INSTITUTE OF SOCIAL STUDIES

THE RELEVANCE AND FEASIBILITY OF ECONOMIC COST-BENEFIT ANALYSIS IN ECONOMIES IN TRANSITION WITH SPECIAL REFERENCE TO UZBEKISTAN

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Abstract

This paper questions the relevance and applicability of economic cost-benefit methods in economies in transition. It draws on insights gained in teaching project appraisal methods to practitioners and trainers from Uzbekistan, some of the other Central Asian Republics (Kazakhstan, Kyrgyzstan) and Azerbaijan. The specific institutional, economic and geo-political context is therefore that of relatively poor and land-locked primary export economies that -as former Soviet Republics- go through a process of transition which has as its point of departure the particular system of central planning that was in force in the Soviet Union until 1991.

The paper shows that economic cost-benefit methods are in principle highly relevant in transitional economies as prices tend to be even more highly distorted than in the less-developed market economies for which these methods were originally developed. It also shows, however, that the nature and origin of these distortions imposes severe limitations on the practical applicability of standard cost-benefit methods. The haphazard nature of distortions makes it impossible to use short-cut methods such as the standard conversion factor, or its equivalent the premium on foreign exchange. Use of specific conversion factors is in practice also very difficult as prices tend to be highly volatile. Direct estimation of economic prices, and repeated re-estimation of these prices for each new project, seems the only solution.

The paper finally also identifies a number of fundamental pricing problems that cannot be solved within the context of standard methods of economic appraisal. These are primarily related to the pricing of "non-traded" goods and services (including primary factors such as labour and land).

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List of abbreviations

AR	Accounting ratio
CMEA	Council for Mutual Economic Assistance
CF	Conversion factor
CFi	Specific conversion factor
CPE	Centrally-planned economy
EDI	Economic Development Institute of the World Bank
FSU	Former Soviet Union
IRR	Internal rate of return
LDC	Less-developed country
ME	Market economy
NPV	Net present value
OECD	Organization for Economic Co-operation and Development
OER	Official exchange rate
PCPE	Previously centrally-planned economy
SCF	Standard conversion factor
SER	Shadow exchange rate
SU	Soviet Union
UNIDO	United Nations Industrial Development Organization

THE RELEVANCE AND FEASIBILITY OF ECONOMIC COST-BENEFIT ANALYSIS IN ECONOMIES IN TRANSITION

With Special Reference to Uzbekistan

> The more distorted the markets for traded and nontraded goods in an economy, the more we need to use economic analysis or shadow pricing in project planning. The more we need to use economic analysis in project planning, the more difficult it is to estimate the accounting prices........
> (Ward and Deren, 1991:48)

INTRODUCTION

The main issues

The project appraisal methods that are used by the World Bank and by other international and bilateral donor agencies were originally developed for use in less-developed market economies, i.e. in economies in which prices - though distorted - do influence investment and other resource allocation decisions.[1]

The question that will be addressed in the present paper is in how far these same methods -perhaps with certain adjustments -can be used in the so-called "transitional economies", i.e. in economies that are in the midst of a transition from a system of central planning, in which prices are largely administrative devices with little or no allocative significance, to a more market-oriented and "open" system.

This question is not only of academic interest. International financial institutions such as the World Bank actually require loan applications for projects in transitional economies to be supported by appraisals that are based on the standard methodologies commonly used in international development banking. The training branch of the Bank, the Economic Development Institute (EDI), has therefore over the past four or five years put a lot of effort into familiarizing academics, trainers and practitioners in transitional economies with the

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[1]   The lineage of these methods is well-known. A genealogical tree would include the names of institutions, such as OECD, UNIDO and World Bank, and of authors such as Little and Mirrlees (1974), and Squire and van der Tak (1975) (on economic cost-benefit methods) and Price Gittinger (1982) (on agricultural project analysis). For the purposes of the present paper we shall mainly refer, however, to a more recent EDI-publication, which is a good reflection of the present state of the art, is written as a practitioner's guide and is particularly useful in pointing out the limitations of cost-benefit methods in real-life situations (Ward and Deren, 1991).

project planning methodologies used by the Bank. It has also opened a branch office in Moscow to look after the training needs in the Russian Federation and the other republics of the FSU.

