

CESifo Working Paper Series

HARASSMENT, CORRUPTION AND
ECONOMIC POLICY

Sugata Marjit
Vivekananda Mukherjee
Arijit Mukherjee*

Working Paper No. 189

May 1999

CESifo
Poschingerstr. 5
81679 Munich
Germany
Phone: +49 (89) 9224-1344
Fax: +49 (89) 9224-2344
<http://www.lrz-muenchen.de/~ces/c02.htm>

* This paper has been prepared for the conference on "Economic Performance, Economic Policy and Political Culture" held at the Erasmus University from 3-7th February, 1999. An earlier version received helpful comments from Dieter Bos, Amit Bhaduri, Kunal Sengupta, Dilip Mookherjee and Otto Swank. Sugata Marjit wishes to acknowledge CES, Munich for financial assistance. The usual disclaimer applies.

CEsifo Working Paper No. 189
May 1999

HARASSMENT, CORRUPTION AND ECONOMIC POLICY

Abstract

This paper introduces "harassment" in a model of bribery and corruption. We characterize the harassment equilibrium and show that taxpayers with all possible levels of income participate in such an equilibrium. Harassment has a regressive bias. Harassment cost as such may not affect tax revenue. However, when the decision to file tax-returns is endogenized, harassment cost can affect the filing pattern and hence the revenue collection. We study the nature of the equilibrium under imperfect information when different types of taxpayers and different types of auditors are introduced in the system.

Keywords: Corruption, Harassment, Filing

JEL Classification: K42

Sugata Marjit
Centre for Studies in Social Sciences
10, Lake Terrace
Calcutta – 700 029
India
Email: marjit@cscssc.ernet.in

Vivekananda Mukherjee
R.K.M. Residential College
Narendrapur
India

Arijit Mukherjee
Jawaharlal Nehru University
New Delhi
India

1 Introduction

Corruption is a widely observed phenomenon. It is so pervasive in the developing part of the world that people living there have accepted it as a social rule. This has been clearly depicted in De Soto (1989) and in Ekpo (1979). The UN report on 'Corruption in Government' (1989) is also an interesting source to look for. Yet, analytical studies on corruption are limited. We believe that whatever headway has been made in theoretical research on corruption owes it to the literature on crime and punishment. Starting from the seminal work of Becker (1968) several authors have indulged in the theoretical and empirical analysis of crime and punishment. Lui (1985, 1986) as well as brilliant surveys by Becker (1993) provide a thorough background of the state of the literature. In general such literature presumes a social structure where penalties can be enforced and there are law abiding public officials to execute legal mandates. However, strong evidence of corruption at different levels of the government, mostly in the developing part of the world, have led to the emergence of a small but intense literature on economics of corruption which explicitly models the behavior of a corrupt law enforcing agent. Becker and Stigler (1974) provide an elegant discussion on corruption. This line of research is represented by Rose-Ackerman (1975), Cadot (1987), Basu, Bhattacharya and Mishra (1992), Mookherjee and Png (1992, 1994, 1995), Besley and McLaren (1993) etc.¹ A recent paper by Marjit and Shi (1998) discusses the possibilities of bribery and corruption when punishments are extremely difficult to enforce. They show that high penalties almost always fail to deter crime. The strategic interaction between the law enforcing agent and the criminal make standard policy prescriptions quite ineffective. Some of these issues are also discussed in Klitgaard (1988). In a recent paper Mookherjee (1998) discusses incentive

¹Also see Dawid and Feichtinger (1996) for a dynamic model of corruption.

out by Marjit and Mukherjee (1996). Our model is also developed in the context of tax administration where as the taxpayer files an income-report, the auditor comes in to check whether he has reported his true income or not. The amount of tax revenue the taxpayer has to pay depends on the assessment report submitted by the auditor. Unlike Mukherjee and Marjit (1997) in our paper the authority does not have any incentive scheme to induce the auditors to reveal the true information.² The auditor uses the threat of 'over-reporting' to extort some extra amount of money from the taxpayer. The taxpayer has an option of going to the court against the 'over-reporting'. But, going to the court has some start-up costs.³ If the taxpayer does not go to the court, the auditor offers to be bribed and promises to underreport his true income⁴ In our paper, the corrupt auditor if successfully prosecuted of 'harassment' charges does not receive any punishment.⁵ So, we conceive the 'harassment equilibrium' as a situation

²This fits the description of the tax administration of some of the developing countries. See Das-Gupta and Mookerjee (1998) for a description of Indian tax administration.

