SOFT  BUDGET CONSTRAINTS:

IMPLEMENTATION  TO  NONPAYMENTS

TO THE STATE AND LOCAL BUDGETS.

by

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A thesis submitted in partial fulfillment

of the requirements for the degree of


Master of arts


National University of Kiev - Mohyla

Academy


1999


Approved by  _____

Chairperson of Supervisory Committee


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Program Authorized

to Offer Degree <u>Master of Arts in Economics</u>_____

Date <u>June, 09, 1999</u>_____

National University of Kiev - Mohyla Academy

Abstract

SOFT  BUDGET CONSTRAINTS: IMPLEMENTATION  TO
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The aim of the paper is to trace the connection between rent-seeking and soft budget constraints. The capture theory extension of rent-seeking predicts that firms may use their profit to lobby government to provide them with more favorable economic conditions, or in other words, to soften budget constraints for them.

The examination of the problem of nonpayment to the state and local budgets of Ukraine is a good example of this activity, since tax arrears can be interpreted as an implementation of soft budget constraints. Therefore, the main concept to be verified is whether the enlargement of tax arrears of domestic firms is caused by companies' ability to lobby the government. The investigation covers the period of 1995-1998, when an increase in tax arrears of Ukrainian firms was enormous. Results of the research demonstrate that it is really possible to trace the connection between a growth of tax indebtedness of enterprises on the one hand and their profits generated in previous periods on the other hand. As a result, we may conclude that the acquisition of soft budget constraints can be explained by the rent-seeking activity of firms.

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# GLOSSARY

SBC - Soft Budget Constraint

TA - Tax Arrears

TE - Transition Economies

# 1. INTRODICTION.

This paper is aimed to shed the light upon the state preferential assistance to some branches of industry or to firms (called soft budget constraint) and its relationship with bargaining power of those companies. Attention is concentrated on the legal possibility for some Ukrainian firms not to pay taxes to the State and local budgets. The main question to answer is whether this right is given subject to bargaining and lobbying.

The capture theory extension of rent-seeking presumes that monopolists are reluctant to use their profits in order to acquire even higher monopolistic power in the future, and they can grant at most the total amount of their profits generated in the previous years to influence the government. The concept of soft budget constraint extends this analysis even further. It states that not only monopolists are reluctant to seek for milder economic conditions. However, it does not demonstrate in which way this goal can be achieved. Nevertheless, both economic orientations agree that these special economic condition are created only for a small group of economic participants and therefore they may be acquired subject to lobbying.

Therefore, the aim of this paper is to demonstrate whether the clear relationship between the degree of budget constraints' softness on the one hand and bargaining potential of all kinds of firms, including monopolists, on the other hand exists.

A problem of nonpayment to state and local budgets in Ukraine is assumed a good example clarifying the question, since the legal right not to pay taxes is given only to a small number of enterprises. The application of the underlying logic to this particular problem is new because previously the nonpayments were explained by the fact that a lot of loss-making domestic enterprises can not fulfill their obligatory payments to the Consolidated budget. On the contrary, connecting the growth of tax arrears of Ukrainian producers to their bargaining potential, we stress that nonpayments may be also caused by bribes and corruption.

The results of the investigation give us the possibility to say that a positive correlation between the bargaining power of firms on the one hand and the growth of tax arrears on the other hand really exists. It means that Ukrainian companies are reluctant to bribe the government in order to acquire right not to pay taxes in the future. This conclusion confirms the assumption that soft budget constraints are obtained though bargaining and lobbying.

The next part of the paper offers a wide description of economic theories explaining how a bargaining potential of companies is generated and in what way it can be used in order to achieve a desirable privileges from the government. It also clarifies what kind of soft privileges exists in a modern economy, and how a problem of tax arrears can be classified.

A third part of the paper provides a description of a problem of nonpayments to the Consolidated budget of Ukraine. It covers the genesis of this phenomenon and offers several sources that may cause this problem to arise and develop so intensively.

In the last part of the paper, there is a model that traces the connection between  soft budget constraints acquisition on the one hand and profitability of industries on the other hand. This model demonstrates that economic participants are really reluctant to pay for the right not to fulfill their tax obligations, or, in other words, it clarifies that budget constraints are softened subject to lobbying.

## 2. THEORETICAL BACKGROUND.

### 2.1  Theory of Rent-Seeking.

### *2.1.1  Rent-Seeking Extension of the Deadweight Losses Analysis.*

Rent-seeking is one of the concepts of the public choice school. It extends the neoclassical estimation of the deadweight losses that arise from the «inefficient public».  The amount of rent being earned by a factor owner is defined as «the difference between the supply price and the price that is actually received» (Cullis, Jones 1998 93).

  Graphically, economic rent is equivalent to monopoly profit. For instance, Figure 1 investigates the social costs of monopoly with the constant marginal costs. In this graph, D is the demand curve for product X. The price of the good would be Pc and the output of the good would be Qc if the good were produced by a competitive industry (i.e. if price is equal to marginal cost). However, the monopolist producer equates marginal cost with marginal revenue so that the price would be Pm and the output would be Qm.  It is clear that consumers are denied Qc - Qm of good X in order that the monopolist can set the higher price. The monopolist gains from this because a higher price (Pm - Pc) is set for the output sold (OQm). The monopolist gains Pm13Pc as a monopoly profit or **economic rent**.  It is worth remembering that society loss ( or the deadweight loss) is the consumer surplus that would have enjoyed on the units Qc - Qm (triangle 123).

**Figure 1: *Generation of Rent-seeking Potential in the Case of Monopoly***
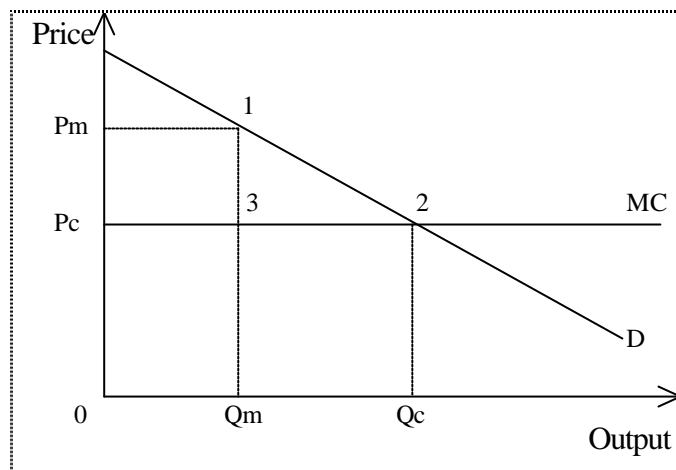


Source: Cullis and Jones, 1998, p.94.

Neoclassical analysis of the monopolist's impact upon an economy usually stops at this point. However, these results are the basis for other conclusions important at the investigation of the problem of non-payments to all forms of Ukrainian budgets. Namely , Tullock argues that «if  there were gains for the monopolist of Pm13Pc, then individuals might spend resources to acquire such rents... At the maximum, the total Pm13Pc would be paid to acquire monopoly status.» (Cullis, Jones 1998 93). In this case, the cost of monopoly is equal not simply to triangle 123 but to the trapezoid Pm12Pc.

The same analysis can be undertaken for situations in which marginal costs are not constant but are upward-sloping. In the case of monopoly, the deadweight losses can be identified in Figure 2. The demand curve is shown as D and the marginal cost curve is MC. The output of a perfectly competitive industry is Qc (where price is equal to marginal cost). A monopoly producer would restrict output by Qm

(where marginal cost is equal to marginal revenue, and additional profit is acquired by a monopolist). Consumer surplus would be reduced by Pc12Pm. However, «as far as producers are concerned, they would gain the price difference on all output sold (Pc13Pm on output OQm) less the producer surplus lost on the output no longer sold (triangle 243). The net sum will be positive, and *a monopolist would pay it* to reduce output on the market until marginal cost (MC) is equal to marginal revenue (MR). The loss to a society as a whole, is depicted by a triangle 142. The area Pc13Pm is simply a transfer from consumers to producers. To effect this transfer, there has been a loss to society as s whole of the consumer surplus (triangle 123) and the producer surplus (triangle 243) on the output no longer made available.» (Cullis, Jones 1998 93). At the same time, a producer would agree to pay at most {(Pc 13Pm)- (243)} to acquire monopoly status and to effect the transfer of income from consumers to the producer. Economists of the «public choice» school emphasize that in this way rent-seeking «can be defined as the expenditure of scarce resources to capture an artificially created transfer» (Cullis, Jones 1998 94).

**Figure 2: *Generation of Rent-seeking Potential for a Monopoly with Increasing Marginal Costs***



{(Pc 13Pm)-(243)} is the maximum amount of profit (or economic rent) that can be paid by a producer in order to acquire monopoly status.

