

Opportunity cost of PT (Profit tax) to other taxes regarding the audit Are the tax holidays in Macedonia worth the cost?

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The views expressed in this paper are those of the author and do not necessarily represent those of the Bearing Point and Bearing Point Policy. This paper is published to further debate.

Introduction

The Ministry of Finance proposed amending and supplementing on the Law on Profit Tax (PT) as incentives to attract FDI. My argument is that the Macedonian PT has already a low tax rate of 15 % and already provides exemptions thus; any new amending and supplementing are endangering the neutrality of the tax and more, every tax has the revenue collection objective, which in the case of Macedonian profit tax is very poorly achieved. The burden on the PRO administration will increase as well by this incentive and the opportunity cost for administering the PT will become higher for the auditors measured in MKD (Macedonian currency Denar) of irregularities find compared to other taxes. The profit tax revenue collections are on average 5 % of the total revenue collections in Macedonia as illustrated in the next table 1 (source Ministry of Finance).

Table 1. Tax revenues percentage breakdown in Macedonia for the period 1998-2002.

tax revenues structure	PIT	VAT	PT	Excises
1998 god.	30.62%	29.38%	5.84%	34.16%
1999 god	32.88%	32.00%	0.82%	34.30%
2000 god	24.91%	40.29%	6.45%	28.35%
2001 god	19.04%	45.01%	7.90%	28.06%
2002 god	18.16%	49.60%	6.34%	25.90%
average ¹	25%	39%	5%	30%

Source: Ministry of Finance.

Because of that my argument and recommendation for the Government is if they want to attract FDI and give a right signals to the investors, it should do it by other incentives (political and economic stability and creation of true civic society and social infrastructure) and if still they want go with narrow measures like fiscal incentives then it is better just to introduce a zero profit tax rate. If the profit tax is cancelled than the PRO administration will be relaxed and the audits to other taxes can be enhanced. By canceling the profit tax the best signal can be sent to the potential investors and the Government must find a new ways of financing to fill the revenue gap. Anyway, this paper will try to estimate the cost of the amending that the Ministry of Finance is recommending both for the PRO and for the central budget revenues and it is of illustrative nature of how a quantitative analysis can be implement for a fiscal policy analysis. The paper is organized as follows. First the cost benefit from the amending on the profit tax law will be investigated for the PRO and then the cost benefit for the central budget will be discussed. Recommendations follow.

¹ Calculated by the author of this paper as arithmetic average for the period.

Incentives to the FDI

The 15 % profit tax rate in Macedonia is already the lowest in Europe. By introducing tax holiday Macedonia might also contribute to a possible prisoner dilemma situation in the region. Empirical evidence both from surveys and from econometric studies (see [1]) finds no significance of the so called narrow measures (fiscal, financial and other incentives) as incentives to the FDI. More significant measures for the investors are the so called wider measures (political stability, potential growth, market size, infrastructure development etc.; see [2]). For illustrational purposes the following table is provided (see [2] and Macedonian economic indicators are just added by the author of this paper).

Table 2. Cross country basic economic indicators.

Country	Czech R.	Estonia	Hungary	Poland	Slovakia	Slovenia	Macedonia
Population	10.25 million	1.45 million	10.1 million	38.68 million	5.41 million	1.98 million	2.00 million
GDP	59.4 billion USD	EUR 5.34 billion	58.3 billion USD	188 billion USD	25.5 billion USD	20.01 billion USD	3.89 billion USD
GDP/capita	5790 USD	EUR 3685	5830 USD	4860 USD	4660 USD	10958 USD	1937 USD
Profit tax	31%	There is no profit tax in Estonia.	18%	30% (2000) 28% (2001) (decreasing annually)	29%	25%	15 %

Source [2].

What we can see from the table above is that Macedonia has the lowest tax rate and Estonia, that is the smallest country in terms of population, has zero profit tax rate. Thus, there is a precedent of a country with no profit tax. In the text that follows the cost benefit to the PRO regarding auditing different taxes will be estimated.

