregierung-will-ttip-verhandlungen-schon-2016-abschliessen-961156

[27] Nur wenige Deutsche finden TTIP gut. See: http://www.faz.net/aktuell/wirtschaft/ttip-und-freihandel/nur-wenige-deutsche-fuer-freihandeslabkommen-ttip-mit-usa-14190518.html

[28] Eurobarometer: who's for and against TTIP in EU. See: http://www.borderlex.eu/eurobarometer-whos-ttip-eu/

[29] *Palmer, Doug:* US trade vote puts TTIP on faster track – President Barack Obama's chief trade official vows to finish the European Union pact by next year. See: http://www.politico.eu/article/us-trade-vote-ttip-obama/

may negotiate relatively freely, but only according to the authority Congress has granted to him [trade promotion authority (TPA)]. This procedure is sporadically called unconstitutional, because it deprives Congress (esp. the Senate) of some of its rights.[30] However, according to mainstream US scholars, Congress has the right to delegate some of its powers to the President.[31]

2.2. Transparency of Research Data

The Commission estimated that the potential gains for the EU could be as up to €120bn a year and €95bn for the US, which equals 0.5% of EU GDP and 0.4% of US GDP.[32] Wages would also become higher: by 0.5% in the EU and 0.4% in the US. These numbers are based on a report by the London based Centre for Economic Policy Research.[33] The same report also mentions that it would create several million jobs and consumers would enjoy cheaper products and services. It also says that average European households would gain around €500 a year as a consequence of wage increases and price reductions. Several other studies support the view that TTIP would be beneficial, including the analysis of the World Trade Institute.[34] A study of the Bertelsmann Stiftung claims that

> *"[a] deep liberalization will create about 181,000 new jobs in Germany, and more than a million in the USA. The total amount shows a growth in employment in all OECD countries of more than 2 million jobs; in the less ambitious tariff scenario, about half a million."*[35]

Some other studies also contained optimistic prognosis.[36]

[30] *Zuesse* [2015]; *Fein, Bruce–Grayson, Alan:* The "Fast Track" Trade Bill Assaults the Constitution. *Huntington Post.* See: http://www.huffingtonpost.com/rep-alan-grayson/the-fast-track-trade-bill_b_7643656.htm

[31] "So long as Congress shall lay down by legislative act an intelligible principle to which the person or body authorized to [exercise the delegated authority] is directed to conform, such legislative action is not a forbidden delegation of legislative power." *Wright* [2004], p. 998. See also *Shapiro* [2006], *Shapiro–Brainard* [2001].

[32] Transatlantic Trade and Investment Partnership. The Economic Analysis Explained. September 2013. See: http://trade.ec.europa.eu/doclib/docs/2013/september/tradoc_151787.pdf

[33] CEPR [2013].

[34] World Trade Institute: TTIP And The EU Member States. The World Trade Institute, Bern, 2016.01, pp. 9–46. See: http://www.wti.org/media/filer_public/03/b8/03b803d4-e200-4841-9c58-f6612f4a7316/ttip_report_def.pdf

[35] *Felbermayr* et al. [2013], p. 40.

[36] *Berden* et al. [2009].

On the other hand, criticism was also raised. *Joseph Stiglitz* expressed his views that UK could be better off leaving the EU if TTIP passes.[37] He described TTIP as "a massive rewriting of the rules with no public discussion".

Jørgen Steen Nielsen claims that the

> *"Transatlantic Treaty on Trade and Investment Partnership between the EU and USA will not increase GDP, exports or employment as claimed by the EU Commission, the Danish government and the Confederation of Danish Industry. On the contrary, the so-called TTIP could lead to losses on all three accounts, especially in Northern European countries like Denmark."*[38]

Jeronim Capaldo claims TTIP could lead to a contraction of GDP, personal incomes, employment, and to European disintegration.[39]

The Austrian Foundation for Development Research claims the methodology of supporting studies are based on unrealistic and flawed assumptions and that TTIP's social costs could be high and have been completely neglected in the impact assessments.[40]

TTIP could also have serious constitutional implications: as *Anne Meuwese* points it out, it may erode the Commission's right to initiate legislation. Moreover, it may affect EU MSs rights and their sovereignty.[41]

Between supporters and critical voices a collision of worldviews takes place already mentioned in the introduction of this paper. Some scholars generally support market liberalism, while others reject it and find such rules harmful. Both sides can collect arguments to support their views. At the present time, most of the European public still supports TTIP. However, in order to reach beneficial arrangements, criticism and official data received from diverse sources must be discussed openly, in a democratic way. If some of the criticism is well founded, the text should be modified accordingly. The European website of TTIP is not able to fulfil this purpose, as its architecture and data are too complex and ill-organised, even for scholars. Moreover, the access to texts is also highly problematic, and we need far more analysis presented in a simple manner, also in connection with certain special topics. Based on the above, we can ascertain that we did not have proper public discussion about the potential effects of TTIP, which would highlight different opinions, and the

[37] See: http://www.independent.co.uk/news/business/news/eu-referendum-joseph-stiglitz-ttip-labour-transatlantic-trade-investment-partnership-a6907806.html

[38] See: https://ase.tufts.edu/gdae/Pubs/news/InformationAdverseEffectsTTIP_Nov2014.pdf

[39] *Capaldo* [2014].

[40] *Raza* et al. [2014]

[41] *Meuwese* [2015], p. 171.

reasons behind them. This could be striking knowing that the interests of countries could differ within the EU. It would be good to receive more official data about each and every country. For example, Hungary's situation is significantly different from other countries like Belgium or the UK.

3. Investor-State Dispute Settlement ("ISDS")

3.1. General remarks

Concluding international treaties including bilateral protection of investors is very common in international relationships. About three thousand international investment agreements exist worldwide; most of them allow investors to bring actions against states. Some claim that such treaties are only useful for developed states.[42] However, this is not true: "intra-South BITs continue to grow and now exceed 1,000".[43] There are more than a thousand bilateral investor treaties ("BITs") adopted by EU MSs already existing. After the conclusion of the Lisbon Treaty, the fate of these BITs became uncertain, since international investor protection became an integrated part of EU commercial policy. As a result, the EU even adopted a regulation on their status allowing Member States to maintain them in 2012 (however, EU MSs have also concluded about 170 BITs among themselves earlier, which, at present time, are contrary to EU law[44]). The reason for concluding such treaties is that states try to ensure the rights of related businesses even abroad. As a result of their power, states are always in a position to be able to harm the affiliates of foreign companies or discriminate against them in their territory. The US has concluded such treaties with EU MSs Bulgaria, Croatia, Czech Republic/Slovakia, Estonia, Latvia, Poland and Romania.