A widening group of people, including academics and trainers as well as practitioners and trainees, is therefore confronted with the fundamental and practical issues that inevitably arise when transplanting a method developed in and for market economies to economies that still possess many of the traits of a former centrally-planned economy.

The present paper will attempt to systematically map out these main issues and problems. It will not cover all aspects of project planning but will concentrate on appraisal methods, and more in particular on the relevance and applicability of economic cost benefit methods. It is at that stage that the more fundamental problems arise, problems that in one way or another all boil down to the same question, viz. what are the relevant prices?

The origin of this paper

The main inducement for writing the present paper was the participation -as a teacher- in EDI-sponsored courses on rural project analysis in the Central Asian Region, the first of which was held at the Tashkent State Agricultural University (Uzbekistan) from November 14 until December 9, 1994. Already during the preparation for this first course it became clear that there would be relatively little scope for a systematic discussion of the problems and issues that might arise when applying standard economic cost-benefit methods under the conditions prevailing in Uzbekistan. The main reasons for this were (a) the duration of the course which was restricted to four weeks, (b) an audience that still had to be completely initiated in the methods of project planning as practiced by the Bank and that moreover had very little or no knowledge of the underlying concepts and institutional assumptions of mainstream Western economics, and (c) the lack of suitable teaching materials.

This last-mentioned factor did not affect all parts of the course. The first two weeks, which concentrated on the basic concepts, methods and techniques of project planning and consisted of formal lectures and computer exercises, were in fact very well supplied with teaching materials.[2] The situation was different, however, with regard to the second half of the course which attempted to deal with applications of the basic methods and techniques in the

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[2] These partly consisted of straight translations into Russian of materials that had been developed by EDI over its many years of delivering project planning courses in Washington and in LDCs. In addition there were specially-prepared readers, containing translations into Russian of relevant journal articles, chapters from books etc. A lot of effort had been put into this and if there was a problem it was indeed that there was too much rather than too little material.

specific context of a transitional economy. It was based on two case studies and included a) a brief discussion of a World Bank-financed project in the Russian Federation (a case that had already been used in some of the Moscow-based courses) and (b) extensive group work by the participants on a local agricultural case which took up the final one-and-a-half week of the course.

Though discussion of these cases was useful and presentations by participants of their work on the local case attained a higher standard than could be reasonably expected in the short time available, the discussions clearly suffered from the absence of suitable background material (a) on the actual functioning of the Uzbek economy "in transition" and (b) on the problems that may arise when trying to apply economic appraisal methods in the reality of transitional economies.

This last point may be considered surprising given the considerable amount of attention which the process of reform in Central and Eastern Europe and the FSU has attracted (and continues to receive) in academic journals and in publications of international organizations, such as the World Bank and the IMF.[3] There is a wealth of material on the process of transition in general and it would not be unreasonable to already expect a certain degree of systematization and generalization regarding the implications of this process for methods and techniques of investment decision-making.

At the same time it is also not difficult to think of a number of factors that may explain why this is not the case and why this aspect so far has received less attention than it deserves:
(i)   it is extremely difficult to generalize about the process of transition and about its implications for micro- or project level decision-making;
(ii)   in the early stages of transition many projects financed by the World Bank (and other international financing agencies) appear to serve objectives (privatization and restructuring at the sectoral and sub-sectoral level) that do not necessarily lend themselves to the standard methods of economic appraisal;
(iii)   it might be considered a waste of time and effort to analyze extensively how things function during the process of transition, which after all should be seen as a transitory phase.

