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The arm's length principle and the fixed length principle economic analysis

Constantinos Challoumis

Department of Economics, Faculty of Economics & Political Sciences, National Kapodistrian University of Athens (N.K.U.A.), Athens, Sofokleous 10559, Greece

E-mail address: challoumis_constantinos@yahoo.com

ABSTRACT

This paper analyzes the length principles which followed by the authorities and scrutinizes which plausible improvements could happen to them. Thence, this thesis is about the arm's length principle and the fixed length principle. The arm's length principle is one of the basic principles which used from the companies of controlled transactions for transfer pricing purposes. Consequently, the fixed length principle enhances the control of global tax revenues. A mathematical view of this approach is determined in this paper.

Keywords: arm's length principle, fixed length principle, controlled transactions, tax, and public policies

1. INTRODUCTION

To this thesis is analyzed the arm's length principle and one other approach for the international transactions procedures, which is affiliated with the controlled transactions. This public and tax procedure is about the fixed length principle. The arm's length principle is an international transfer pricing standard. The countries which belong to the OECD have an agreement for their tax purposes. The basic axis of identification of tax avoidance of the arm's length principle is the independent companies. The commercial and the financial relations

between the independent companies show to the authorities the market real conditions. The fixed length principle (or otherwise fixed length principle) differs from the arm's length principle to the admission that the dependent companies in the most cases try to pass through the regulations of the public and tax authorities. Then, the fixed length principle uses a minimum level of taxation for the companies which have the characteristics of the companies which are making international transactions.

2. THE CHARACTERISTICS OF THE ARMS' LENGTH PRINCIPLE AND THE APPLIED METHODOLOGY

The transfer pricing should reflect the market conditions. Therefore, the authorities would be able to extract the appropriate conclusions for the companies, which participate in controlled transactions. The OECD countries have an agreement for the taxes and the profits of associated companies. The OECD member countries aim to adjust the appropriate corrections to the distortions and therefore to ensure that the arm's length principle is satisfied. The comparison between the uncontrolled transactions and the controlled transactions happens to the field of the commercial and the financial activities.[1]

The arm's length principle is about the differences which are determined between two enterprises in their financial and commercial relations to the case of controlled transactions, with the case of uncontrolled transactions. Should be mentioned that to reach the arm's length principle a company which participates in controlled transactions should preliminary complies with two conditions, the best method rule, and the comparability analysis. Thereupon, a company which is a tested party[2] should reach the best method rule. The best method rule is about the method which should choose the company, as the procedure needs for its tax business plan policy.

The next preliminary obligation is about the comparability analysis. There the company of controlled transactions should make a series of comparisons to establish that meets the goals of the arm's length principle. Finally, the critical point is the check of the company which participates in controlled transactions that satisfies the arm's length principle. Then, in this step tax authorities will receive the decision if the submitted data comply with the goals of the arm's length principle.[3]

The fixed length principle which follows in the next section is about a new principle[4] which tackles the unbalances which caused to the arm's length principle by the best method rule and the comparability analysis. Additionally, should be referred that the estimations of the arm's length principle and the fixed length principle are done using the Karush-Kuhn-Tucker method.

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[1] See paper: Challoumis, Constantinos, Arm's Length Principle and Fix Length Principle Mathematical Approach (March 23, 2018). Available at
SSRN: https://ssrn.com/abstract=3148276 or http://dx.doi.org/10.2139/ssrn.3148276
[2] As tested party considered the company which participates on controlled transactions.
[3] See paper: Challoumis, C. (2018). Methods of Controlled Transactions and the Behavior of Companies According to the Public and Tax Policy, ECONOMICS, 6(1), 33-43.
[4] See paper: Challoumis, Constantinos, Analysis of Tangibles and Intangibles Transactions Subject to the Fixed Length Principle (March 17, 2018). Available at SSRN: https://ssrn.com/abstract=3142960