One of the cardinal issues regarding TTIP is the investor-state dispute settlement (ISDS) mechanism of the agreement. It seems the text would include a clause that could create a special court for state-investor disputes: a mechanism for disputes

[42] *Kleinheisterkamp* [2014] p. 1.

[43] *Brower–Blanchar* [2014], p. 50.

[44] Regulation (EU) No 1219/2012 of the European Parliament and of the Council of 12 December 2012 establishing transitional arrangements for bilateral investment agreements between Member States and third countries. OJ L 351, 20.12.2012, p. 40-46. ; Commission asks Member States to terminate their intra-EU bilateral investment treaties. http://europa.eu/rapid/press-release_IP-15-5198_en.htm

between states and businesses.[45] Using an external court is absolutely common in international commerce, and modern agreements on investor protection "usually contain specific ISDS provisions to provide a forum ensuring host states uphold public treaties with regard to international investments for investors from a home state".[46]. All of the treaties on investor protection concluded by EU states with the US contain such clauses. Even though the German government supports the talks on TTIP, it also expressed its view that the ISDS is not acceptable, and Germany has formed an alliance with France against its implementation into the final text.[47]

The number of investor-state related cases is growing worldwide (in 2012 there were 58 new cases,[48] in 2014 42, while altogether nearly 600 of such cases were reported).[49] However, there are also some sporadical, but still worrying developments:

> *"in June 2011, Philip Morris initiated arbitration proceedings against Australia under the Australia – Hong Kong BIT, claiming that Australia's plain packaging legislation violated investment standards under that agreement and had caused Philip Morris to incur a one billion dollar loss. Philip Morris has a similar claim pending against Uruguay under the Switzerland-Uruguay BIT."*[50]

However, the claims of Phillip Morris were dismissed based on the lack of jurisdiction (see later).

In another case (see Vattenfall II below), Germany was sued because of its intent to abolish the usage of atomic energy. Some other cases were raised as well (see the next subchapter) and the ISDS was regularly portrayed in the media as a harmful, dangerous system.

[45] Concept Paper: Investment in TTIP and beyond – the path for reform. Enhancing the right to regulate and moving from current ad hoc arbitration towards an Investment Court. See: http://trade.ec.europa.eu/doclib/docs/2015/may/tradoc_153408.PDF

[46] *Weaver* [2014], p. 228.

[47] France and Germany to form united front against ISDS. See: http://www.euractiv.com/section/trade-society/news/france-and-germany-to-form-united-front-against-isds/

[48] United Nations Conference on Trade and Development (Unctad), IIA Issue Note, "Recent developments in investor-state dispute settlement (ISDS)". May 2013.

[49] United Nations Conference on Trade and Development (Unctad), IIa Issue Note, "Investor-State Dispute Settlement: Review Of Developments In 2014". No. 2, 2015.

[50] *Lenk* [2015].

As an answer to the criticism, the Commission made amendments to the draft text on ISDS at the end of 2015. According to the related press release, they would create a new court system, which

"[i]ncludes major improvements such as:

- *a public Investment Court System composed of a first instance Tribunal and an Appeal Tribunal would be set up;*
- *judgements would be made by publicly appointed judges with high qualifications, comparable to those required for the members of permanent international courts such as the International Court of Justice and the WTO Appellate Body;*
- *the new Appeal Tribunal would be operating on similar principles to the WTO Appellate Body;*
- *the ability of investors to take a case before the Tribunal would be precisely defined and limited to cases such as targeted discrimination on the base of gender, race or religion, or nationality, expropriation without compensation, or denial of justice;*
- *governments' right to regulate would be enshrined and guaranteed in the provisions of the trade and investment agreements."* [51]

3.2. Criticism

Below, we try to collect the most important critique this system received. As a central argument, it is raised that

"both the US and the EU have highly evolved, efficient rule of law legal systems. There is no evidence that investors have ever lacked appropriate legal protection through these systems. There is no bilateral investment treaty between the US and any of the old EU MSs, and yet US and EU investors already make up for more than half of foreign direct investment in each others' economies. This demonstrates that investors seem to be satisfied with the rule of law on both sides of the Atlantic."[52]

However, the author of the present article is very sceptical regarding this statement. In recent years, the frameworks of the single market got shaky all over

[51] Commission proposes new Investment Court System for TTIP and other EU trade and investment negotiations. See: http://europa.eu/rapid/press-release_IP-15-5651_en.htm

[52] *Gerstetter–Meyer-Ohlendorf* [2013], p. 4.

Europe.[53] In a number of countries like in Hungary, an institutionalised system was established, which openly discriminates against foreign investors, and the answers by the EU were only part solutions to the problems – in certain instances we could not find proper solutions to issues raised 5-6 years ago.[54] The number of related cases were growing,[55] just like the number of cases related to Hungary (14 procedures recently)[56] before the International Centre for Settlement of Investment Disputes. The US even banned the head of the Hungarian Tax Authority from entering the US, because (according to claims) she was involved in corruption, which had a negative effect on American companies in the local vegetable oil market.[57] If discriminative actions are institutionalised as laws, domestic courts do not apply the international treaty, and would interpret the state's sovereignty to have been infringed by them. As populism rises within the EU, there is a chance several countries could move into this direction.

From a European perspective, it is a key factor whether EU companies could rely on TTIP before courts in the US. The main question is whether courts can enforce an agreement like TTIP without a system of ISDS. The enforcement of international agreements is highly problematic in the US, partly because of the existence of state-federal levels and the hostility against applying them. *Jan Kleinheisterkamp* claims

[53] *Hojnik* [2012].

[54] *Ziegler* [2012]; *Ziegler* [2016].

[55] Perhaps the best example of such actions has been the government openly expressing its desire for foreign banks to leave the country and it also introduced special taxes on banks. The head of the Central Bank (the former minister of finance) also announced that he believes four major banks should leave the country in 15 years. Only to mention a few other cases, see Case C-385/12: Judgment of the Court (Grand Chamber) of 5 February 2014 (request for a preliminary ruling from the Székesfehérvári Törvényszék — Hungary), Hervis Sport- és Divatkereskedelmi Kft. v Nemzeti Adó- és Vámhivatal Közép-dunántúli Regionális Adó Főigazgatósága. OJ C 93, 29.3.2014, p. 10; Internal Market: the Commission has brought Hungary before the Court of Justice to contest restrictive conditions on the issue of luncheon vouchers and other benefits in kind. http://europa.eu/rapid/press-release_IP-13-578_en.htm; Commission opens new infringement procedure against Hungary. See: http://freehungary.hu/index.php/56-hirek/2832-commission-opens-new-infringement-procedure-against-hungary; State aid: Commission opens two in-depth investigations into Hungary's food chain inspection fee and tax on tobacco sales. IP/15/5375; See: http://europa.eu/rapid/press-release_IP-15-5375_en.htm; http://europa.eu/rapid/press-release_IP-13-578_en.htm?locale=FR; Commission opens infringement procedure against Hungary on rights of cross-border investors to use agricultural land. http://europa.eu/rapid/press-release_IP-14-1152_en.htm; http://europa.eu/rapid/press-release_IP-15-4598_en.htm; http://europa.eu/rapid/press-release_MEMO-14-589_en.htm; http://europa.eu/rapid/press-release_MEMO-14-293_en.htm; http://hungarytoday.hu/cikk/ec-launches-infringement-procedure-hungary-palinka-tax-rules-28300.