Source: Cullis and Jones, 1998, p.94.
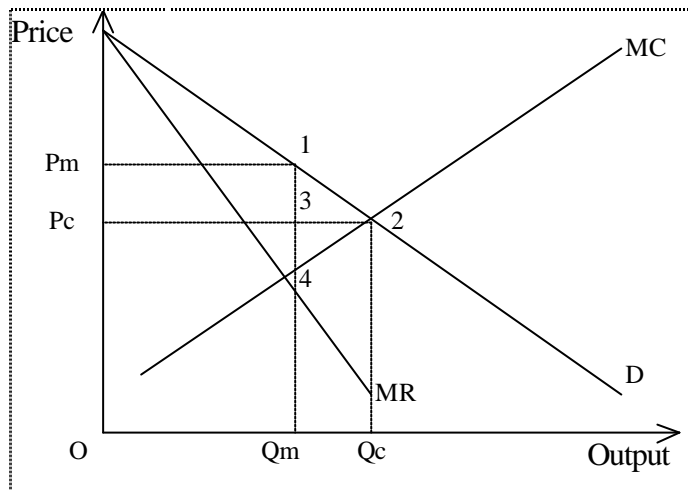
### 2.1.2  *Economic Rent and Capture Theories.*

The previous analysis demonstrates that rent-seeking provides the mechanism of income transfer from consumers to producers. At the same time, the theory indicates that a monopolistic producer would be willing to pay for possibility to effect this transfer.

Moreover, public choice scholars stress that this influence is provided though the establishment of political coalition that sets property rights. In this analysis, «the decisions have more to do with the self-interest of those engaged in the political process. Political groups may lobby government for legislative changes or for licenses that would increase their future income steam. The maximum amount that they will pay in such lobbying will be equal to the expected capitalized value of the

discounted future income steam (or graphically this amount is equal to the difference between Pc13Pm and 243).» (Cullis, Jones 1998 93).

This conclusion is deeper developed in the «capture theories», elaborated by Stigler, Peltzman, and Posner. These authors argue that particular pressure groups influence a government in order to give them some privileges through legislation (i.e. those privileges are given through government regulation). Namely, Posner stresses that «regulation is supplied in response to the demands of particular groups who have an interest in the outcome of the regulatory legislation and the decision of regulatory bodies» (Swann 1992 71).

Stigler adds that «regulation is usually acquired by an industry and is designed and operated primarily for its benefit. The four main ways in which a state may coerce are as follows. It may extract money from some of its citizens in order to pay subsidies to others. It may restrict entry. It can benefit particular producers by affecting the goods which are substitutes or complements to the ones they are producing. Or it can fix prices. All such interventions give rise to wealth transfers. Interest groups, wishing to benefit from wealth transfers, demand it. Politicians, anxious to be elected or re-elected, supply it.» (Swann 1992 72).

Stigler's theory was substantially further developed by Peltzman. In his model, «each group is seeking the privilege of taxing the reminder of the community. The politician chooses between them with the intention of maximising his majority - i.e. the chance to be elected or re-elected.» (Swann 1992 73).

Obviously, capture theories explain how the gap between the market supply price and the price being actually paid by a factor owner (i.e. economic rent) is created. Moreover, it demonstrate why rent seeking, being economically inefficient, flourish in an economy. However, it pays little attention to the actual mechanisms of the generation of rent-seeking. This problem is clarified in the papers of Kornai who elaborated the concept of soft budget constraints.

## 2.2 Definitions and Forms of the Soft Budget Constraints.

The basic definition of the SBC was proposed by the founder of this concept-Janos Kornai. According to the author, the main characteristic of this phenomenon is the possibility of negotiation, political pressure, and bargaining between firms and official representatives aimed an acquisition of government privileges.

The author argues that «the softening of constraints might be achieved through soft subsidies, soft taxation, soft credits, and soft administrative prices» (Kornai 1992 140). «Soft subsidies and soft taxation are characterized by the possibilities for some firms to obtain subsidies or to pay lower taxes subject to bargaining , lobbing, etc. when other enterprises of the same forms of ownership, industry or region do not have such a privilege. The credit system is softened, even with high interest rate, if the fulfillment of a credit contract is not enforced, unreliable debt service is tolerated, and postponement and rescheduling are in order. Administrative prices assumed to be softened when they are established by bureaucratic institutions rather than by contracts between buyers and sellers» (Kornai 1992 140-142).

The soft budget constraint syndrome   is associated with the paternalistic role of the state towards  economic organizations. It can be noticed that   the strict relationship between expenditure and earnings of a firm are relaxed, because excess expenditure over earnings will be paid by the State[1]. Economic agents expect such external financial assistance that, therefore, highly influences their behavior. Kornai stresses that "the higher is the subjective probability that excess expenditure will be covered by external assistance, the softer the budget constraint" (Kornai 1986  5).

Naturally, the whole structure of softening the budget constraints presumes inefficient actions of economic agents. Organizations highly rely upon political pressure and personal connections. Therefore, bribery and hidden corruption become wide-spread. Moreover, these privileges have negative impact on price responsiveness, on efficiency and on the creation of excess demand.

The first issue is the effect on the decision-making of the firm. «The usual downward slopping demand curve presupposes the existence of a hard budget constraint when demand is highly responsive for input price changes» (Kornai 1986  9). «The softer the budget constraint, the less elastic is the demand curve. In the extreme position of a perfectly soft budget constraint the price elasticity of demand is zero, the demand curve is vertical, i.e. determined by other explanatory variables and not by the price. Therefore, the softness of budget constraint decreases the elasticity of demand, diminishes the firm's

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[1] In other words, a state covers itself the difference between the market supply price and the price being actually paid (i.e. economic rent) by an influential producer.

sensitivity towards interest rate, exchange rate, etc. The multiproductive firm will be less sensitive to changes in relative input prices. As a result, the general price responsiveness of the firm declines» (Kornai 1986  10).

At the same time, the firm is not forced to react to unfavorable external circumstances by improving quality, cutting costs, introducing new products, etc. It is more reluctant to seek external assistance asking compensation for unfavorable circumstances. Therefore, «soft budget constraints protect the old production line and impedes innovation and development» (Kornai 1986  11).

To sum up, the natural result of the efficiency loss, price unresponsiveness and the enlargement of the bribery and  corruption, initiated by the SBC, stimulate firms to become loss makers. Therefore, another definition of this phenomenon presumes SBC to be «an ex post bailouts of loss  making firms resulting from paternalistic role of the state» (Schaffer 1998 85).

Due to the recent investigations of the syndrome, the overall negative influence of the SBC on an economy was recognized by governments of different countries. This fact created a new tendency in the development of this problem- the bureaucracy starts committing not to tolerate privileges to the persistent loss makers. Therefore, a new interpretation of the hardness versus softness refers to «the credibility of this commitment» (Kornai 1992 143).

Combining all the existing definitions, we will interpret the SBC in this paper as

1):

?? a government financial assistance , resulting from the paternalistic role of the state,

?? which takes the forms of soft credits, subsidies, taxes, and administrative prices,

?? given to the loss- and profit-making firms

?? subject to bargaining, negotiations , or political pressure;

2) or as a failed commitment of the government not to provide this assistance.

Summing up, Stigler, Posner, and Peltzman enriched the traditional analysis of rent-seeking by general explanation of economic rent creation and usage. Kornai further developed their theory by providing a detailed description of the ways in which producers seek rent in the modern world and by offering wider description of influence of rent-seeking (and soft budget constraints as a variant of it) on an economy. The combination of these approaches seems to be useful while examining the problem of non-payments to all forms of Ukrainian budgets. However, this investigation can be further improved by a detailed analysis of concept of tax arrears elaborated by Schaffer.

## 2.3 Tax Arrears as the Manifestation of the Soft Budget Constraints.

«Tax arrears are the main rout by which the budget constraints of the firms are softened in transition economies» (TE) (Schaffer 1998 101).

Tax arrears are "taxes that have been accrued and have come due but have not been paid" (Schaffer 1998 97).

The experience of the TE shows that «personal income tax arrears as well as the tax indebtedness of private firms is relatively small, and mostly all tax arrears are the debt of the state enterprises or firms partially controlled by the government» (Schaffer 1998 97; Kornai 1992 145).

Tax arrears should be distinguished from the taxes evaded. «The key concern with tax evasion is detection, whereas with tax arrears it is collection» (Schaffer 1998 97). Tax arrears are taxes that have been accrued and have come due but not been paid. If the state persistently tolerates the nonpayments, it creates the conditions for the development of the soft taxes.