³These start-up costs may have several interpretations. For example, in the Indian legal system one needs to pay a fixed fee i.e. the retainer fee. Sometimes to pursue the case, favours need to be shown at the clerical levels. Such an idea of fixed cost occurs also in Cowell (1990) who uses the concept in a different context.

⁴The example is not just an abstract way of theorizing our main idea, but it is drawn from our personal experience confronting the tax-assessing clerks working for the municipal authority in the city of Calcutta, known as Calcutta Corporation. Typically tax-assessing clerks visit resident premises to report the building tax to be paid to the Corporation. After they report one may lodge a complaint. But, in most of the cases it takes enormous time and energy to pursue these cases. Typically the assessor asks for a bribe by suggesting a possible 'overvaluation' of the property and consequent harassment. In the same vein it is also suggested that an 'undervaluation' would help everyone.

⁵We assume this because in developing countries punishments are difficult to enforce due to various reasons like union pressure and the general environment of low income, unemployment and poverty. It is even more difficult in a democracy because of different political pressure groups. For example even an effort to compel the workers of Calcutta

to underreport his income. Knowing this the Revenue Collecting Authority (RCA) sends an auditor to assess the taxable income of the potential taxpayer. The auditor first reports the valuation to the tax collector who then collects the tax. We assume the auditor comes to know about the true valuation of the taxpayer's income without spending any effort. But, since the actual amount of tax revenue the taxpayer is supposed to pay depends on the assessment-report put forward by the auditor, the auditor enjoys some discretionary power either to overvalue or to undervalue the true income. The RCA provides no incentive for the auditor to report the true valuation of the income. Therefore a corrupt auditor can offer to be bribed and undervalue the taxpayer's true income in exchange. If the taxpayer accepts the offer he pays the tax-revenue on the undervalued income and the bribe to the auditor. Otherwise, he has to pay the tax-revenue on the true valuation of his income. The other option the corrupt auditor has, is to overvalue the true income. In that case the taxpayer has to pay more than what his actual tax-liability is. The taxpayer quite naturally does not want to pay the inflated amount. He has an option of going to the court against the 'harassment' and if he can successfully prosecute the auditor, does not have to pay the inflated amount. We assume, there is a cost of going to the court. If he cannot prosecute the auditor successfully he has to pay the tax on overvalued income. But the taxpayer has an option of not going to the court. In that case, the auditor offers to be bribed and undervalue the true income in exchange. If the taxpayer accepts the offer he pays the tax revenue on the undervalued income and pays a bribe to the auditor. Otherwise, he has to pay the revenue on the overvalued income.

Let the overvalued and the undervalued income reports be represented by \bar{x} and \underline{x} respectively. These amounts depend on the true valuation of x in the following way :

$$\bar{x}(x) = \lambda \cdot x \quad (1)$$

Since, the bribe is the only source of income for the auditor it is always in his interest to put forward a bribe offer which is acceptable to the taxpayer. We assume, the auditor claims proportion of the bribable surplus $t(\lambda - \gamma)x$, so that,

$$b = \theta \cdot t(\lambda - \gamma)x \quad (4)$$

where, $0 < \theta < 1$. The parameter θ represents the relative bargaining strength of the auditor.

In endogenizing γ one has to take note of the fact that without the possibility of punishment of any sort the optimal γ must be zero and with $0 < \theta < 1$ this benefits everyone. For a meaningful determination of γ we introduce a simple notion of punishment in our model. For any x , the true revenue is tx and the RCA collects $t\gamma x$. Therefore, the punishment is designed over $(tx - t\gamma x)$. Suppose, p is the probability that the taxpayer who has participated in the bribery game gets caught. Then, he has to pay a fine at the rate f , which depends on the extent of evaded income. The auditor has to pay nothing.

