THE WELFARE EFFECTS OF PRIVATISATION IN TRANSITIONAL ECONOMIES

1. Introduction

Privatisation in most transitional economies of Central and Eastern Europe and former Soviet Union has proceeded in an unforeseeable speed. For a large share of productive assets private ownership has replaced public and collective ownership. It is obvious that this change in the ownership forms of most enterprises has caused dramatic changes in the economy. In transitional economies privatisation has had a strong effect on the profitability of enterprises, on incentives and managerial effort, physical capital restructuring, public sector budget balance, unemployment and inequality. The reasoning behind and the consequences of privatisation have been probably the most debated issue in the economics of transition.

This thesis deals with the redistribution of property rights that takes place during and after the privatisation process. The main goal is to build a model, which analyses different consequences of property rights in societies with a long history of mainly state and collective ownership. The most important questions in this paper are: what are the factors that determine the distribution of property rights in post-communist enterprises and what are the implications of various ownership structures to the welfare of the economy?

The issue of employment and property rights reallocation has been studied in various contexts. On the micro level Shleifer and Vishny (1994), Boycko, Shleifer and Vishny (1996) and Debande and Friebel (1997) have analysed how the behaviour of different economic agents affects restructuring, productivity of enterprises, employment and government transfers. Their models are interesting and intuitively plausible. The papers conclude that privatisation in general has a positive effect on restructuring of enterprises.

However, these papers say very little about the impact that privatisation has on social welfare in the society.

Blanchard and Aghion (1997) recognise the difficulties of achieving a balanced growth path during enterprise reforms. They stress the problems of job creation in the private sector to offset unemployment caused by labour shedding. In order for transition to succeed and for the economies to achieve balanced growth, unemployment can not rise too much in the process of replacing state ownership with private ownership.

Analysing the combined effects all of issues related to property rights reform is a very challenging task, and previous research on the issue has not been able to attack this problem comprehensively enough. To my mind a large share of research on enterprise reforms stresses the efficiency aspect too heavily. Although in the long term restructuring and labour shedding are necessary steps on the way to market economy -like behaviour, the negative effects of shock therapy are often neglected. I do not oppose the argument that fast restructuring and labour shedding controlled by managers with economic competence is most favourable from the individual enterprise's point of view. Nevertheless, wealth distribution is completely redetermined in the privatisation process and badly designed policies can create a very skewed ownership structure and cause unemployment and major social damages which deteriorate aggregate welfare. Therefore, in privatisation policies efficiency is not always of primary importance.

In the worst case, the long-term growth prospects may be hurt irreversibly. There are several ways to prove the negative impact of inequality to growth. Inequality can be harmful for growth not only because of social problems like poverty or because a large share of the productive population will be left out of the reform process. Inequality will promote redistributive instead of growth-oriented policies (Persson and Tabellini 1994, Alesina and Perotti 1996) or lead to underinvestment in effort (Benabou 1996, Aghion and Bolton 1997, Aghion and Howitt 1998).

Socialist economies were egalitarian societies with full employment. A minor rise in

inequality should only be a positive feature in post-socialist economies, because it increases incentives to work efficiently. However, some transitional economies have experienced extremely high growths in inequality. For example, the Gini coefficient in Bulgaria, Estonia and Russia has risen from relatively low levels to 34, 39 and 48 respectively in only five years time. This kind of an increase will cause significant social problems like stratification, increase in poverty rates and it may have a negative impact on aggregate welfare and even growth.

This paper argues contrary to numerous other studies on the subject that it might not be advisable to enforce the so called shock therapy to the entire enterprise sector and to cut down excess labour and rapidly hand over the enterprise sector to the hands of outsider strategic investors. Instead, the inequality aspect should be regarded more closely in order to avoid the negative welfare effects of an inegalitarian income distribution.

There are two models presented in this paper, one on the short-term welfare effects of the enterprise reform and one on the dynamics of unemployment and growth. The first model has two main purposes. First of all, it tries to solve how property rights redistribution affects enterprise's profits, government transfers and unemployment. The issue must be treated very carefully in the case of post-communist economies. Although the change in legal property rights can occur in a very short time, the behaviour of individuals is quite different from the rational behaviour models that are used in most neo-classical microeconomic theories. Especially labour shedding from the inefficient levels of socialist enterprises might not be seen as favourable even if the managers or owners would have some financial responsibility towards the enterprise.

Secondly, after analysing the behavioural patterns of enterprise owners and managers, the model compares the impact of different ownership forms on welfare. Welfare is determined by a Bergson-Samuelson social welfare function (see for example Samuelson 1983), where the aggregate welfare is constructed as a sum of individual welfare functions. The key point is that the utility functions of individuals are concave. Hence, marginal utility of income is decreasing and inequality will have a negative impact on aggregate welfare.

The static model concludes that in privatisation policies there is a trade-off between efficiency and inequality. This trade-off means that if a country concentrates on the efficiency aspect only, the welfare implications may not be optimal. Although this paper goes through various explanations why short-term inequality might have harmful long-term consequences, the model itself, however, can only draw conclusions for the short term.

Since numerous arguments on the long term effects of fast restructuring have been offered, this paper goes further in the analysis and presents another way to analyse the welfare effects of privatisation, this time in the longer term. In the last chapters I reformalise the Blanchard-Aghion model on restructuring and job creation (1997), taking into account the effects of inequality to investment and growth (Benabou 1996, Aghion and Howitt 1997).

The next chapter discusses the consequences of privatisation from two different aspects. The expected efficiency gains are recognised, but in addition the analysis goes deeper into the problem of inequality, both from the empirical and theoretical point of view. Privatisation is seen as one of the main causes for the recent increase in inequality, and inequality to a large extent is shown to have a damaging impact for the economy. Chapter three summarises the recent literature on privatisation from the microeconomic point of view. In chapter four I construct a model that analyses the behaviour of enterprise owners and managers during the privatisation process. The effect of ownership changes on profits, government transfers and inequality are calculated in chapter five. Chapter six compares the welfare effects of different owner-manager combinations with the help of social welfare functions and draws conclusions on government policies and on the existing ownership structures in transitional economies. Chapter seven presents the welfare effects of privatisation from a slightly different angle. It formalises the long-term dynamics of job creation and unemployment when differences in initial endowments are taken into account. The final chapter summarises the most important conclusions from this paper.

2. Privatisation: the efficiency gains and the distributional aspect

Privatisation is expected to induce several efficiency gains for the economy. However, privatisation has also been shown to lead to a more concentrated distribution of income and wealth, which can seriously undermine these efficiency gains and lead to a decrease in aggregate welfare. A comparison between both of these effects is necessary in order to clearly analyse the consequences of privatisation in former socialist countries.

2.1 The expected efficiency gains

Privatisation is not a new issue in the world economy, or a special characteristic of former command economies only. Several market economies have privatised individual state-owned enterprises already before transition in Central and Eastern Europe and the former Soviet Union commenced. The most fundamental argument for privatisation in market economies has been enhancing productive and allocative efficiency (Schwartz 1995) by increasing the incentives of enterprise managers and workers and by abandoning the monopoly status of state-owned firms. Many studies have shown that private enterprises are more efficient than public ones, however, empirical evidence has not always been indisputable (see for example World Bank 1992 and Millward 1988).

The theoretical propositions about the efficiency gains of privatisation can unbiasedly be applied to the former socialist economies. In addition, transitional economies enjoy some additional benefits from the increasing share of the private sector, because the initial conditions prior to privatisation were less favourable than in market economies. Therefore privatisation should improve efficiency and productivity in transitional economies even more than has been the case in market economies.

First of all, in centrally planned economies there were no competitive markets with efficiently behaving enterprises and production was subject to plans which determined the quantity of output rather than sales or profit targets. Therefore managers had even less incentives for profit-maximising behaviour in socialist enterprises than in the state-owned enterprises of market economies. State subsidies for firms in centrally planned economies were large and

because of the state-controlled pricing system subsidies were not directly connected with the profitability of the firm. Enterprises in a socialist economy functioned under soft budget constraints (Kornai 1992), which meant that inefficient or loss-making firms were not threatened by bankruptcy. Privatisation of cash flow rights to individual persons was generally seen as the most natural way to harden budget constraints and to make enterprises act in a more profit-oriented manner.

Secondly, Central and Eastern European countries were exposed to heavy fiscal deficit problems in the first years after transition (EBRD 1997, 214-240). It is quite evident that the sale of loss-making state-owned enterprises is beneficial for the state budget. Even the sale of profitable enterprises or of such enterprises that need vast restructuring can be a first-best policy to get short-term fiscal benefits in a situation where the state is going through a period of massive reforms, which require investments in new physical and human capital.

The third efficiency gain distinctive for transitional economies is that not only does privatisation and the abandonment of central planning affect individual enterprises, but the entire economic structure will improve with the growth of the private sector. The structure of firms in centrally planned economies was distorted in many ways. The average size of enterprises, the share of the industrial sector compared to the service sector and the share of certain branches like military and heavy industry was much bigger than in developed market economies, especially in the former Soviet Union (Popov 1996). The virtual absence of small firms - which are most probably privately owned - makes another strong case for the development of the private sector.

2.2 The distribution of income and wealth: theory and evidence

Income distribution was exceptionally egalitarian in socialist economies. This policy was based on ideological and political rather than economic reasoning. Transition from centrally planned to market economy is expected to have a huge impact on wealth and income distribution. Because of the excessive egalitarianism of the communist society a small rise in inequality should not be considered harmful since the socialist system suffered from lack of incentives. However, if the rise in inequality is large, the effects can be very detrimental to

poverty, welfare, human development and even growth.

Table 2.1 Changes in income inequality and poverty* during transition in selected countries

Country	Gini-index		Poverty headcount (%)	
	1987-8	*1993-5*	*1987-8*	*1993-5*
Bulgaria	24	30	2	15
Czech Republic	19	27	0	<1
Hungary	21	23	1	4
Poland	26	28	6	20
Romania	23	29	6	59
Slovakia	20	19	0	<1
Belarus	23	28	1	22
Estonia	23	35	1	37
Latvia	23	31	1	22
Russia	24	48	2	50
Kazakhstan	26	33	5	65
Uzbekistan	28	33	24	63

*poverty defined as share of people earning less than $120 PPP per month.

Source: Milanovic 1998.

Empirically the trend in most countries in Central and Eastern Europe and the former Soviet Union has been clearly observable. The Gini-index of income inequality has risen everywhere (with the exception of the Slovak Republic), but the magnitude of change has been everything but uniform (see table 2.1). Considering this and the differences in the depth of the transition shock, it means that inequality has increased both within and between the countries. Although it is hard to define an "efficient inequality range" within which inequality has no unfavourable effects to growth (see Cornia 1999), it is apparent that the rise in inequality in many post-socialist countries has been both extensive and rapid, unlike seen anywhere else in the recent world history, and has had a negative impact on welfare and possibly even hurt the growth prospects.

The changes in income distribution in transitional economies are caused by several factors.

The following ex-ante expectations about the rise in inequality are mentioned by Cornia (1996): (i) privatisation of state-owned assets, which increases the share of profits and other capital income (see table 2.2), generally known as having a higher concentration coefficients than other sources of income, (ii) widening earnings differentials caused by wage liberalisation and increasing returns to education (see also Rutkowski 1996), (iii) the removal of state subsidies to enterprises, (iv) changes in transfer and pension policies which affects hugely the redistributive role of the government and (v) tax reform.

One of the most important factors causing inequality is privatisation or enterprise reform, since it directly or indirectly affects the first three of the factors mentioned by Cornia. Both the cut in subsidies and the increase in the returns to effort (that causes the widening wage differentials) are inevitable consequences of transferring state-owned enterprises into private hands and increasing the significance of market forces in the enterprise sector. Naturally the increase in the share of non-wage private income is a direct consequence of privatisation. Therefore privatisation policies are one of the main keys to avoid a rise in inequality.

Table 2.2 Population income by sources before and after transition in selected countries as % of total monetary income#

	Wages		**Transfers**		**Non-wage private**	
	1987-8	***1993-5***	***1987-8***	***1993-5***	***1987-8***	***1993-5***
Bulgaria	57	42	23	23	19	35
Hungary	58	53	24	27	18	20
Poland	47	42	16	26	38	32
Slovenia	57	49	22	23	20	29
Latvia	70	56	15	24	15	20
Russia	76	45	15	16	9	40

#excluding social transfers in kind (health and education)

Source: Milanovic 1998.