Moreover, it is necessary to distinguish between the stock and the flow of tax arrears. «The existence of the **stock** of tax arrears, a certain amount of the overdue tax debt on a firms' balance sheet existing at a given period of time» (Schaffer 1998 87), is not itself necessarily a signal for alarm. «These firms might have a tradition of legitimate late payments of tax debts and penalties. As far as these companies constantly cover their indebtedness by themselves and do not seek external aid, they exhibit hard budget constraints and they are out of the scope of this paper» (Schaffer 1998 97).

We should be concerned, however, if there is a «**flow** of tax liabilities that is not getting paid at all or is being written off» (Schaffer 1998 97). This situation, widespread in transitional economies,  purely represents SBC.

Nevertheless, both variants of tax arrears are known not only in TE but also in the industrialized countries. For example, «the stock of arrears in New Zealand in the early 1990's was equivalent to 1-2% of GDP, while the annual write - offs of uncollectible taxes amounted to 0.3-0.4% of GDP» (Schaffer 1998 97). «The related investigations demonstrate that tax arrears are referred mostly to those industries which traditionally were highly regulated and subsidized by the government, e.g. rail  transport and agriculture»[1] (Schaffer 1998 96).

In any case, while paying attention to the problem of tax arrears, it is necessary to recognize that «the government toleration of the tax nonpayments means, in effect, that the distressed firms are being subsidized, since these firms are unlikely ever to pay tax indebtedness. In other words, insolvent companies have soft subsidies, because it is an ex post preferential financing that is directed at  distressed firms and that helps to rescue them from their difficulties» (Schaffer 1998 100, 97)

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[1] In other words, tax arrears are the most widespread in industries heavily regulated by government. This fact proofs the postulates of the capture theories and the concept of SBC that regulation is provided in the interest of particular industries and that it decreases substantially the efficiency of those industries.

## 2.4 Methods of Investigation the Non-Payments to the Consolidated Budget.

The main theoretical principles providing a basis for this paper are rent-seeking and soft budget constraints. It is assumed that nonpayment to the State and local budgets are an implementation of soft budget constraints, and that the possibility not to pay taxes is acquired through bargaining and lobbying.

This statement is compressed into a model that traces the connection between an increase in tax arrears of domestic enterprises on the one hand and their profitability on the other hand. The proxy for the nonpayments is the total amount of overdue credit indebtedness of Ukrainian firms, and the proxy for the companies' bargaining power is their after tax profit generated during a few previous years. The model is expressed in dynamic form since it is assumed that the influence of the profitability upon an increase in tax arrears in not instantaneous. This model and its applications are covered in the last chapter.

It is necessary to stress that the model is the author's contribution since nobody else tried to make a model explaining the tax arrears of enterprises to the government before.

## 2.5 Literature Survey.

The investigation of the nonpayments in Ukraine is based upon the rent-seeking theory in general and its capture theories extension in particular (Cullis and Jones 1998, Swann 1992). These concepts provide a basic explanation of how firms may influence the government and what kind of privileges they may obtain.

These ideas are extended in papers of Kornai who developed a concept of soft budget constraints. The soft budget constraint (SBC) is a new approach in economic theory - it was elaborated only a decade ago. Meanwhile, a number of prominent scientists has successfully developed this concept and applied it to specific situations in China, Poland, Hungary, and to the Western market economies.

Originally this concept was used to analyze the problem of shortage in Socialist economies (Kornai 1986 and 1992; Schaffer 1998 82). However, feather investigations have shown that SBC are also widespread in industrialized countries (Schaffer 1998 97).

The general knowledge of the SBC is presented in works of Kornai and Schaffer (Kornai 1986 and 1992, Schaffer 1998). Reading these papers, it is possible to trace the transformation of the SBC definition from its classical view (Kornai 1986 3) towards the all-embracing modern understanding of this phenomenon (Schaffer 1998 85). For instance, Kornai's paper outlines the main forms of this phenomenon - soft subsidies, soft taxes, soft credits, and soft administrative prices. The author presents the definitions of these concepts and offers the analysis of their impact on an economy. The article is finished by a wide investigation of this phenomenon in different former Socialist countries, e.g. Poland and Hungary.

 Schaffer extended the Kornai's analysis and investigated the "false SBC" - situations where budget constraints appear to be soft but they are actually "hard". A example of such a situation is a lag between the delivery of the good and a time when the payment is made. If this phenomenon takes place at the end of the financial year, the statistical data depict that the buyer of a product is in arrears. Schaffer also

extended the analysis of the SBC to the banking sphere, interenterprise arrears, and to the government subsidies and tax arrears. The last situation appears to be extremely interesting for this MA analysis. It is necessary to mention that the author assumed tax arrears to be one of the types of the SBC.

After an acquisition of the strong theoretical background, offered in these papers, an interested expert might switch to the review of the world experience in this sphere. He/she can find interesting statistical data about the Western countries (Schaffer 1998 97) as well as informative surveys about the Eastern Europe (Kornai 1986 13-20; Kornai 1992 490-493), Russia (Hendley, Ickes, and Ryterman 1998), and Ukraine (German Consulting Group 1998, Symonenko 1998 #176, Symonenko 1998 #177).

The analysis of the Ukrainian situation, provided by German experts, and the domestic top officials (Symonenko) is mainly concentrated on the efforts to systematize the sources and the form of this phenomenon in our country and to provide useful statistical data about the scope of the SBC in Ukraine. However these analyses seem to be very superficial. Almost all the authors, except the German Consulting Group, simply present their ideas about the SBC and do not support them by any statistical data. Therefore, it seems useful to involve particular statistical information devoted to the debit and credit indebtedness of Ukrainian firms and to strengthen this analysis by a brief survey of Ukrainian law (The Bankruptcy Act 1998).

# 3. NONPAYMENTS IN UKRAINE.

## 3.1 Nonpayments - Sources and Problems.

### 3.1.1 *Non-payments in Ukraine - the General Information*

Non-payments to the State and local budgets seems to be one of the most serious and unexplainable problems of Ukraine nowadays. It boomed in summer 1998, when the Prime Minister of Ukraine announced a struggle with the directors of enterprises - debtors. An outside expert could have a false impression that this problem was unknown earlier. It seemed that those fraudulent debtors unexpectedly colluded to leave the Consolidated budget out of money. Therefore, the anger of the Prime Minister Pustovoitenko was fair.

Meanwhile, the net amount of the overdue debts to all forms of Ukrainian budgets has been growing during 1991-1999. The official statistics paid this problem a special attention and announced it in "The Debit and Credit Indebtedness of the Ukrainian Enterprises". According to these data, «the amount of the overdue and written off tax arrears rose two times from 1996 to 1997» (The German Consulting Group 1998 13). These enormous increase in the indebtedness shows that this problem progressed seriously in the past and that it is a neglected illness of our society.

Actually, looking at the past , one can notice that the Government itself created conditions for the deepening of the problem of nonpayments by providing a wide range of different tax and credit privileges to various enterprises and industries. For instance, according to the Socialist tradition, the tax rate for the collective farms

was and actually is two times less than for enterprises. The industrial corporations were not homogeneous as well - some brunches of industry were in more privilege position than others. For example, in 1992 and 1993 the coal mines were released from paying the Budget the revenue tax. Moreover, some investigations demonstrate that «in 1997 the different kinds of financial assistance to this industry exceeded the value added created by coal mines» (the German Consulting Group 1998 9).

As a result, a tradition of the persistent Government aid and bargaining for additional privileges was strengthened in Ukraine. Economic participants have used not to rely on upon their own resources and cover their additional expenses with the help of the State.

Therefore, after a few years of total economic depression, a new variant of rent-seeking, the possibility not to pay taxes, has arisen. This problem was primarily initiated by a few loss - making economic participants. However, later their number was constantly increasing, and their total debt to the state mounted to such an extend that they become unable to pay overdue taxes and interest. After some years of the growing crisis, the Government wrote off all their debts, creating a base for feather speculations around tax arrears for both loss- and profit - making firms.

According to Schaffer's analysis of tax arrears, the possibility regularly not to pay obligatory taxes is equivalent to repeated state subsidization of economic agents. Therefore, efficient firms lose incentives to make profits as far as they have to pay enormous taxes to the State. On the contrary, loss makers constantly receive huge financial aid. The

situation has become paradoxical - the lower is the possibility that an enterprise would never pay the State its debts, the higher is the chance to get additional financial aid in the future.

The «capture theories» extension of rent-seeking theory demonstrate that if rent-seeking activity is tolerated by a state, profit-making producers lobby a government in order to obtain economic rent and that they use profit they make to «finance» officials. These postulates were proved in Ukraine when larger and larger number of profitable enterprises started using their influence in order to obtain right not to pay taxes rather than transferring about eighty per cent of their profits to the budget.

