

CORRUPTION AT THE
MICROLEVEL: ILLEGAL STREET
SELLERS

by

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Abstract

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This paper concerns the problem of illegal cigarette sellers in Kyiv. Reasons for appearance of such activity are discussed; comparative analysis of legal and illegal sellers is conducted. Proposed way to eliminate the corruption and to improve the efficiency of this branch of market - licensing - is discussed. A case study conducted on the Kyiv streets allowed estimation of the effects of corruption on consumers and sellers.

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Section 1

INTRODUCTION AND REVIEW OF LITERATURE

1.1. DEFINITION OF THE CORRUPTION

Corruption is a problem mankind faced a thousand years ago and will certainly face until the end of the world. Although the word “corruption” can have different names in different languages, the meaning is the same throughout the world (of course, it has some variations of meaning in different countries due to national particularities). The word itself originates from the Latin “*corruptio*” meaning “bribery”, “graft”. But the roots are much deeper: just take English verb “to corrupt”, which means “to decay”, “to distort”, “to deprave”.

How to define corruption? At first, we consider only the economic context (although we can mention such phenomena as political or other types of corruption, they cannot exist without economic one). The most concise definition is *the abuse of public office for private gains*. However, the exclusions should be noted here [Bardhan 1996]: “For example, a private seller sometimes rations the supply of a scarce good (instead of using the price mechanism to clear the market), and we use various ways of bribing him or an agent to jump the queue (paying a higher price to a “scalper” for a sold-out theater show or a game, tipping a “bouncer” for entry into a crowded nightclub, using “connections,” i.e., some form of long-run gift exchange, to get a job, and so on.”

It is important to distinguish between “corrupt” and “illegal”, as well as “immoral”¹. It is clear that far not every illegal transaction is corrupt, for instance, if the transaction occurs only as result of using force or threatening (a gang taking away your money or theft are good examples of illegal but not corrupt “transactions”). Nor necessarily must an immoral action be a corrupt one (if you buy a service of a night lady, it is immoral but hardly can be called corrupt). Vice versa, not always is corruption illegal or immoral. In some countries taxi drivers and restaurant servants have special line in their receipts sheets, where they write tips amount. When bribery of an official helps saving someone’s life (if, for instance, urgent medical service is made only after paying bribe to a physician or a bribe is used to free an innocent from the jail), the corruption in these cases is not immoral.

So, even simply defining the corruption may cause some difficulties and disagreements. However, in this paper we will use the above-mentioned definition.

1.2. TYPES OF CORRUPTION

Corruption is not restricted by some specific borders, it occurs virtually in every country, regardless of levels of social and economic development. In general, it is most likely to occur where public and private sectors meet, and especially where public officials have a direct responsibility for the provision of a public service or the application of specific regulations or levees [see, for instance, Rose-Ackerman 1996, 5]. This includes, for example, public

¹ Pranab Bardhan, “Corruption and Development: A Review of Issues,” *J. Econ. Lit.*, Vol. XXXV (Sept. 1997), 1321

contracting, licensing activities, such as the granting of import or export permits, taxation or customs duties.

Essential elements for corruption to occur are: a public official, discretionary public power, a misuse of that power by the official, and a benefit (whether in money or any other form) which that official obtains.

Corruption can be characterized from different aspects and, accordingly, systematized in several ways, depending on what side of it is being considered.

For example, we can distinguish between corruption “according-to-rule” and “against-the-rule.” (In Russian language, there are words corresponding to each case: “mzdoimstvo” for things that supposed to be done anyway, and “likhoimstvo” for things that are supposed not to be done²).

If we look at the scale of corruption, then the following division into two categories is possible: “petty,” or survival, corruption – that of civil servants who may be grossly underpaid and depend on small rents from the public to feed their families and pay school fees, and the “grand corruption” of high public officials who make decisions involving large economic rents.

If we are concerned with reasons of corruption, then it can also be divided into two major classes: paying to obtain government benefits and to avoid costs [see Rose-Ackerman 1996, 5].