Assumption 1 : f is a function of $(tx - t\gamma x)$ such that $f(0) = 0$, $f'(tx - t\gamma x) > 0$ and $f''(tx - t\gamma x) > 0$.

The taxpayer chooses γ to maximize his expected payoff which is given by :

$$E(u) = x - t\gamma x - \theta t(\lambda - \gamma)x - pf(tx - t\gamma x) \quad (5)$$

Suppose, γ^* solves the problem, which satisfies the first order condition for optimization as follows⁶:

$$pf'(tx - t\gamma^*x) = 1 - \theta \quad (6)$$

At $\gamma = \gamma^*$, by virtue of assumption 1 the second order condition for maximization also gets satisfied. As a first mover in the bribery game the auditor

⁶We assume, $pf'(tx) > 1 - \theta$ so that the unique interior solution exists.

not go to the court we know from the equilibrium of the game discussed above he participates in the bribery game and gets the equilibrium payoff of that game. Since, by assumption 2 the value of q is 1, if he goes to the court his payoff is as given below :

$$E(u_1) = x - tx - \alpha - \beta x$$

Therefore, the taxpayer does not go to the court only if :

$$x - t\gamma^*x - \theta t(\alpha - \gamma^*)x - pf(tx - t\gamma^*x) \geq x - tx - \alpha - \beta x$$

$$\text{or, } \lambda \leq \frac{\alpha + tx + \beta x - (1 - \theta)(\gamma^*tx - p.f(tx - t\gamma^*x))}{\theta tx} \quad (7)$$

Since, by equation (1) $\lambda > 1$, for inequality (7) to be meaningful it must be the right hand side (R.H.S) of the inequality is strictly greater than 1. To ensure this it is sufficient to show that given the assumptions of the model, numerator of the fraction on the R.H.S of the inequality is strictly greater than the denominator. For the numerator to be greater than the denominator it must be :

$$\alpha + tx + \beta x - (1 - \theta)\gamma^*tx - p.f(tx - \gamma^*tx) > \theta tx$$

$$\text{or, } \{\alpha - p.f(tx - \gamma^*tx)\} + tx\{(1 - \gamma^*)(1 - \theta)\} + \beta x > 0 \quad (8)$$

which is true given assumption 3, $0 < \theta < 1, 0 < \gamma^* < 1$ and $\beta > 0$. Therefore given the assumptions of the model there exists a value of λ for which the taxpayer does not go to the court.

Now, the existence of the harassment equilibrium depends on the fact that given a choice whether the auditor chooses to charge such a λ as an equilibrium strategy. If the auditor chooses a λ such that inequality (7) is satisfied he gets the pay off of the bribery game described above. If he does

Let, the payoff of the auditor under the harassment equilibrium be represented by L , which is given as :

$$L = \theta(\lambda - \gamma^*)tx \quad (11)$$

Since by observation 1, γ^* is independent of λ and L is monotonically increasing in λ the auditor must be choosing the highest possible value of λ to maximize his payoff such that inequality (7) is satisfied. The auditor's choice of λ at the equilibrium is given by :

$$\lambda^* = \frac{\alpha + tx + \beta x - (1 - \theta)t\gamma^*x - p.f(tx - t\gamma^*x)}{\theta tx}$$

The above discussion allows us to state the first proposition of our model as :

Proposition 1 : If, $\alpha \geq p.f(tx - t\gamma^*x)$ a harassment equilibrium exists and the auditor chooses the optimum value of λ as :

$$\lambda^* = \frac{\alpha + tx + \beta x - (1 - \theta)\gamma^*tx - p.f(tx - \gamma^*tx)}{\theta tx}$$

After characterizing a harassment equilibrium for a particular value of $x > 0$, we ask whether any taxpayer with $x > 0$ participates in such an equilibrium or not.

Proposition 2 : Every taxpayer with $x > 0$ participates in the harassment equilibrium.