As s result, the number of indebted firms drastically increases from year to year. For instance, «in 1996 the amount of tax arrears comprises 5.3% of Ukrainian GDP, while at the beginning of 1998 it mounted to 12.7% of GDP» (The German Consulting Group 1998 10). It is three times higher than in Poland (4.6% of GDP in 1993) and in Hungary (6.9% of GDP in 1993). According to the official statistics, «until the beginning of the March 1997, the sum of the written off tax indebtedness was equal to 5.4 milliard hryvnias» (Mytiukov 1998 27).

Summing up, it is necessary to conclude that tax arrears can be treated as a variation of rent-seeking activity in general and soft subsidies in particular. Moreover, the capture theories' conclusion that rent-seeking is a source for lobbying is proved in Ukraine where profitable producers use their influence demanding the right to pay taxes or to write-off their debts.

However, the size of the problem in Ukraine suggests an idea that the sources of the problem is not limited by traditional explanation of the rent-seeking existence. Therefore, it seems reasonable to examine features of the domestic environment that might deepen the problem.

### 3.1.2  Reasons of  Tax Arrears Expansion.

Standard explanation of rent-seeking extension, offered in capture theories, edicts that monopolistic profits are used for lobbying and bargaining in order to secure the producer's position.

However, other economists add that there might exist an alternative explanation of expansion of tax arrears as a manifestation of rent-seeking. For instance, Schaffer argues that the tradition of nonpayments is strengthened by political reasons - workers of bankrupt enterprises will be put on the streets. A natural social reaction is a general resentment and, sequentially, a loss of electorate for existing politicians (Schaffer 1998 100).

At the same time, economists investigating nonpayments in post-Soviet countries add that there exists very specific reason for the nonpayments expansion - legislation weakness. For instance, Ukrainian "The Bankruptcy Act" does not stimulate the creditors of loss makers to insist on the bankruptcy of those firms. According to this act, a company - bankrupt primarily has to cover its debts upon the taxes and other obligatory payments to the State and local budgets; and only after that, it has to satisfy its private creditors (The Bankruptcy Act 1998 article 33). Given that most enterprises are highly indebted to the Government, «creditors generally do not expect to benefit financially

from initiating bankruptcy actions» (Hendley, Ickes, and Ryterman 1998 6). Therefore, despite the fact that inability to fulfill the requirements of the private partners and the State is a serious reason for a bankruptcy (The Bankruptcy Act 1998 article 1), this procedure is almost unprecedented.

Therefore, it is obvious that expansion of nonpayments is caused by nature of rent-seeking itself as well as by institutional and legislative weaknesses. However, the last reason seems to be extremely valuable in the post-Soviet countries in general and in Ukraine in particular. Therefore, it makes sense to examine how rent-seeking privileges of domestic industries are consolidated in Ukrainian legislative acts.

## 3.2 The Analysis of the Government Privileges Given to the Different Industries and Enterprises During 1992-1998.

The analysis of the Ukrainian Edicts promulgated during 1992-1999 demonstrates that the most widespread forms of the State assistance that can be attributed to the soft budget constraints and which were acquired by domestic firms are different tax privileges, and the debt restructuring and relief.

For instance, the tradition of the State assistance to the agriculture was began in 1992 by the total relief of this sector from all kinds of taxes (Law of Ukraine "About Changes and Additions to the Law of the USSR "About the Priority of Agricultural Development" 1992, May, 15). Two years later, the State, however, decreased its assistance to this sphere of an economy forcing agricultural enterprises to pay fifty

per cent of all existing taxes (Law of Ukraine "About Taxation of Enterprise Revenues" 1994, December, 28).

The tradition of the SBC granting was strengthen after the restructuring of the debt of agricultural enterprises to the State in 1993 (Edict of Verkhovna Rada "About the Implementation of the Spring Field-Work in 1996" 1996, February, 23), after a double debt relief of all agricultural debts to the State in June and October 1998 (Law of Ukraine "About the Relief and Restructuring of the Debt of Tax Payers by March, 31, 1997" 1997, June, 5 and Edict of Verkhovna Rada "About the Relief and Restructuring of the Debt of Agricultural Enterprises and Sugar Factories" 1998, October, 23), and by a usual relief of agricultural enterprises from the tax burden in 1997, when they were allowed not to pay the land tax (Law of Ukraine "About Changes to the Law of Ukraine "About Taxation of Enterprise Revenues" 1997, May, 22).

It is obvious that the structure of the State assistance to agriculture is not clearly defined. The Government unexpectedly changes the form of its aid to this sector of the economy. Moreover, it does not proclaim the reasons and the term of the next line of the SBC granting in advance. Therefore, agricultural enterprises expect the State to «help» them exactly when they need it. Moreover, the form of the assistance will satisfy the farmers.

A similar situation is observed in coal mining. The State imposed zero Value Added Tax in 1992 and in 1997 (The Decree of Cabinet of Ministers of Ukraine "About Value Added Tax" 1992, December, 26; Law of Ukraine "About Value Added Tax" 1997, April, 3; and Law of Ukraine "About Changes to the Law of Ukraine "About Value

Added Tax" 1997, September, 26), and it wrote off all the debts of coal mines to the State in 1998 (Law of Ukraine "About the Relief and Restructuring of the Debt Coal Extracting and Coal Processing Enterprises" 1998, November, 20).

The energy and transport sectors have enjoyed a much narrower spectrum of the SBC assistance from the state. For instance, the energy sellers were twice relieved from the VAT during 1997 (Law of Ukraine "About Value Added Tax" 1997, April, 3 and Law of Ukraine "About Changes to the Law of Ukraine "About Value Added Tax" 1997, September, 26). This strange situation demonstrates that the State prefers the unexpected and unreasonable forms of its aid, typical to the SBC.

The transport enterprises have also faces the relief from paying the VAT. For instance, in April 1997 they were allowed not to pay VAT on the interurban and local conveyances of passengers (Law of Ukraine "About Value Added Tax" 1997, April, 3). In Autumn 1997 this rule was extended to the load and passenger conveyance through the territory of Ukraine (Law of Ukraine "About Changes to the Law of Ukraine "About Value Added Tax" 1997, September, 26). It is worth to mention that 1997 was an extremely successful period for the transport sector. At that time this industry obtained wide tax privileges and achieved the full relief of all its debts, as well as interests on those debts, and fine to the Consolidated Budget of Ukraine (Law of Ukraine "About the Relief and Restructuring of the Debt of Tax Payers by March, 31, 1997" 1997, June, 5).

The overview of the State assistance given to different sectors of the economy demonstrate that :

?? the most widespread forms of the State assistance are different tax privileges, as we as the debt relief and restructuring;

?? the form and the term of the Government assistance in each particular case is not well-defined, which is typical for SBC;

?? the choice of the privileged branches is not clear;

?? the State has created a strong tradition of unexpected and unexplained SBC granting; therefore, it is posible to assume that economic participants expect this assistance;

?? the unexpected softening of budget constraints for wider and wider range of economic participants (e.g. energy sector, transportation, etc.)demonstrate that domestic firms are reluctant to influence Government decitions conserning future privileges.

? Therefore, after a brief examination of the soft budget constraints tradition in Ukraine, it is worth switching to a statistical model that may clarify what are the real reasons for SBC acquisition and enlargement.

# 4. RELATIONSHIP BETWEEN SOFT BUDGET CONSTRAINTS ACQUISITION AND BARGAINING POWER OF FIRMS: NUMERICAL ANALYSIS.

## 4.1 Form and Specific Features of the Model.

### 4.1.1 *Statement of the Model.*

The aim of the model is to investigate whether soft budget constraints are granted subject to bargaining and lobbying. Specifically, attention is concentrated upon the explanation of tax arrears to the state and local budgets, which are assumed to be one of the forms of SBC in transitional economies. In other words, the model examines the relationship between the amount of tax indebtedness of Ukrainian enterprises on the one hand and their bargaining power on the other hand.

Formally this concept can be expressed in the following form:

> *Tax Arrears to the Consolidated Budget = f (Bargaining Power)*

What are proxies for independent and dependent variables? Capture theories extension of rent-seeking prompts that firms may use their profit to lobby government. Therefore, it is possible to assume that more profitable enterprises can use larger amount of money for lobbying. In other words, their bargaining potential seem to be higher. At the same time, it is necessary to pay attention mainly to after tax profit, since this money can be used by managers for any non-economic activity. Summing up, it is offered to use **after tax profit** of enterprises as a proxy for their bargaining power.

At the same time, the choice of dependent variable appears to be obvious - it is necessary to collect data about the overdue tax indebtedness of domestic firms to the state and local budgets.[1] However, it is impossible to acquire these data because Ukrainian Ministry of Statistics offers only the data about tax arrears of <u>industrial enterprises</u> to the consolidated budget and does not calculate the same statistics for other economic participants (i.e. agriculture, transportation, etc.). Alternative sources, for instance TACIS, offer annual aggregated data about tax indebtedness of all domestic economic participants. However, they do not show overdue tax arrears to the budget for each sector of the economy. As a result, tax indebtedness of domestic firms to the state and local budgets can not be included directly in the model.