Research on privatisation from the pre-transition period has not paid much attention to distributional effects. This is not surprising, since the transitional economies are a unique case in this respect. In market economies privatisation of one or two state-owned enterprises does

not cause significant shifts in the distribution of assets among citizens and the new owners can be chosen mainly with efficiency criteria. In transitional economies the share of state-owned property increased in the usual case from only a few percentages to more that fifty percents in a period of seven years. Privatisation in transitional economies means that the distribution of physical assets is completely redetermined in addition to the unfavourable inequality impact of the process. The emerging distribution of physical assets has varied a lot in different countries and already this has huge welfare implications for the long term (Honkkila 1997). Therefore it is crucial that government's privatisation policies are not designed purely on an efficiency basis, but the distributive aspect should be considered very carefully.

Even though one could argue that the increase in inequality was to a certain extent a favourable incident in former socialist economies, there are numerous arguments to say that the impact has been mainly a negative one. First of all, for the level of human development a rise in inequality can be very injurious. Socially most destructive is a rise in income inequality that occurs with economic recession. Every transitional economy in Central and Eastern Europe and the former Soviet Union went through a spell of large recession in the early 1990's. This has enlarged, the poverty rates in the whole area in the 1990's (see table 2.1). According to calculations by Paniccià (1997), inequality has contributed remarkably to the increase in poverty especially after the first transition shock, which means that an unequal income distribution was not only a problem in the early stages of transition.

Unequal income distribution affects welfare not only because it creates social injustice, but because it affects the aggregate welfare function and has a mostly negative impact on growth. A social welfare function that consists of the sum of individual utilities - in its most sweeping form - maximises aggregate utility when the incomes of all individuals are alike (see for example Samuelson 1983, 225-230). This argument is based on the assumption that the marginal utility of additional income units is decreasing. Therefore, a shift of income from the poorer end of the distribution to the richer end will decrease aggregate welfare (see chapter six). This conception has been a debated one in the economic literature, but the welfare economics point of view should be regarded especially in countries that are experiencing large reforms and changes in the components of the aggregate welfare function.

A more dramatic proposition is the one that an increase in inequality is harmful for economic growth. There are several ways to prove this. From the political economy point of view median voter -models are of special interest. Alesina and Perotti (1996) claim that the equilibrium tax rate will be higher in economies where the median voter is poorer. This leads to an increase in the inefficient public investments and to a decrease in the more efficient private investments. Similarly, Persson and Tabellini (1994) show that a poorer median voter will prefer equalising redistributive policies and investment taxation instead of growth-stimulating investment subsidisation.

The theory of trickle-down growth by Aghion and Bolton (1997) regards moral hazard with limited wealth as a source of inefficiency in inegalitarian societies. In the presence of imperfect capital markets poor individuals underinvest in effort since their initial endowment of capital is not sufficient and they are not able to borrow in order to invest. This theory is of special interest in the case of transitional economies. Capital markets are very underdeveloped, and a vast amount of investment capital is required because of the restructuring needs of enterprises. This argument will be analysed more in detail in chapter seven.

Bénabou (1994) presents a very discouraging vision of economies in which social stratification is taking place. Stratification is a phenomenon that is frequently associated with the privatisation process in transitional economies which provides enormously unequal possibilities for wealth accumulation. The rise in long-term unemployment that has been observed in some Central and Eastern European countries creates even more potential for further stratification. Bénabou's conclusion is that the rising inequality of human capital that arises from wealth and income inequality and unequal opportunities for education is inefficient from the point of view of aggregate growth.

Privatisation analyses of transitional economies mostly ignore the distributional aspect and claim that an initial increase in inequality can be reversed in the long term. However, the social effects and the decrease in aggregate welfare that have now lasted for almost a decade

and are not expected to be reversed in numerous countries in the near future, are hard to ignore. Even worse, since the rise in inequality affects growth negatively, it is doubtful, whether the neglect of the distributional factors can have positive effects even in the long run.

3 Review of literature: the political economy of privatisation and the objectives of different economic agents

After the collapse of the command economy, changing the objectives and improving the incentives of the owners and managers of enterprises in transitional economies were essential, if the economy was to successfully follow market signals instead of predetermined plans. Governments did not always follow the shock therapy path, which would have forced the enterprises to immediately move towards profit-maximising behaviour. In many cases subsidisation of firms - either in the direct form or in the form of tax and payment arrears - were allowed to continue (see Schaffer 1997). Already in the first transition years, many kinds of ownership structures emerged in the enterprises and the behaviour of different agents varied remarkably. Determining the objectives and incentives of the economic agents during the period of enterprise reform is challenging, but a necessity if one wants to see the effects that the change in the behavioural patterns has to productivity, employment and welfare.

The political factors that determine the behaviour of economic agents are not to be overlooked in the modelling of any economic events. In the economies in transition the political economy aspect is presumably even stronger, because the economy was controlled by government officials rather than market forces for several decades. In the case of privatisation, the problem has been that the state officials who are responsible for the most important decisions concerning the redistribution of assets inherited noxious behaviour patterns from the socialist era. That can cause major distortions in the reallocation of ownership rights (Frydman and Rapaczynski 1994).

Several models have been formulated to show the interaction between different economic agents during the enterprise transition process. Recent literature on privatisation and enterprise

restructuring agrees on several issues. The objectives of "politicians"[1] are seen mainly as harmful for investment and enterprise restructuring. Politicians try to persuade managers to promote their objectives by giving them costly subsidies, which softens budget constraints and leads to less efficient behaviour.

3.1 Commercialisation, privatisation and restructuring

Shleifer and Vishny (1994) analyse the significance of privatisation and commercialisation for the restructuring of enterprises. They describe the enterprise reform in transitional economies as a bargaining game between politicians and managers. Enterprises are owned by the manager, by the treasury or jointly by both. Control rights and cash flow rights are completely separable. In the model politicians are principals who try to influence enterprises to pursue political objectives. The politician does not favour labour shedding since he draws benefits B from excess employment L. The manager's objective on the other hand is to maximise his share α of the profits π (minus wages w). How the politician tries to achieve his objectives depends on whether the enterprise is controlled by the manager or by the politician.

In a privately owned enterprise the manager makes the decisions on employment, but the government can try to persuade the manager to increase excess labour with subsidies T. The subsidies include a cost C for the politician. In a state-owned enterprise the politician makes the decisions on labour, and the manager can try to persuade the politician to speed up restructuring and cut excess labour with bribes b. Bribes in the model can be costly or costless. However, de facto bribes never are completely costless, so the conclusions based on the costlessness of corruption are not very relevant and I will skip them in this summary.

The utility functions of the manager and the politician are functions of the costs and benefits mentioned above, and can be formalised in a simple way:

[1] Politicians in this context means persons, who tend to look for political benefits from excess employment instead of trying to restructure firms to the direction of profit-maximising.

Manager:

(1) $Um = \alpha\pi + T - wL - b.$

Politician:

(2) $Up = B(L) - C(T) + b.$

Restructuring decisions depend on the costs and benefits of excess employment, transfers and bribes. The jointly efficient outcome is given by the maximisation of the combined utility of the manager and the politician

(3) max $B(L)-C(T)+\alpha\pi+T-wL,$

which yields the following first order conditions:

(4) $B'(L)=w$ and

(5) $C'(T)=1.$

If the costs for blocking labour shedding or the benefits from restructuring are high, restructuring and labour shedding will take place. On the other hand, if political benefits from excess employment remain high, restructuring will more probably be delayed.

The model concludes that privatisation is an essential step on the way towards restructuring, but the privatisation of cash flow rights is not sufficient. The important result of this model is precisely the distinction between control rights on one hand and return rights and economic responsibility on the other hand. The consequences of privatising cash flow rights without changing the allocation of control rights can be very detrimental for the economy. In such case politicians have control rights over a firm but do not control cash flows, and thus do not bear any financial responsibility over the enterprise. Therefore the politicians can continue to regulate the firms according to their political purposes, and in worst cases also continue

subsidisation and keep unproductive enterprises in function as long as it is possible to fund these subsidies from the government budget.

Commercialisation - the transfer of control rights from politician to manager without transferring cash flow rights - on the other hand promotes restructuring, but softens budget constraints. When the manager has control rights but bears no financial responsibility, he will keep excess employment at a low level. The only way the politician can increase excess employment are costly subsidies. The manager with control rights will naturally collect as much subsidies as possible. Hence, with managerial control T is high and L low. Naturally, the continuation of neither excess employment nor heavy subsidisation are possible in the long run because the government will sooner or later run into budget balance problems. Therefore the possibilities of the politician to slow down restructuring are limited.

The paper only briefly discusses social welfare by specifying the social cost as a function of excess employment and transfers. In the first-best situation there would be no transfers and no excess employment, since both yield negative social welfare. However, since the public is not organised, it is not possible to maximise social welfare within this model. Hence, there will not be a situation where social costs will be zero. Shleifer and Vishny claim that in Russia and Central and Eastern Europe inefficiency of state-owned enterprises was a more important social cost, so policies should aim at reducing excess employment L rather than subsidies T.

3.2 Reducing the costs of blocking restructuring

Boycko, Shleifer and Vishny (1996) analyse how privatisation increases the efficiency of enterprises and how the state sector economic agents influence restructuring decisions. Unlike the previous model, this model does not separate the privatisation of control rights and cash flow rights. The authors characterise public enterprises as inefficient, because the politicians in control do not attempt to maximise economic efficiency. Again, the reason for the inefficiency of public firms is excess employment. When an enterprise is privatised, it becomes by definition manager-controlled and the proportion of privately owned shares increases.

In the (non-bribe) equilibrium, the objectives of managers and politicians are functions of the political benefits from excess employment q, political costs from subsidies k, costs from profits foregone by the treasury m, subsidies T, labour spending E and the private share of enterprise ownership α. The model is specified with the following objective functions:

Manager:

(6) $Um = -\alpha E+\alpha T.$

Politician:

(7) $Up = qE-m(1-\alpha)E-k\alpha T.$

In public firms, if the political benefit from excess employment q is higher than the cost that the politician has to bear from the wages to excess employment for his share of ownership $m(1-\alpha)$, the politician will choose an inefficient amount of labour spending H instead of an efficient amount $L<H$.

Although the model does not distinct between control rights and cash flow rights, the consequences of the transfer of cash flow rights only can be easily derived. In a fully state-owned enterprise $m(1-\alpha) = m$ and in a fully private enterprise $m(1-\alpha) = 0$. Obviously, politicians who have control rights but no financial responsibility (politicians controlling fully private enterprises) always choose an inefficient amount of labour H, since q is assumed to be greater than zero. This provides us with another argument against privatisation of cash-flow rights only.

The basic conclusion the authors give is that privatisation leads to restructuring, because it makes subsidisation too costly. Since privatisation includes the shift of control rights - including decisions on employment - from the politician to the manager, the only way the politician can induce the manager of a privately controlled enterprise to choose an inefficient

amount of labour spending H is to provide enough subsidies for him. The politician will benefit from choosing transfers instead of restructuring only if the incremental benefit from excess employment is bigger than his incremental costs. If the costs from switching to excess employment after privatisation exceed the benefits, neither of the parties benefits from the switch and there will be no excess employment. Formally this efficiency condition can be represented with the formula

(8) if $k\alpha+m(1-\alpha)>q$,
then $E=L$.

As in the previous model, the relationship between political costs and benefits is essential in employment and restructuring decisions, in addition to the parameter k indicating the cost of subsidies for the politician. Since the politician gets no direct benefits from subsidisation, the parameter k is an important cause for the effectiveness of privatisation. The more expensive subsidisation turns out to be for the politician, the more likely he will not try to prevent restructuring for political purposes.

3.3 Privatisation, incentives and the state budget

Debande and Friebel (1997) construct a slightly different type of a model and investigate how privatisation affects employment, the incentives of managers and the state budget. The starting point for the model is that the enterprises need restructuring in the form of both physical and human capital, which is a feasible assumption for transitional economies. The latter form of restructuring means basically an increase in managerial effort. Cases with economic agents that have different objectives are analysed.