3. THE CHARACTERISTICS OF THE FIXED LENGTH PRINCIPLE

The arm's length principle has some incidents, and some difficulties, as the associated companies may engage in transactions that independent companies would not undertake. Additionally, it is plausible the independent companies seldom undertake transactions which belong to the controlled transactions companies, and then the arm's length principle is difficult to find an application. The fixed length principle is secured a minimum rate of tax to the authorities. The reason for this is that there is not any evidence of what conditions have been established by the companies of the uncontrolled transactions. On the other hand, the fixed length principle offers a different approach. The fixed length principle is about an additional tax obligation for companies which identified from tax authorities as enterprises which participate in controlled transactions. The authorities should have low tax rates for the companies which participate in uncontrolled transactions, and high tax rates to the companies which participate in controlled transactions. But, should notify that is not plausible to have two different tax rates. Thence, the result is that the authorities should have constant additional taxes for the companies which participate in controlled transactions activities. This is the basis for the fixed length principle. With that way is plausible to discourage the enterprises of controlled transactions, and orientate them to follow the uncontrolled transactions, because there the taxes would be lower. Consequently, the global tax rates would be increased.

The arm's length principle uses a mechanism for the identification of diversions between the controlled transactions with the case of the uncontrolled transactions. Then, it is plausible the authorities to reveal the truth on the international business activities of the companies of controlled transactions. The issue is that the companies which participate in those activities have the advantage of the best method rule.

This means that these enterprises are able through the comparability analysis to tackle the efficiently and the differences between the controlled and the uncontrolled transactions. Therefrom the three criteria of transfer pricing which are the best method rule, the comparability analysis, and the arm's length principle, are able to avoid the antiquate taxation of the tested parties. On the other hand, the fixed length principle separately or in combination with the arm's length principle is able to tackle the controlled transactions, because is more friendly to the uncontrolled transactions, and simultaneously more restrictive to the controlled transactions. In the analysis of arm's length principle, the data have a central role in the comparison between the controlled transactions, with the uncontrolled transactions. Thence, the critical points for the data of the arm's length principle are these:

The first issue is about the data. The data are the source of the adequacy of the offered information to the enterprises which participate in controlled transactions. The companies of controlled transactions to many cases have lack of appropriate information about the uncontrolled transactions. Therefore, the companies of controlled transactions are not able to modify their data to such a way to be fine with the regulations of the authorities.

Moreover, one more significant thing is the reliability and the credibility of the data. In many cases, the data come from sources which could not be trusted or should be identified if they are a proper source of information for the companies.

The prior two factors for the data are crucial for the business tax plan of the enterprises which participate in controlled transactions activities.

Thereupon, we have the next scheme:
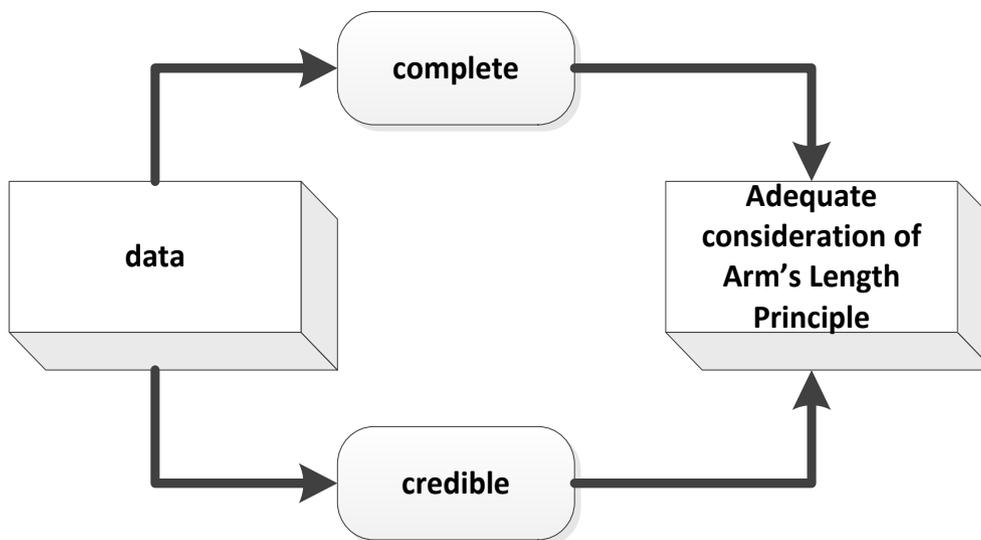
Figure 1. Data and the arm's length principle