Proof : If $\alpha \geq p.f(tx - t\gamma^*x)$ inequality (8) holds and from proposition 1 we know that the harassment equilibrium exists. Now, the inequality (8) implies :

$$\alpha > (1 - \theta)\gamma^*tx + p.f.(tx - \gamma^*x) - \beta x - tx(1 - \theta)$$

negative. Observe,

$$\frac{\partial\{(\lambda^* - \gamma^*)t\}}{\partial x} = t \cdot \frac{\partial\lambda^*}{\partial x} - t \cdot \frac{\partial\gamma^*}{\partial x} \quad (14)$$

Since, $\frac{\partial\lambda^*}{\partial x} < 0$ and $\frac{\partial\gamma^*}{\partial x} > 0$ from equation (14) it is clear that the sign of $\frac{\partial\{(\lambda^* - \gamma^*)t\}}{\partial x}$ is negative. Hence, the statement of the proposition follows. \square

Now, we compare the welfare of the taxpayers in a corrupt regime *vis-a-vis* in an honest regime. The question is whether all the taxpayers make a loss or only a section of them does it. Then, we try to find out which section of taxpayers loses more.

Proposition 4 : The poorer section loses relatively more in a corrupt system than the richer section compared to an honest system.

Proof : Let, y_1 and y_2 be the incomes of the taxpayer in a corrupt regime and in an honest regime respectively.

$$y_1 = x - t\gamma^*x - \theta t(\lambda^* - \gamma^*)x - p.f(tx - t\gamma^*x) \quad (15)$$

$$y_2 = x - tx$$

$$y_1 - y_2 = tx - (1 - \theta)\gamma^*tx - p.f(tx - t\gamma^*x) - \theta tx.\lambda^* \quad (16)$$

Plugging the value of λ^* from proposition 1 into equation (16) we obtain :

$$y_1 - y_2 = -(\alpha + \beta x) \quad (17)$$

Therefore, from equation (17) we can say that the taxpayer will be losing under the corrupt regime and the amount of loss is exactly equal to the cost of going to the court [from equation (3)]. The amount of loss incurred by the taxpayer with income x in the corrupt system is $C(x) = \alpha + \beta x$. Therefore, the amount of loss as a proportion of income is $\frac{C(x)}{x}$.

$$\frac{C(x)}{x} = \frac{\alpha}{x} + \beta \quad (18)$$

3 The Filing Game

In this game the taxpayer acts as a first mover and takes a decision whether to file his income report or not. If he files his income report, the RCA sends the auditor to assess the report filed by him and the subsequent moves take place according to the game described in the previous section. So, they get the payoff of the 'harassment equilibrium'. If he does not file his income report, he does not have to pay any tax-revenue. But, if in independent investigation or through third party information the RCA comes to know the taxpayer with income x has not filed, it slaps a fine $F(x)$ on the taxpayer where $F(0) = 0, F'(x) > 0 \forall x \geq 0$. We assume, the RCA can catch such a non-filer only with probability k .

Assumption 4 : The fine function $F(x)$ is progressive in x .

Assumption 4 implies that the average fine rate $\frac{F(x)}{x}$ is increasing in x and the elasticity of the fine function $F(x)$ is greater than 1.

According to the description of the game if the taxpayer files his income-report the harassment equilibrium occurs and he has to pay a harassment cost $C(x)$ apart from his stipulated tax-revenue. Therefore, from equation (16) the payoff of the taxpayer can be written as :

$$y_1 = x - tx - (\alpha + \beta x) \quad (19)$$

The payoff of the auditor is :

$$L = \theta(\lambda^* - \gamma^*)tx$$

Let the expected payoff of the taxpayer if he does not file be represented by $E(y_3)$, which can be written as :

$$E(y_3) = x - k.F(x) \quad (20)$$

In this situation, the auditor does not get anything. The taxpayer's options and the corresponding payoffs can be described as in the figure below :

Observation 3: Given the harassment cost the lower is the tax rate, the higher is the fraction of the taxpayers filing their income report. So, there is a positive effect on the revenue collection. However, if α and β rises, lowering t may fail to affect the revenue collection favourably.⁷

So far we have restricted our attention to the case of perfect information where it is common knowledge that all the taxpayers are corruptible. In the next section we relax this assumption and move into the domain of imperfect information.

4 The Game With Imperfect Information

Here, we consider some honest taxpayers in the system. We define an honest taxpayer as:

Definition. An honest taxpayer is a person who always files his income report and if harassed by the auditor goes to the court. He never involves himself into a bribery contract.