In public firms the government ensures that physical restructuring is undertaken, but the manager decides whether to shirk or whether to provide effort. After an enterprise is privatised restructuring takes place only if the manager decides so. The other option for the manager is to "take the money and run" or to shirk and then ask for additional subsidisation. Employment decisions are made by the government in public and by the manager in private enterprises. The

government - unaware of the abilities of the managers - takes a risk when it gives away the control over an enterprise. With privatisation, managerial incentives increase, but inefficient managers shirk and misuse government subsidies for personal purposes.

In the basic model privatisation is defined as involving the transfer of both control rights and cash-flow rights and as being accomplished in the form of a give-away to insiders. The payoffs that managers and the government get from restructuring in each specified case depend on costs and benefits from excess employment (both for the government and for the manager), ownership, effort and state subsidies. The reason for manager's benefits of excess employment are explained by the conservative attitude towards restructuring by some managers or by the objective of "empire-building", typical in the Soviet enterprises where managerial rents were consisted of material benefits that were dependent on various other properties than profit maximisation. Efforts are costly but lead to better profits. An interesting assumption is that if the enterprise is fully restructured, in other words if its physical capital is rebuilt and managerial effort increased, it will need no labour shedding. Hence, restructuring does not necessarily require labour shedding like it did in the previous models.

The paper compares the payoffs that are captured by the government and managers under different combinations of managerial and government objectives under various levels of restructuring. The model concludes that there is no straightforward answer to the effects of privatisation on employment or restructuring, but that managerial skills and the profitability of the enterprise are crucial factors in determining the outcome of the changes in ownership and incentive structure. The formal considerations by Debande and Friebel are interesting and I will use a similar methodology in the context of the model presented in the next chapter.

3.4 Privatisation and the risk of expropriation

The outcome of different privatisation policies and enterprise restructuring can also be analysed with a median voter model (Schmidt 1996). The model includes only privatised enterprises, which all have one core investor who buys or receives for free (depending on the government decision) α % of the company's shares and who makes the restructuring

decisions. *(1-α)%* of shares are distributed for free to the population, either through a voucher scheme or through insider privatisation. After restructuring has been accomplished, the government can decide to subsidise some firms. However, to collect funds for restructuring, the government has to expropriate[2] other firms, and it can only use a fraction $\lambda<1$ of the expropriated funds for subsidies.

Schmidt argues that the risk of expropriation is a major obstacle for restructuring in privatised firms. If the government can not pursue consistent policies to privatised firms and hence can not guarantee to restrict from expropriation or at least hold to a modest level of expropriation, the core investor will have less incentives to invest in the restructuring of the enterprise, and the outcome of the entire privatisation process will be less inefficient than in the optimal case.

In the comparison of privatisation methods, diversified mass privatisation, in which a part of the shares is distributed freely to the population, stands out in comparison to insider privatisation, as long as the core investor receives a proportion of shares sufficient for controlling the enterprise efficiently. If owners of the firm are simultaneously workers in the same company, they will as voters always prefer a higher expropriation rate in order to secure their employment. If outsiders own the enterprises, they will prefer restructuring and hence vote for less expropriation.

3.5 Summary of recent privatisation research in transitional economies

To conclude, the literature on privatisation and enterprise restructuring widely agrees on several issues. The objectives of politicians are seen mainly as harmful for investment and enterprise restructuring. Politicians tend to favour excess employment instead of restructuring. In addition, they try to persuade managers to promote their objectives by giving them costly subsidies, which softens budget constraints and leads to less efficient behaviour of enterprise managers.

[2] Note that expropriation in this context means any "policy that adversely affect the private value of the privatised assets" (ibid. 1996, 6). In practice, successful firms will suffer and unsuccessful firms gain from higher expropriation rates, and the utility from successful restructuring will be smaller.

The view about the harmfulness of the public sector is different from the traditional view from Western market or mixed economies. The role of public firms in redistributing income, increasing competitiveness by legal measures, ensuring the supply of certain goods (Atkinson and Stiglitz, 1980) or preserving and stabilising the property relations of the capitalist economy (Gordon, 1972) is generally considered as an important feature for the functioning of the economy and for increasing and equalising welfare in the society. The artificially strong involvement of the state in economic activities during central planning does bring the relationship between the government and private economic agents during the transition period into a different light and the behavioural patterns of politicians should not be adapted from the market economy experiences.

The importance of managerial skills has been stressed both theoretically and empirically. If managers do not have sufficient economic competence to run an enterprise in a market economy, they can hamper restructuring just like politicians favouring excess employment. A common argument in the comparison of different privatisation methods has been that insider privatisation favours communist-style enterprise management with less aims for fast restructuring, while selling the former state-owned enterprises to outsider strategic investors is an advisable way to enhance enterprise performance. Also, the transfer of cash flow rights into private hands while keeping managerial control in the hands of state has been shows to be detrimental.

The negative implications of insider ownership are to some extent in dispute with some theoretical findings from research on market economies. The multitask principal-agent analysis by Holmström and Milgrom (1991) argue that incentives offered to employees are "high-powered", while those offered to independent contractors are "low-powered". If firm's profits are dependent on two kinds of activities, *D(a)* which is observable and affects the firm's net receipts and *V(b)* which is unobservable and increases the asset value of the firm, high-powered incentives are such that encourage the agent to perform both *D(a)* and *V(b)*. This would suggest that insider privatisation should lead to fast restructuring since the employees are asset owners and care about the value of the enterprise's physical assets.

The first explanation for the expected disadvantages of insider privatisation is the conservative attitude towards changes given in the paper by Debande and Friebel (1997). More importantly, in transitional economies labour shedding is an important part of restructuring. If persons who have a possibility of losing their jobs make restructuring decisions, it is obvious that restructuring might be delayed even if it increased the value of the firm.

4 Modelling privatisation of big and medium-sized enterprises in transitional economies

4.1 The special significance of property rights in transitional economies

The purpose of the following model is to answer the following questions: How do managers and politicians with various goals and various levels of economic competence behave in a situation where the ownership structure of enterprises is prone to change quickly? What is the optimal ownership structure for an economy in transition? Does a profit-maximising behaviour of economic agents lead to an asset distribution that maximises the welfare of the whole economy?

Before modelling the changes in ownership rights it is crucial to define what the significance of property rights and incentives is in the context of transitional economies. Former socialist economies are an unusual example of not only rapidly changing ownership rights but also of unpredictable changes in institutions. Therefore the privatisation of legal property rights is by no means a sufficient condition for creating market-type corporate governance into enterprises and achieving the benefits that were described above.

The definition ‘property right' consists of three different elements (Furubotn and Richter 1991):
(i) the right to use the asset (control right),

(ii) the right to appropriate the returns from the asset (return right) and
(iii) the right to change its form, substance and location (alienation right).

The existence of all three kinds of ownership rights is anything but obvious in the case of socialist or transitional economies. Although privatisation in transitional economies involves the transfer of legal property rights from the state to individuals, the recognition of different kinds of ownership rights actually is more complicated.

The incentive structure of managers or the economic prospects of an enterprise might not be improved at all, if the control rights will stay in the hands of communist time managers. This can be best seen in the example of Russian insider privatisation (see for example Blasi 1997). Privatisation might not even be a necessary condition to achieve efficiency gains in enterprises, which can be seen from the experiences in marketisation without privatisation in the Chinese firms (Wang 1996).

The behaviour of economic agents in the early post-communist period can not be explained within the conventional Western neo-classical framework. In the socialist enterprise the incentive structure was very different and the behaviour of individuals in charge of the enterprises decisions does not change rapidly even if the ownership structures do. Naturally, there are owners and managers who understand the significance of restructuring and labour shedding and transform the enterprise into a functioning market firm in a very short time, but on the other hand many enterprise managers might favour the interests of the stakeholders. To successfully construct models on privatisation these aspects are very crucial.

For restructuring purposes the most unusual feature of enterprises in transitional economies is the low level of labour shedding. It was widely recognised that there was a significant amount of excess employment in socialist firms as a consequence of a full employment policy. However, because a large share of those economic agents that have control rights in the firm are very strongly captured by the interests of the workers and because the risk of becoming unemployment is a very bad one in countries with very low exit rates out of unemployment, it must not be assumed that privatisation will automatically erase all excess labour.

The following model distinguishes several different objective functions for the economic agents involved in the manner of Boycko, Shleifer and Vishny (1996). The methodological approach to determine the impact of various ownership structures on profits, government transfers and unemployment is similar to the model by Debande and Friebel (1997). The additional feature of this model is the social welfare functions that compare the impact of ownership structures and privatisation policies on the aggregate welfare of the society.

4.2 The model

The outset of the model is that the enterprises need restructuring, a situation that was common in centrally planned economies at the start of transition. Restructuring means cutting down excess employment, improving the human capital of the managers and replacing the obsolete physical capital stock. If an enterprise is not restructured, it will not survive, unless it is bailed out by the government.

The model has two economic agents: a manager and an owner[3], whose patterns of behaviour are exogenous. The owner provides the necessary funding that is required for physical capital restructuring. If the owner can not provide funding for restructuring, he must ensure that the state covers the firm's losses with subsidies. The manager provides the human capital required for enterprise restructuring by giving effort and decides on wages and employment cuts, which together determine labour costs E. Return and control rights, are thus separated. All managers and owners are utility maximises, but their individual utility functions are different.

The important point in this outset is that restructuring and profitability of an enterprise are dependent on the behaviour of both parties. The level of production in the enterprise depends on whether the owner will restructure the physical capital stock and/or provide incentives for

[3] In practice, both the owner and the manager can naturally be a group of persons, but this paper regards them as one person. This does not cause any bias or any problems in the empirical application of the model, since the terms can be thought to refer to the "pivotal voters" whose decision determines the behaviour of the group of managers/owners.

the manager, and whether the manager with economic competence will provide effort. Hence, there are two inputs which can increase production in comparison to the outset, capital k[4] provided by the owner and effort f provided by the manager. Production is not affected by the size of the labour force, since we assume that there never is labour shortage, and that the existence of inefficient excess labour does not hamper (nor does it increase) production. Naturally excess labour affects the profits of the firm, since excess labour is costly.

The financing and restructuring decisions in the enterprise are made as follows:
1) The owner decides - uninformed of the manager's actions - whether to invest in physical capital restructuring.
2) The manager decides - after getting informed about the owner's actions - whether to provide effort to the management of the firm.
3) The manager decides whether to shed labour.
4) A loss-making enterprise - if its owner has relational capital [5] - is subsidised by the state.

Since it is assumed that the owner is unaware of the manager's behaviour, he is also assumed to be unaware of the manager's abilities. In the time span of this model, labour markets of managers are rigid. Ownership structures, meaning the characteristics of owners and managers, are thus exogenous and static. The model distincts two different types of managers and two different types of owners with different resources, objectives and behaviour models:

i) The owners of type *Op* are "strategic investors", typical in the privatisation process of many transitional economies (and market economies as well). *Op* owners' objective is to maximise the enterprise's profits. These owners either have sufficient initial endowments, or are able to borrow from the capital markets, and intend to restructure the firm in order to make it profitable. *Op* owners invest in restructuring and provide capital k regardless of the type of

[4] Capital k meaning the replacement of the old capital stock in this context.