One of the main tools of corruption are bribes. They can be used by private parties to “buy” many things provided by central or local governments, or officials may seek bribes in supplying those things. Here is a short list of types

² Bardhan, P. 1996. *The Economics of Corruption in Less Developed Countries: A Review of Issues*. Berkeley: U. of California.

of activities being targets for bribes: government contracts, government benefits, lower taxes, licenses, time (money paid to speed up the government's granting of permission to carry out legal activities, such as company registration or construction permits; bribes can also be extorted by the threat of inaction or delay), legal outcomes (bribes can change the outcome of the legal process as it applies to private parties, by inducing the government either to ignore illegal activities (such as drug dealing or pollution) or to favor one party over another (e. g., in court cases or other legal proceedings.)

Corruption in a society can be rare or wide-spread [see Johnson 1997]. When it is rare, unsystematic, then it is a norm to be non-corrupt, and formal and informal institutions are able to support this non-corrupt equilibrium. When, however, corruption is systematic and rather a norm than an exclusion, it becomes difficult to stay honest. Then you (as entrepreneur) face a dilemma: whether to overcome a problem in a legal, but cumbersome, way, whose result is unclear, or to pay bribe instead (like your rivals do). There is a high probability that you will choose the latter way and equilibrium with positive level of corruption will set in. This fact is known from the game theory³: if you choose between two possible outcomes, your decision is very much influenced by decisions of your neighbors/rivals, and, as result, the equilibrium is predetermined by initial distribution.

Section 2

ILLEGAL STREET-SELLERS: REASONS FOR EXISTANCE AND COMPETITION WITH LEGAL SELLERS

³ See, for example, Avinash K. Dixit and Barry J. Nalebuff. *Thinking Strategically* (New York, London: W. W. Norton & Company, 1991), 231-238, 241-245

Corruption and its impact on economic variables have been studied from macroeconomic level, including cross-country analysis, to the microlevel, where effect of corruption on activity of private firms was analyzed. In this paper the investigation is directed to the level of retail street-sellers. If you look at any more or less crowded place in the street of any big Ukrainian city, it is impossible not to notice these people. They are selling all those small things that are needed in everyday life or at least make it easier. Among their merchandise are hot-dogs, cakes, other types of snacks, chocolate, cigarettes, beer and other alcohol, newspapers and magazines, shoe-laces, etc. Most of them are illegal vendors (excluding those from state retail sale). Therefore, they are subject to hunting by the militia. In order to survive as entrepreneurs, they should pay bribes to the militia.

This paper focuses on cigarette sellers. There are several reasons determining that choice. First, cigarettes are a popular good and have a consistent demand (later on it will be shown that the demand is highly price-inelastic). Then, there are many types of cigarettes, and it is of interest to study the pattern of demand and the reaction of supply to it. Next, there exist rivals, represented by legally selling kiosks, so the question arises how illegal sellers withstand them. Cigarettes are very mobile good, therefore a question of competition between illegal sellers themselves can be studied.

Since selling illegally is at least inconvenient, if not dangerous, the reasonable question can be stated: why do these people exist, or, more explicitly, what are incentives for such an activity?

If we look at the simplest economic theory, supply is determined by the demand side (demand-driven economy). Demand for cigarettes should be rather inelastic because of the very nature of this good. Cigarettes are:

1. “bad” good in the sense that its consumption hurts the health of the smoker;
2. addictive (although it should not be understood not in physiological sense, but rather as psychological dependence), so it is not easy to quit smoking;
3. have almost no substitutes (if we do not take into account cigars or chewing tobacco), thereby excluding consumers from switching to (and from) another goods in case of price changes.

Second and third properties combined should preclude the demand from a significant fall in the case of relative cigarette price increase. Smokers might switch to another, cheaper, cigarettes rather than give up smoking, in the case of price rise. Or, they could consume less another goods, but continue to smoke. That’s why cigarettes seem to be income-inelastic as well.

The first and third properties together allow the following prediction, which is the reverse side of the previous one: if cigarettes became cheaper, the demand would increase less than proportionally. Despite the price fall, there is a disincentive to start consuming cigarettes (they are destructive), or to switch from another goods to them.

Now let us look at the supply side. Though it is not so easy to guess the supply price elasticity, nevertheless it seems to be rather high. The main reason is that, unlike consumers, sellers can find substitutes to cigarettes to respond to price changes. Kiosks as multigood “enterprises” will be less willing to buy cigarettes for resale would they become more expensive, if price of other goods would not change. The same is true for illegal street sellers: if price goes up, they can go out of business or switch to other types of goods. This is not a contradiction to the argument that in the case of price-inelastic demand suppliers should raise the price in order to increase revenue. In our

case price change is external. Kiosks and illegal sellers are not producers, and their marginal costs are mostly wholesale prices of purchasing the cigarettes. So, retail price rise is determined by wholesale price increase. Hence, though revenue would go up, profit will fall, since quantity sold will decrease, and high competition among resellers would drive prices close to marginal cost – so resellers could not compensate quantity decrease with markup increase.