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[3]   In the case of the World Bank one only needs to refer to the numerous research papers and policy documents devoted to different aspects of the transition process, to the many country reports on economies in transition, to the special newsletter, Transition, issued by the Bank's Transition Economics Division, and to the 1996 issue of the World Development Report, which is entirely devoted to the process of transition in Central and Eastern Europe, the republics of the former Soviet Union (in the meantime re-baptized as the "newly-independent states" or NIS), China and Vietnam.

We shall return to these points later on in this paper and this will show that, in particular, points (i) and (ii) may have some validity. We continue to have our doubts, however, about point (iii) and these doubts constitute indeed the main motivation for writing the present paper.

An economy in transition: the special case of Uzbekistan

In the remainder of this paper we shall from time to time refer to the general literature on economies in transition, including those in Central and Eastern Europe. At the very general level, i.e. when dealing with the main differences between (former) centrally-planned and market economies, this can indeed be quite useful.

At the same time it is clear, however, that there were and are important differences among the different countries of Central and Eastern Europe and between these and the different republics of the former Soviet Union. In the case of Uzbekistan we are dealing with a country that formed part of the FSU and therefore (a) goes through a process of transition that has as its point of departure the particular system of central planning that was in force in the SU at the time of its break-up in 1991, (b) at the same time has to cope with the problems that accompany the dis-integration of the single Soviet economic space, and (c) has a number of specific economic, geographical and political features that distinguish it from the other -in particular the European- parts of the FSU.

The specific characteristics of the Uzbekistan case will be considered in somewhat more detail in the main sections of this paper. At this stage it is useful, however, to already point out that the break-up of the Soviet Union and the disintegration of the single Soviet economic space so far has had a much greater impact on the Uzbek economy than the process of systemic change as such. The reasons for this are several:

1) To start with it is clear that the <u>approach to reforms</u> in Uzbekistan has from the beginning been relatively cautious and partial (cf World Bank, 1993: xi) and that up to the present day the <u>pace of reforms</u> remains slow, not only compared to Russia but also when compared to some of the other Centralasian republics (cf. Spoor, 1996: Table 6). <u>Privatization</u> has mainly affected retail trade and residential housing; in the agricultural sector -which is by far the most important sector in the economy- there are as yet very few signs of effective decollectivization or of other long-term structural reforms. (ibid.) [4] This general picture is also confirmed in the <u>World</u>

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[4] The World Bank is in the process of preparing a project for decollectivization and restructuring in the agricultural sector; mid-1996 preparations were still in the very early phase of gathering information on the current organization, management and production systems on collective farms.

Development Report 1996, 'From Plan to Market'. It shows that Uzbekistan belongs to a group of transition economies in which there has been little or no privatization and relatively little progress with institutional and social policy reform (World Bank, 1996: Figures 1.4. and 1.5).[5] Most of the changes and disruptions that have affected the Uzbek economy since independence are therefore not the direct result of internally-inspired reforms: the single most important factor is the disintegration of the SU and parallel to that the <u>disintegration of the single Soviet economic space.</u>

2) the existence of a single Soviet economic space implied amongst others that the <u>inter-republican division of labour</u> and the resulting flows of <u>inter-republican trade</u> were primarily the outcome of central direction from Moscow. The practical impossibility of maintaining an internally-consistent system of material balances and the resulting supply uncertainty resulted, moreover, in the tendency to secure a high degree of organizational autarky at the level of individual branch ministries and enterprises (cf. Dyker, 1992:18), thereby distorting locational patterns and resulting in "grossly excessive transport hauls" (ibid., 1992:158). This last-mentioned tendency was further re-inforced by the fact that, particularly on the railroads, freight transport was essentially free to users, thereby making the Soviet Union by far the most "transport-intensive" economy in the world (cf. Kontorovich, 1992:174).