Opportunity cost for auditing PT – PRO cost benefit

The following discussion is based on 2002 data for the number of auditors and audits and irregularities find after audit both in number of irregularities and in irregularities in MKD. More on the data and how the indices are constructed see in the Appendix A.

The main idea for the PRO cost benefit estimation is that there is an opportunity cost for an average auditor that works within average conditions to go audit PT, VAT, PIT (Personal Income Tax) and/or Excises. In order to calculate the opportunity cost of auditing PT instead of VAT, PIT and/or excises indices of the number of irregularities per number of auditors and irregularities in MKD per number of auditors will be calculated. Explanation of how the indices are constructed and the data used are presented in the Appendix A. What we can see in the next table is the opportunity cost of auditing the PT by the auditors from the PRO. From the table, each auditor can find 4.57 times more irregularities if he/she is auditing VAT and 2.37 times more irregularities if he/she is auditing PIT in comparison with auditing PT. However, an auditor can find 14.33 times more irregularities if he/she is auditing excises instead of PT.

Table 3. The opportunity cost of the PT number of irregularities over the other tax's number of irregularities (the calculations for each regional center is readily available for any interested party upon approval from the PRO).

Year 2002	opportunity cost of VAT over PT	opportunity cost of PIT over PT	opportunity cost of PT over excises
irregularities per auditors	4.57	2.37	14.33

The situation in money terms is shown in the next table. By sending the auditor to audit VAT he/she will find 2.35 times more irregularities in MKD than if it goes and audit PT. The similar opportunity cost for the PIT is 3.86 times. However, if he/she goes and audit excises he/she will find 27.01 times less irregularities in MKD then if he/she would have go and audit PT.

Table 4. The opportunity cost of the PT irregularities in MKD over the other tax's irregularities in MKD.

Year 2002	opportunity cost of VAT over PT	opportunity cost of PIT over PT	opportunity cost of PT over excises
irregularities in MKD per auditors	2.35	3.86	27.01

If we want to estimate the right cost benefit effect in case of amending the PT law and refocusing the auditors to audit the other taxes, we must adjust the opportunity costs by the index of the number of audits per auditors across taxes. Namely, from the next table you can see that the number of auditors is the same for each tax (248), but the auditors are performing more frequently VAT audit and less frequently excise audit. In Macedonia, as it was explained to me, each auditor is authorized to perform audit on every tax, but the number of audits performed per tax is different depending on what tax has been audited (the third column in table 5). Then it is reasonable to expect that maybe the higher frequency of VAT auditing is creating more of VAT irregularities in MKD to be find than it is the effect of the opportunity cost. The index number in column four is calculated as the number of audits performed for each tax over the number of auditors compared with the total number of audits of all taxes over the total number of auditors. For example, in the case of VAT the 0.55 is calculated as $0.55 = (6173/248)/(11293/248)$. Those indices will actually be our weights with which we can weight the opportunity cost when we will do the cost benefit analysis. The fifth column in table 5 is actually the opportunity costs taken from the tables 3 and 4 above. The sixth column in table 6 is the calculator of the weighted opportunity cost by taking into account the number of auditors, the number of irregularities in MKD and the number of audits performed by each tax.

Table 5. Calculation of the weighted opportunity cost because of the difference in number of audits performed for each tax.

Year 2002	Number of Auditors	Number of Audits	Index number of number of audits per number of auditor	Opportunity cost to PT irregularities in MKD per auditors	Calculator
VAT	248	6173	0.55	2.35	$0.55 \times 2.35 = 1.29$
PIT	248	3565	0.32	3.86	$0.32 \times 3.86 = 1.24$
PT	248	1308	0.12	1.00	NA
Excises	248	247	0.02	0.04	$0.02 \times 0.04 = 0.0008$
Total	248	11293	1.00	NA	NA

From the table above the overall net position if audits are refocused to VAT, PIT and Excises should the case be that there is no PT will be as follows. Auditors will find 29 % more MKD in VAT irregularities and 24 % more PIT if the PT is canceled. The case of excises is meaningful because more PT was find in MKD irregularity than excises MKD irregularity. The situation with MKD irregularities in 2002 is illustrated in the following table.