Cigarettes are being sold legally by state retail sellers (shops) and by kiosks. Nevertheless, illegal sellers exist, and what is more, they are rather numerous. Two main questions arise in this context. First: What are the reasons for appearance of this illegal market? Second (consisting of two parts): Why are people involving themselves in such a nervous and risky business and how do they compete with legal sellers? Answers on the first question lies in the macroeconomic level, whereas the second question is the issue of the microlevel.

The main reason for cigarette smuggling is an inefficient policy of the Ukrainian government in regulating the domestic tobacco producing industry and in imports regulation. In 1998, domestic cigarette production amounted to 58.8 bln. pieces, consumption was 79 bln. pieces, the level of official import was 10 bln. pieces, and unofficial import 11 bln. pieces.⁴ The size of excise tax to domestic cigarettes production set up by the government in 1998 is 2.5 ECU per 1000 pieces on non-filter cigarettes and 3 ECU on filter types. After comparison of the prices of filter and non-filter cigarettes, one can conclude that cheaper cigarettes are taxed much heavier than expensive ones. Next, premium-class cigarettes, such as “Parliament”, “Marlboro” or “Camel”, are not produced in Ukraine. And leading Ukrainian producers are not planning to start producing them in the nearest future. One of the possible reasons is

⁴ Kto Dym Puskayet, *Ukrayinskaya Investitsionnaya Gazeta*, # 10 (180), March 16 (1999)

the psychology of the consumers. It is not clear whether will they buy premium-class cigarettes produced outside U.S. Now, these cigarettes are imported. The tariff on imported cigarettes is 2.5 ECU per 1000 pieces, making them very expensive for the consumer. This gives rise to unofficial imports.

The second question concerns people who sell illegally imported cigarettes.

First, why do they exist. The main reason seems to be low payment, which is insufficient for living. So, the majority of those people should consist of low-income citizens, such as pensioners with low pensions, or workers of state enterprises with chronic payment delays or/and low wages.

Next, what can they propose to the consumer in order to vie with kiosks? The possible answers are summarized below.

1. *Lower price.* This seems to be the most logical and powerful argument. However, as empirical evidence witnesses (case study conducted in the Kyiv streets), this is not always true. Sometimes kiosk prices are higher, sometimes they are matched by street vendors, and there are cases (not rare) when illegal sellers charge even higher prices than those of kiosks. So, some other arguments should be present.
2. *Mobility of street-sellers.* Cigarettes are, as was mentioned earlier, very mobile good. This quality should allow street-sellers to allocate themselves so that to meet customers first and to provide them more convenience than kiosks. For example, they might be found near bus stops and metro stations (as kiosks do as well, but street-sellers can act very close to, for instance, metro exits, or even inside metro stations).

3. *Extreme specialization.* Street-sellers, who specialize on cigarettes, should respond quickly to the demand and propose exactly those types that are consumed in this specific place. Kiosks sell other types of goods, and if cigarettes make not very significant part of their profit, they could not be so responsive to the consumer needs. This issue is also closely related with the next one.
4. *Diversification of choice.* Since cigarette sellers are extremely specialized, they should satisfy all possible consumer tastes. Then, mobility, extreme specialization and choice diversification together make one another significant feature in favor of cigarette sellers: they save consumer's time.
5. *Time.* To buy a pack of "Marlboro" or "Pall Mall" does not seem to be a time consuming operation. But, if we take into account their relative cheapness (in comparison with durable goods) and absence of special storage conditions (if compared with majority of products), saving even thirty seconds may play a crucial role in favor of mobile and highly-diversified street-sellers. If a smoker goes out of metro and meets babushka earlier than kiosk, and this babushka will have a pack he needs, he would not spend much time to find kiosk to save 10 kopecks. Then, since kiosks sell many types of goods, there could happen queues there, and even if this queue consist of one consumer, smoker can switch to nearby street-seller, who will serve him faster.