[56] Hungary – as respondent State. http://investmentpolicyhub.unctad.org/ISDS/CountryCases/94?partyRole=2

[57] Hungary's top tax auditor in corruption scandal. https://english.atlatszo.hu/2014/11/25/hungarys-top-tax-auditor-in-corruption-scandal/

there is no evidence that this would be the case concerning TTIP, even though the Commission cited some recent case law, which proves the opposite.[58] Moreover, it was put in the Medellin case in the US that

> *"even when treaties are self-executing in the sense that they create federal law, the background presumption is that international agreements, even those directly benefiting private persons, generally do not create private rights or provide for a private cause of action in domestic courts."*[59]

As *Saadia M. Pekkanen* puts it

> *"the territorial-democratic principle comes closer to the nationalist jurisprudence end of the spectrum, not because judges or adjudicators are always so consistently and militantly ideological in their commitments [...]",* but rather because *"the real disinclination by judges to invoke, apply, or even just grapple with international law comes from the fact that it is physically external to the national territory and that it is also apparently unaccountable to a transparent democratic processes – twin elements which make international law, whether in trade or otherwise, less palatable to courts that are used to operating in familiar constitutional and electoral settings in the domestic arena."*[60]

US exceptionalism can also be noticed in the fact that the country uses a great amount of reservations, understandings, and declarations (RUDs) that ensure that the given agreements are not self-executing (i.e. have no direct effect).[61]

Moreover, as *Gráinne de Búrca*[62] puts it, even the Supreme Court supports a highly restrictive stance towards the enforceability of international agreements.[63] The US Supreme Court dealt with international treaties in 15 cases between 2002–

[58] *Kleinheisterkamp* [2014], *Van Harten* [2015], p. 29. et seq.

[59] The Medellin judgment (footonote 3) cites 2 Restatement (Third) of Foreign Relations Law of the United States §907, Comment a, p. 395 (1986). It also adds that

> *"accordingly, a number of the Courts of Appeals have presumed that treaties do not create privately enforceable rights in the absence of express language to the contrary. See, e.g., United States v. Emuegbunam, 268 F. 3d 377, 389 (CA6 2001); United States v. Jimenez Nava, 243 F. 3d 192, 195 (CA5 2001); United States v. Li, 206 F. 3d 56, 60–61 (CA1 2000) (en banc); Goldstar (Panama) S. A. v. United States, 967 F. 2d 965, 968 (CA4 1992); Canadian Transp. Co. v. United States, 663 F. 2d 1081, 1092 (CADC 1980); Mannington Mills, Inc. v. Congoleum Corp., 595 F. 2d 1287, 1298 (CA3 1979)."*

[60] *Pekkanen*.

[61] *Goldsmith* [1998], *Bradley–Goldsmith* [2000]; *Bradley* [2010], *Mark* [2009] *Ray* [2003].

[62] *de Búrca* [2014].

[63] Ibid, p. 11.

2012.[64] Of these, it addressed the direct enforceability or self-execution of treaties in 2 cases, and it denied the direct enforcement in both of these cases. In the US, NAFTA is also not provided with self-execution (just like the GATT or WTO agreements in Europe).[65] However, investment treaties mostly seem to have a self-executory character.[66] These facts seem to prove the resistance of US domestic courts to applying "foreign" law, and based on the above, ISDS could be a solution to this problem (even if the enforcement of such awards can sometimes be problematic).[67] Consequently, we must admit that the enforceability of TTIP can be seriously questioned by regular courts, and the Supreme Court is not better in this regard.

Opponents of TTIP in Europe also claim that consumers would not be defended against investors, and such a system would create an imbalance in favour of investors. However, consumers could sue investors just like earlier, before national courts. This means that their rights would not be harmed by the procedural issues. It is a different question whether the acceptance of lower consumer standards (i.e. the modification of substantive law) is necessary or not (this could be really harmful) – but this question has less to do with the procedural issues (see later).

It is also regularly claimed that investors mostly win their cases before the investor-state arbitrational courts. However, a very simple search in ICSID's statistics proves this claim is not true. Around 45% of investor claims were upheld and nearly 30% were found unfounded.[68] Regarding EU MSs,

> *"specific data from ICSID ... shows the following figures for disputes against EU MSs:*
>
> – *In 44% of the cases, all claims were dismissed or jurisdiction was declined;*
> – *In 36% of the cases, the dispute was settled or otherwise discontinued;*
> – *In 20% of the cases, the dispute led to an award upholding claims in part of in full."*[69]

[64] Ibid, p. 19.

[65] *Errico* [2011], p. 179. et seq.

[66] *Yimer* et al. [2011], p. 54.

[67] King & Spalding, Recent Decisions Illustrate Disagreement Among U.S. Courts in Enforcing ICSID Awards. August 19, 2015, See: http://www.kslaw.com/imageserver/KSPublic/library/publication/ca081915b.pdf

[68] The ICSID Caseload – Statistics. See: https://icsid.worldbank.org/apps/ICSIDWEB/icsiddocs/Pages/ICSID-Caseload-Statistics.aspx

[69] Investor-to-State Dispute Settlement (ISDS). Some facts and figures. See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153046.pdf

Furthermore, even if this ratio would be different, suggesting that a higher number of successful investor claims must be a consequence of impartial judges[70] seems to be unfounded: what if investors were really not treated properly by the governments? A very similar claim regularly raised in the online media is that only because arbitrators earn well, they could be biased, which is also based on demagoguery, and shows a lack of knowing how international arbitration works. However, allowing judges to proceed as counsels at the same court in different cases would raise serious questions. The present text of TTIP answers this problem. Firstly, it would create a permanent court of BIT disputes. Judges of the court would be delegated: five by the US, five by the EU and five by third countries. The allocation of cases among them would be randomized. Secondly, beside the shady ethical requirements,[71] Article 11(1) of the latest Proposal of the Commission sets up very strict rules on the conflict of interests of judges: it excludes them from acting in any other investor-state dispute, whether as judge or counsel, even before domestic courts. [72] Article 8.30 of CETA also contains a similar rule, without reference to domestic courts.[73]