A good proxy for the dependent variable is the overdue arrears of domestic firms, including tax and intraenterprise indebtedness. It seems to exhibit high positive correlation with tax arrears and it is covered completely in official and alternative statistical sources. Moreover, since we are concerned about enterprises' indebtedness to the budged, it is necessary to look at ***overdue credit arrears*** of domestic economic participants.

It is necessary to add that, in order to minimize the influence of an industry size upon its profit and arrears, it is offered to divide both

---

[1] We should concentrate upon the <u>overdue</u> tax arrears because they are equivalent to «flow of tax liabilities» (Schaffer 1998 97). It is necessary to remember that the difference between the flow and the stock of tax arrears is crucial, and that only the flow of tax liabilities is an implementation of current soft budget constraints.

sides of the equation by quantity of employees. It is assumed that larger industries have more employees. This statement seems to be true even for the post-Soviet countries, where the hidden unemployment is widespread. Therefore, in this paper we will talk about the relationship between **_per employee overdue credit arrears_** of industries on the one hand and their **_per employee after tax profit_** on the other hand.

Moreover, in order to eliminate inflation, it is offered to express data about the dependent and independent variables in constant prices. We use the traditional Ukrainian base year - 1990. It is also necessary to stress that more detailed explanation of all proxies is offered in subchapter 4.1.2.2.

As a result, the previous model is transformed into the following form:

---

**_Per Employee Overdue Credit Indebtedness = f ( Per Employee After Tax Profit )_**

---

or $\quad Y_t = a_0 + ?\ a_i * X_{t-i} + u_t \quad$ (1)

where $Y_t$ is the per employee overdue credit indebtedness of firms of particular sector of the economy in year **t** expressed in 1990 prices;

$X_{t-i}$ is per employee after tax profit of a particular industry in year **t-i** expressed in 1990 prices.

### 4.1.2 *Discussion of the Model.*

### 4.1.2.1 *Form of the Model.*

The model is of linear form. It is chosen because, on the one hand, there exist no theoretical investigations examining the actual form of relationship between tax arrears and after tax profit of firms, and, on the other hand, other functional forms seem to be less appropriate for this particular case.

First, reciprocal functions presume inverse relationship between dependent and independent variables. Second, logistic form is appropriate when dependent variable takes values between 0 and 1. Third, quadratic form seems to have no clear economic interpretation, because it presumes that arrears would decrease for small profits up to a certain point. Nevertheless, it is presumed that normally arrears should decrease if profit is generated, or it may increase if profit is used for rent-seeking activity. However, in the latter case an increase in arrears is generated more likely by higher profit.

The same argument is valid for interaction form, as far as it is extremely difficult to give clear economic interpretation for the interaction variable. Finally, logarithmic functions are used when changes of both dependent and independent variables are very small. However, statistical data demonstrate that an increase in arrears is significant during the latest couple of years. Therefore, linear model seems to exhibit the most clear relationship between total credit indebtedness and after tax profit of firms.

Another question to cover is why a dynamic model is used. The obvious answer is that the effects of economic and other variables are rarely instantaneous, and it takes some time for economic agents to respond. By the same logic, producers seem to be reluctant first to evaluate their «bargaining potential» generated in previous periods and than to use it for lobbying a government to acquire soft privileges in the next periods.

It is also important to discuss the choice of dependent variables. Traditionally, $X_t$ is also included in model. Nevertheless, in this situation is seems reasonable to assume that firms can not use the profit generated in period $t$ for rent-seeking activity at the same period of time, because this profit first has to be estimated and reported and only after that, usually at the end of the year, a firm can use it for its non-economic activity. Therefore, it is reasonable to presume that rent-seeking activity is affected by profits generated in previous periods.

### 4.1.2.2 *Specific Features of Variables Chosen.*
In this section it is necessary to cover three questions. First, why credit indebtedness rather than net arrears of firms are chosen to be dependent variable.

To answer this question, it is necessary to remember that the subject of investigation is the amount of enterprises' arrears to the State and local budgets or, in other words, their credit indebtedness. At the same time, the State is also indebted to companies. As a result, the credit arrears of domestic firms might be caused be growing State debt. Therefore, it seems reasonable to pay attention to the net indebtedness

of companies. However, in Ukraine it is impossible to calculate net arrears directly because credit indebtedness is expressed in sale prices while debit indebtedness is based upon costs. In other words, debit indebtedness excludes profit of firms that has to be covered by their debtors. Therefore, official statistics artificially undervalues the amount of the State debt to domestic companies and overvalues firms' arrears to the Budget. As a result, the difference between credit and debit indebtedness of domestic enterprises (or their net arrears) would be artificially enlarged. Summing up, it is better to use total overdue credit arrears as a proxy for SBC because in such a case both dependent variable (per employee overdue credit arrears) and independent variables (per employee after tax profit) would be expressed in market-based prices.

The second question to discuss is the sample range for both dependent and independent variables. It is necessary to tress that tax arrears ($Y_t$) are analyzed for the period 1996 - 1998, and after tax profit of companies ($X_{t-i}$) covers the period of 1995 - 1997 respectively. These ranges are explained by two reasons. First, the phenomenon of tax arrears enlarged drastically only since 1995. Second, Ministry of Statistics started declaring debit and credit indebtedness for each sector of the economy only since 1996. Previously, total debit and credit indebtedness of Ukrainian firms were divided into "indebtedness to domestic firms, NIS companies, and other foreign enterprises". Therefore, the model covers the relationship between per employee credit arrears and per employee after tax profits in all available periods.

The last problem to cover, why per employee statistics is used to mitigate the influence of an industry size upon its indebtedness and profit. As it has been already mentioned, it is assumed that larger enterprises hirer more labor. This statement seems to be true, since it is generally agreed that Ukrainian enterprises use extremely depreciated equipment and that «old-guard» managers are not reluctant to spend money upon technological innovations. Therefore, our assumption seems to sound reasonable.

However, it is possible to argue that there exist a huge hidden unemployment in Ukraine. In this situation employees work only two or three hours per day. As a result, the quantity of employees is not very important. Nevertheless, this tactics is traditional for all domestic enterprises. Therefore, in any case, it is possible to state that larger firms still have more employees. Moreover, the data about really worked hours per employee is available only since 1998. As a result, it can not be applied to our analysis.

It also seems reasonable to choose output of each particular industry as a weight. However, in a country where hidden sector is higher than the official one, this variable appears to be even more questionable. As a result, the quantity of employees seems to be the best available weight.

To sum up, the model is aimed to demonstrate whether soft budget constraints acquisition is caused by bargaining and lobbying. The proxy for the dependent variable (SBC) is the amount of per employee overdue credit arrears of firms of all sectors of domestic economy expressed in 1990 prices. The proxy for the independent variable (bargaining potential) is per employee after tax profit of

companies of all sectors of Ukrainian economy measured in constant prices (1990). The model is expressed in dynamic form because the effects of independent variables upon the dependent one are not instantaneous. Finally, the investigation covers the period 1995 - 1998 when tax arrears expended drastically.

After a detailed description of the form of the model, it is useful to examine results of the investigation.

## 4.2 Outcomes of the Investigation.

It is necessary to remember that the model is expressed in the following form:

$$\text{or} \quad Y_t = a_0 + ?\, a_i{}^*X_{t\text{-}i} + u_t$$

where $Y_t$ is the per employee overdue credit indebtedness of firms of particular sector of the economy in year $t$ expressed in 1990 prices ;

$X_{t\text{-}i}$ is per employee after tax profit of firms of particular sector of the economy in year $t\text{-}i$ expressed in constant prices.

The estimation procedure covers the relationship between per employee overdue credit arrears in 1997 and 1998 on the one hand and per employee after tax profit in 1995 - 1997 respectively on the other hand for all sectors of Ukrainian economy. In other words, the model takes the form:

$$Y_{1997} = a_0 + ? \; a_i * X_{1997-i} + u_{1997} \quad (2)$$

$$Y_{1998} = a_0 + ? \; a_i * X_{1998-i} + u_{1998} \quad (3)$$

### 4.2.1  *Analysis of the Credit Indebtedness in 1997.*

Table 1 presents the estimated regression coefficients and associated statistics for per employee credit arrears in 1997.