Section 3

EFFECTS OF CORRUPTION

Besides kiosks, street-sellers face one more problem, which is much more serious: it is militia. If they want to sell, they should pay bribes to militia. This is referred to “petty” corruption. How does this fact affect different parties involved in the cigarette market’s functioning?

Corruption in this case could be formally viewed as tax imposed on reseller activity. Effect of such a tax is shown on the Fig. 1. Corruption tax leads to the following effects:

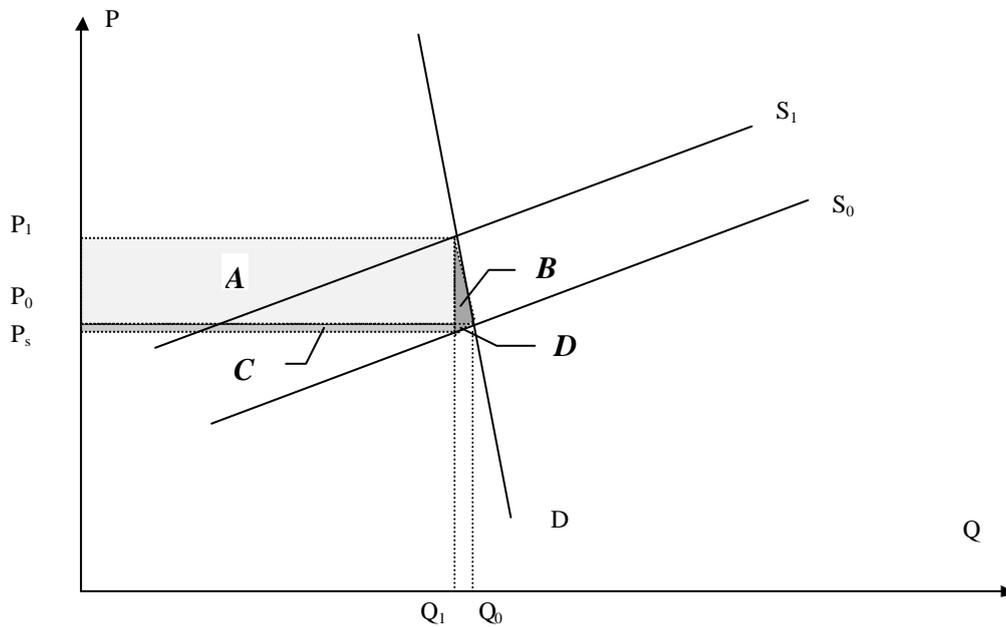


Fig. 1. Effect of corruption tax.

1. It increases price for consumers (from P_0 to P_1), hurting them thereby. Consumer surplus loss as result of the corruption is rectangle A plus triangle B on Fig. 1.
2. It hurts sellers as well. Number of consumers is now decreased (from Q_0 to Q_1), and the net price sellers receive (P_s) is lower than market price, P_0 . Seller surplus loss amounts to C+D.
3. Amount collected by militia is $(P_1 - P_s)Q_1$, or A+C.
4. Corruption creates deadweight loss, which is the sum of triangles B+D.

To summarize, corruption hurts consumers, sellers and makes the whole society worse off, creating deadweight loss (we do not take into account positive effect of decreasing number of smokers).

Let us now look at it more precisely in mathematical sense. If existing equilibrium price and quantity of cigarettes are P_1 and Q_1 , respectively, bribe payment per pack sold is $t = P_1 - P_s$ (quantity tax), then all above-mentioned values can be expressed by the following formulas (full derivation is carried out in Appendix A):

Total amounts of bribes paid: $A+C = tQ_1$;

Ratio of consumers' to sellers' contributions to bribe payments:

$$\frac{A}{C} = \frac{P_1 - P_s}{P_1 - P_s} \cdot \frac{P_1 - P_s}{P_1 - P_s}.$$

Therefore, consumers' contribution is

$$A = \frac{P_1 - P_s}{P_1 - P_s} \cdot \frac{P_1 - P_s}{P_1 - P_s} \cdot tQ_1,$$

and, sellers' contribution is

$$C = \frac{\epsilon_d}{\epsilon_d + \epsilon_s} t Q_1.$$

Deadweight loss due to corruption amounts to:

$$B+D = \frac{\epsilon_d \epsilon_s t^2 Q_1}{2 P_1 (\epsilon_d + \epsilon_s)}.$$

So, as can be seen, the burden of corruption tax is split between consumers and sellers with correspondence to price elasticities of demand and supply. The more elastic is supply and the less elastic is demand, the more is paid by consumers comparing to sellers. Deadweight loss is insignificant in the case of inelastic both demand and supply, but it suffices to have one of them very inelastic in order for deadweight loss to be small (even if the other side will be perfectly elastic, i. e. infinite elasticity). So, if, for instance, we have a situation of very inelastic demand (which is rather realistic assumption), then the deadweight loss is rather small, and if, in addition, supply is rather elastic, then the most part of corruption tax is borne by consumers. **So, under condition of low price elasticity of demand and high supply price elasticity corruption on the street market of cigarettes can be seen as transfer of wealth from consumers to militia.**

Section 4

ELIMINATING THE CORRUPTION: THE LICENSING

So, there is only one party gaining from existing situation: bribe-takers, i. e. militia. And even more, not everything is said about sides that lose. One more negative aspect not discussed in the previous section is that government does not get tax revenue from street sellers.

A proposal to resolve this problem seems to be quite logical: to legalize street sellers by letting them have licenses for reasonable price and without much bureaucratic routine associated with its obtaining. The predicted effects of the licensing would be eliminating the corruption, increase of competitiveness of this branch of market to the favor of consumers, disappearance of moral and risk factors associated with illegal selling and, therefore, increased quality of service. Then, collecting VAT from street sellers would be technically difficult and inefficient, so VAT for them could be substituted by license payment. Thus, bribes absorbed by militia would be transformed into government revenue.

Will licensing eliminate the problem? It depends on such factors as price of license, period of time until the license expires, bureaucratic difficulties of obtaining the permission.

If licensing were too expensive, people would prefer stay illegal. So, the payoff should be estimated. Then, if entrepreneur would have to pay in advance for a long period of time, this disincentive would be a serious barrier of entry. And if process of obtaining the license were too complicated, this would be another obstacle for small businessman.

The very attractive variant would be if the licenses could be simply bought, without registering the name of owner on it and without special restrictions. Two questions here: is it possible and is it optimal?

It is possible in principle, since selling of cigarettes, as was mentioned earlier, does not require any special conditions which could restrict issuance of license, and they are very mobile good requiring very limited amount of space for selling.

Then, selling licenses without special restrictions and without personalizing them would make them a market good. If an entrepreneur for some reason would decide to cease his activity and his license is not yet expired, he could sell this license to someone else (or to government authority).

So, making licenses a “liquid” good would improve the market.

CASE STUDY

A research of street market of cigarettes was conducted in Kiev during September - December 1998. The major part of cigarettes in Kiev are sold by the street sellers, who have no license for retail selling, i.e. they do it illegally. The major questions on which the case study should provide answers are:

?? Who are these people?

?? What are the incentives for them to participate in such an activity?

?? How do they cope with their illegal status? (Do they pay bribes? If yes, how much?)

?? How is their business organized? (Where do they get cigarettes for resale?)

?? Does the business help them make ends meet? (What are day/month revenue/profit?)

?? What is the structure of cigarette market?

?? What is the consumer surplus loss as result of such an activity? (Estimate the total scale of Kiev cigarette market, turnover, markup due to bribery payment)

?? What can be done to eliminate the problem? (Does there exist an efficient outcome which would be in favor of both sellers and consumers?)

Cigarette retail sellers in Kiev (like in other Ukrainian cities) can be divided into two main categories: kiosks and street sellers. (Some amount is also sold in state-owned shops, but it can be ignored without distorting the estimations much: in the latter case prices are usually higher and quality of service remains on the Soviet standards, i.e. very low. So the total revenue is much lower than that of two first types). Kiosks are licensed for retail sale, and street sellers are in fact smugglers. What are the reasons for that?

The main reason forcing a person to become an illegal street seller is a poverty. The overwhelming majority of those people are pensioners. The survey of such people conducted by the author on the streets of Kiev revealed that their pensions are incredibly small: 40 – 95 UAH, with the median figure of 54 UAH (14 sellers were questioned; places include five metro stations, areas near The University of Kiev-Mohyla Academy and near National medical university). So this activity allows them to survive and makes an essential part of their income.