[5] Relational capital means having relations with local or federal officials or other enterprises . Gaddy and Ickes (1998) characterize the benefits of good relational capital stock as not only having more probability to be bailed out, but as more possibilities to rehearse barter trade or tax offsets in order to avoid taxes and survive. However, this paper will disregard these issues and define relational capital solely as such relationships with the local or federal government, which enable the enterprise to operate with a soft budget constraint.

manager in the enterprise. *Op* owners reward those managers, who provide effort, with a bonus *b* in order to encourage them to maximise their human capital inputs. The objective function can be written as:

(9) $U(Op) = max\ \Pi\ s.t.\ b + k \leq Y - E.$

ii) The other type of owners, *Os*, do not have the physical capital required for restructuring or they have no intentions to restructure the enterprise. *Os* owners do not seek profit maximisation, but they use the possible surplus income for increasing their benefits from excess employment. These benefits are for example political gains or benefits they get from favouring the interests of the workers. In spite of providing no capital for restructuring, *Os* owners can save the enterprise from bankruptcy, because they possess relational capital and the enterprise is able to draw state subsidies *s*. Subsidies are designed in such way that the profits of a non-restructured enterprise will be exactly zero. It will stay in operation but will never be restructured or become profitable. In other words, government subsidies are just large enough to bail out the worst-off loss-making firm. The objectives of *Os* owners are:

(10) $U(Os) = max\ E\ s.t.\ \ Y - E + s \geq 0.$

iii) The first type of managers, *Ms*, are captured by the interests of the enterprise's workers and prefer to keep an inefficient amount of excess labour. In other words, an *Ms*-type manager never sheds labour. *Ms* managers do not have sufficient economic competence for running a market-economy type enterprise and hence they never provide effort. This will yield the following objective function:

(11) $U(Ms) = max\ E\ s.t.\ E \leq Y + s - k.$

iv) The managers of type *Mp* are managers who have the economic competence to administer the full restructuring of the enterprise. We assume that *Mp* managers have ex-ante information about the type and behaviour of the owner. If, and only if, the owner provides the *Mp*-type manager with sufficient incentives (bonus *b*) and intends to restructure the firm, the manager

will provide effort *f* to the enterprise[6]. If *Mp* managers give no effort, their influence to the production of the enterprise will be no different than that of *Ms*-type managers. Also, *Mp* managers will shed labour if it is necessary to maximise profits[7]. Decisions on employment cuts do not depend on physical capital restructuring, and are hence independent on the effort level of the managers. Managerial effort refers here to other kinds of organisational restructuring (marketing, changes in product mix, seeking new customers and suppliers, etc.). The objectives of *Mp* managers are:

(12) $U(Mp) = max\ \Pi\ s.t.\ E + b \leq Y - k + s.$

There are three possible levels of production in the model. If the owner provides physical capital k and the manager gives effort f, production will be αY. If only k is provided, production will be βY and if neither f nor k is provided, production will be γY, $0<\gamma<\beta<\alpha$.

For simplicity, we assume that there are two levels of employment, the efficient level L and the original employment level N which means that aggregate employment is equal to the labour force, and includes some excess employment. These levels of employment generate two levels of labour costs, which are dependent not only on the size of employment but also on wages. I will assume that the manager, who sheds labour, also gives better incentives for workers by transferring a part of the increased productivity gains to wages. Thus, wages in *Mp* managed firms (wp) are higher, than in *Ms* managed firms (ws). However, I will make the following assumptions:

(13) $N>L,$

(14) $wp>ws,$

(15) $Ep = wpL < wsN = Es.$

[6] This is an identical assumption, to that in the paper by Debandé and Friebel: managerial effort is insignificant and will not be undertaken if there is no financial restructuring.

[7] Because of the initial conditions in transitional economies, this model assumes that labour shedding is always needed to maximize profits.

The function (15) can be justified because of the experience in wage setting behaviour in firms controlled by workers. For example Grosfelt and Nivet (1997) have shown that the share of productivity increase captured by workers in the form of increased wages has been clearly bigger in firms with managers classified as *Ms*-type (insiders). On the other hand, in outsider controlled firms this feature has been practically absent. Labour shedding will thus not only lower employment but also reduce labour costs.

In this model labour costs are either reduced to the profit maximising level or not reduced at all. *Ms* managers always keep the labour force at the initial level choose an inefficient level of labour costs *Es*, but *Mp* managers shed labour in order to maximise profits, and choose the efficient level of labour costs $Ep < Es$. Profits are dependent on production, labour costs, subsidies, physical capital investments and rewards on managerial effort. *Y, Ep, Es, k* and *b* are constants that depend on the type of owner and/or manager. Subsidies *s* are defined as the difference between the costs and revenues of a non-restructured firm $(wsN - \gamma Y)$.

5. Effects of privatisation on welfare: the trade-off between growth and inequality

Table 5.1 shows the profits and government transfers of enterprises with different ownership structures. To compare the different welfare effects, both profitability and inequality effects should be analysed. The former one is a simple task, but the latter is more complicated. I will first analyse the profitability impact of privatisation and then with the help of government transfers, unemployment and wage levels construct the social welfare function for the four enterprise types.

5.1 Profits

Comparisons between various profit levels can be accomplished from the results in table 5.1. Above it was assumed that enterprises that do not restructure make losses and have exactly zero profits after subsidies. On the other hand, we can assume that completely restructured

firms (*f, k* and *L*), are profitable, otherwise there would be no growth possibilities in the economy. Therefore we know that $\Pi a(f, k, L, wp) > 0$ and $\Pi d(s, N, ws) = 0$. Rewarding managers for providing effort and physical capital restructuring always pays off and increases profits. Otherwise restructuring and effort would not take place. Hence,

(16a) $\alpha Y - b > \beta Y$ and

(16b) $\beta Y - k > \gamma Y$.

Regarding this, and the fact that $Ep < Es$, we can make the following comparison between profit levels Πa and Πb, and between Πc and Πd:

(17) $\Pi a = \alpha Y - k - b - Ep > \beta Y - k - Es = \Pi b$ and

(18) $\Pi c = \gamma Y + s - Ep > \gamma Y + s - Es = \Pi d = 0$.

The intuitive explanation of equation (17) is that if the owner wants to restructure, the enterprise is better off when the manager gives effort and decreases excess employment. Equation (18) means that the partially restructured firm of type C has positive profits after subsidies, since labour is shed.

Profits of enterprise type A are bigger than those of enterprise type C, if the gains from full restructuring are large enough. I will assume that firms, which restructure both physical and human capital, become sufficiently productive so that they would yield positive profits even without labour shedding, and argue that[8]

(19) $\Pi a = \alpha Y - b - k - Ep > \gamma Y + s - Es = \Pi c$.

[8] $\Pi a > \Pi c$, if
$\alpha Y - k - b - Ep > \gamma Y + s - Ep > \gamma Y + Es - \gamma Y - Ep$
$<=> \alpha Y - k - b > Es$.
This holds, if $Es - Ep < \Pi a$, thus if the gains from physical and human capital restructuring are bigger than those of labour shedding alone.

Table 5.1. Production, labour costs, profits and transfers under different types of owners and managers.

	Enterprise A Op/Mp	**Enterprise B Op/Ms**	**Enterprise C Os/Mp**	**Enterprise D Os/Ms**
Production	αY	βY	γY	γY
Labour costs	Ep = wpL	Es = wsN	Ep = wpL	Es = wsN
Profits	Πa (f, k, L, wp) = αY - k - b - wpL	Πb (k, N, ws) = βY - k - wsN	Πc (s, L, wp) = γY + s - wpL	Πd (s, N, ws) = γY + s - wsN = 0
Transfers	Ta = υws(N - L)	Tb = 0	Tc = wsN - γY + υws(N - L)	Td = s = wsN – γY
Income	wpL + u(N - L)	wsN	wpL + u(N - L)	wsN

The comparison between *Πb* and *Πc* is more complex. The profits of an *Op*-owned firm with an *Ms* manager are bigger, than the profits of an *Os*-owned firm with a *Mp* manager, if the benefits from physical capital restructuring are bigger than the benefits of labour shedding. Formally:

(20) $\Pi b \geq \Pi c$, *if* $\beta Y - \gamma Y - k \geq Es - Ep + s$.

Production in type B firms with excess employment is bigger, than in type C firms that do not invest in new machinery (since $\beta Y > \gamma Y$). However, labour costs in insider-controlled firms may be a major constraint for further investments and profitability, and in the worst case they can inhibit the survival of the firm. Furthermore, the former kind of enterprises do not get any subsidies from the government. The profit levels of these two ownership forms depend on whether the output difference generated by physical capital restructuring exceeds the difference between the labour costs saved by labour shedding plus subsidies paid by the government. The intuitive conclusion is that firms which operate in labour-intensive branches and where a cut in labour costs has a larger impact on profitability benefit more from managerial reform than capital restructuring, while enterprises in capital-intensive are

expected to benefit more from physical capital investments than from labour-shedding.

To summarise, from (17) to (20) the conclusion is that

(21) $\Pi a > \Pi b > \Pi d,$

(22) $\Pi a > \Pi c > \Pi d$ and

(23) $\Pi b \leq\geq \Pi c.$

Profits of individual enterprises are an important source of economic growth and employment creation in transitional economies. It is obvious that profitability of the enterprise sector has a purely positive impact on welfare. Equations (17) to (23) ranks the profitability effects of the four different ownership structures. It implicates that regarding profits, enterprise A is the superior one, while enterprise D is the inferior one.

5.2 Government transfers

It is, however, not evident that the ownership structures that produce maximal profits are the most favourable ones for aggregate welfare. First of all, profits depend partly on government transfers, which consist of direct subsidies to firms. Direct subsidies have mainly a negative impact on economic growth. If the government has to spend a large share of its expenditure to subsidies for inefficient, loss-making firms there will be less possibilities for the government to direct funding for growth-enhancing activities like restructuring.

The following step is to compare the effects that different ownership structures have to the quantity of government transfers. Government transfers consist of two components: subsidies s and unemployment benefits u. I will assume that if an enterprise lays off workers, the government will compensate those workers who lose their jobs with unemployment benefits. Since the unemployment benefits are usually smaller than the lowest wage, the level of unemployment benefits can be written as $u = \upsilon ws$, where $0 < \upsilon < 1$. The cost for compensating the laid-off workers of one firm is

(24) $U = \upsilon ws(N - L)$.

The amounts of transfers for the four types of firms are shown in table 5.1. Various transfer levels can be ranked as follows: The case with no transfers (enterprise B) is obviously the most favourable for the government and the case where the firm both creates unemployment and draws subsidies (enterprise C) the least favourable. The comparison between firms A and D depends on the unemployment rate, on the level of unemployment benefits a and on the losses that a non-restructured enterprise makes ($Es - \gamma Y$).

5.3 Unemployment and inequality

As was claimed in chapter 2.2, an increase in inequality reduces aggregate welfare. Unemployment and wages determine the inequality effects of various ownership structures. The bigger the part of the population that lives from unemployment benefits instead of wages, the higher is inequality. In this model ownership structures also include different wage levels, of which the higher wage wp is associated with those ownership forms that create unemployment. This of course makes the inequality effects of unemployment even worse, since the share of the labour force that is employed has comparatively much higher income than that share which is out of work.

In transitional economies unemployment is a much deeper issue than in other economic systems. Since employment was connected with other social benefits in the socialist times and since labour markets are quite rigid, unemployment not only means losing one's job temporarily, but most probably a drastic and long-term drop in income (see for example Commander 1998, 24-25). Compensations for the unemployed in most transitional countries are very small, the duration of the period when benefits are provided is short and the registration procedure to get these benefits is difficult. Therefore the variable υ, which can be used as a policy parameter in the normative conclusions of this paper, is assumably quite small in transitional economies.

The possibility of acquiring private property for compensation of unemployment and

employment-bound benefits is basically given, but because of lacking institutions it has not been taken advantage of to a very large extent by those who have lost their jobs. If privatisation is designed in a way, which leaves the workers out of the decision making process of the enterprises (including decision making on their jobs), income inequality will rise. Coriccelli (1998) claims that the rise in inequality will continue for some time after the unemployment rate has stopped to increase. This means that the effects of unemployment to inequality are quite far-reaching.

Therefore it is reasonable to question, whether an immediate removal of all inefficient workers is the first best policy in transitional economies, although both excess employment and heavy subsidisation are bad long-term policies. The conclusions from previous literature are not indisputable. In enterprises of types B and D unemployment rates do not increase and thus inequality stays relatively low compared to other ownership forms. Economies with productivity-superior enterprises might suffer from severe inequality, which can decrease aggregate welfare in a major way.

6. A comparative analysis of the welfare impacts of various ownership structures

6.1 Social welfare functions

The most convenient way to formally compare the welfare effects of the four types of enterprises is to construct a social welfare function, which takes into account not only the profitability of enterprises and fiscal effects, but also the negative impact on increasing inequality. The social welfare function Φ is a sum of individual utility functions $V(X)$, where X is income which consists of wp, ws or u. Personal utility is a function of a person's income, and the function is concave. Utility increases when income grows, but the marginal utility of income is decreasing. An income cut of the poorer individual requires a much higher income raise for the richer individual in order to stay at the same welfare level.