It is a common knowledge that h fraction of the taxpayers in the system are honest. But, when an auditor picks up a filed income-report he does not know whether the report is from an honest taxpayer or from a corrupt one. He thinks with probability z that the report is from an honest taxpayer and with probability $(1 - z)$ it is from a corrupt one. Now, the game is described as in the figure below:

Figure 3

Observe, two types of pure strategy equilibrium can occur in this game:
(1) Pooling Equilibrium: when both the honest and corrupt taxpayers file

⁷In recent times of economic reform, in India tax rate (t) has been lowered considerably, but the appeal cost (α) has also been raised. So, the effect on filing pattern and the revenue collection is not unambiguous.

with probability y and a t_2 auditor with probability $(1 - y)$. Since, with h probability he is mistaken by the t_2 auditor as an honest taxpayer and is not harassed, his expected payoff is as follows:

$$\begin{aligned}
E(y_4) &= y[x - t\gamma^*x - \theta t(\lambda - \gamma^*)x - p.f(tx - t\gamma^*x)] \\
&\quad + (1 - y)[h\{x - t\gamma^*x - \theta t(1 - \gamma^*)x - p.f(tx - t\gamma^*x)\} \\
&\quad + (1 - h)\{x - t\gamma^*x - \theta t(\lambda - \gamma^*)x - p.f(tx - t\gamma^*x)\}] \\
&= x - t\gamma^*x - \theta t(\lambda - \gamma^*)x - p.f(tx - t\gamma^*x) \\
&\quad + (1 - y)h\theta t(\lambda - 1)x
\end{aligned} \tag{21}$$

The corrupt taxpayer files his income report only if:

$$\begin{aligned}
x - kF(x) &\leq x - t\gamma^*x - \theta t(\lambda - \gamma^*)x \\
&\quad - p.f(tx - t\gamma^*x) + (1 - y)h\theta t(\lambda - 1)x \\
\text{or, } k &\geq \frac{t\gamma^*x + \theta t(\lambda - \gamma^*)x - (1 - y)h\theta t(\lambda - 1)x}{F(x)} \\
&= k_1^* (\text{say})
\end{aligned}$$

Therefore, if $k \geq k_1^*$ pooling equilibrium occurs.

Case II Separating Equilibrium: If $k < k_1^*$, the corrupt taxpayer does not file. So, given an income report has been filed, the auditor knows it is from an honest taxpayer. The separating equilibrium occurs where the auditor's belief is $z = 1$.

So, we are at a point to state the next proposition of our model as:

Proposition 6 : If $k \geq k_1^*$ pooling equilibrium occurs and if $k < k_1^*$ the separating equilibrium occurs where

$$k_1^* = \frac{t\gamma^*x + \theta t(\lambda - \gamma^*)x - (1 - y)h\theta t(\lambda - 1)x}{F(x)}$$

In this context we make the following observation:

Observation 4: Under Perfect Bayesian Equilibrium there are situations

higher probability of harassment and the amount of informational rent to be extracted falls. Therefore, the auditor needs to charge a lower $\bar{\lambda}$ in the equilibrium. Similarly, as the fraction of honest taxpayers (h) increases, the corrupt taxpayer expects with higher probability he will be mistaken as an honest taxpayer, the amount of informational rent increases and the auditor charges a higher $\bar{\lambda}$ to extract the higher amount of rent. If, $y = 1$ or, $h = 0$, there is no informational rent left with the corrupt taxpayer. Therefore, the auditor charges $\bar{\lambda} = \lambda^*$.

5 Conclusion

In any corrupt regime people enjoy the benefits of bypassing the government regulation. Under-reporting of income leads to tax savings which helps both the taxpayer and the assessing official who receives a bribe. But, this is not an unmixed blessing. In a society where corrupt officials can wield power of coercion and harassment, people are forced to pay bribe to avoid problems. Thus corruption entails benefits as well as cost. This paper enumerates the cost and shows that the cost has a regressive bias. Among the taxpayers whoever files their income reports ends up by paying the harassment cost and not going to the court against the corrupt official. This happens in our model because the auditor can observe the taxpayer's income without spending any effort and acts as a perfectly discriminating monopolist to extract the taxpayer's entire surplus from not going to the court. The outcome of the model is not very satisfactory since in reality we observe some taxpayers going to the court alleging harassment. So, we have introduced some honest taxpayers and different types of auditors in the system and have allowed imperfect information to creep in. In this situation at the equilibrium we see that some taxpayers go to the court, but harassment also occurs side by side, which describes the reality more