How do these people do compared to kiosks? Before the economic crisis of August/September 1998 , street sellers' prices were lower than those of

kiosks', and accordingly, their revenue were much higher (Estimated proportion based on the questioning of the smokers is about 4:1, i.e. 80% of cigarettes were sold by street sellers). Now the price gap has almost disappeared (Table 1). However, the proportion did not change much, and the possible explanation is that smokers continue to prefer street sellers just because they did it before (for the sake of research 29 smokers (21 men and 8 women) representing different income, age, and education were questioned).

Table 1. Comparison of cigarette retail prices⁵

Class *	Cigarettes	Street sellers		Kiosks	
		Price range	Median price	Price range	Median price
u p p e r	Parliament	3.90 - 4.20	4.00	3.90 - 4.20	4.00
	Trussardi	3.60 - 4.00	3.70	3.70 - 4.10	3.80
	Trussardi Lights	3.60 - 4.00	3.70	3.70 - 4.10	3.80
	Dunhill	3.60 - 4.20	3.80	3.70 - 4.20	3.90
	Dunhill Lights	3.60 - 4.20	3.80	3.70 - 4.20	3.90
	Marlboro	3.00 - 3.50	3.20	3.20 - 3.70	3.40
	Marlboro Lights	3.00 - 3.50	3.20	3.20 - 3.70	3.40
	Rothmans	3.20 - 3.50	3.30	3.20 - 3.50	3.40
	Camel Filter	3.00 - 3.20	3.05	3.00 - 3.30	3.10
	Camel Lights	3.00 - 3.20	3.05	3.00 - 3.35	3.15
m e d	Davidoff	3.90 - 4.30	4.10	3.90 - 4.30	4.10
	Davidoff Lights	3.90 - 4.30	4.10	3.90 - 4.30	4.10
	Prima Luxe	1.70 - 2.00	1.80	1.80 - 2.20	2.00
	L&M Filter	1.80 - 2.00	1.90	2.00 - 2.30	2.20
	L&M Lights	1.85 - 2.10	2.00	2.10 - 2.40	2.25
I u m	President	1.50 - 1.80	1.60	1.50 - 1.80	1.60
	Monte Carlo	2.20 - 2.50	2.30	2.20 - 2.50	2.30
	Pall Mall Filter	1.90 - 2.10	2.00	1.90 - 2.15	2.05
	Pall Mall Lights	1.90 - 2.10	2.00	1.90 - 2.15	2.05
	Bond Street King Size	1.60 - 1.90	1.70	1.60 - 1.90	1.70
	Chesterfield Filter	2.40 - 2.65	2.50	2.40 - 2.70	2.60
l o w e r	Winston	2.45 - 2.65	2.55	2.45 - 2.70	2.60
	Lucky Strike	2.70 - 3.00	2.80	2.75 - 3.00	2.90
	Diplomat	1.15 - 1.30	1.20	1.15 - 1.30	1.20
	Stolichniye	1.05 - 1.25	1.15	1.05 - 1.30	1.20
	Prima Classic	.60 - .70	.65	.60 - .80	.70
	Prima Filter	.90 - 1.10	1.00	.90 - 1.10	1.00

* Cigarettes are divided into three major classes according to smokers' preferences

⁵ At the moment the research was conducted the exchange rate was 3.427 UAH/USD

How can the change in relative prices be explained? One possible explanation is that kiosks reduced their markup. Street sellers specialize on one type of product (in this case cigarettes). So competition forces the prices down close to marginal cost. So, their markup remains small after the price rise. Kiosks sell several products, and usually cigarettes are not their main revenue. After overall price increase their revenues fall (the majority of products they sell has rather price-elastic demand – cigarettes not included and discussed below), so they had to reduce their markup for at least some products, and cigarettes were among them. And now we have almost the same prices.

In the Table 1 cigarettes are divided into three main price categories: “high” class with price of 3.00 - 4.00 UAH, “medium” class of 1.60 - 2.90 UAH and “lower” class having price of .60 - 1.20 UAH. It is clear that they are consumed by different categories of smokers. Lower class are bought by low-income consumers: workers, pupils, pensioners and also by people of older generation (not necessarily poor) who are accustomed to them. High class finds its worshippers among high-income citizens and students. Students choice can be explained not by high income, but by desire to “look at the appropriate level” in their environment. Another reason is that students living with parents do not spend money on the everyday necessities as their dorm counterparts do and so they have money to buy high-quality cigarettes. Consumers of medium class are people of intellectual activity with moderate income (students as well as).

Favorite places for street sellers are metro station exits, bus stops, underground passages, markets and near-market space, space around universities, the railway terminal.