Table 6. Irregularities in MKD find by taxes in 2002 after audit.

VAT	PIT	PT	Excises	Total
942513	1547140	401328	14857	2905838

Source PRO.

Thus, 29 % more VAT would be 273329 MKD ($273329 = 942513 \times 29\%$) find as opportunity for the auditor to audit marginally more VAT taxpayers because there is no PT to be audited. The 24 % more PIT is 371314 MKD ($371314 = 154140 \times 24\%$) more as opportunity for the auditor to audit marginally more PIT taxpayers because there is no PT to be audited. The total is 644643 MKD more if the PT was canceled and the auditors are doing more audits to PIT and VAT taxpayers. This is more than the PT irregularities find in 2002 that were in amount of 401328 (see table 6). Thus, the cost benefit outcome for the PRO would be a positive net position should the case is a zero profit tax rate. But for the proposed amending of the profit tax that is on place the cost benefit will be in negative position since the auditors should spend more time on PT audits because of the complicated exemptions and burden will be higher to the tax administration. We saw from the table 5 that the opportunity cost is such that more money will be find if VAT and PIT is audited and the excises prevalence over the PT is negligible (only 12 MKD; 12

= 148570*0.0008). Thus, the amending in the PT law will create fewer irregularities in MKD to be find because auditors will do more audits to the PT and less or the same to other taxes.

The cost side of possible PT canceling and the FDI – central budget cost benefit

For the suggested amending in the Law on Profit Tax at least some investors are likely to be sensitive to this incentive. However, I am arguing that this amending serve only as political signal to the investors and will not make any economic benefit. By amending the tax we would have an indirect subsidy to an investors that would have come even without the incentive of amending the tax and thus, this subsidy for the investors can be our measure of the cost of the incentive. If we accept the theory of this indirect subsidy than the cost of this incentive will be the percentage of the investors that would have come even without the new amending of the profit tax. This percentage will be called redundancy rate-R. In this case the tax revenue loss will be (see [1]): $R*FDI*Y*t*N$. Where R-redundancy rate (the % of investors that would have come even without the incentive of the amending in the profit tax law); Y-investor’s average return; t-tax rate; N-number of years of exemptions in the profit tax. The incremental FDI attracted by the incentives would be $(1-R)*FDI$. Thus, the subsidy or the cost of the profit tax amending will be: $R*(Y*t*N)/(1-R)$. Taking into account that Macedonian profit tax rate is 15 % and let us assume a 20 % average return for the potential investor and that the tax holiday will last 5 years, then the cost of the profit tax amending for the central budget in a period of five years will be a function of the redundancy rate i.e. the % of investors that would have invest even with the profit tax on power will be:

$$\text{Cost} = R*(0.20*0.15*5)/(1-R) \quad (1)$$

The cost sensitivity from the redundancy rate for a 5 year period of profit tax holiday for Macedonia will be as illustrated in the next table 7. The percentage of investors that would have invest even without amending in the profit tax is increasing by 10 % in the left hand column and the correspondent incremental cost is illustrated in the last column of table 7.

Table 7. Sensitivity of the incremental cost created by the incentive depending on the redundancy rate R.

R	(0.20*0.15*5)	Cost
0.1	0.15	0.02
0.2	0.15	0.04
0.3	0.15	0.06
0.4	0.15	0.10
0.5	0.15	0.15
0.6	0.15	0.23
0.7	0.15	0.35
0.8	0.15	0.60
0.9	0.15	1.35

Or presented in the next figure as a graphic illustration.

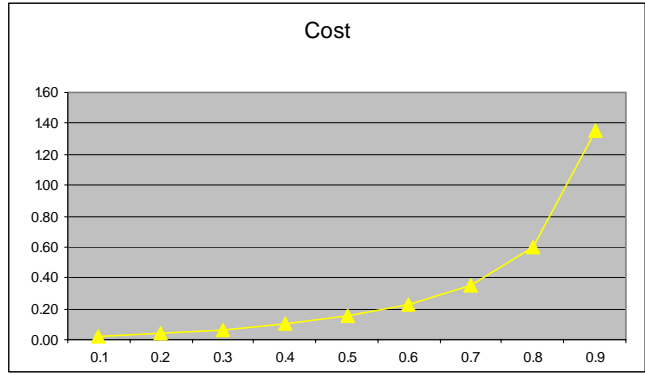


Figure 1. Sensitivity of the incremental cost created by the incentive depending on the redundancy rate R.