3.3. A "Lighter" Version of ISDS

A solution for a compromise would be to grant States influence in arbitration by allowing regular courts to overrule judgments. The German government proposed a similar solution. However, the author of this article would strongly discourage its usage. As *Brower* and *Blanchard* put it,

> *"recent proposals to reform investment arbitration by increasing States' political control over the arbitral process would undermine the credibility of investment arbitration as a neutral method of resolving a dispute between an alien investor and a host State. Allowing States to interfere with arbitral decision making after a dispute arises would thus weaken the effectiveness of the system of foreign investor protection for stimulating international capital flows and promoting economic development. Moreover, the criticisms of*

[70] Investor-state dispute settlement. The arbitration game. Governments are souring on treaties to protect foreign investor. *The Economist,* See: http://www.economist.com/news/finance-and-economics/21623756-governments-are-souring-treaties-protect-foreign-investors-arbitration

[71] http://europa.eu/rapid/press-release_MEMO-15-5652_en.htm

[72] http://trade.ec.europa.eu/doclib/docs/2015/september/tradoc_153807.pdf

[73] http://trade.ec.europa.eu/doclib/docs/2016/february/tradoc_154329.pdf

investment treaties and arbitration that are invoked to justify politicization are based on emotion rather than on facts."[74]

This solution would force businesses to long-term litigation, which could be used as a tactic by governments to make them leave a country.

3.4. Preliminary Findings

When talking about the TTIP's court system, we can have doubts whether the people's trust in their governments is more reliable than trust in independent courts, who decide on professional grounds in hundreds of cases worldwide. If TTIP contains a danger, it cannot be found in the special court system, but in other provisions, like those on environment or consumer law, or on its economic effect on poorer MSs.

However, the creation of ISDS could hurt the independence of the Court of Justice of the European Union ("CJEU"). Regarding the EU's access to the European Convention on Human Rights,[75] the CJEU mentioned that the outsourcing of the judicial powers is against the primary legal sources of the EU. A similar problem can occur regarding TTIP. This could be one reason why there is a need to sign the agreement on shared competency (just like in the case of the United Nations Convention on the Law of the Sea or the WTO agreement): only MSs have the right to select a new court to judge over them, and the EU does not have power in this regard. This problem could be cured by some technical provisions, which gave power to the CJEU to first decide whether the decision falls under MS or EU jurisdiction, like it is done concerning the CETA.[76] We must mention that some commentators have started to write about the unconstitutionality of a pact like TTIP (Trans-Pacific Partnership, "TPP"), based on similar grounds in the US as well.[77]

4. Environment and Sustainable Development

As mentioned before, the EU and the US already created a Transatlantic Environment Dialogue ("TAED") in 1999 to discuss environment related issues,

[74] *Brower–Blanchar* [2014], p. 50.

[75] Opinion 2/13 OF THE COURT (Full Court), 18 December 2014. ECLI:EU:C:2014:2454.

[76] See: https://polcms.secure.europarl.europa.eu/cmsdata/upload/49daf369-5480-40d7-aa8d-df745c4ff98c/SJ-0259-16_legal_opinion.pdf, point 81.

[77] Is the Trans-Pacific Partnership Unconstitutional? See: http://www.theatlantic.com/politics/archive/2015/06/tpp-isds-constitution/396389/

which got suspended because the US government failed to supply its share of funding in 2000.[78] Later, the EU-US High Level Dialogue on Climate Change, Clean Energy and Sustainable Development was launched in 2006, and several meetings were held in 2006-2008, but no meetings were held after 2009.

Environmental protection in trade also has background rules in EU primary legal sources. Article 191 TFEU serves as a general basis for environmental protection. It mentions that the EU's environmental policy shall contribute to preserving, protecting and improving the quality of the environment, protecting human health, prudent and rational utilization of natural resources as well as to promoting measures to deal with regional and worldwide environmental problems. It also claims that Union policy must take into account the diversity of situations in the various regions of the Union. Based on these fundaments, a great set of legal materials emerged in the last decades.[79]

The EU must maintain its high environmental standards even towards outside actors: in this sense, internal market rules, domestic rules and international agreements interact with each other.[80] Below, we analyse the most important environment related problems regarding TTIP.

4.1. Environment-Friendly Changes in a Legal System Hurting – Foreign – Investors in the Country

Firstly, according to the general claim in the media, an environment-friendly change in a legal system could force the state to pay a fee to compensate a company for damages caused by new regulations. Critics also bring up several examples of this.[81] For example, in the Vattenfall I and Vattenfall II[82] cases, the liability of Germany came into question. Germany introduced a new law on licensing of a new coal-fired power plant in Hamburg-Moorburg: the Swedish company sued the state, and the case was settled: the German state lowered its standards and agreed to a less stringent license. In Vattenfall II, Germany decided to abolish its nuclear plants by 2022. [83] Vattenfall demanded compensation of €3.7 billion, because the change

[78] Transatlantic Environment Dialogue suspended. See: http://www.euractiv.com/section/climate-environment/news/transatlantic-environment-dialogue-suspended/

[79] *Jans–Vedder* [2012].

[80] *Durán–Morgera* [2012], p. 13.

[81] See: *Gerstetter–Meyer-Ohlendorf* [2013], p. 11.; *Bernasconi-Osterwalder–Johnson* [2010].

[82] See: *Bernasconi-Osterwalder–Hoffman* [2012].

[83] See: *Bernasconi-Osterwalder–Brauch* [2014].

could effect the Energy Charter as well as an international agreement on investor protection: the case is still pending. However, existing case law is contradictory. In a number of cases[84] like Santa Elena v. Costa Rica[85] states had to pay compensation for their actions. In Metalclad v. Mexico[86] the state had to pay because of a local decision to shut down an industrial toxic waste site of a company that was supported by the federal government. Several other cases could be mentioned, in which states were obliged to pay compensation.[87]

In one of the latest cases between Phillip Morris and Australia on tobacco plain packaging, the decision held that

> *"the Tribunal found that it had no choice but to conclude the arbitration was an abuse of rights as Claimant's corporate restructure was undertaken for the principal, if not the sole, purpose of gaining protection [...] when a dispute was not only reasonably foreseeable, but actually foreseen by Claimant."*[88]

In others cases like Methanex v. USA[89] or Glamis Gold Ltd vs. United States[90] courts held that compensation is not necessary.