It is clear that day revenue depends on the place of sale. Revenue varies in quantities of packs sold, as well as in type of packs. Averaging over the sellers

and days, the average number of packs sold per day is 21 (twenty is used below for simplicity of calculations).

To determine the average price of a pack, both smokers and sellers were questioned. There were found concentrations of consumers of all price classes, from 60-kopeck Prima Classic to 4-hryvnia Parliament and Davidoff. Estimated average pack price is 2.50 UAH. This is the price of Chesterfield Filter or Winston pack.

So, average day's revenue is 50 hryvnias.

To estimate profit, the sellers were asked about the sources of cigarettes. Although some have supply directly from the outside of Kiev, the majority buys cigarettes at the markets (Yunost, Troyeschina, Privokzalny) at wholesale prices, in 10-pack boxes. Price of Parliament box is 35 hryvnias, Chesterfield Filter – 22, Prima Classic – 5. Those supplied from outside Kiev, as well as wholesale traders, get imported cigarettes from Odessa or Moldova (more exact ways of imports are still subject to research).

So, average day's profit is $(2.50 - 22/10)20 = \mathbf{6 \text{ hryvnias}}$. (without deducting bribes).

Essential and the most difficult part of case study was estimation of amount paid to militia. Sellers hardly tell about such things, but some results are obtained. The most interesting thing about them, and attentive passer-by should notice it, is that they are highly mobile even if seem cumbersome. They can turn into usual pedestrian into seconds and hide their good so that it is just a big carton box, nothing more. They have an "alarm system": when policeman is approaching they are warning each other by chain (not only cigarette sellers, there are also people selling other commodities or food. So you can see a wave of worried people hiding their commodities and looking

just as they are waiting for the friend. Only sellers in the center of the city reported a direct money payment to militia. More usual thing is when militia comes suddenly and catches one of them. In this case the ticket to freedom is one or two packs. This happens not regularly, once or twice a week. So, day's payment can be estimated as .35 - 1.40 UAH. (This is consistent with figures reported for direct payment - **1 hryvnia**, and this figure is taken for the further estimations.).

It is hardly to estimate the number of street sellers directly, but it can be made indirectly using the next formula:

$$S = r * N * C * i / Q,$$

where S is number of illegal street sellers in Kiev,

r is smokers' ratio in population,

N is Kiev population (so rN is the number of smokers in Kiev),

C is an average cigarette consumption (packs/day),

i is the ratio of illegal sellers sales in overall sales (so in numerator we have total sales by illegals),

Q is average day sales of illegal seller (packs/day).

At first number of smokers in Kiev had to be estimated. There is a data from five student groups from the National medical university, which is considered as the one of the most heavily loaded with smokers: 7 out of 15 students, 6 out of 12, 8 out of 13, 5 out of 13, 9 out of 15. The NaUKMA is considered as having the one of the least ratios of smokers among Kiev universities. Three groups: 5 out of 31, 6 out of 26, 7 out of 28. Having considered children (who are supposed not to smoke, but it is not always true – sad

reality), 20% seems to be a fair estimate. Since Kiev population is about 3,000,000 citizens, the total amount of smokers in Kiev is about 600,000. The average amount smoked per day is 10 cigarettes, or half a pack. So, total amount of cigarettes sold in Kiev is 300,000 packs/day. Out of it, 80%, as was mentioned above, or 240,000, is sold by street sellers. Divided by average sales per day (20 packs), we obtain an army of **12,000** pensioners (and others) selling cigarettes illegally in the streets.

Economic crisis showed also that cigarettes are very price inelastic. Almost no-one questioned had reduced smoking or even switched to cheaper brands after price increase.

On the other hand, supply is rather elastic. It was hard to find people who quit street selling after price rise, but the remaining sellers told that there were quitters.

Now it is possible to estimate consumer surplus loss from illegal sales of cigarettes in Kiev. Taking into account that demand is rather inelastic (see Fig. 1) the total amount of bribes paid is **12,000 hryvnias/day**, or **.02 hryvnias/day per one smoker**, or **1 hryvnia/day per one seller**.