The foregone profit tax revenues for the central budget will then be:

$$NPV = \sum_{n=1}^N \frac{1}{(1+r)^n} * \frac{(R * FDI * Y * t * N)}{(1-R)}. \quad (2)$$

Where r-is the discount rate and we will take it as the Macedonian National Bank's discount rate of 6.5 %.

With a redundancy rate of 70 % and 90 % (that means that 70 % and 90 % of the investors will not be attracted by the profit tax incentive) the NPV of the tax revenue foregone for the central budget depending on the FDI level will be as illustrated in the next table 8 and table 9.

Table 8. Calculation of the NPV of the foregone tax revenues for the central budget as per the equation (2) for a period of five years of tax exemptions and a redundancy rate of 70 %.

FDI in 000 \$ US	Discount factor for the first year $1/(1+r)$	Discount factor for the second year $1/(1+r)^2$	Discount factor for the third year $1/(1+r)^3$	Discount factor for the fourth year $1/(1+r)^4$	Discount factor for the fifth year $1/(1+r)^5$	Calculator as from the equation (2) with redundancy rate of 70 %	NPV in 000 \$ US and 70 % redundancy rate
10	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	3.50	2.91
20	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	7.00	5.82
30	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	10.50	8.73
40	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	14.00	11.64
50	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	17.50	14.54
60	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	21.00	17.45
70	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	24.50	20.36
80	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	28.00	23.27
90	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	31.50	26.18
100	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	35.00	29.09

The first column of the table 8 is the potential investment from 10,000 to 100,000 \$ US. The second up to the sixth column are the discount factors. The column seven is the

second ratio calculated as from the equation 2. The last column illustrates the average per year NPV tax revenues foregone depending on the level of the FDI.

Table 9 illustrates the foregone profit tax revenues if the redundancy rate is 90 %.

Table 9. Calculation of the NPV of the foregone tax revenues for the central budget as per the equation (2) for a period of five years of tax holiday and a redundancy rate of 90 %.

FDI in 000 \$ US	Discount factor for the first year $1/(1+r)$	Discount factor for the second year $1/(1+r)^2$	Discount factor for the third year $1/(1+r)^3$	Discount factor for the fourth year $1/(1+r)^4$	Discount factor for the fifth year $1/(1+r)^5$	Calculator as from the equation (2) with redundancy rate of 90 %	NPV in 000 \$ US and 90 % redundancy rate
10	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	13.50	11.22
20	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	27.00	22.44
30	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	40.50	33.66
40	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	54.00	44.88
50	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	67.50	56.10
60	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	81.00	67.32
70	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	94.50	78.54
80	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	108.00	89.76
90	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	121.50	100.98
100	0.9389671	0.8816593	0.8278491	0.7773231	0.72988084	135.00	112.20

We can note that the NPV of the tax revenue foregone is increasing rapidly depending on the redundancy rate as was estimated and illustrated in the figure 1. What we can see in the table 9 is that the 90 % redundancy rate causes NPV of foregone taxes higher than the FDI attracted. The sensitivity of the NPV foregone profit tax revenues depending on the redundancy rate interval from 50 % to 90 percent and the level of FDI are illustrated in the next Figure 2. Once again it was illustrated as from the figure 1 that the incremental increase of the cost depending on the redundancy rate is increasing nonlinearly. To estimate the level of redundancy ratio for Macedonia is very difficult task, but I am arguing that it will be between 70 to 90 % taking into account the political and economic situation, the infrastructure, the potential growth rate of the economy, the stability and efficiency of the court system in the country and the quality of the PT law amending.