The combination of environmental rules with ISDS is criticised especially harshly. Some claim that the inclusion of rules on ISDS

> *"[i]n TTIP would not automatically mean that the US and the EU would be unable to adopt environmental measures in the future or would have to pay compensation to investors whenever doing so; however, the outcome of ISDS proceedings is rather unpredictable – the case law so far is inconsistent. Decisions from some cases have been quite restrictive of governments' regulatory freedom. These uncertainties result in considerable risks which*

[84] See: *Gerstetter–Meyer-Ohlendorf* [2013], p. 11. et seq.

[85] ICSID Case No. ARB/96/1Santa Elena v. Costa Rica. Compañía Del Desarrollo De Santa Elena, S.A. And The Republic Of Costa Rica. See: http://www.italaw.com/documents/santaelena_award.pdf

[86] ICSID Case No. ARB(AF)/97/1 Metalclad Corporation v The United Mexican States. See: http://www.italaw.com/documents/MetacladAward-English.pdf

[87] See: *Gerstetter–Meyer-Ohlendorf* [2013]. See also: http://www.elstel.org/ISDS.html.en, or http://www.foeeurope.org/sites/default/files/foee_factsheet_isds_oct13.pdf (p.7.)

[88] *Kofman–Williams* [2015].

[89] Methanex Corporation v. USA. See: http://www.italaw.com/sites/default/files/case-documents/ita0529.pdf

[90] ICSID Case No Glamis Gold Ltd vs. United States. See: http://www.state.gov/documents/organization/125798.pdf; *Obadia* [2009].

are exacerbated by the fact that investment-related provisions tend to be interpreted broadly in ISDS proceedings."[91]

However, we have opposing views about this problem. As *Brower* and *Blanchar* put it,

"[m]uch criticism in this vein has focused on the possibility that investor-State arbitration could prevent States from enacting legitimate environmental regulation. However, actual arbitral awards addressing environmental issues demonstrate great deference to environmental policy. Contrary to critics' claims, BITs do not give investors the right to sue a host State any time an investment is merely "interfered with" or the right to "demand compensation when a government-initiated change lowers the value of their assets." Instead, a typical investment treaty guarantees that the host State will not discriminate against foreign investors and their investments, will treat them fairly and equitably, will refrain from expropriating without prescribed compensation, and will provide full protection and security. Those guarantees stop far short of promising that the State will not change the law or regulate the environment."[92]

They also claim that in most of the cases in which tribunals held a state liable, the environmental rationale was pretextual or against good faith, or government officials clearly violated domestic law.[93]

4.2. The Need for Strong Guarantees

According to the official position paper[94] and a leaked draft on trade and sustainable development,[95] at present it seems the TTIP would include some general provisions on states' rights to protect environment and modify their laws. Article 3 of the leaked Section I on trade and sustainable development states that

[91] *Obadia* [2009], p. 4.

[92] *Brower–Blanchar* [2014], p. 53. et seq.

[93] "Investment tribunals have found States liable for pretextually environmental measures in only three cases, and in each case the tribunal concluded that based on the evidence the purportedly environmental action was not taken in good faith or in accordance with domestic law." P. 55 thereof.

[94] Transatlantic Trade and Investment Partnership – Trade in services, investment and e-commerce – Chapter II – Investment. See: http://trade.ec.europa.eu/doclib/docs/2015/september/tradoc_153807.pdf

[95] European Commission Brussels, 29 September 2015 Trade 34/2015 Note for the attention of the Trade Policy Committee Subject: TTIP – Draft EU textual proposal for a Chapter on Trade and Sustainable Development. See: https://www.scribd.com/doc/286658269/EU-SD-Proposal-TTIP

"the Parties recognise the right of each Party to determine its sustainable development policies and priorities, to set and regulate its levels of domestic labour and environmental protection, and to adopt or modify relevant policies and laws accordingly. The right to regulate shall be exerted in a manner not inconsistent with the international labour standards and agreements referred to in Article ... [Multilateral labour standards and agreements] and the environmental agreements referred to in Article ... [Multilateral environmental governance and agreements].
2. Each Party shall ensure that its domestic policies and laws provide for and encourage high levels of protection in the labour and environmental areas and shall strive to continue to improve those policies and laws and their underlying levels of protection."

Several commentators mention[96] that the language of this text is vague, especially, if we compare it to the compensation part, which does not mention any changes in environmental legislation. As it puts it in Art. 18

"the Parties recognise that it is inappropriate to weaken or reduce the levels of protection afforded in domestic environmental or labour laws in order to encourage, or in a manner affecting, trade or investment."

We must agree with those who claim that clearer and more straightforward language would be more useful to maintain the rights of EU states to keep and introduce environmental regulations they wish to protect nature, and ensure that the EU and the US do not weaken environmental protection to attract investment. Otherwise, the agreement can effectively endanger environmental protection in Europe.

4.3. Animal Rights

Another major claim regarding TTIP was that according to criticism, it would allow foreign companies to test cosmetics on animals, even though it is set out in Article 11 TFEU that environmental protection requirements must be integrated into EU policies and activities. As Article 13 TFEU puts it,

"in formulating and implementing the Union's agriculture, fisheries, transport, internal market, research and technological development and

[96] See: https://www.foeeurope.org/sites/default/files/eu-us_trade_deal/2015/sustainable_development_proposal_analysis_261015.pdf

space policies, the Union and the MSs shall, since animals are sentient beings, pay full regard to the welfare requirements of animals, while respecting the legislative or administrative provisions and customs of the MSs relating in particular to religious rites, cultural traditions and regional heritage."

Consequently, animal welfare is accepted as a basic principle of EU law. TFEU also says in Article 36 that "MSs may introduce measures on the prohibitions or restrictions on imports, exports or goods in transit justified on grounds of public morality, public policy or public security; the protection of health and life of humans, animals or plants", and that such measures are exempt from the prohibition of introducing quantitative restrictions among MSs. Critics claim that TTIP would break through these rules. The Draft on Sanitary and phytosanitary measures (SPS) of TTIP mentions in its Article 17 that "Parties recognise that animals are sentient beings" and that

"the Parties undertake to exchange information, expertise and experiences in the field of animal welfare with the aim to align regulatory standards related to breeding, holding, handling, transportation and slaughter of farm animals."[97]

We agree with those views that claim this text seems weak,[98] since it does not tell us anything about the use of animals for testing, which is a key issue. As *Keith Taylor,* a Green MEP put it regarding the EU directive limiting scientific testing on animals[99] (i.e. replacing, reducing, or refining the use of animals for scientific purposes or experimentation),