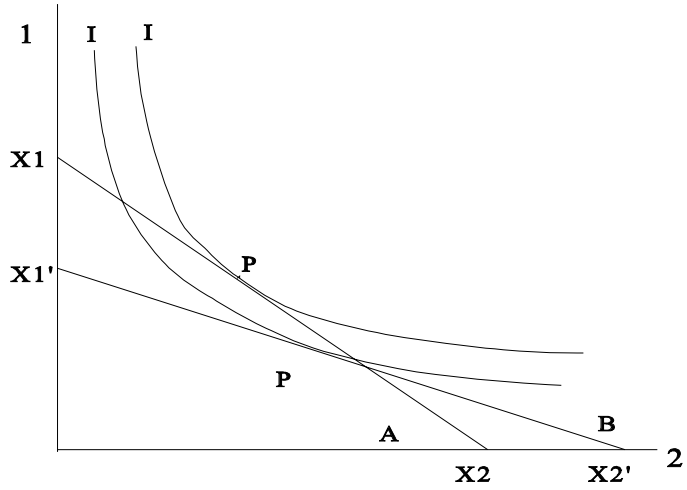
(25a) $$\Phi_t = \sum_{i=1}^{N} V_i(X_i)$$

(25b) $V'(X) > 0$

(25c) $V''(X) < 0$

From figure 6.1 one can see, how a transfer of income from one individual to another affects social welfare. Originally, incomes are as indicated by *X1* and *X2* connected with the budget line *A*. The highest welfare that can achieved is the intersect between *A* and isoquant *I*. If an amount of income $X1 - X1' = X2' - X2$ is transferred from individual 1 to individual 2, the new budget line will be line *B*. Budget line *B* lies entirely below isoquant *I* and the maximal welfare that can be achieved with incomes $X1'$ and $X2'$ is on the isoquant $I' < I$. This means that an inequality-increasing transfer of income has decreased social welfare.

Figure 6.1 Implications of an inequality-increasing income shift on social welfare



Social welfare does not only depend on inequality, but also on the budget constraint, indicated by the resources that are available to generate income. These resources consist of the profits

of the firm and of government transfers of which unemployment benefits are drawn. The government transfers enter the social welfare function with the multiplier $\mu>1$, which means that the government spending imposes an added dead-weight loss compared to private spending, which has been identified as the marginal cost of public expenditure (Pigou 1947)[9].

The aggregate welfare functions for the four enterprise types generate the following maximisation problems:

Enterprise A:

$$\max \Phi_{\mathrm{A}} = \sum_{i=1}^{L} V_i(wp) + \sum_{j=L}^{N} V_j(u) + \zeta(\Pi a - \mu T a) \tag{26}$$

Enterprise B:

$$\max \Phi_{B} = \sum_{i=1}^{N} V_i(ws) + \zeta(\Pi \mathrm{b}) \tag{27}$$

Enterprise C:

$$\max \Phi_{C} = \sum_{i=1}^{L} V_i(wp) + \sum_{j=L}^{N} V_j(u) + \zeta(\Pi c - \mu T c) \tag{28}$$

[9] Both social welfare and marginal cost of public funds are common features in studies on optimal taxation. In this paper I will disregard the impact of taxation policies and take the level of taxation as exogenous. Naturally the impact of ownership structures on welfare can be changed with taxation policies, but I will not include that aspect in this study. The effects of taxes will be briefly reviewed in the "policy tools" section.

Enterprise D:

$$\max \Phi_D = \sum_{i=1}^{N} V_i(ws) + \zeta(\Pi d - \mu T d) \tag{29}$$

The first one or two terms on the right hand side identified by the sigmas implicate the sum of individual utilities from income. As stated above, enterprises B and D create a more egalitarian income distribution10, which is preferable for aggregate social welfare. The term on the right hand side indicates the budget constraints including the effect of public spending.

Let us first compare the social welfare levels of enterprises, which create a similar distribution of income. Enterprise A yields greater profits than enterprise C with the assumptions from the previous chapter. The difference in profits between these two firms is $\Pi a - \Pi c = \alpha Y - b - k - \gamma Y - s > s$. Now subsidies s enter the welfare function of enterprise C with the parameter $-\mu < -1$, but not that of enterprise A. This means that the positive effect that subsidies have for profits will have a stronger negative effect on welfare.

Similarly, subsidies demanded by a non-restructured firm will decrease the budget constraint of that firm by the factor μ, while enterprise B with a similar income distribution does not require any subsidies. Therefore the inequality $\Phi B > \Phi D$ holds always. This will further illuminate the drawbacks of no restructuring.

The interesting conclusions arise from the comparison of cases with labour shedding versus no labour shedding. Previously it was already shown that enterprise type A yields larger profits than enterprise B and that enterprise type C yields larger profits than enterprise type D. However, in the welfare comparison the advantages of full restructuring become disputable. The reason is simply unemployment, which enters the social welfare functions as greater inequality and thus smaller aggregate welfare and as larger government transfers.

10 Actually, in this model the incomes of all individuals with enterprise ownership structures B and D are equal.

The comparison between full restructuring (enterprise A) and physical capital restructuring only (enterprise B) can be illustrated with the help of figure 6.1. Enterprise B represents the case with isoquant *I* and egalitarian income distribution. Enterprise A represents the case with less egalitarian income distribution, but because of the higher budget constraint[11] the line *B* in figure 6.1 will shift upwards. Whether the line will shift to intersect such an isoquant *I″* which would be at higher welfare level than *I′* depends on the difference between profits and on the level of labour shedding and unemployment benefits. This case illustrates the trade-off between efficiency and inequality. Labour shedding has a positive welfare impact because it increases aggregate income and decreases transfers, but it also has negative welfare effects since it leads to inequality. The combined effect depends on the difference between α and β, and also on wage differences, the level of unemployment benefits υ and on the excess burden of public expenditure μ (see equation 31).

The significance of physical capital restructuring becomes even clearer in the comparison of welfare functions *ΦB* and *ΦC*. It was not evident which firm generates bigger profits. However, the benefits of the ownership structure of enterprise B are the smaller level of inequality and government transfers it produces. Enterprise C can only have larger social welfare than enterprise B if it yields larger profits, and if the profit difference is large enough to raise the budget curve sufficiently high to offset the negative welfare effects of inequality.

One could make similar assumptions from the comparison between enterprises C and D as for enterprises A and B. However, I do not find it suitable to support policies that prefer no restructuring to any restructuring. Therefore I find it very doubtful that a non-restructured enterprise would end up producing higher social welfare. The reason is the very low budget constraint based on continuous subsidisation that it generates.

Thus, the consequences on the welfare effects of privatisation can be summarised as follows:

(30) $\Phi A > \Phi C, \Phi B > \Phi D,$

[11] Actually even this depends on the parameters α, β, υ and μ, since the difference between the term after ζ is (α - β)Y - b + (1 - μυ)wsN - (μυws - wp) L.

(31) $\Phi A > \Phi B$, *if* $\zeta(\Pi a - \mu Ta - \Pi b) > Q$ *and*

(32) $\Phi B > \Phi C$, *if* $Q > \zeta(\Pi b - \Pi c - - \mu Tc)$,

where $Q \equiv \sum_{i=1}^{N} V_i(ws) - \left[\sum_{i=1}^{N} V_i(ws) + \sum_{j=N}^{L} V_j(u) \right]$.

This welfare analysis holds in a world that is static. It shows the social welfare that different exogenously determined ownership structures create in the short run, when there is no job creation in any sector. Although this paper has indicated that inequality is not only a short-term welfare problem, but has several negative effects in the longer run, this model fails to prove that aspect. A more dynamic model with similar assumptions would be needed to prove that point further, and that will be done in chapter 7.2. Also, the assumption of exogenously determined ownership structures will be relaxed later in this paper. Nevertheless, this model illustrates the trade-off between efficiency and inequality, a point that should not be ignored in the privatisation analysis of transitional economies.

As a final remark I must note that this model does undermine the benefits of managerial effort and competence. The simple reason is that effort is connected with the manager type that sheds labour, which again has also negative welfare effects. Naturally if these two issues would be separated in the exogenous behaviour models of managers, the significance of effort would rise. This model tries to keep things very simple and consider only two different behaviour models for managers. Hence, managerial effort does not necessarily get the credit it deserves in this paper.

6.2 Policy tools

The previous section only compared the qualitative welfare difference between various ownership structures. Some of the comparisons depend on the degree of restructuring, and how it can increase efficiency. The model only assumed fixed levels of marginal productivity of restructuring implicated by the differences between α, β and γ, and on the impact of effort.

Naturally these variables can be affected by training and education to increase economic competence of managers, and on technical innovations and learning from industrial countries. However, this paper will not attack these issues.

A more interesting way to influence welfare are policy tools. The first policy tool is naturally the privatisation policies per se (the government can impose policies that more probably lead to different kinds of ownership structures). In addition, there are two fiscal policy variables in the welfare functions: subsidies s and unemployment benefits u (or the level of benefits as a percentage of lowest wages υ). Two out of four ownership structures in this model generate unemployment. For these cases A and C the first-order condition for the choice of unemployment benefits υ is:

$$\frac{\delta \Phi_{A,C}}{\delta \upsilon} = \sum_{i=L}^{N} \frac{\delta V(u)}{\delta \upsilon} - \zeta \mu \frac{\delta Ta, c}{\delta \upsilon} = 0 \tag{33}$$

In the welfare optimum, the unemployment benefits should be such that the sum of marginal utilities from unemployment benefits for the unemployed should equal their marginal cost for the government times $\zeta\mu$. Again, this choice includes a trade-off. An increase in unemployment benefits increases government transfers and tightens the budget constraint of the social welfare function by a larger amount than the benefit itself because of high marginal cost of public funds. However, an income increase for the poorer part of the population increases aggregate utility from income.

The impact of subsidies is more simply determined. The first-order condition for choosing subsidies is:

$$\frac{\delta \Phi_{C,D}}{\delta s} = \zeta (1 - \mu) = 0 \tag{34}$$

Clearly, this first-order can never hold, since $\mu > 1$. Incomes are not a function of subsidies and the only way they affect the social welfare function are as a transfer from the public sector to the private. Again the key issue are marginal costs of public funds. Any transfer from the government to enterprises that will not affect income distribution has a negative welfare effect. Subsidies are an example of such transfers.

In this model subsidies are exogenous, which is a fair assumption for post-communist economies. The elimination of subsidies would mean that the model should also include the possibility of closing down enterprises, which again would affect inequality and social welfare in a different way. Since subsidies are directed to firms that do not restructure physical capital, I will argue that subsidies should be replaced with at least partial restructuring, since that way one can at least avoid a solely welfare-decreasing public action.

6.3 Implications on the emerging ownership structures in transitional economies

To conclude the welfare analysis of exogenously determined ownership structures a few words on concrete normative policy conclusions should be written. After all, the main point of this model is to draw conclusions on privatisation policies in transitional economies. The enterprise types A to D in chapters 4-6 describe ownership forms that have emerged in post-socialist countries during the first transition decade.

Enterprise surveys on the attitudes and competence of politicians and managers by Blasi (1996), Carlin and Aghion (1996), Claessens and Djankov (1998), Earle and Estrin (1997), and Commander, Fan and Schaffer (1996) have shown that insider-owned and state-owned firms tend to delay restructuring and keep excess employment. On the other hand, outsider-owned enterprises and especially firms in the de novo sector - the sector that has started to exist only after the start of economic and political transition - have performed better in restructuring and achieved better profitability. According to the literature on enterprise reform in transitional economies, *Ms*-managed enterprises represent firms that are insider-controlled, and *Mp*-managed enterprises those that are outsider-controlled. Similar classifications of owners imply that *Op*-owned firms are private firms and *Os*-owned firms state-owned ones.

Naturally, this kind of a classification is a simplistic one, but a fair one if one recognises that not all insider managers are captured by the workers interests, and that there are outsider owners who do not act as profit maximisers. A more valid interpretation of *Ms* managers would be managers, who act like politicians in the Shleifer-Vishny model (1994). Also, state-owned enterprises are ones that operate under soft-budget constraints and can be bailed out by the state even if they are not profitable. Some of these firms may be private in the sense that legal property rights have been transferred to private persons, but they are functioning very much like state-owned firms in a socialist economy, where control rights are still in the hands of the nomenclature.