the richer section does not depend much on the public provisions anyway it is not an important issue for them. The poorer section does not pay anything for the public provisions as it does not participate in the game. So, whatever amount of the public provisions they get, they end up as net gainers and as long as there is no significant decline in such provisions, they are not interested in supporting the cause of the richer citizens. Probably this is the reason why we have harassment in the society. This aspect will be investigated in greater detail in our subsequent work.

11. Das-Gupta, A. and D. Mookherjee, 1998, 'Incentives and Institutional Reform in Tax Enforcement : An Analysis of Developing Country Experience', Oxford University Press, New Delhi.
12. Dawid, H. and G. Feichtinger, 1996, 'On the Persistence of Corruption', Mimeo, Department of Operations Research and System Theory, Vienna University of Technology.
13. De Soto, H., 1989, 'The Other Path', New York : Harper and Row.
14. Ekpo, M., 1979, 'Bureaucratic Corruption in Sub-Saharan Africa : Toward a Search of Causes and Consequences', Washington D.C. : Press of America.
15. Kiltgaard, R., 1988, 'Controlling Corruption', Berkeley, CA : University of California Press.
16. Lui, F.T., 1985, 'An Equilibrium Queuing Model of Bribery', *Journal of Political Economy* **93** : 760-781.
17. Lui, F.T., 1986, 'A Dynamic Model of Corruption Deterrence', *Journal of Public Economics* **31** : 1-22.
18. Marcouiller, D. and L. Young, 1995, 'The Black Hole of Graft : The Predatory State and the Informal Economy', *The American Economic Review* **85** : 630-936.
19. Marjit, S. and A. Mukherjee, 1996, 'A Simple Theory of Harassment and Corruption', Working Paper SFB 303, University of Bonn.
20. Marjit, S. and H.L. Shi, 1998, 'On Controlling Crime with Corrupt Officials', *Journal of Economic Behaviour and Organization*, February.

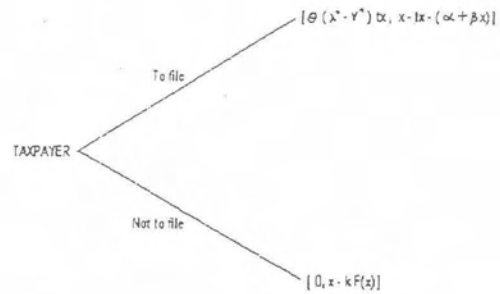
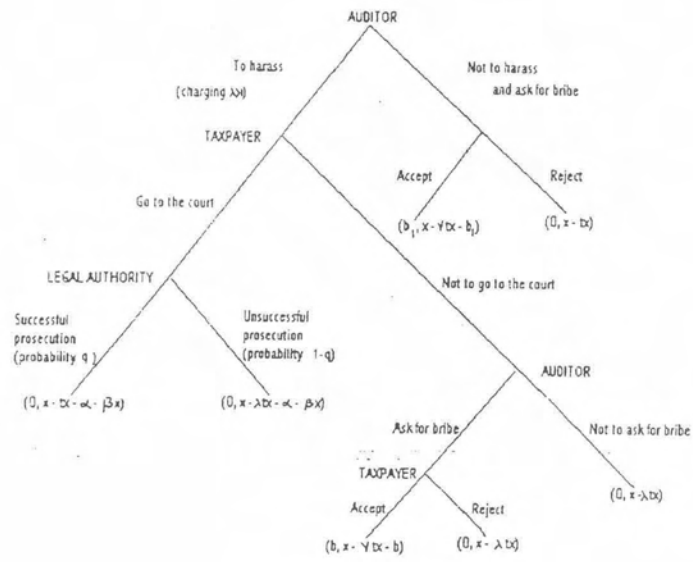