Thence, if the companies have the appropriate data can clarify their business with such a way to have in the comparability analysis results which comply with the arm's length principle. But, in that case, the tax authorities would not have the accurate information about the business activities of the companies which participate in controlled transactions and therefore will have losses to their tax income, from the global economic view. It is mentioned the global economic view because there the tax heavens have some tax income, but the reality is that the real taxation is lost, and then from an international economic view are noticed tax losses.

4. THE MECHANISM OF THE DIRECT AND OT THE INDIRECT METHOD OF THE FIXED LENGTH PRINCIPLE

To this section is made a distinction between the case of the direct method and the case of the indirect method, which followed by the fixed length principle. Therefore, the fixed length principle could be used in two ways. Then, we mention two cases for the fixed length principle:

The direct method is more immediate as procedure than the facet of the indirect method. This case is about the immediate application of the fixed length method. Thence, the step of the comparability analysis and the step of the arm's length principle are avoided. Should apply one tax which is higher for the companies which identified for their participation in controlled transactions (meaning companies which use at least three countries to avoid the taxes, should be identified as controlled transactions companies).

The indirect method is more analytical than the direct method. To that case, we follow the schedule of the transfer pricing criteria. Forasmuch as, there are four steps, the best method rule, the comparability analysis, the arm's length principle, and the fixed length principle. Hence, in the indirect method of the fixed length principle, we have two taxations, the basic one and that which caused from the fact that we have a case of transfer pricing (smaller additional tax).

Therefrom, we have the following scheme:
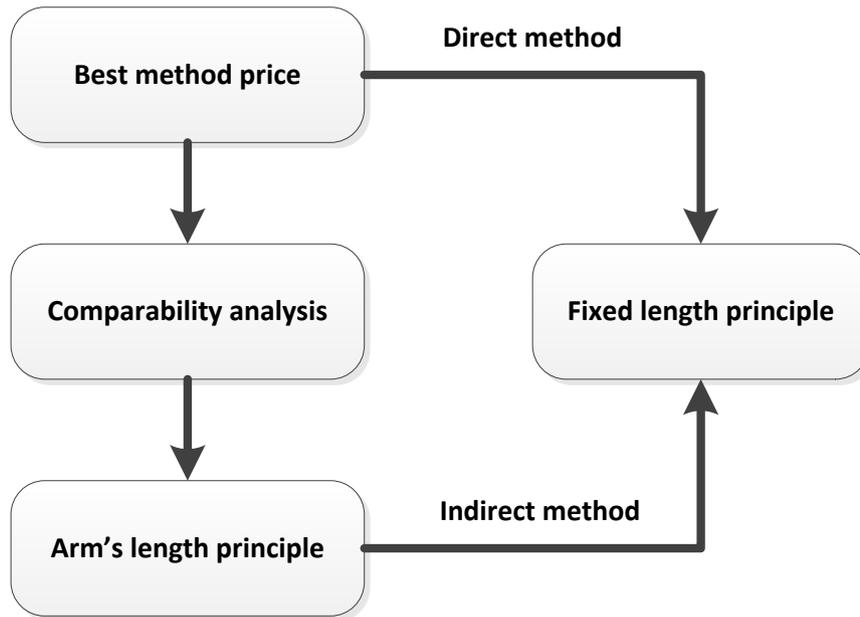
Figure 2. Direct and indirect method of the fixed length principle

In the prior scheme illustrated the two axes of application of the fixed length principle. The one case refers to the direct application of the fixed length principle and the other one case refers to the indirect application of the fixed length principle which analyzed before.