**Table 1: Relationship Between Per Employee Credit Arrears and Per Employee After Tax Profits of Firms in 1997.**

LS // Dependent Variable is *LK1997*
Date: 06/04/99   Time: 15:29
Weighting series: W97
Sample(adjusted): 1 16
Included observations: 16 after adjusting endpoints

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| LPROF1996 | 0.001183 | 0.000358 | 3.307766 | 0.0052 |
| LPPROF1995 | 1.30E-05 | 1.45E-06 | 9.007214 | 0.0000 |

*Weighted Statistics*

| | | | |
|---|---|---|---|
| R-squared | 0.985620 | Mean dependent var | 5.40E-08 |
| Adjusted R-squared | 0.984593 | S.D. dependent var | 1.34E-07 |
| S.E. of regression | 1.66E-08 | Akaike info criterion | -35.71154 |
| Sum squared resid | 3.86E-15 | Schwarz criterion | -35.61497 |
| Log likelihood | 264.9893 | F-statistic | 959.5538 |
| Durbin-Watson stat | 2.033405 | Prob(F-statistic) | 0.000000 |

*Unweighted Statistics*

| | | | |
|---|---|---|---|
| R-squared | 0.123971 | Mean dependent var | 5.93E-08 |
| Adjusted R-squared | 0.061397 | S.D. dependent var | 6.50E-08 |
| S.E. of regression | 6.29E-08 | Sum squared resid | 5.55E-14 |
| Durbin-Watson stat | 2.115456 | | |

According to Table 1, all coefficients are significant for 5 per cent test. Actually, this model has 14 d.f., and $t^*_{14}(0.05/2)=2.145$. Thus, for each  regression coefficient to be significantly different from zero, the

t-statistics given in table 1 must be greater than 2.145. We note that the regression coefficients for LProf 1996 and LPprof 1995 are significant because 3.307766>2.145 (for LProf 1996), and 9.007214>2.145 (for LPprof 1995). The same conclusion can be made based on the p-value approach. According to this criterion, each regression coefficient is significantly different from zero if its p-value is less than the level of significance. In our example the level of significance is equal to 5% or 0.05, and p-value for LProf 1996 and LPprof 1995 are less than 0.05: (0.0052)<0.05 and (0.0000)<0.05.

Moreover, according to F-statistics, it is possible to conclude that all regression coefficients have a significant joint effect on Y. Actually, for this model, k -1=2 and T-k+1=16-3+1=14.. The degrees of freedom F-statistics are therefore 2 for the numerator and 14 for the denominator. From the F-table, the critical value for a 5 per cent test is $F^*_{2,14}(0.05)=3.74$. Since the F-value in table 1 is 959.5538 (959.5538>3.74), we reject the null hypothesis that all the regression coefficients are zero.

The value of adjusted $R^2$ also exhibits a good general relationship between dependent and independent variables. However, it can be slightly overvalued because lagged independent variables may cause the multicollinearity problem. However, even in the case of multicollinearity, OLS estimators are still unbiased, efficient and consistent, and the t-test is still valid. The only negative outcome of multicollinearity is a possibility to undervalue t-statistics. Nevertheless, our previous investigation demonstrates that all the coefficients are significant, therefore, we should not care about this problem.

It is necessary to mention that these results are acquired after the adjustment for heteroskedasticity. The estimation was provided with the help of WLS procedure. Therefore, these estimates are more efficient than OLS estimates. Moreover, WLS estimates are «wee-behaved» or BLUE.

Moreover, special analysis demonstrates the absence of serial correlation (Figure 3). Figure 3 exhibits that the tendency for successive residuals to cluster on one side of the zero line or the

**Figure 3: Autocorrelations in Residuals for Credit Indebtedness of Firms in 1997.**
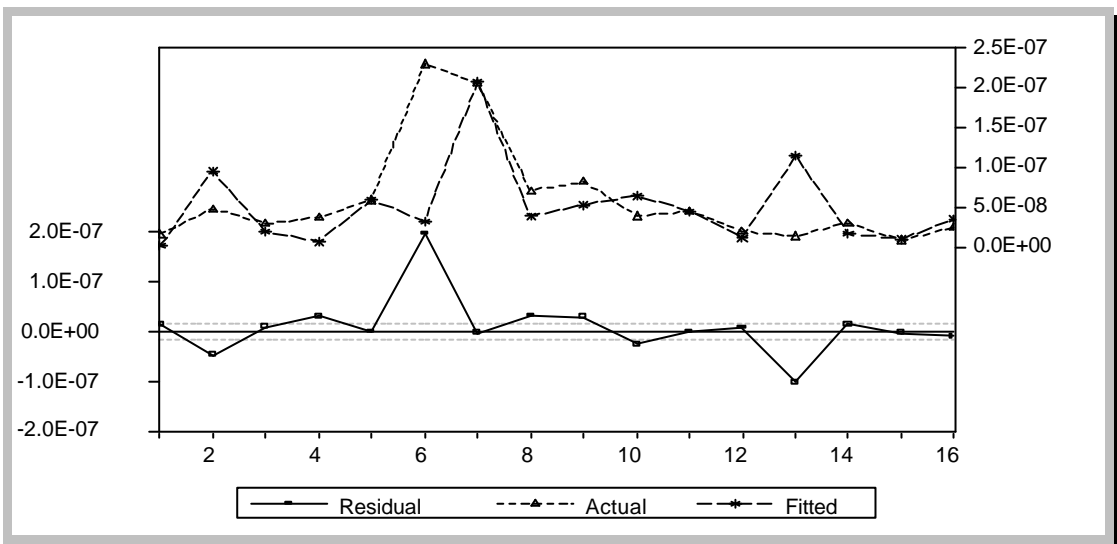


other do not exist. It is the graphical representation of the absence of serial correlation.

Another possibility to verify this statement is to examine the Durbin-Watson statistics. For arrears in 1997 the DW statistics is $d=2.033405$. The number of observations is 16 and the number of explanatory variables, $k'$, is 2. For a one-tailed test the critical values are $d_l=0.982$

and $d_u$= 1.539. Since $d > d_u$, it is possible to conclude that there exist no first-order serial correlation in the residuals at the 5 per cent level.

The underlying analysis demonstrates that the model seems to provide correct explanation between the dependent and independent variables. Statistics demonstrate that there exits no autocorrelation in the residuals, and estimated coefficients are significant and BLUE. The same analysis is conducted for the relationship between per employee overdue credit arrears of Ukrainian firms in 1998 on the one hand and their per employee after tax profits in previous years on the other hand.

### 4.2.2 *Analysis of the Credit Indebtedness in 1998.*

The estimated regression coefficients and associated statistics for per employee credit arrears in 1998 are given in table 2:

**Table 2: Relationship Between Total Credit Arrears and After Tax Profits of Firms in 1998.**

LS // Dependent Variable is *LK1998*
Date: 06/04/99   Time: 15:22
Weighting series: W98
Sample(adjusted): 1 16
Included observations: 16 after adjusting endpoints

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| LPROF1996 | 0.001934 | 0.000270 | 7.160684 | 0.0000 |
| LPPROF1995 | 1.20E-05 | 5.13E-07 | 23.34526 | 0.0000 |

**Weighted Statistics**

| | | | |
|---|---|---|---|
| R-squared | 0.990264 | Mean dependent var | 6.35E-08 |
| Adjusted R-squared | 0.989568 | S.D. dependent var | 1.42E-07 |
| S.E. of regression | 1.45E-08 | Akaike info criterion | -35.97786 |
| Sum squared resid | 2.96E-15 | Schwarz criterion | -35.88128 |
| Log likelihood | 267.1198 | F-statistic | 1423.892 |
| Durbin-Watson stat | 2.209110 | Prob(F-statistic) | 0.000000 |

**Unweighted Statistics**

| | | | |
|---|---|---|---|
| R-squared | 0.207316 | Mean dependent var | 7.65E-08 |
| Adjusted R-squared | 0.150695 | S.D. dependent var | 9.80E-08 |
| S.E. of regression | 9.03E-08 | Sum squared resid | 1.14E-13 |
| Durbin-Watson stat | 2.150764 | | |

It is obvious that there exist no constant term in table 2. In the intermediate stage its p-value exceeded even 0.1. It means that this coefficient was insignificant even at 10 per cent level. However, coefficients for dependent variables are significant both in the intermediate and final stages. According to Table 2, they are significant for 5 per cent test. Actually, this model has 14 d.f., and $t^*_{14}(0.05/2.)=2.145$. Thus, for each regression coefficient to be significantly different from zero, the t-statistics given in table 2 must be greater than 2.145. We note that the regression coefficients for

LProf1996 and LPprof1995 are significant because 7.160684>2.145 (for LProf 1996), and 23.34526>2.145 (for LPprof 1995). The same conclusion can be made based on the p-value approach. In our example the level of significance is equal to 5% or 0.05, and p-value for Prof 1997 and Prof 1996 are less than 0.05: (0.0000)<0.05 and (0.0000)<0.05 respectively.