Under these assumptions a generalised assumption is to call enterprise A an outsider-controlled private firm, enterprise B an insider-controlled private firm, enterprise C an outsider-controlled state-owned (or commercialised) firm and enterprise D an insider-controlled state-owned firm. As a matter of fact, every big and medium-sized enterprise in the pre-transition period could be categorised as a D-type enterprise, since enterprises were owned by the state and, although rather controlled by politicians or enterprise managers than workers, managed with a strategy that included minor restructuring and the existence of excess labour. Privatisation can though be considered reforming a D-type enterprise into any other type of enterprise, depending on the degree of physical and human capital restructuring.

The results from the previous chapters can be interpreted as follows: Sale or auction for strategic outsider investors is the most efficient way to privatise from the individual enterprise's point of view. That way the government can also get profits from privatisation. Naturally, the benefits from the most efficient form of privatisation should not be ignored, and selling a part of enterprises for outsiders with investment capital and intentions to shed excess labour is certainly recommendable. However, this privatisation method creates an inegalitarian ownership structure and has severe consequences for social welfare. Although privatisation in which insiders keep control rights will not lead to fast restructuring and labour shedding, the positive inequality effects are favourable for the wealth and income distribution. Cutting down excess labour rapidly can have a harmful impact on the society if the

productivity gains do not offset the negative consequences of inequality on social welfare. Therefore insider privatisation can be recommended not only because of its feasibility, but also because it has positive welfare effects.

The result from comparing insider privatisation with commercialisation is similar to the conclusions by Shleifer and Vishny, to the extent that commercialisation softens budget constraints. However, since in this model the manager of a commercialised enterprise only decides on human capital restructuring, the restructuring benefits of commercialisation remain smaller. After all, if there are no resources for physical capital restructuring, as is the case in many commercialised firms, restructuring might not be as large-scaled as the managers - not in charge of cash flow rights - would prefer. Shleifer and Vishny also claim that privatisation of return rights only can be very detrimental because such firms will draw subsidies from the state regardless of enterprise productivity. This is not the case in this model, since private (*Op*) owners face hard budget constraints, have profitability as their objective, and are more prone to provide physical capital restructuring to the firm, than owners of firms with soft budget constraints. Assuming soft budget constraints for *Op* owners would worsen the budgetary effects of B-type enterprises and provide an additional threat for the survival or restructuring possibilities of insider-controlled firms.

Finally, defining privatisation as reforming an enterprise of type D that generates least welfare underlines the significance of privatisation. Restructuring – of both physical and human capital – is a necessity in transitional economies. The control rights structures of socialist firms can clearly not survive in the new market environment.

7. Inequality, restructuring and growth

7.1 Some conclusions from earlier research

Until now I have described the welfare effects of enterprise reforms, recognising the impact of both human and physical capital restructuring. My results are somewhat different than those

given by most of the previous models on the subject, and give a new perspective to the discussion by claiming that fast privatisation and labour cuts can be welfare deteriorating. It is, though, clear that in the medium and long term those enterprises that reduce costs are most likely to be able to grow and generate new jobs, which again can offset the initial negative impact on unemployment and inequality. The model presented in the previous chapters should thus be extended into a longer time span.

Several useful dynamic models on the labour markets in transitional economies have been written. Blanchard and Aghion (1994) construct a model that analyses the effects of unemployment to job creation. There are two ways in which job creation is affected by labour market restructuring and the unemployment consequential to that. Formally, Blanchard and Aghion define job creation *H* as:

(35) $H = a(y(A, e) - w - z),$

which after definig wages and unemployment benefits is extended as12:

(36) $H = a[U/(U + ca)]\ [y - rc - (1/(1-U))b],$

where *U* is unemployment, *y* average production in the private sector13, *r* the interest rate, *b* are unemployment benefits, *w* are wages, *z* taxes per worker and *a* and *c* are constants. The first term in (36) captures the effect of unemployment through wages: the higher unemployment is, the lower are wages and the higher private job creation. The second term captures the effect of taxes: the higher unemployment is, the higher are taxes and the lower is job creation. Blanchard and Aghion describe the dynamic impact of unemployment to job creation as follows: with zero unemployment wages are equal to average product and there will be no job creation. When unemployment rises, the wage effect initially dominates the tax effect leading to faster job creation. At certain point, when unemployment becomes

12 For details on how to derive this see Aghion and Blanchard 1994, pp. 12-18.
13 Blanchard and Aghion use the terms "private" and "state" sector for the sector that cuts labour and the one that does not respectively. As indicated by several empirical studies this kind of a trerminology is somewhat misleading and better definitions would be "restructured" and "unrestructured" sector. However, I will use

sufficiently high, the tax effect starts to dominate the wage effect and restructuring eventually will decrease job creation. In the worst case, a high initial rise in unemployment will lead to a situation where job creation at the private sector will stop and transition fails.

Even more interesting is Blanchard's and Aghion's chapter on endogenous restructuring. Since restructuring leads to higher average production, but it also means that there is a possibility of becoming unemployed, decisions on restructuring are dependent on the utility of being employed in the state sector versus the utility of moving to the private sector. The value of being employed in the state sector is given by

(37) $$rV_E = w_E = x - z$$

where w_E expresses the state sector wage and $x < y$ is the average product of a worker in the state sector. Because state sector enterprises do not restructure, there is no unemployment in that sector. The value of being employed at the private sector is not only dependent on wages, but also on the probability of becoming unemployed. The model assumes that during the transition period employment in private sector enterprises is reduced to $\lambda < 1$. Therefore $(1-\lambda)$ workers become unemployed after restructuring and the value of working in the private sector is given by

(38) $$rV_P = \lambda rV_N + (1-\lambda)rV_U = \lambda w + (1-\lambda)(w - cr),$$

where c is simply a parameter indicating the difference between the value of being employed at the private sector and the value of being unemployed. The case of endogenous restructuring claims that not only high taxation can lead to a delay or even a failure of the transition process at the enterprise level. When workers approval is needed, fast restructuring will be even less probable. If the possibility of keeping one's job at the private sector is low, workers are reluctant to accept restructuring and hence there will be no labour cuts in the first place.

Blanchard's and Aghion's terms in the remaining part of my paper.

Blanchard and Aghion illustrate the ways in which labour cuts affect the labour market dynamics in an interesting and plausible way. Although the authors do not analyse the effects of inequality per se, they recognise that fast restructuring is not the first best option for enterprises in transitional economies. The model is built in such a fashion that it can be expanded, taking additional effects of inequality into account. In the previous part of this paper I characterise inequality as being a consequence of labour cuts. For the Blanchard – Aghion model this approach is not useful, since the negative impact of high unemployment is already captured through increased taxation.

In chapter two I summarised previous research on the negative growth and welfare effects of inequality. To make the distributional aspect clearer and more solid I will use another way of showing the influence of an unequal income distribution, one that is not captured by the model of Blanchard and Aghion, and one that will bring a new feature to the labour market dynamics presented in their model. The point in the remaining part of this paper is that not only does inequality bring about social problems and stratification, but it can affect growth by leading to lower levels of investments.

This effect is best shown in the model by Benabou (1996). In the case of imperfect capital markets equilibrium investments will differ among individuals according to their initial endowments of human capital. Since the production technology in the model exhibits decreasing returns with respect to individual capital investments, the model concludes that inequality has a detrimental effect on investments and growth, the latter being an increasing function on the former. Aghion and Howitt (1997, pp. 280-298) analyse Benabou's model and show that this way the hypothesis that inequality has only a stimulating effect on growth and that growth and social justice must be considered as policy trade-offs should be rejected.

Formally, the model expresses production according to a special form of the AK growth model with diminishing returns. This kind of a production function is a suitable one for transitional economies. The assumption of imperfect capital markets certainly is relevant in the case of former socialist economies in their early transition period. The development of banking, credit and capital markets has probably been the most difficult task for governments

in Central and Eastern Europe during the past decade. Possibilities for poorer individuals to borrow have been limited and in this sense the effects of inequality on investments will be strong. Furthermore, investments play a crucial role in the enterprises of transitional economies. Although the welfare impact of unemployment that has been highlighted so far is significant already in the short run, long term growth in former socialist firms can be achieved only with the means of radical restructuring of both human and physical capital.

In the model by Benabou aggregate output at time *t* is:

$$(39) \qquad y_t = A_t^{1-\alpha} E_t(k^\alpha) .$$

The first term on the right hand side of the equation exhibits the accumulation of knowledge, which results from past production activities. The second term expresses the mathematical expectation over individual investment levels *k*. The expectation term is a density function over individual investments in the form

$$(40) \qquad E_t(k^\alpha) = \int_0^\infty k^\alpha f_t(k) dk .$$

Because of the decreasing returns on capital investments the function *k* is concave and greater inequality between individual investments for a given stock of capital reduces aggregate output.

In the absence of capital market borrowing14 an individual chooses his investment level to maximise:

$$(41) \qquad \max_{k^i} \left\{ \ln(w^i + \eta(A - e^i) - k^i) + \rho \ln y^i \right\}.$$

14 In transitional economies it is better to assume unavailability of credit, since credit markets are far from perfect. The idea is to show that investments differ across individuals, as they do even if credit is available but not equally obtainable for each individual.

In equation (41) A is accumulation of knowledge, e are initial human capital endowments, η is the redistribution rate and ρ is a parameter expressing the weight of future consumption compared to current consumption.

From the first order conditions we obtain that

(42) $k^i = \theta((1-\eta)e^i + \eta A)$.

where $\theta \equiv \rho\alpha / (1 + \rho\alpha)$, $0 < \theta < 1$ and $k = \theta A$.

Equation (39) can now be rewritten as:

(43) $y = \int_0^1 y^i di = \int_0^1 A^{1-\alpha} k^\alpha = \int_0^1 A^{1-\alpha} \theta^\alpha ((1-\beta)e^i + \beta A)^\alpha di$.

This equation, compared to (39), shows more precisely how the investments of an individual are an increasing function of his/her initial endowments and accumulation of knowledge, which both result from past production activities15.

In the following sections I will analyse the welfare effects of enterprise reform by combining the labour market dynamics model by Blanchard and Aghion with the inequality and investments model by Benabou.

7.2 Combining capital investment inequality and job creation

Because of the conclusion that inequality affects investment decisions and therefore also long-term growth prospects, the Blanchard-Aghion model should be redefined. I will separate two different cases to show different effects of the newly formulated production function. In the

15 Aghion and Howitt (1997, 282) define accumulation of knowledge at time t as $A_t = \int_0^1 y_{t-1}^i di = y_{t-1}$.

first case I assume that restructuring is exogenous. This assumption is similar to the one I made in the model in chapters four to six. The idea is to compare existing and given ownership structures.

The second case is probably intuitively even more relevant for transitional economies. By relaxing the assumption that restructuring is exogenous, I will include the notion of decision making power within the firm. This way inequality not only affects output job creation and unemployment, but also has an impact on the speed of restructuring itself.

In both of these cases, I shall modify the assumption by Blanchard and Aghion, which takes the average production levels in the state and private sector as given. By adding inequality into the model, it is possible to see the effect inequality has not only to production but also to job creation and unemployment. The best way to see these effects is to compare two economies: one with perfectly equal distribution of endowments with another one that includes inequality.

Before I start with the extension of the restructuring model of Blanchard and Aghion (1994) I will make a short note on the relationship between inequality and growth as described by Benabou (1996). He defines inequality as differences in human capital endowments. This of course is a slightly different approach than the one which I used in the previous chapters to compare the welfare effects of inequality with the assumption of declining marginal utility of income. However, this will cause no problems technically, since the negative impact of inequality arises from declining returns to investments. In the model by Benabou investments are dependent on endowments that are a function of past production activities, which again can be interpreted as an individual's wealth or income within a certain period.

Neither is there a problem intuitively. If we consider investment and restructuring decisions made by individuals, they depend both on the person's wealth and on his human capital endowments, on his information about the returns on the capital markets and on his expected ability to stay employed in the restructured sector. Hence, inequality in the following model does not only evolve from an unequal distribution of income, but in addition from differences in human capital endowments. In the early transition years when the education system is being

reformed from egalitarian schooling opportunities to a more inequitable regime, these two things are probably strongly interrelated, but I will return to this issue later on with the conclusions.