5. THE GLOBAL TAX REVENUE CONCLUSIONS AND THE IMPACT FACTORS OF THE ECONOMY

In this section are presented the impact factors for the economy, which are affiliated with the mechanisms of public and tax policies. The impact factor of tax revenues of countries which are tax heaves, s (or otherwise global tax revenue) according to the "Methods of Controlled Transactions and the Behavior of Companies According to the Public and Tax Policy"[5] is determined as that:

$$s = \frac{k+l}{r+c+t+i} \qquad (1)$$

Therefore are countries which receive the products that are taxed in different countries. This allocation of profits between profits and losses permits to the enterprises which participate in controlled transactions of the transfer pricing activities to maximize their utility. But, contemporaneously the tax revenue from global view is declined. Then, the loss of tax income

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[5] See paper: Challoumis, C. (2018). Methods of Controlled Transactions and the Behavior of Companies According to the Public and Tax Policy, Economics, 6(1), 33-43.

from some countries is more than the profits that make the countries which are tax heavens. Thereupon, the symbol of s the impact factor of tax revenue from a global view, and there are some coefficients which are $k, l, r, t,$ i and c. Thus, the symbol of k is about the impact factor of capital, l is the impact factor about the liability of the authorities on the tax system. The interpretation of the liability is about how much unbalanced it is the tax system. The parameter of r is about the risk, the t is about how much trustworthy is the tax system (bureaucracy). The symbol of i examines the case of intangibles (the intangibles which charged to the subsidiaries) of the tax system. Additionally, the symbol of c is about the cost of enterprises. The symbols with the "~" are accordingly the same thing, but from the view of the uncontrolled transactions[6]. Thus, the numerator is proportional with the income of taxes, as the investments and the stable tax environments, with the liability is enhanced the tax income. On the other hand, the denominator is inverted proportional with the tax income, as the risk, the cost, and the unbalance of taxation cause less tax income. Moreover, for $\tilde{s}$ we have that:

$$\tilde{s} = \frac{\tilde{k}+\tilde{l}}{\tilde{r}+\tilde{c}+\tilde{t}+\tilde{\iota}} \qquad (2)$$

Inasmuch in the equation (2) is determined the aggregate impact factor of tax revenues, which is symbolized by $\hat{s}$, and is defined by the next equation:

$$\hat{s} = s + \tilde{s} \qquad (3)$$

Based on the prior equations we could proceed to the identification of the behavior of the impact factors of tax revenues in the case tax heavens and in the case of the non-tax heavens. Consequently, using the prior equations is plausible to examine the controlled and the uncontrolled transactions. Then, s is a factor which allows the comparison between the controlled with the uncontrolled transactions. Thence is able to have a standalone behavior analysis of controlled transactions and a combined behavior analysis between the controlled transactions with the uncontrolled transactions. In the next section is analyzed the impact factor of tax revenues with the rest impact factors.

Additionally from the paper "Analysis of Impact Factors of Global Tax Revenue"[7] we have the following conclusions about the global tax revenue:

The bureaucracy reduces the global tax revenue than in the case that this impact factor is avoided. The companies of controlled transactions are reduced in the case that there we don't have the bureaucracy.

The liability of the tax system increases the global tax system. This means that the tax system which has not a lot of disturbances and changes in their law offer better conditions for the incensement of global tax revenue. Companies which don't participate in controlled transactions are increased in the case that there exists a liable tax system.

The charged intangibles of tax system decrease the global tax revenue. This shows that as more tools have the companies which participate in controlled transactions for allocation of their profits and losses, then more is the decrease of global tax revenue. When there are

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[6] Uncontrolled transactions are the transactions which happen between companies free of control and allocation of profits and losses.
[7] See paper: Challoumis, Constantinos, Analysis of Impact Factors of Global Tax Revenue (March 23, 2018). Available at SSRN: https://ssrn.com/abstract=

intangibles the companies of controlled transactions increased, because they use them for better allocation of their profits and losses.

The absence of risks to the enterprises in the tax system causes the increase of global tax revenue. Moreover, the companies which participate in controlled transactions is increased in the case that we have risks. The reason is that the risks are connected with the existence of the companies or with other words with their willingness to participate in controlled transactions activities. Then as safer is the tax system, then more will be the income from taxes in a global view.

The capitals which invest the companies increase the global tax revenue. But, for the companies many times the requirements for enlarging their capital at the same time make them to be more hesitating and to reduce their business activities.