According to F-statistics, it is possible to conclude that all regression coefficients have a significant joint effect on Y. Actually, for this model, k -1=2 and T-k+1=16-3+1=14. The degrees of freedom F-statistics are therefore 2 for the numerator and 14 for the denominator. From the F-table, the critical value for a 5 per cent test is $F^*_{2,14}(0.05)=3.74$. Since the F-value in table 2 is 1423.892 (1423.892>3.89), we reject the null hypothesis that all the regression coefficients are zero.

The value of adjusted $R^2$ also exhibits a good general relationship between dependent and independent variables. Moreover, since the analysis was provided with the help of WLS procedure (to eliminate heteroskedasticity), the estimators are BLUE.

It is also possible to conclude that there is no serial correlation in residuals. Figure 4 exhibits that the tendency for successive residuals to cluster on one side of the zero line or the other do not exist. It is the graphical representation of the absence of serial correlation. This conclusion is strengthened by the Durbin-Watson statistics. For arrears in 1998 the DW statistics is d=2.209110. The number of observations is 16 and the number

**Figure 4: Serial Correlation in Residuals for Credit Indebtedness of Firms in 1998.**
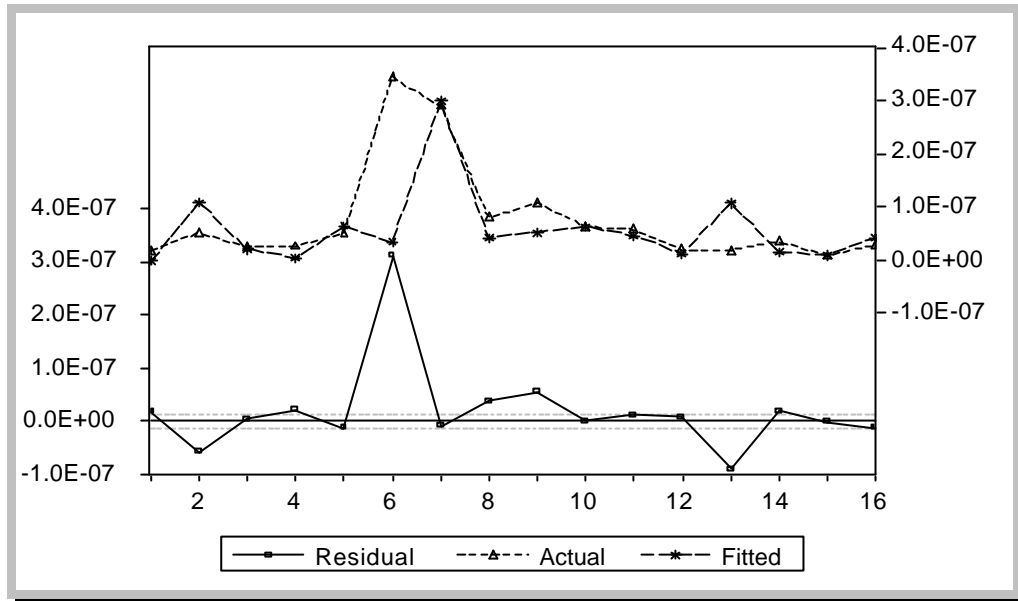


of explanatory variables k' is 2. For a one-tailed test the critical values are $d_l=0.982$ and $d_u= 1.539$. Since $d>d_u$, it is possible to conclude that there exist no first-order serial correlation in the residuals at the 5 per cent level.

To sum up, the underlying models provide a good explanation of the relationship between total overdue credit arrears of Ukrainian firms in 1997 and 1998 on the one hand and their after tax profits in 1995-1997 on the other hand. The estimated coefficients are significant and BLUE. Therefore, the model can be used to analyze the actual relationship between the dependent and independent variables.

### 4.3 Interpretation of Results.

#### *4.3.1 Comprehensive Analysis of the Model.*

Data presented in tables 1 and 2 can be briefly summarized by the following formulas:

$$\text{Per Employee Overdue Credit Arrears}_{1998} \text{ (estimated)} =$$
$$= 0.0019336393*(\text{ Per Employee After Tax Profit})_{1996} +$$
$$+1.979588*10^{-5}*(\text{ Per Employee After Tax Profit})_{1995} \quad (4)$$

$$\text{Per Employee Overdue Credit Arrears}_{1997} \text{ (estimated)} =$$
$$= 0.0011830715*(\text{Per Employee After Tax Profit})_{1996}$$
$$+1.3039236*10^{-5}*(\text{ Per Employee After Tax Profit})_{1995} \quad (5)$$

Both equations demonstrate that there exist a strong positive relationship between the profitability of enterprises and enlargement of their tax arrears. It may mean that original statement that firms spend their profits generated in previous periods to acquire the possibility not to pay taxes in the future seems to be true. For instance, according to equation 4, for an average Ukrainian enterprise, a per employee increase in tax indebtedness in 1998 by one 1990 ruble is «financed» by approximately 845 ($=1/0.0019336393$) 1990 rubles of per employee profit obtained in 1996 and about 76692 ($=1/1.979588*10^{-5)}$) base year rubles of per employee profit generated in 1995. At the same time, in 1997 a one 1990 ruble increase in per employee tax arrears costs an average domestic enterprise about 517 ($=1/0.0011830715$) 1990 rubles of per employee profit obtained in 1996 and about 50516 $\left(=1/1.3039236*10^{-5)}\right)$ base year rubles of per employee profit generated in 1995.

The underlying results demonstrate that rent-seeking activity is extremely costly. These expenses comprise huge sunk cost and yearly premiums for official representatives. Sunk cost is money paid by industries in 1995 - a year when tax arrears start growing. According to our results, sunk cost is enormous. Therefore, only limited quantity of industries, for instance, agriculture and coal mining, could effort themselves to become tax debtors. Moreover, these expenses have to be supported by additional annual premiums to prolong «arrears agreement» for the next year.

It has to be noticed that these expenses increase persistently. It means that industries willing to join «tax arrears business» later have to pay much higher prices. This idea can be supported by Figures 5 and 6.

According to these graphs, new-comers, like energy sector or transportation, pay higher share of per employee profit in order to obtain possibility not to pay taxes in the future. However, their expenses are not equal. For instance, firms of transportation industry, that have already achieved full debt relief in 1997, pay rather moderate annual premiums in order to «stay in business».

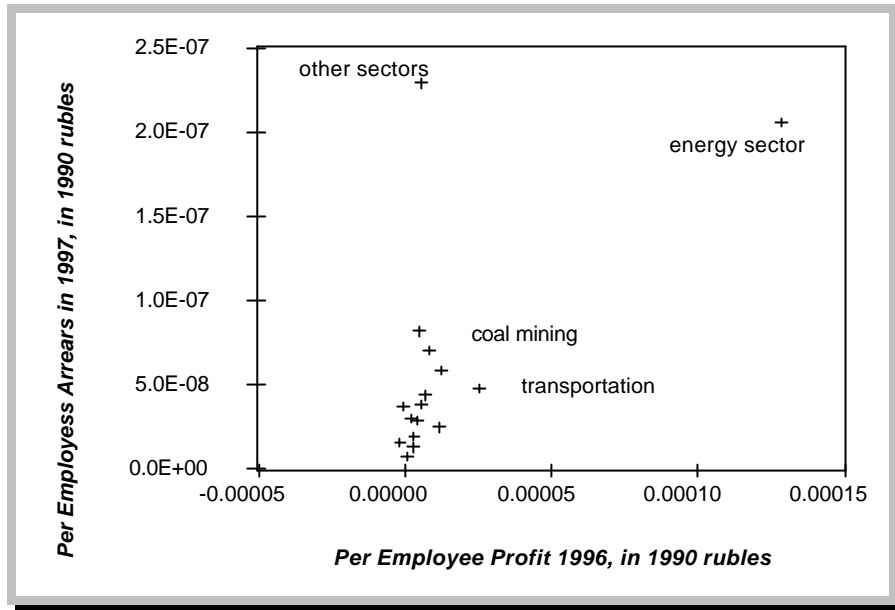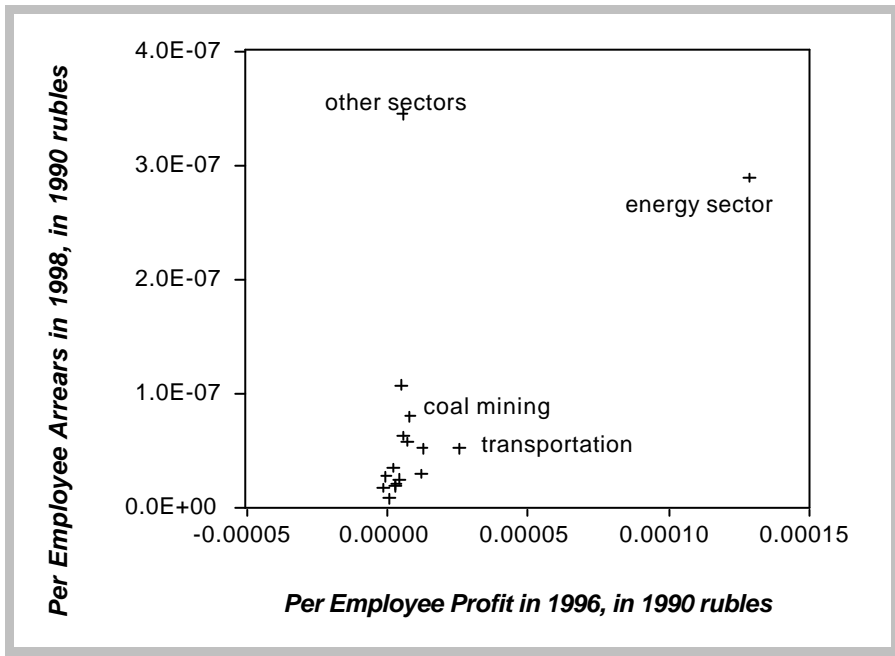**Figure 5: Cross-Industry Relationship Between Arrears in 1997 and Profit 1996.**