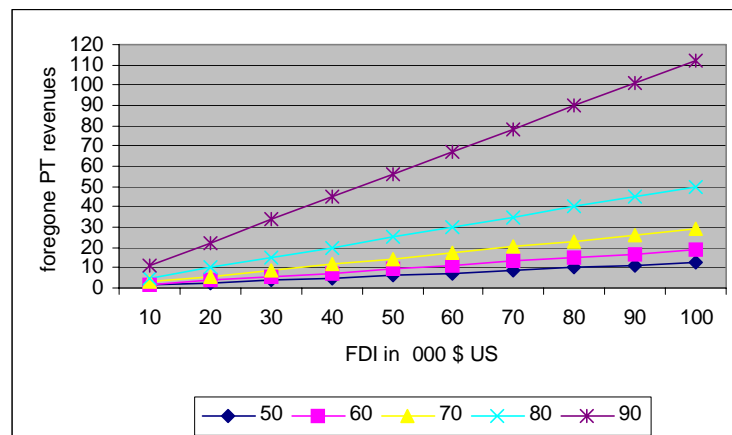


Figure 2. The NPV sensitivity from the redundancy rate (50-90 percent) and the FDI level (10,000-100,000 \$ US)

It is not an easy task to define and measure the benefit side from the profit tax incentive. One must take into account the FDI multiplier effect, the FDI elasticity of the economic growth, the new employment absorption power of the targeted FDI, the impact of the FDI on the other expenditure side GDP sectors etc. Here for the purpose of this paper I will calculate how much employment would be required from the FDI in order to compensate the profit tax revenue foregone with a PIT collection from the new employment provided by the FDI. I am urging the Ministry of Finance or a special Agency for attracting FDI to do a comprehensive cost-benefit analysis of tax policy incentives to FDI.

The employment level impact

If we want to get a sense of what the benefit must be in order to compensate for the profit tax incentive cost as per table 8 and table 9 let us estimate what the level of new PIT revenues (or by how much the employment must increase) must be from the new jobs created in order to replace for the total tax revenue foregone. In Macedonia the average net wage for June 2002 was 11,217 MKD or around 180 \$ US² and the labor cost share of the Value Added as an average from 15 sectors of the GDP is around 63 % for the year 1999 (see [4]) in Macedonia and not much changed by now. With these numbers in mind it is a simple algebra exercise to get the level of employment the economy must have as effect from the FDI in order to compensate the tax revenues foregone in the central budget with increasing the PIT revenues from the new employees. In table 10 the first column illustrates the potential FDI level in 000 \$ US. The second column shows how many new employees are required in order for the PIT revenues on those new employees to compensate for the tax foregone on the 70 % redundant investors and the third column shows the new number of employees depending on the level of FDI and a redundancy rate of 90 % so that the PIT revenues on those new employees can cover the cost side of the profit tax incentive in the central budget. For comparison, the employment level in Macedonia in 2002 was 561,341. From the table 10 we can see that the new employment level required seemed reasonable per level of FDI so that the PIT collected from those new employees can compensate for the profit tax foregone revenues because of the tax incentive. However, as a direct effect on the unemployment situation is negligible.

Table 10. The levels of new employment required for collecting additional PIT revenues enough to compensate for the foregone profit tax revenues as from table 8 and table 9.

FDI in 000 \$ US	The employment level required from the FDI so that the PIT revenues can cover the PT foregone with the 70 % redundancy rate	The employment level required from the FDI so that the PIT revenues can cover the PT foregone with the 90 % redundancy rate
10	23	89
20	46	178
30	69	267
40	92	356
50	115	445

² One can also calculate per employer PIT if one knows that the PIT in 2002 was around 117 mln US \$ and the employment by the LFS was around 561,341 employees in Macedonia. Thus, per employee PIT collected is around 210 US \$. In the table 10 the 200 US \$ per employees was utilized as a tax base for calculation of the implicit PIT tax rate of 63 % as a compromise.

60	139	534
70	162	623
80	185	712
90	208	801
100	231	891

The employment sensitivity depending on the level of FDI and the redundancy rate is illustrated in the next Figure 3.