7.2.1 Exogenous restructuring

If the speed of restructuring is given and job creation is determined as a function of unemployment and production, as it is in equation (36), the effect of inequality on growth and investments can be most distinctively seen by redetermining average product as in equation (43). Blanchard and Aghion assume that there are two levels of average product in the economy, x in an unrestructured firm and $y > x$ in a restructured firm. This assumption is similar to the assumptions on production in chapter four, where output is determined by the type of firm and its ownership structure. However, in a long-term model I will use a different way to define production to identify the forces affecting output more precisely.

Instead of using simply y to identify the average product of the new private sector in Blanchard's and Aghion's model on the speed of restructuring, it could be more reasonable to redefine the production function in the manner of Benabou as a distribution function. From the Benabou model, average product in a private firm can be shortly written as $y = y(A, e)$, which is easy to insert into (36). In this way the dynamics of the labour markets in transitional economies can be interpreted with some additional features. Job creation is now:

(44) $H = a[U/(U+ca)][y(A,e)-rc-(1/(1-U))b]$.

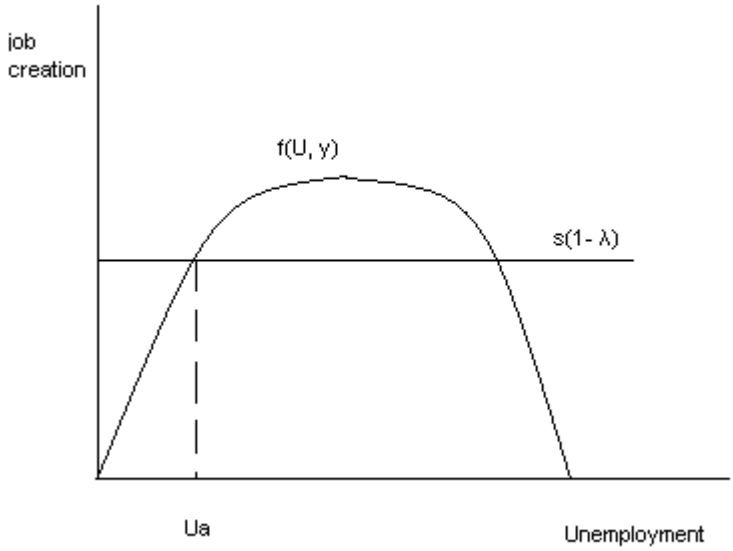
The dynamics of job creation will thus be not only dependent on the level of initial unemployment and unemployment benefits as in (36). The effect of unemployment through taxes will also depend on how the distribution of initial endowments together with accumulation of knowledge increases production in the new private sector. Since

(45) $$\frac{\partial H}{\partial y} = a[U/(U+ca)] > 0$$

a rise in average product *y* increases job creation. The distribution function of *y*, together with the assumption of decreasing returns to investments, shows that an increase in inequality of endowments ceteris paribus decreases output and hence is also unfavourable for job creation.

In the Blanchard-Aghion model the speed of restructuring of state firms is determined as *s*, the decrease in state sector employment. Blanchard and Aghion show graphically how there is a maximum speed of restructuring (see figure 7.1). The flat line $s(1-\lambda)$ shows the flow into unemployment, which is given in the case of exogenous restructuring. If the line is above the maximum level of job creation (as indicated by the maximum point of the curve $f(U, y)$), transition will fail. Initial restructuring speed will be so high that enterprises will get such a heavy tax burden that they do not have resources to create more jobs, and in the end the private sector will die out.

Figure 7.1 Dynamics of unemployment with exogenous restructuring



In the usual case the line indicating the maximum speed of restructuring lies below the

maximal speed of job creation16. In this case the speed of restructuring and unemployment are determined by the lower intercept of the curves *s(1- λ)* and *f(U ,y), Ua* in figure 7.1. If the initial increase in labour cuts leads to an unemployment level higher than the equilibrium level *Ua*, job creation is insufficient to enable a further increase in unemployment until the economy reaches the equilibrium rate *Ua*. Furthermore, if unemployment initially rises to a level that is lower than *Ua*, job creation accelerates until the economy reaches *Ua.* In the equilibrium the flows in and out of unemployment are equal.

The most simple way to analyse the effects of inequality is to consider two exogenously determined economies with same initial endowments. The difference is that one economy includes a more unequal distribution of endowments than the other. From the two different types of distributions in economy *A* the distribution of initial endowments is *e* for all workers and hence average product $y_A(e)$; and in economy *B* the distribution of endowments is unequal, one part σ of the population has endowments $\bar{e} > e$ and the other part, $(1- \sigma)$ has endowments $e\_ < e < \bar{e}$. The aggregate product for economy *B* is:

(46) $y_B = \sigma y(\bar{e}) + (1 - \sigma)y(e\_) < y_A(e)$.

As shown by Aghion and Howitt, average product *y* will be higher in the economy with less inequality. Since the level of job creation is an increasing function of output (see equation 45), the curve $f(U, y_A)$ will be higher in economy *A* than the curve $f(U, y_B)$ of economy *B*. With the assumption that the initial restructuring speed will be such that the economy will end up in a stable equilibrium unemployment, the effects of inequality are as follows: Since the job creation curve is on a higher level in economy *A,* the intercept *Ua′* between *s(1- λ)* and $f(U, y_A)$ is to the left of the equivalent intercept *Ua″* in economy *B*, meaning that there is a smaller equilibrium level of unemployment during the restructuring process in the more egalitarian economy.

In my earlier model short term inequality was a consequence of unemployment resulting from

16 In this paper I will only consider cases where transition succeeds, meaning cases where the line indicating

labour cuts and it had a negative effect on aggregate welfare. There was a clear welfare trade-off between inequality and productivity. In the longer run, as investments start to play an even more important role, inequality will not only decrease the expenses of individual firms, but it decreases job creation and growth. This result will support the conclusions from chapter four and make them valid in the long term. Eventually, as in the article by Aghion and Howitt (1997), the policy trade-off between productive efficiency and social justice can be questioned. Not only does inequality decrease social justice and aggregate welfare of an economy due to decreasing marginal utility of income, but it also affects output because of decreasing returns to investments. Also, high initial inequality will lead to a higher level of equilibrium unemployment.

In the case of exogenously determined ownership structures the intuitive conclusion is as follows: If wealth is distributed unequally, less people have the possibility to invest, both in physical capital investments and in effort (see Aghion and Bolton 1997). Also, if the human capital endowments are unequally distributed, and if the system of education changes in a way that makes this distribution even more skewed in the longer run, as is the case in several transitional economies, it will not only lead to increasing inequality and poverty affecting aggregate welfare, but will have a negative effect on production. This conclusion will further question the favourable effects of shock-therapy privatisation to outsider investors in a society where the wealth distribution and possibilities to accumulate human capital are changing rapidly.

7.2.2 Endogenous restructuring

In analysing the welfare impact of various ownership structures, one fundamental issue to remember is that the changes in the distribution of control rights do not occur by chance. Different individuals optimise their own welfare during the decision making process and the ownership structures in post-socialist economies arise according to the solutions to these maximisation problems. Although the assumption of exogenous restructuring allows one to draw policy conclusions on what kind of ownership structures should be preferred, the process

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the speed of restructuring is below the job creation curve.

of restructuring itself can be more clearly studied by making restructuring endogenous.

Decisions on whether or not to restructure and how much to invest are dependent on the expected future value of an individual's income. If a firm decides to restructure, there is a clear trade-off for the workers: labour cuts lead to an increase in expected future wages in enterprises that restructure, but also to a possibility of becoming unemployed. The level of capital investment and also investment in effort (see Aghion and Bolton, 1997) results from the initial endowments of individuals. It is not only job creation that will be shaped by the new definition of the production function, but also the speed of restructuring will be different in differently shaped distributions of endowments.

The condition for restructuring to take place is given by combining (37) and (38) as

(47) $rV_P = \lambda w + (1-\lambda)(w - cr) \geq x - z = rV_E$.

Hence, restructuring will take place if the value of moving to the private sector exceeds or is equal to the value of staying in the state sector. In the future I will use an equality sign in this condition for simplicity. Since private sector wage *w* is implicitly given in equation (35), we can solve it as:

(48) $w = y(A, e) - z - f(U^*)/a,$

where $f(U^*)$ defines equilibrium unemployment. Combining (47) and (48), rearranging the terms (and using a similar production function as in chapter 7.2.1) the restructuring condition in equilibrium gets the following form:

(49) $H^* = f(U^*) = a(y(A, e) - x - (1-\lambda)cr).$

Production *y* is again determined by a distribution function dependent of the initial endowments. On the other hand, production in the state sector is still *x*, because state sector production is considered inefficient and not dependent on the distribution of endowments.

Since in the equilibrium flows in and out of employment are equal, the new equilibrium speed of restructuring is defined simply as

(50) $s^*(1 - \lambda) = a(y(A, e) - x - (1 - \lambda)cr)$.

In this case not only job creation, but also restructuring decisions are a function of the distribution of endowments. The equilibrium speed of restructuring will be higher, the better expectations individuals have about their future productivity if they become employed in the private sector.

Let us consider, how this change in the formulation of output will affect the dynamics in the labour markets. To make the analysis formally more simple, I will make an assumption that there are information asymmetries in the private sector in transitional economies. This means that the enterprises adapt only information on the average product of workers and not on the product of every individual worker separately. The dynamics of restructuring and job creation hence depend on the increase in aggregate y, and individuals know the enterprise's capability of hiring workers at different levels of aggregate output. However, workers make their own decisions based on their own expected productivity and utility, which are given by the distribution function of y and by equation (47) respectively.

This assumption is similar to the one by Banerjee and Newman (1998). In what the authors call the modern sector people have poor information about eachother, since people live and work in different places. In their paper information asymmetries are important because economic agents sometimes need consumption loans. In this paper I will apply the same reasoning to the enterprises' information on workers productivity. State-owned enterprises in socialist economies were big and the workers of the enterprises lived in the same area. After transition, enterprise managers probably know much more about their workers than they do when a firm moves to the restructured sector. Also, work requirements in the public sector were easier to monitor. A move to market-oriented production technology means an increase in average production, but also a loss of information about each workers productivity.

From an enterprise's point of view a higher average production in the private sector increases both the flows in and out of unemployment. In the reformulated Blanchard-Aghion -model the dynamics of unemployment under endogenous restructuring are similar to the ones under exogenous restructuring, but now the maximum speed of restructuring line *s*(1-λ)* is not given, but determined by (50). The dynamics of job creation are determined as in the previous case from the curve *f(U,y)*. If we now consider a rise in *y*, we get the following first order conditions:

(51) $$\frac{\partial f(U,y)}{\partial y} = a\frac{U}{U+ca}$$ and

(52) $$\frac{\partial s^*(1-\lambda)}{\partial y} = a.$$

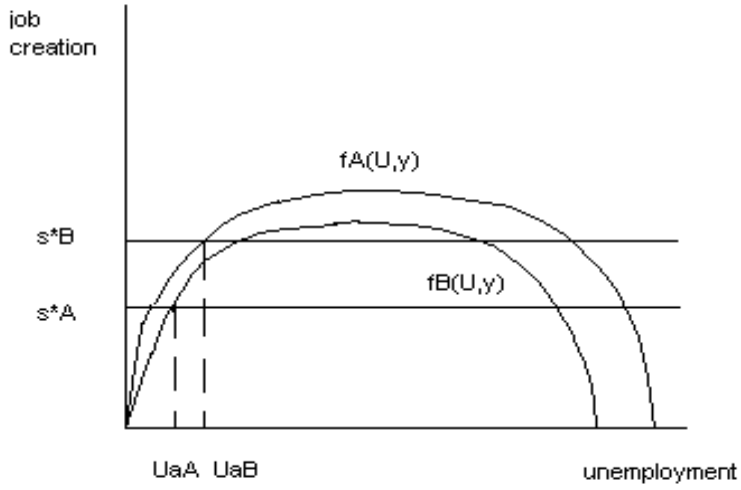
The combined effect of an increase in *y* on restructuring speed relative to equilibrium unemployment in the case of endogenous restructuring is

(53) $$\frac{\partial s^*(1-\lambda)/\partial y}{\partial f(U,y)/\partial y} = 1+\frac{ca}{U} > 1.$$

Similarly to the case of exogenous restructuring I will analyse the effects of inequality by comparing an economy *A* with equal initial endowments and higher average product; and an economy *B* with unequal endowments and lower average product. Higher average output will increase the possibilities for job creation, but it will also increase restructuring speed at a rate, which is higher than the rise in job creation. As seen in figure 7.2, the curve $f_a(U,Y)$ and the line $s_A(1-\lambda)$ will be higher than the corresponding curves for economy *B* and the result will be higher speed of restructuring *s*A > s*B* and larger equilibrium unemployment *UaA > UaB* in economy *A*. Nevertheless, the combined effect compared to to the case of exogenous restructuring is strikingly different. Since higher inequality will lead to lower medium-term average output, inequality still is a constraint for restructuring. However, contrary to the situation where restructuring is exogenous, economy *B* with higher inequality actually has a

lower level of medium-term unemployment during the restructuring process of state-owned enterprises.