The absence of costs in the tax system increases the global tax revenue. Thereupon, the enterprises which participate in controlled transactions of transfer pricing with costs are more than in the case that we do not have costs. The interpretation is that the costs make the enterprises to increase their business activities. As more commercially active is a company this means that increases its spending.

From the previous points, we determined the general behavior of the global tax revenue with a series of impact factors. We concluded that as more helpful are the rules and the economic environment for the uncontrolled transactions then more is the global tax revenue. Thence, this situation is enhanced in the case that we have more restricted conditions for the controlled transactions of transfer pricing.

After the prior clarifications should be notified that we have the reliable and the adequate data are very critical in the decisions which a company could make. If there the data are not appropriate it is plausible a company to make wrong decisions, not because the analysis is wrong, but because the data give a wrong orientation to the business plan and to the taxation analysis. Thereupon, the data are the base of any analysis from the companies which participate in controlled transactions. Thence, companies should have the appropriate knowledge of their own activities to make the right decisions, because otherwise could not be able to tackle the data of the controlled transactions and the uncontrolled transactions. Consequently, the conclusions will not be right, and therefore no adjustments could be made.

The production of goods or services creates profits and costs for the companies.

Forasmuch as we have that:

$$u = s(zf + \tilde{z}d) \tag{4}$$

$$z = |\tilde{z} - 1| \tag{5}$$

The symbol u is about the impact factor of the comparability analysis which has any method to the s.[8] The symbol z is a coefficient which takes values between 0 and 1. What value could receive is determined by the influence of the method (using the best method rule) to the s. The symbol of f is about the cost which comes up from the production of goods, and the symbol of d is about the cost which comes from the distribution of the goods.

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[8] See paper: Challoumis, Constantinos, Analysis of Tangibles and Intangibles Transactions Subject to the Fixed Length Principle (March 17, 2018). Available at SSRN: https://ssrn.com/abstract=3142960

6. THE ARM'S LENGTH PRINCIPLE AND THE FIXED LENGTH PRINCIPLE

To this section is analyzed the arm's length principle and the fixed length principle with a theoretical and mathematical approach. According to equations from (1) to (5) is plausible to determine the following equations:

$$u_c = zf + \tilde{z}d \qquad (6)$$

and

$$b = (p\text{-}u_c)^*j_1 \qquad (7)$$

The symbol of b in the prior equation is about the amount of taxes that should pay the companies of controlled transactions in the application of the arm's length principle. The p is the price about the amount of money that companies have. The symbol of u_c is the amount of tax obligations that can avoid through the allocations of profits and losses. Moreover, j_1 is about the coefficient for the tax rate. Then, the equation (7) shows the case of the arm's length principle. In addition the case of fixed length principle we have the next equation:

$$v = p^*j_2 \qquad (8)$$

The symbol of v in the previous equation shows the taxes that should pay the enterprises of controlled transactions in the application of the fixed length principle. Then, j_2 is a coefficient for the rate of taxes in the case of fixed length principle. Thereupon, we conclude according to to the prior theory that:

$$v \geq b \qquad (9)$$

The tax for the companies which participate in controlled transactions of transfer pricing in the case of fixed length principle is higher or at least equal with that of the case of the arm's length principle. The same time the tax is lower for the companies of uncontrolled transactions. According to that way it is plausible to have higher global tax revenue and lees controlled transactions according to the prior theory.
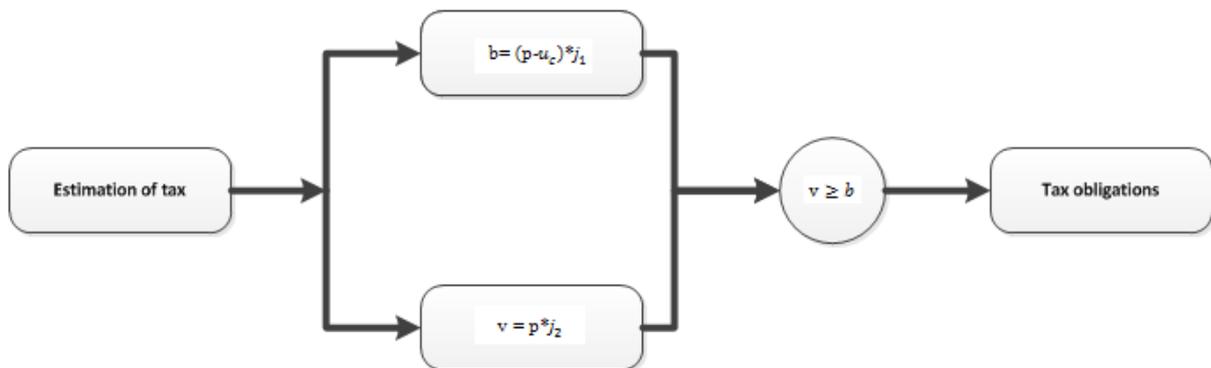
Figure 3. Tax policy according to fixed length principle in combination with the arm's length principle