"Directive 2010/63/EU on the protection of animals used for scientific purposes represents the most advanced legislation of its kind in the world, and highlights the need for a review of US legislation in order to ensure that modern standards of animal protection are applied. The EU Directive is wider in scope than the US equivalent, covering all vertebrate and some invertebrate species, whereas in the US birds, fish, rats and mice (which

[97] See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153026.pdf

[98] How TTIP undermines food safety and animal welfare. Institute for Agriculture and trade policy, Friends of the Earth Europe. See: http://www.foeeurope.org/sites/default/files/briefing_ttip_food_safety_feb2015.pdf

[99] Directive 2010/63/EU of the European Parliament and of the Council of 22 September 2010 on the protection of animals used for scientific purposes Text with EEA relevance. OJ L 276, 20.10.2010, p. 33–79.

are the most frequently used species in scientific studies) are specifically excluded from protection in US legislation.
Moreover, EU Regulation 1223/2009 bans animal testing for cosmetics within the EU, as well as the sale within Europe of beauty products subjected to new animal testing for cosmetic purposes after 11th March 2013."[100]

The Commission published some additional documents regarding this issue.[101] It is said that the EU's goal is to "agree to work on alternative methods to animal testing and to push for the progressive phase-out of animal tests worldwide."[102] It is also set out that the EU's aim is to reduce diverging requirements, which could also be useful because

"*a wider range of cosmetics products would be available to the consumer, testing would be more efficient and international harmonisation of cosmetics regulations and practices would be greater."*

This would be achieved "without compromising the protection of public policy interests such as health or animal welfare".[103] The text also mentions that "both Parties could agree on further fostering the development of alternative methods to replace animal testing."[104]

4.4. Preliminary Findings

Even though the respectable aims behind the efforts on environment protection can be accepted, they seem to be vaguely worded in order to protect environment properly in both of the above-mentioned cases. It also seems that rules on core issues are missing from the text. Of course, this problem can be cured in the final version of the agreement.

[100] See: http://www.keithtaylormep.org.uk/wp-content/uploads/TTIP-and-the-Use-of-Animals-in-Testing-and-Research-FINAL.pdf

[101] See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153006.4.2%20Cosmetics.pdf and http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152470.pdf

[102] See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153006.4.2%20Cosmetics.pdf

[103] See: http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152470.pdf

[104] See point 2.3. thereof.

5. Regulatory Cooperation and Consumer Standards

5.1. General background

Consumer protection has a stable background in EU primary legal sources, and a great material was built upon these provisions. Article 114 of TFEU says on the single market that

> *"the Commission, in its proposals… concerning health, safety, environmental protection and consumer protection, will take as a base a high level of protection, taking account in particular of any new development based on scientific facts. Within their respective powers, the European Parliament and the Council will also seek to achieve this objective."*

Article 169 also stresses that

> *"in order to promote the interests of consumers and to ensure a high level of consumer protection, the Union shall contribute to protecting the health, safety and economic interests of consumers, as well as to promoting their right to information, education and to organise themselves in order to safeguard their interests."*

EU trade policies must be in line with these provisions. Moreover, Article 38 of the EU Charter of Fundamental Rights also says that EU "policies shall ensure a high level of consumer protection".

The EU and the US started a dialogue regarding consumer issues already in 1998: the Transatlantic Consumer Dialogue ("TACD"),[105] which serves as a hub for consumer organisations to discuss policy issues on both sides of the Atlantic. The TACD regularly issues statements, letters, recommendations and criticism regarding issues it finds important. Such issues cover a wide range of topics like genetically modified organisms ("GMOs"), e-commerce, data privacy, intellectual property, fair trade and medicines. The core topic in this regard is "regulatory cooperation", i.e. the harmonisation of standards between the US and the EU. Already in 1998, the US and the EU concluded a Mutual Recognition Agreement ("MRA").[106] Later, a US-EU "Regulatory Cooperation Roadmap" was adopted in 2002, which already implemented sixteen sectors into the cooperation by 2005.[107] In 2007, the

[105] See: http://tacd.org/?option=com_frontpage&Itemid=1

[106] *Chase–Pelkmans* [2015], p. 8; *Ahearn* [2009].

[107] Roadmap for EU-U.S. Regulatory Cooperation and Transparency. IP/04/816 Brussels, 29 June 2004.

Transatlantic Economic Council (TEC) was founded, aiming to further improve harmonisation. By this time, US Food and Drug Administration (FDA) was having over 1,000 contacts a year with its European counterparts.[108] In 2012, President Obama issued an executive order to reach further development.[109] From the point of view of TTIP, this cooperation means that the US and the EU try to adopt common standards (including consumer goods) to more areas than before. According to the Commission, these standards cause technical barriers to trade, and thus harm trade in sectors like goods and services, automotive or the pharmaceutical industry: if a European company would like to sell goods in the US, differences in standards might cause serious expenses. Such standards can be technical and health-related standards, measures on pre-shipment inspections, but also subsidies, distribution restrictions or rules on procurement.[110] According to a study created by scholars from the LSE,

> *"examples of the estimated trade costs/tariff equivalents of such regulatory 'non-tariff barriers', suggest a 20% average for all sectors, with motor vehicles being a bit higher than this and food and drink being significantly higher."*

Other studies also suggest that abolishing differences in regulations "could yield economies of production worth $150 billion a year in the EU, and $117 billion a year in the US".[111]

The EU first published a commentary for regulatory cooperation[112] as well as the concrete draft of the text,[113] and later it amended the draft[114] and the text in 2016.[115] Moreover, special rules on Sanitary and Phytosanitary measures can be found in a related document,[116] and also those on motor vehicles,[117] chemicals,[118] pharmaceutical

[108] *Chase–Pelkmans* [2015], p. 8.

[109] Executive Order 13609 of May 1, 2012 Promoting International Regulatory Cooperation. Federal Register Vol. 77, No. 87, Friday, May 4, 2012. See: https://www.whitehouse.gov/sites/default/files/omb/inforeg/eo_13609/eo13609_05012012.pdf

[110] *Donat* et al. [2014]

[111] *Alemanno* [2015], p. 2; *Fung* [2014], p. 453 et seq.

[112] See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153002.1%20RegCo.pdf

[113] See: http://trade.ec.europa.eu/doclib/docs/2015/february/tradoc_153120.pdf

[114] See: http://trade.ec.europa.eu/doclib/docs/2016/march/tradoc_154378.pdf

[115] See: http://trade.ec.europa.eu/doclib/docs/2016/march/tradoc_154377.pdf

[116] Textual proposal – sanitary and phytosanitary measures (SPS). See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153026.pdf

[117] See: http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152467.pdf

[118] See: http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152468.pdf

products[119] and medical devices.[120] The parties also introduce an EU-US Annual Regulatory Cooperation Programme,[121] i.e. yearly meetings of representatives from both sides of the Atlantic. They also consult on the Joint Annual Regulatory Cooperation Program with a "domestic Advisory Group composed by businesses including small and medium sized enterprises, trade unions and public interest groups, ensuring a balanced representation of all interests concerned". Moreover, the EU supports input from industry by allowing "natural and legal persons to present proposals to improve the regulatory environment".[122] It was also expressed that "TTIP provisions are meant to support compatible outcomes where regulators identify common interests" – this means that in the case of different interests, regulations may remain different.