**Figure 6: Cross-Industry Relationship Between Arrears in 1998 and Profit 1996.**

Nevertheless, these premiums are much higher per ruble of indebtedness than for other sectors that have been traditionally supported by the government (like coal mining).

At the same time, energy sector, that have started acquiring some privileges from the Government only a year ago and that have never obtained possibility not to pay taxes, faces enormous rent-seeking cost.

Figures 5 and 6 demonstrate that there exist sectors of domestic economy, called «other industries», that have huge tax arrears and pay minimum rent-seeking costs. They include mainly state non-profitable industries, like forestry or fishery. As far as the share of the state capital for them is prevailing, they do not have to pay for soft budget constraints.

Anyway, it is necessary to take into account that rent-seeking activity is financed by profits generated in several periods. It means that firms expect that they would acquire possibility not to pay taxes in the future, and they plan their expenditure in advance. Therefore, it is possible to conclude that expectations play an important role in the enlargement of tax arrears. Moreover, these expectations are strengthened by a real possibility to obtain SBC privileges. It means that, in announcing a struggle with tax debtors, the Ukrainian government fails in advance, since previously it has created a strong tradition for tax privileges acquisition through bargaining and bribes.

To sum up, it is possible to assume that the enlargement of nonpayments to the State and local budget is caused by bargaining and bribes. Moreover, rent-seeking costs are extremely high. Therefore,

only a few industries can effort themselves not to pay taxes regularly. At the same time, expectations and the failed Government commitment to handle this problem seem to strengthen the tradition of tax arrears.

Nevertheless, complete understanding of the relationship between rent-seeking and soft budget constraints is impossible without clarifying the problem of causality. Therefore, it seems reasonable to investigate whether this positive relationship is mutual.

### 4.3.2 *Causality Problem.*

The model discussed in the previous subsection demonstrates that an increase in industry's rent-seeking potential eases an acquisition of soft budget constraints. However, this conclusion will be meaningless if we find out that an expansion of tax arrears also has positive influence upon an industry profitability. Therefore, this subsection is aimed to investigate the inverse relationship.

The following model traces the connection between per employee profit of domestic industries in 1997 and their per employee tax indebtedness in 1996. The model covers only these years because of the lack of data. However, if the model demonstrates that the relationship between these variables is negative or zero, it will be possible to conclude that an expansion of arrears does not cause an increase in industries' profitability in general.

The results of the model are summarized in table 3.

**Table 3: Relationship Between Per Employee Profit of Industries in 1997 and Their Per Employee Arrears in 1996.**

```
LS // Dependent Variable is LPROF1997
Date: 06/04/99   Time: 15:44
Weighting series: WPR97
Sample(adjusted): 1 6
Included observations: 6 after adjusting endpoints
```

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C | 4.88E-06 | 2.52E-07 | 19.35462 | 0.0000 |

### Weighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.982305 | Mean dependent var | 4.37E-06 |
| Adjusted R-squared | 0.982305 | S.D. dependent var | 8.17E-06 |
| S.E. of regression | 1.09E-06 | Akaike info criterion | -27.31388 |
| Sum squared resid | 5.90E-12 | Schwarz criterion | -27.34859 |
| Log likelihood | 74.42802 | Durbin-Watson stat | 1.716805 |

### Unweighted Statistics

| | | | |
|---|---|---|---|
| R-squared | 0.013142 | Mean dependent var | 4.77E-06 |
| Adjusted R-squared | 0.011142 | S.D. dependent var | 1.03E-05 |
| S.E. of regression | 1.03E-05 | Sum squared resid | 5.30E-10 |
| Durbin-Watson stat | 2.522524 | | |

Table 3 exhibits that, after an adjustment for heteroskedasticity typical for cross-section data, changes in per employee arrears of industries have no impact upon their per employee profitability. Alternatively, per employee profitability is determined independently of industries' arrears. This conclusion is strengthened by the value adjusted $R^2$ for weighted results. At the same time, table 3 demonstrates that there is no serial correlation in residuals.

Summing up, the underlying model shows that per employee profit of industries generated in 1997 is formed independently from their tax arrears. This conclusion gives us the possibility to mention that an

expansion of tax indebtedness of domestic firms does not lead to an increase in their profit in general. Therefore, the previous model, which stated that an acquisition of soft budget constraints is affected by rent-seeking power, provides valid results.

### 4.3.3 *Suggestions for Further Investigations.*

The investigation conducted in this paper give us the possibility to conclude that strong bargaining power based upon firms' profit eases an acquisition of soft budget constraints in Ukraine. This result seems to support the main conclusion of capture theories which stress that firms may use their profit for rent-seeking activity. Moreover, our investigation provide a support for one of the postulates of soft budget constraint concept proclaiming that SBC are obtained subject to lobbying and bargaining. Nevertheless, since our investigation was provided only for Ukraine, the extension of these conclusions to more general cases requires experiments to be provided in different countries.

Moreover, it is highly desirable that later experiments cover larger period of time. For instance, monthly data might be used.

At the same time, it seems reasonable to choose weights other than total quantity of employees per industry. As it has been already mentioned, hidden unemployment in some transitional economies makes this weight not very strong. Therefore, it would be much better to use value added per industry as the weight for both total tax arrears and total profit of a particular industry.

Summing up, it is possible to say that the underlying investigation demonstrates a positive relationship between an increase in industries'

profit on the one hand and an enlargement of their tax arrears in Ukraine on the other hand. Moreover, according to the analysis, rent-seeking activity is costly. Therefore, only a few sectors of the economy could effort it to themselves. These results seems to support capture theories conclusion and SBC postulates.  However, the extension of these results to more general cases requires further investigations.

## 5. CONCLUSION.

The investigation of a problem of nonpayments to the State and local budgets of Ukraine is based upon a theory of rent-seeking and a concept of soft budget constraint (SBC). Namely, it is assumed that the possibility not to pay taxes is a variety of rent-seeking activity, because in such a way a state compensates some of a firm's expenditure. At the same time, it is an implementation of soft constraints because the right not to pay taxes is acquired through bargaining and lobbying. Moreover, a special attention is paid to the capture theory extension of rent-seeking stressing that well-operating firms may use their profits to obtain tax privileges in the future.

Theses ideas are generalized in the statistical model aiming to trace the connection between an increase in tax arrears of domestic enterprises on the one hand and their profitability on the other hand. The proxy for dependent variable, amount of tax arrears, is the per employee credit overdue indebtedness of Ukrainian enterprises, and the proxy for independent variables, «bargaining potential», are their per employee after tax profit generated in previous years. The model is expressed in dynamic form because it is assumed that the influence of profitability upon a growth of arrears is not instantaneous.

The results of the model give us the possibility to assume that positive relationship between tax arrears of enterprises and their profitability really exists. It means that Ukrainian firms are reluctant to lobby the government in order to acquire a legal right not to pay taxes in the future. Moreover, the analysis demonstrates that domestic producers

have used to this form of the government assistance, they expect it, and plan their expenditure in advance. Therefore, it is possible to mention that the problem of nonpayments is explained not only by the fact that some loss-making enterprises are unable to fulfill their obligatory payments to the State (an official variant of explanation) but also by the rent-seeking activity of well-operating companies.

This statement confirms one of the main outcomes of the SBC concept stressing that budget constraints are softened subject to bargaining and lobbying. Moreover, it demonstrate that, following capture theories, well-operating companies may use their profits in order to influence the government. As a result, this paper gives us a possibility to say that the acquisition of soft budget constraints is cause by rent-seeking activity.

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