In Figure 3 is presented the application of fixed length principle after the comparability analysis with the arm's length principle. We perceive that the tax obligations of companies which are tested parties are higher and then the authorities are facing the transfer pricing which caused by the flexibility which the enterprises have from the option to choose a method which wish to adjust their data in the comparability analysis. Afterward, we apply the Karush-Kuhn-Tucker method:

$$\{s = \frac{k+l}{r+c+t}, \ b= (p-u_c)*j_1 \text{ and } \ v = p*j_2\} \tag{10}$$

We estimate that:

$$\mathcal{L} = s \ -\lambda \ [(p-\frac{u}{s})*j_1\text{-b}] - \kappa(p*j_2 - v) \tag{11}$$

Then we obtain that:

$$\frac{d\mathcal{L}}{ds} = 0 \Rightarrow 1- \lambda\frac{u}{s^2}*j_1= 0\Rightarrow \lambda\frac{u}{s^2}*j_1=1\Rightarrow\lambda=\frac{s^2}{j_1*u} \tag{12}$$

$$\frac{d\mathcal{L}}{dj_1} = 0 \Rightarrow -\lambda \ (p-\frac{u}{s}) = 0\Rightarrow u_c = \frac{u}{s} = p, \text{ or, } u = s*p \tag{13}$$

$$\frac{d\mathcal{L}}{dj_2} = 0 \Rightarrow p = 0 \tag{14}$$
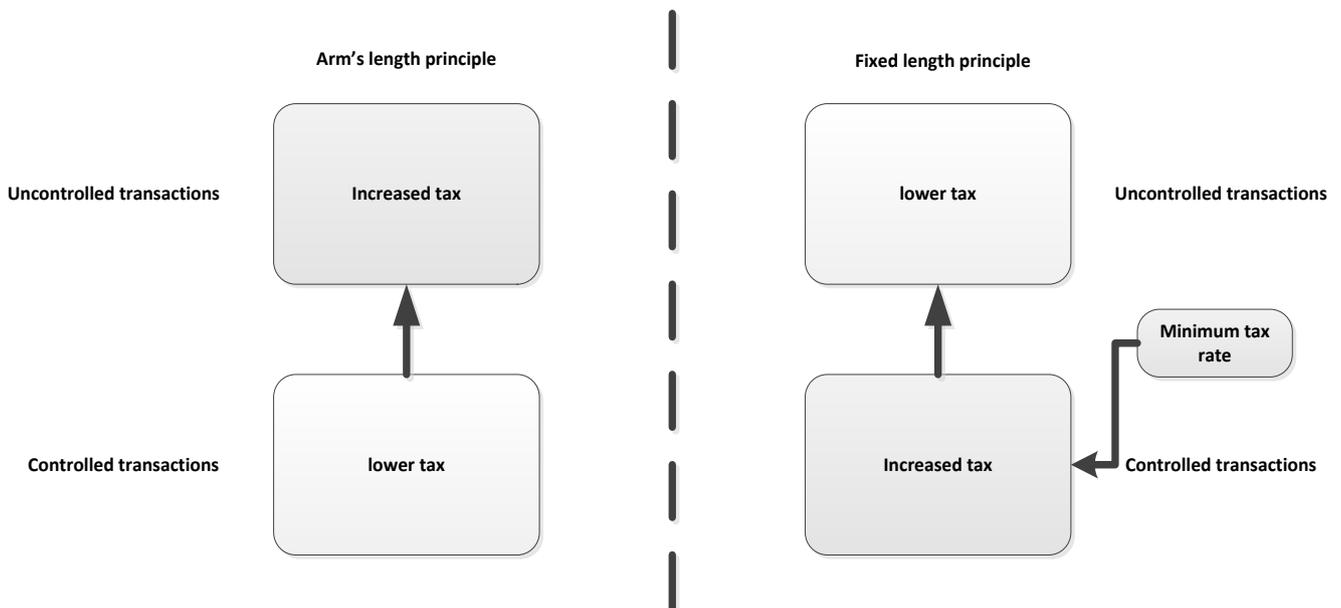