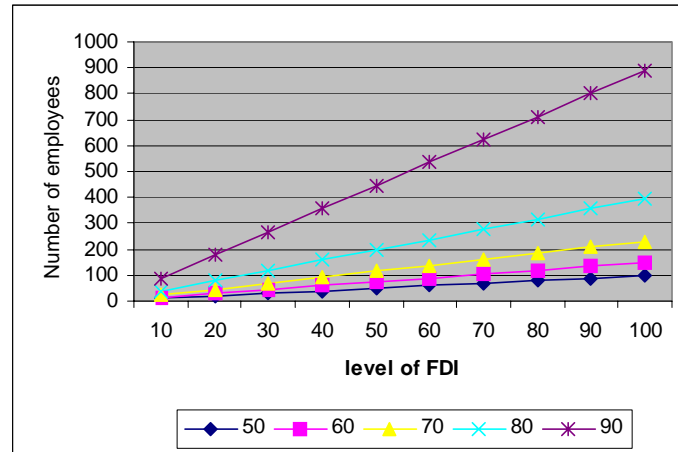


Figure 3. The number of jobs required by the tax incentive so that the PT revenues foregone can be compensated with the PIT depending on the level of FDI

It is questionable if the number of employees presented in the table 10 is optimal because we do not know the business activity of the FDI, the quality of employees required, the cost per employee etc. however, as for the central budget foregone revenues it is clear what is the average new number of employees required so that the PIT collected can compensate the PT revenues foregone.

Conclusion

Recommendation for the Ministry of Finance is not to make any fiscal incentives in order to attract FDI before they do quantitative analysis and at least a survey of what the potential investors want from Macedonia. If the Government wants to send a positive signal for the investors it should create an environment of strong civic society and introduce the rule of law that will compensate any fiscal incentive and could invite a consulting company to prepare the country rating as a signal. If it anyway wants to make a good will fiscal move in the profit tax they should just cancel it. The following pros are in favor for canceling the profit tax:

1. Businesses will have a clear signal from the Government and not just a make up amending but a larger number of investors will have benefit as well;
2. In mid term businesses will start to declare the right financial statements and the real profit they make;

3. The internal debt situation will be more accurate for the Government to create its Macroeconomic Policy to fit the needs of the Microeconomic agents;
4. PRO can refocus the audits to the PIT and thus, indirectly work on finding the employees that were not registered;
5. The cost benefit net position of the PRO audit will be positive;
6. Less burden on the tax administration;
7. The unemployment and employment data will start to reflect the real field situation;

In this paper the cost benefit of the new amending in the profit tax was estimated. The cost benefit for the PRO shows a positive net position if the auditors are refocusing to audit more the PIT and the VAT should the profit tax rate is zero. In the case of the new proposed amending, the burden on the tax administration will be higher and the opportunity cost will be higher to go and audit marginally more the PT because of the more complicated PT law structure created with the new amending. Thus, the new amending in the law will contribute with less MKD irregularities find by the auditors simply because they will have to audit more the PT which is with high opportunity cost compared with VAT and PIT audits. The Excises opportunity cost is negligible in comparison with the PT.

The cost for the central budget was calculated and measured as the foregone profit tax revenues depending on the redundancy rate. To choose the right redundancy rate is not an easy task but in the case of Macedonia it should be higher than a 70 % because the wider environment measures for attracting FDI are not in order. The benefit side in this paper was searched in the new employment opportunity that should be created by the FDI in order for the PIT on those new employees to cover the cost side of the foregone profit tax revenues. From the estimation we got a reasonable level of new employment that should be created depending on the level of FDI, redundancy rate and the rate of return the FDI earn. However, the direct effect of the FDI attracted on the employment will be poor. I urge the Ministry of Finance to do a more comprehensive tax policy quantitative analysis for FDI incentive purposes and not to make partial moves. Maybe a new agency for attracting FDI should be established and they should do a general economic quantitative analysis for the purpose of attracting FDI. By taking into account the political, socio-economic situation I doubt that such investment will start to flow until the wider measures as incentives for the FDI are in place in Macedonia.

Literature:

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