5.2. Criticism

Regulatory cooperation received a lot of criticism from different organisations, mainly from NGOs like Corporate Observatory or Greenpeace.

Firstly, it was said that TTIP may lead to a "race to bottom",[123] which means that traditionally harsh EU consumer standards could get "watered down". However, the situation seems to be more difficult. As *Jonathan B. Wiener* and *Alberto Alemanno* put it,

> *"fears that agreements such as the Transatlantic Trade and Investment Partnership (TTIP) would require Europe to lower its regulatory standards are based on a premise that European standards are typically more stringent than U.S. standards. But as just noted, the reality is that although some European regulatory standards for some issues are more stringent than U.S. standards, some U.S. standards for other issues are more stringent than European standards."*[124]

[119] See: http://trade.ec.europa.eu/doclib/docs/2014/may/tradoc_152471.pdf

[120] See: http://trade.ec.europa.eu/doclib/docs/2015/january/tradoc_153008.4.5%20Med%20devices.pdf

[121] Article X.6. See: http://trade.ec.europa.eu/doclib/docs/2016/march/tradoc_154377.pdf

[122] Point 4., See: http://trade.ec.europa.eu/doclib/docs/2016/march/tradoc_154378.pdf

[123] The TTIP Gap: How a Trans-Atlantic Trade Deal Can Still Be Fixed. See: http://www.spiegel.de/international/world/how-ttip-and-an-eu-us-free-trade-deal-can-be-fixed-a-1036831.html

[124] See: *Alemanno–Wiener* [2016], p. 102; *Alemanno* [2014]: Expo/B/Afet/2013/32 Pe 433.847, European Parliament Policy Report, Brussels, April 2014 See: http://www.europarl.europa.eu/RegData/etudes/etudes/join/2014/433847/EXPO-AFET_ET(2014)433847_EN.pdf p. 23 seq.

The EU's answer to the criticism was that they emphasised that the parties do not plan to give up EU standards. According to their claim, regulatory cooperation remains voluntary and is not imposed on the parties. Furthermore, the race to the bottom is not as common as critics claim. As *Peter Chase* and *Jacques Pelkmans* put it, the Transatlantic Business Dialogue

> *"was also strongly encouraging great regulatory cooperation in automotive safety. This failed when the US regulator (the National Highway Transport Safety Agency, NHTSA) undertook extensive studies about certain specific auto safety features (e.g., on standards for side door crash resistance) which demonstrated that EU vehicles were less safe than their American counterparts. This experience again underscores some of the lessons learned in the earlier MRAs – that regulators cannot and will not lower safety standards just to promote trade, and that they depend on hard evidence, rather than political good will."*[125]

In order to decide whether the agreed standards hurt EU consumer standards, we should analyse the concrete, final and detailed text of the agreement, which is not yet available,[126] even if leaked documents are available on the internet.[127] The latest documents on negotiations also seem confusing.[128] On the other hand, the text needs to be clearer to fulfil its purpose and maintain a high level of consumer protection, and all the costs and benefits must be taken into consideration.[129] Based on the official materials, it seems to be impossible to decide whether they are actually beneficial or not, because we neither know details about the negotiations, nor do we have the final and detailed text in hand.

Secondly, there is an on-going dispute on the precautionary principle. According to public opinion (especially in the EU), materials and processes can only be put to market once proven harmless,[130] while in the US they can be banned from the market only after they have been proven harmful. On the other hand, the legal background is by far more complex than that. As *Cass R. Sunstein* puts it,

[125] See: *Chase–Pelkmans* [2015], p. 7.

[126] See: http://trade.ec.europa.eu/doclib/press/index.cfm?id=1230#regulatory-cooperation

[127] See: https://ttip-leaks.org/

[128] See: The Twelfth Round of Negotiations for the Trans-Atlantic Trade and Investment Partnership (TTIP) Public Report – March 2016. See: http://trade.ec.europa.eu/doclib/docs/2016/march/tradoc_154391.pdf

[129] Alemanno–Wiener [2016], p. 122. et seq.

[130] *Vecchione* [2012–2013].

> *"this opposition between Europe and America is false, even illusory. It is simply wrong to say that Europeans are more precautionary than Americans. As an empirical matter, neither is "more precautionary." Europeans are not more averse to risks than Americans. They are more averse to particular risks, such as the risks associated with global warming; but Americans have their own preoccupations as well."*[131]

He also writes that "European practice is quite complex". To take just one example, "Europe has been more precautionary about hormones in beef, while the US has been more precautionary about mad cow disease ("BSE") in beef and blood donations."[132] European nations have taken a highly precautionary approach to genetically modified foods, but the United States has been more aggressive in controlling the risks associated with carcinogens in food additives. In the context of occupational risk, American law is far more precautionary than Swedish law.[133] Critics claim, in the future, as a result of TTIP, several materials may be put on the European market which are potentially harmful, e.g. in the cosmetic industry. It is true that the method applied in the US can cause some dangers. On the other hand, there are also opinions, which claim that these problems can be overcome:

> *"several studies have demonstrated that, with some possible exceptions, the high standards required by both the EU and US will ensure a high level of consumer, health and environmental protection ... "* and some studies suggest that *"differences between precaution and science-based risk assessment have been overplayed and that differences are more due to a selective application of precaution to different risks in different places and times."*[134]

Furthermore, the precautionary principle is also set out in Article 191(2) TFEU, which expressly states that environmental policy should be based on the precautionary principle. So it cannot be "negotiated away" as simply, as claimed in the media by critics, since MSs would have to amend TFEU to do so.[135]

Third, there is an on-going dispute regarding genetically modified organisms (GMO products). The EU already had international disputes regarding GMO food,

[131] *Sunstein* [2005], p. 14.
[132] Ibid.
[133] *Sunstein* [2005], p. 20.
[134] *Woolcock* et al. [2015].
[135] Leaked TTIP documents confirm major risks for climate, environment and consumer safety. See: http://www.greenpeace.org/international/en/press/releases/2016/Leaked-TTIP-documents-confirm-major-risks-for-climate-environment-and-consumer-safety/ P. 21.

when in 2006 WTO dispute settlement found the EU ban of GMO food to be contrary to WTO rules.[136] After that, the EU still maintained that "only GMOs that pose no risk to human and animal health or the environment may be cultivated in the EU". In 2010, it allowed MSs to ban GMO food (in fact, it transferred power to them),[137] in 2015[138] also moved into a more liberal direction (allowed states to introduce ban more easily) and created an authorisation system.[139] Critics claim GMO food or chlorine chickens could arrive in Europe, because the US uses TTIP negotiations to attack EU laws.[140] However, if the situation remains as it is now, according to official statements, this area will not to be affected by TTIP. Furthermore, as an agreement falling under shared competency, it is up to Member States to adhere to their standards. Hopefully, GMO labelling will also remain as before.[141] This does not preclude that the EU could take an unfortunate step and lower its standards even without the TTIP.[142] Please note that even apart from this problem, different standards in the US meat industry[143] could badly affect European farmers, because of cost efficiency reasons.