Figure 4. Length principles tax rates

Inasmuch as, from these results we conclude as we expected that the less tax in the arm's length principle is that the companies which participate in controlled transactions achieve to

maximize their allocation of profits and losses. In contradiction with the arm's length principle in the fixed length principle, the companies which participate in controlled transactions are not able to make any allocation of profits and losses and the only way to have the minimum tax is the ideal case of no tax obligation at all. Then, it is obvious that the enterprises which are tested parties prefer the arm's length principle, because there they have the flexibility to choose the method they want and adjust their data at the comparison level and to pay with that way fewer taxes. Then, we have that: Figure 4.

From the prior scheme, we obtain that the minimum rate of taxes to the case of the fixed length principle, secures the public and tax policies form the allocation of profits and losses. Thence, the companies of uncontrolled transactions are able to have more profits and therefore more utility as to this facet the losses are not modified by the companies. On the other hand, the companies which participate in controlled transactions would have a minimum rate for their tax evasions. Inasmuch as the enterprises of controlled transactions would have one more reason to prefer the uncontrolled transactions, and contemporaneously the public and tax authorities would be more secure to serve their scope. Moreover, according to the equation (14), we have that:
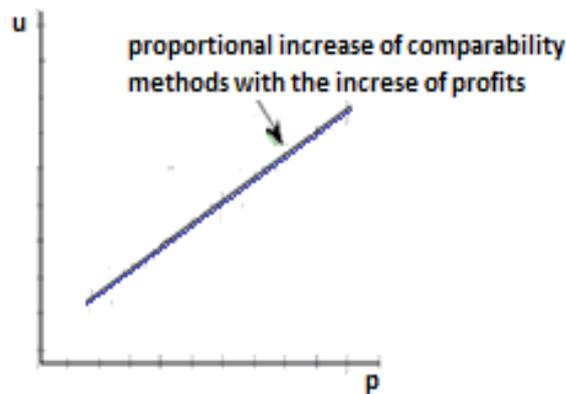
Figure 5. Impact of transfer pricing methodologies to the economy

The significance impact factor of u of the comparability analysis which has each method to the s is increased when the amount of income and in general of money that the companies administrate is increased. This situation confirms that the appropriate choice of the methodology by the companies, which participate to controlled transactions, is crucial for the allocation of profits and losses. Then the minimum rate of taxation by the establishment of the fixed length principle becomes very important for the public and tax authorities.

7. CONCLUSIONS

This paper analyzes the issues of arm's length principle and of fixed length principle. The fixed length principle secures that the authorities would have a minimum rate of taxes facing with that way the tax evasion of controlled transactions. In this work, to the case of fixed length principle, as controlled transactions are determined the activities which any company has, with

at least more than two commercial allocations of profits and losses. The arm's length principle is some cases considered by the authorities that it complies with the companies which participate in controlled transactions without to identify the allocation of profits and losses, because there the check is done only using the methodology. Therefore, these companies achieve to maximize their allocation of profits and losses and then to maximize their utility. The companies are empowered by the choice of their tax transfer method. Thence, the enterprises of controlled transactions are able to fit their profits and losses with an extended flexibility, something that with the fixed length principle doesn't happen.

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