Section 6

CONCLUSIONS

So, as can be seen from the case study, corruption does hurt consumers, since sellers are able to transfer to them the burden of corruption tax. However, average loss for one smoker is very low. The main problem that exists is that money being illegal part of militia income would become part of government revenue, if licenses were introduced. Government wants to collect money by taxing imported cigarettes, thus making legal imports of them unprofitable. If

tariffs on imported cigarettes were canceled and easy licensing introduced, then street sellers would have to compete with cigarettes importing companies to the favor of consumers.

What is left beyond the scope of the approach proposed in the paper? One rather important aspect that is missing is moral aspect of corruption. Paying the bribe is not the same as paying VAT. This creates a sort of barrier for people to be involved in illegal selling. Thus, illegality status shifts supply curve even further upward, making consumers worse off. Corruption gives sellers market power, it does not allow pure competition between them.

Another missing part is the risk associated with illegal selling. First, if seller and policeman do not come to the agreement about amount of bribe or seller simply refuses to pay it, he (seller) could decide to sell on his own risk, while the militia is far from him. Second (and maybe more important), this activity because of its nature is open to the eye of society, and the public is well aware of its illegal status. For instance, giving bribe by car driver to the road policeman is act rather hidden from the curious outside observer. However, unlike road bribery, the interaction between street sellers and militia is well observed by pedestrians and other witnesses. So, militia sometimes should publicly show its basic destination, catching up the “violators” and fining them or confiscating the merchandise. Consequently, part of the price markup over free-market price can be viewed as risk premium, charged by sellers. This risk, although by lesser degree, can also refer to the consumer. Theoretically, there exists a danger to be caught while buying as a person involved in an illegal interaction.

Negative moral perception and associated risk decrease consumer’s (and seller’s) utility. Therefore, if social welfare is considered as sum total of

individual utilities, as utilitarians argue, then corruption reduces social welfare even more than state-imposed tax.

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APPENDIX

DERIVATION OF LOSSES TO SOCIETY AND ITS PARTS

Let's look at the Fig. 1. We assume that the curves can be approximated to straight lines within price changes and equilibria being interest of our research. Slope of each line can be expressed via price elasticity:

$$\epsilon = \frac{\% \Delta Q}{\% \Delta P} = \frac{dQ}{dP} \frac{P}{Q},$$

therefore

$$\frac{dP}{dQ} = \frac{P}{\epsilon Q},$$

where ϵ is a price elasticity of demand or supply.

Fig. 1 consists of three lines:

$$\text{D-curve: } \frac{P - P_1}{Q - Q_1} = \frac{P_1}{\epsilon_d Q_1};$$

$$\text{S}_0\text{-curve: } \frac{P - P_1}{Q - Q_1} = \frac{P_1}{\epsilon_s Q_1}, \text{ and}$$

$$\text{S}_1\text{-curve: } \frac{P - P_1}{Q - Q_1} = \frac{P_1}{\epsilon_s Q_1}.$$

Here P, Q are variables, ϵ_d and ϵ_s are price elasticities of demand and supply, respectively.

Total amount of bribes paid to militia is

$$A+C=tQ_1.$$

Deadweight loss, B+D, is equal to $\frac{1}{2}t(Q_0-Q_1)$. Difference in quantities can be found from the equations of D- and S_0 -curves: they intersect at the point (P_0, Q_0) .

From D-curve:

$$P_0-P_1=(Q_0-Q_1)\frac{P_1}{Q_1};$$

from S_0 -curve:

$$P_0-P_1=(Q_0-Q_1)\frac{P_1}{Q_1}-t.$$

Equating it and solving for quantity difference, we have:

$$Q_0-Q_1=\frac{tQ_1}{P_1}.$$

So, the amount of the deadweight loss is:

$$B+D=\frac{t^2Q_1}{2P_1}.$$

A/C ratio (consumer to seller ratio of bribes paid):

$$A/C=\frac{P_1}{P_0}.$$

Substituting the numerator and denominator values by the corresponding expressions from D- and S_0 -curves, we have

$$\frac{A}{C} = \frac{(Q_1 - Q_0)P_1 / (e_d Q_1)}{(Q_0 - Q_1)P_1 / (e_s Q_1)}$$

or, after simplifying,

$$\frac{A}{C} = \frac{e_s}{e_d}$$

Hence, corruption tax is split between consumers and producers as follows:

$$A = \frac{e_s}{e_s + e_d} tQ_1 \text{ paid by consumers;}$$

$$C = \frac{e_d}{e_s + e_d} tQ_1 \text{ paid by producers.}$$