FIGURE 2

CESifo *Working Paper Series*

- 125 John Douglas Wilson and Xiwen Fan, Tax Evasion and the Optimal Tax Treatment of Foreign-Source Income, January 1997
- 126 Terje Lensberg, Investment Behaviour under Knightian Uncertainty - An Evolutionary Approach, January 1997
- 127 David F. Bradford, On the Uses of Benefit-Cost Reasoning in Choosing Policy Toward Global Climate Change, January 1997
- 128 David F. Bradford and Kyle D. Logue, The Influence of Income Tax Rules on Insurance Reserves, January 1997
- 129 Hans-Werner Sinn and Alfons J. Weichenrieder, Foreign Direct Investment, Political Resentment and the Privatization Process in Eastern Europe, February 1997
- 130 Jay Pil Choi and Marcel Thum, Market Structure and the Timing of Technology Adoption with Network Externalities, February 1997
- 131 Helge Berger and Jakob de Haan, A State within the State? An Event Study on the Bundesbank, February 1997
- 132 Hans-Werner Sinn, Deutschland im Steuerwettbewerb (Germany Faces Tax Competition), March 1997
- 133 Francesca Cornelli and David D. Li, Large Shareholders, Private Benefits of Control, and Optimal Schemes of Privatization, May 1997
- 134 Hans-Werner Sinn and Holger Feist, Eurowinners and Eurolosers: The Distribution of Seigniorage Wealth in EMU, May 1997
- 135 Peter J. Stemp, What Happens when Inflation Targets Change?, May 1997
- 136 Torsten Persson, Gerard Roland and Guido Tabellini, Separation of Powers and Political Accountability, June 1997
- 137 Avinash Dixit and John Londregan, Ideology, Tactics, and Efficiency in Redistributive Politics, June 1997
- 138 Hans Haller, Inefficient Household Decisions and Efficient Markets, June 1997
- 139 Avinash Dixit and Mancur Olson, Does Voluntary Participation Undermine the Coase Theorem?, September 1997
- 140 Frank R. Lichtenberg, The Allocation of Publicly-Funded Biomedical Research, September 1997

- 159 Manfred J. Holler and Bengt-Arne Wickström, The Scandal Matrix: The Use of Scandals in the Progress of Society, March 1998
- 160 Georg Nöldeke and Klaus M. Schmidt, Sequential Investments and Options to Own, March 1998
- 161 Robert Cooter, Expressive Law and Economics, April 1998
- 162 Peter J. Lambert, Horizontal Inequity: Some New Perspectives, May 1998
- 163 Syed M. Ahsan and Peter Tsigaris, The Design of a Consumption Tax under Capital Risk, May 1998
- 164 Jaleel Ahmad and Jing Yang, Trade Liberalization in Eastern European Countries and the Prospects of their Integration into the World Trading System, May 1998
- 165 Michael Hoy and Mattias Polborn, The Value of Genetic Information in the Life Insurance Market, June 1998
- 166 Constantin Colonescu and Nicolas Schmitt, Market Segmentation, Market Integration and Tacit Collusion, June 1998
- 167 Ronnie Schöb and David E. Wildasin, Economic Integration and Labor Market Institutions; Worker Mobility, Earnings Risk, and Contract Structure, June 1998
- 168 Christian Gollier and Jean-Charles Rochet, Discounting an Uncertain Future, June 1998
- 169 John G. Treble, Point Schemes, August 1998
- 170 Jay Pil Choi, Tying and Innovation: A Dynamic Analysis of Tying Arrangements, August 1998
- 171 Michael Reiter and Alfons J. Weichenrieder, Public Goods, Club Goods and the Measurement of Crowding, September 1998
- 172 Jay Pil Choi and Marcel Thum, The Economics of Repeated Extortion, October 1998
- 173 Lars Calmfors, Unemployment, Labour-Market Reform and Monetary Union, November 1998
- 174 Lars Calmfors, Monetary Union and Precautionary Labour-Market Reform, November 1998
- 175 Erkki Koskela and Ronnie Schöb, Why Governments Should Tax Mobile Capital in the Presence of Unemployment, November 1998
- 176 Erkki Koskela, Ronnie Schöb and Hans-Werner Sinn, Green Tax Reform and Competitiveness, December 1998