Figure 7.2. Dynamics of unemployment with endogenous restructuring



The intuitive explanation for these results is that first of all, if restructuring is exogenous, a rise in *y* has a positive effect on employment because the increase in average product will not affect the speed of restructuring, but only lead to bigger enterprise revenues. The tax effect that decreases job creation will thus be smaller since the enterprises have more revenues to pay taxes from. After the initial increase in unemployment job creation will first increase the private sector more efficiently and the economy reaches the equilibrium restructuring rate at a lower unemployment level compared to the case with lower *y*.

The situation changes when restructuring is assumed to be endogenous and also dependent on average product. Private job creation will still be faster if *y* is higher because of increased revenues. The responsiveness of private job creation to a rise in *y* is nevertheless lower than coefficient *a*, the rate at which it increases restructuring, because of the tax effect.

However, there is no such tax effect on restructuring of the state sector enterprises since

restructuring is not dependent on *U*. Therefore, after the initial increase in unemployment, private sector job creation will continue in equilibrium with restructuring until the state sector is completely eliminated. In economy *A* with high average product this process will continue at a higher unemployment level than in economy *B* with lower average product.

The point here is that restructuring is endogenous and decisions on whether to join the private sector or to stay at the state sector are dependent on the workers' utilities. It was also assumed that enterprises do not have perfect information on each workers productivity and decisions are made by workers who know the behaviour of enterprises. Hence, workers recognising these dynamics and can prevent restructuring if they consider it too risky. The existence of unemployment during restructuring gives the workers a clear trade-off between a safe job and higher wages. This model shows that workers with higher average product (and thus high private sector wages) will prefer the higher wages in the private sector with the risk of unemployment more than workers with low average product. Therefore more productive workers restructure faster and less productive workers prefer lower unemployment and slower restructuring.

As shown before economy *A* ends up with higher restructuring speed and higher unemployment than economy *B*. All workers in economy *A* have similar endowments. Their utility functions can be expressed as in (47) and restructuring speed is determined by (50). Since their expected outputs are same, differences in the decision making process do not influence the dynamics of the enterprise's job creation and labour shedding decisions presented above. The workers' decisions are made on the basis of similar individual utilities and possibilities of becoming unemployed. If unemployment is initially above *UaA* high unemployment makes restructuring unattractive to state sector firms and it will be delayed until the economy reaches the equilibrium.

Decision making in economy *B* is a more complex case. Individuals with initial endowments $\bar{e}$ have different expectations on their productivity than individuals with endowments $e\_$. However, there is asymmetric information on the workers' productivity. Therefore what matters to the workers' decisions on labour shedding and job creation is average product. In

the presence of information asymmetries there will be no difference for the two groups in the expectations on the wages in the private sector as given by equation (49).

In such a case the same kind of dynamics in the labour markets are valid for both economy *B* and economy *A*. Workers will choose restructuring depending on their expected utilities in the state or private sector. Since private sector wage is higher than state sector wage there should be no incentive problems for the group with better endowments, although their wage in the private sector does not correspond to their productivity, but is given by

(54) $w = f(y_B)$

rather than

(55) $w = f(y[\bar{e}]) > f(y_B)$.

Relaxing the argument of information asymmetries would complicate this analysis and require studies on the decision making process. A very brief look at the effect of majority voting would make the impact of inequality even stronger. Inequality in transitional economies has usually occurred in the form of increasing number of people in the lower income deciles. In this case the restructuring decisions would be made according to the product level *y(e_)*, which is even lower than y_B and would lead to an even slower restructuring speed and lower equilibrium unemployment. On the other hand, if for example enterprises knew only some random workers' product instead of average product, low productivity workers could benefit from free-riding, choose a faster restructuring speed corresponding to $y[\bar{e}]$ and the conclusions could turn around (if job creation and restructuring decisions would be based on $y[\bar{e}]$>y(e)). These aspects are a topic of a different study, and but it is important to see the importance of information asymmetries typical for transitional economies.

The conclusions on the impact of endogenous restructuring are very interesting. The first part of this paper concluded that fast restructuring that leads to a rise in unemployment has negative welfare effects. The first part of chapter seven consolidates this argument by

concluding that inequality leads also to lower medium-term average product and a higher unemployment level if the ownership structures and restructuring speed of enterprises are given.

Assuming that control rights structures are endogenously determined provides a new meaning for inequality. While privatisation policies that create inequality are in many ways welfare-deterior to more egalitarian approaches, inequality in initial endowments changes the outcome of the restructuring process of state-owned enterprises itself. Since inequality has a negative effect on aggregate output and on expected wages in the private sector, the presence of inequality will delay the restructuring process of state-owned enterprises. Workers in state-owned enterprises consider the move to the private sector with the possibility of becoming unemployed too risky. On the other hand inequality will lead to a lower equilibrium unemployment level during the reforms.

The model in this chapter assumes that unemployment and job creation are stable once the economy reaches the equilibrium path. Therefore the possible impact of higher unemployment on inequality and growth will not change this development and unequally distributed endowments are a major obstacle on restructuring. The idea of this model is to study the effects of the initial transition shock. Changes in inequality and unemployment were radical in the early 1990's and it is those changes that have the most significant effects on enterprise reforms. Naturally, if restructuring proceeds with higher equilibrium unemployment it will slowly lead to an increase in inequality which again could decrease the equilibrium restructuring speed in economy A and question the stability of the equilibrium path. Changes in inequality have not, however, occurred very fast compared to the initial transition shock and the conclusions of this paper can be justified even with slight changes in average product during the restructuring process.

However, to be in line with the earlier conclusions in this paper, it is not at all clear whether the fast restructuring speed with higher unemployment is welfare-superior to the slower restructuring with lower unemployment. The same trade-off as in chapter six repeats itself. This time the endogeneity of restructuring seems to have an autocorrective feature. If

inequality is initially high, the workers prefer a more gradual reform path, while low inequality will improve the speed of reforms and the development of the new private sector, but lead to increasing social costs in the form of unemployment.

7.2.3 Empirical evidence

To conclude this paper I will very briefly look at some empirical evidence on the development of unemployment, inequality and restructuring in transitional economies in the early 1990's. If the theoretical framework presented above is valid, one should expect that in countries with high inequality, restructuring speed and unemployment should be low compared to countries with lesser inequality.

I have used a sample of 18 transitional economies from Central and Eastern Europe and the former Soviet Union. I have measured inequality with the Gini coefficients from 1994 and restructuring with the development of GDP since 1989. In table 7.1 I have didived the countries into five groups according to inequality. The table shows a clear falling trend of unemployment and GDP growth with rising inequality, as expected. In addition, correlation coefficient for the three variables in the sample show correct signs, although the correlation between inequality and unemployment is not especially high. But both inequality and growth and inequality and unemployment are negatively correlated. Also the hypothesis of high equilibrium unemployment with fast restructuring seems to hold.The conclusions from the model are supported by this short piece of empirical evidence.

Table 7.1 Restructuring speed, inequality and unemployment during transition: preliminary empirical evidence

Group 1. Small inequality (Hun, Cze, Slk, Slo)
Group 2: Moderate inequality: (Pol, Bls, Rom, Lat)
Group 3: Medium inequality: (Kaz, Uzb, Bul, Est)
Group 4: Large inequality: (Mol, Tkm, Lit, Kyr)
Group 5: Very large inequality: (Rus, Ukr)

	Average Gini	Average unemployment	Average GDP 1997/89

	coefficient 1994	1995	
Group 1	23,3	8,6	95,4
Group 2	29,0	6,6	77,7
Group 3	33,7	2,3	72,3
Group 4	37,9	3,1	46,5
Group 5	47,5	2,0	47,1

Correlation coefficients:
(Inequality; Unemployment) : -0,51
(Inequality; Growth): -0,72
(Unemployment; Growth): 0,60

8. Summary and conclusions

This paper provides an analysis of the welfare impact of privatisation in transitional economies.
The main idea is to analyse the impact of inequality first of all on welfare and also on restructuring decisions and growth. In most parts of this paper the ownership structures are exogenous and analysed as given. In the last chapter restructuring is considered as a choice of the state sector workers. The impact of inequality is quite different in these two cases and the most interesting conclusions arise from relaxing the assumption on the exogeneity of control rights structures.

A review of the development of inequality and poverty in Central and Eastern Europe and former Soviet Union during the past decade questions the arguments that efficiency and productivity should be only, or at least main goals in enterprise reforms. The behaviour of some enterprise owners and managers has been criticised, because they have delayed restructuring and not been able to cut down excess labour very rapidly. Especially privatisation policies that have favoured insiders have been subject to criticism because of these reasons.

If one is to consider social welfare objectives in a Samuelsonian fashion, inequality becomes an important part of the policy priorities. The existence of some excess employment almost

a decade after the reforms started can be justified from the social welfare point of view. Although restructuring and labour shedding are good long term policies, an increase in unemployment can in the short term lead to a large decrease in welfare. If the decrease is large enough, it is not evident that the economy will recover from the shock, since not only does inequality affect welfare, but also it has a negative impact on growth and political and social stability.

This paper discusses the welfare effects of privatisation in transitional economies from three different points of view. The first model analyses the welfare effects of the privatisation of big and medium-sized enterprises. The model starts by comparing the profit levels and recognises the productivity gains that full restructuring will bring about. From the social welfare point of view also physical capital restructuring is seen as purely positive. Labour shedding, however, includes a trade-off between efficiency and inequality. Which one of these effects is stronger depends on productivity gains from physical and human capital restructuring, on wage levels and unemployment benefits and on the degree of marginal cost of public funds.

Unlike most other models on enterprise restructuring in transitional economies this model questions the benefits of fast labour shedding. Unemployment has a negative impact on social welfare and restructuring and labour shedding should not be the only preferences in privatisation policies. In the first stages of transition efficiency-maximising policies are not necessarily welfare-maximising policies.

The second model considers longer-term effects of different ownership structures with the help of the model by Blanchard and Aghion (1994). The new feature in the model is that inequality in initial endowments has a negative influence on aggregate output. Because of this new determination of the production function an unequal initial distribution of endowments will lead to higher equilibrium unemployment during the restructuring process of state-owned firms, and to a bigger probability of a transition failure, if restructuring is exogenous.

The third model in this paper analyses similar dynamics of unemployment and job creation, but this time restructuring is determined endogenously from the utility functions of workers

in state-owned firms. If restructuring decisions are made by workers, the impact of inequality will be different than in the case of exogenously given ownership structures. Inequality now is a factor that delays restructuring decisions of state-owned firms and the increase of the new private sector. However, this process will be carried out with a smaller equilibrium unemployment in economies with more inequality. This means that higher inequality induces workers to choose a transition path with less social costs.

In conclusion, the argument that privatisation policies should prefer a fast development of ownership changes and immediate restructuring can be questioned, because inequality will have a very negative impact on welfare, on the restructuring process and growth. In economies with high inequality the failure of transition is more probable because of the high costs of unemployment. In addition, the restructuring process can be delayed if the workers in state-owned enterprises do not consider the move to the private sector as beneficial because of the risk of becoming unemployed.

Another policy advice not directly captured by the model is the distribution of endowments and which is related to the institutional development in the post-socialist countries. Inequality in the model by Aghion and Howitt is described as inequality in initial endowments. If one thinks of the transitional economies, these endowments could be interpreted as education or on-the-job training for work assignments that are useful in the market-oriented private sector. Transition also meant that a large part of the human capital stock became obsolete and more unequally distributed. If this trend is not reversed quickly, changes in the ownership structure of firms will not have a major positive impact on the economy.

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