Fourthly, critics also claim the TTIP's rules on regulatory cooperation could harm democracy and transparency. According to the text, the parties would create a body that would include representatives of the US government and EU agencies. Draft legislation on regulatory affairs would have to pass through this regulatory council before being put to a vote in the EU, or by MSs' Parliaments.[144] Critics claim such a solution may harm democracy and bind governments' hands. Forty-five organisations including Corporate Europe Observatory have protested against

[136] *Cheyne* [2008]; *Thomison* [2007]; *Kolsky Lewis* [2013–2014]; *Eliason* [2008–2009].

[137] GMOs: Member States to be given full responsibility on cultivation in their territorie. See: http://europa.eu/rapid/press-release_IP-10-921_en.htm

[138] More freedom for MSs to decide on the GMOs use for food and feed. IP/15/4777 Brussels, 22 April 2015; Directive (EU) 2015/412 of the European Parliament and of the Council of 11 March 2015 amending Directive 2001/18/EC as regards the possibility for the MSs to restrict or prohibit the cultivation of genetically modified organisms (GMOs) in their territory Text with EEA relevance. OJ L 68, 13.3.2015, pp. 1–8.

[139] See: http://ec.europa.eu/food/plant/gmo/authorisation/cultivation/index_en.htm

[140] US Using TTIP As Vehicle To Attack European Gmo Laws. See: http://ttip2016.eu/blog/GMOs%20TTIP%20EFSA.htm

[141] Agriculture Commissioner promises GMO labelling, despite TTIP. See: http://www.euractiv.com/section/agriculture-food/news/agriculture-commissioner-promises-gmo-labelling-despite-ttip/

[142] Commission fails to regulate new GMOs after intense US lobbying. See: http://corporateeurope.org/sites/default/files/20160421_br_us_lobbying_on_new_gmos_final1_1.pdf

[143] See: http://www.spiegel.de/international/world/how-ttip-and-an-eu-us-free-trade-deal-can-be-fixed-a-1036831.html

[144] *Chase–Pelkmans* [2015], p. 15.

this solution. As they put it, "the proposal makes it possible for the US to exert undue influence at a very early stage of decision-making, before any proposal is considered by elected bodies, namely the Council and the European Parliament."[145] On the other hand, according to the official reasoning, this method would ensure that such proposals are in conformity with TTIP, and also make a transparent framework for lobbying. Other critics also claimed that the EP's regulatory sovereignty could be in danger. Other opinions claim

> *"that the EP's regulatory sovereignty – in terms of the legislative, rule-making ability – is unlikely to be affected by the TTIP. The discussion of the Commission's recently published paper on regulatory cooperation has shown that the provisions are procedural and intended to promote, guide, monitor and help facilitate regulatory cooperation."*[146]

I believe the truth must lie somewhere in between these positions. Even though it is not true that legislation would be limited in the future (the body would not have the power to overrule or amend legislation), creating such a system seems to be useless and its existence could affect democracy negatively: it is like the outsourcing of certain parts of legislative action. Consequently, even if adopted, its power must be limited, and we need clearly expressed, limited rules on its duties and authority.

5.3. Preliminary Findings

In summary, one could agree with the claims that regulatory cooperation contains risks, which must be carefully analysed in order to avoid later damages.[147] However, the concrete details at the present time are not sufficient to make a judgment about its effect on consumer standards.

6. Conclusions

If we summarise the above mentioned problems, we can ascertain the following.

Regarding transparency, even though the Commission did not breach EU rules during negotiations, it seems obvious that being more transparent could serve democracy better. Documents created for negotiations are not useful for this purpose,

[145] TTIP: "Regulatory Cooperation" a threat to democracy. See: http://corporateeurope.org/international-trade/2016/03/ttip-regulatory-cooperation-threat-democracy

[146] *Woolcock* et al. [2015], p. 23.

[147] *Alemanno* [2015], p. 11.

because they represent a highly technocratic thinking, the European public still does not know too much about the strategy behind these documents, and will have fears.[148] The EU should openly express the values it would not give up for commercial gain, and also find those existing provisions in the *acquis* and in MSs' law, which cannot be changed. The same can be said about proper rules on environmental protection. In theory, the right to a healthy environment could be hurt by an agreement, which limits States' rights to amend their related policies, or at least could make them pay compensation. Poor wording could have a detrimental effect on environmental protection. Moreover, the EU rules on GMO should not be watered down, and the agreement should contain provisions, which allow MSs to ban GMOs, in conformity with the present state of EU law. The EU should not give up labelling GMO products, since this is also a typical European value citizens do not want to give up. The ban on animal testing should be openly maintained in the future as well. The text should be explicit on this issue. Most of these problems can be cured relatively easily.

On the other hand, we can also ascertain that a majority of criticism is based on misinformation, fear, prejudice and demagoguery, which can have a detrimental effect on peoples' opinion in Europe, and on the democratic exercise of rights in general.

In summary, TTIP is not the hazardous deal it is portrayed to be in the mass media or by populists, but it contains some risks which must be cured to achieve a cooperation with the US which could work for a longer term.

Moreover, it would be useful to ask for the CJEU's opinion before the conclusion of the agreement, which could analyse the connection of the text and primary legal sources. Moreover, it could also highlight if there is a conflict with secondary sources, or a conflict of legislative competencies between the EU and Member States.

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[148] Sunstein compares the precautionary principle to President George W. Bushs doctrine of preemptive war. See: *Sunstein* [2005], p. 219.

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Studies in International Economics

Special Issue of Külgazdaság

Volume 2, No. 2

Publisher: KOPINT Foundation for Economic Research

The publication was supported by the **Hungarian National Bank.**

Contents of the latest issue of Külgazdaság (2016, Vol. LX, No. 9–10)