3) the previous point explains the high degree of <u>trade dependence</u> which characterized the Uzbek economy at the time of independence and which was much higher than one would expect from a land-locked economy located at the periphery of the former Soviet Union and separated by vast distances from the major Soviet domestic markets and international seaports. [6] It also explains the presence of industries that would probably never have been located in Uzbekistan, were it not that distance from markets and sources of materials (and the related transport cost) apparently played little or no role in Soviet location decisions (cf. Spoor, 1996: 2).

4) in the case of former Soviet republics such as Uzbekistan, transition therefore implies much more than the in itself already complicated process of 'systemic' change. In addition to temporary disruptions (due to the fact that the old system <u>no longer</u> functions while the new system does <u>not yet</u> function properly), transition is also -and unavoidably- accompanied by <u>adjustments in the 'real' economy</u>, reflected in a reallocation of resources (e.g. changes in cropping patterns), a relocation of industries and a re-orientation of trade flows. All this as a result of the introduction of a market-based relative price structure that may be quite different from the relative prices that

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[5] Other members of this group (indicated as 'group 4') are Ukraine, Belarus, Azerbaijan, Tajikistan and Turkmenistan

[6] 'As in most of the FSU, total trade -but particularly interrepublic trade- represented a substantial proportion of GDP, approximately 67 percent in 1991' (World Bank, 1993:6)

were implicit in the decisions taken under the command system.[7]

Under the pressure of circumstances some of these adjustments have indeed already taken place. The traditional export of perishable produce (fruits and vegetables) to the rest of the FSU -and more in particular to the Moscow region- has more or less collapsed due to the rapid increase in the cost of rail transport.[8] Manufacturing activities that were highly dependent on intermediate deliveries from other parts of the FSU -such as a large tractor assembly plant at the outskirts of Tashkent- have practically come to a stand-still, while other adjustments, such as the partial shift out of cotton and into wheat production, were the result of conscious decisions by the Uzbeki government.

Given all this it is interesting to note that Uzbekistan -at least initially- appears to have suffered less from the disruption following the break-up of the SU than most of the other republics of the FSU (World Bank, 1993: Table 2.1, World Bank, 1994a:1, and Spoor, 1996: Table 1). The fact that the country is so heavily dependent on the large-scale irrigated cotton sector can in this connection be considered a blessing in disguise: the dependence on specific intermediate inputs from the rest of the FSU was much smaller than in the case of manufacturing plants that obtained their specialized parts and materials from distant plants in other former Soviet Republics. Finding alternative outlets on the world market for a raw material such as cotton is also much simpler than finding new customers for tractors or machines that traditionally were mainly exported to, and used in, other Soviet republics. A change in cropping pattern -such as the partial shift out of cotton already mentioned above- is moreover easier, and can be accomplished in a much shorter time span, than an adjustment in manufacturing output.[9]

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[7] It is not self-evident that under a system of highly-distorted administrative prices the real economy is also highly-distorted. As administrative prices usually have little or no allocative significance, these prices may be highly 'distorted' but at the same time hardly 'distortive' in the sense of steering resource allocation away from from what might be considered desirable from a national economic point of view. (cf. van der Wel, 1986: 105ff for a more extensive discussion of this issue in relation to public sector pricing in the Sudan).

[8] Informal documents and statistics consulted at the Regional World Bank Office in Tashkent confirm this decline and attribute it to the "loss of markets" in Russia. Though this is not a very specific explanation it nay well be correct in the sense that there is a probably a whole range of factors in addition to to the increase in transport cost that account for the decline in the exports of fruits and vegetables to the rest of the FSU. Uzbeki participants in the EDI courses held in Tashkent also mentioned the shortage of packaging materials which before 1991 were imported from other Soviet Republics.

[9] The different World Bank reports on Uzbekistan indeed see the structure of foreign trade as a main explanation for the relatively good performance of the economy since the break-up of the Soviet Union: 'Uzbekistan's specialization in the production of agricultural and energy commodities shielded the economy somewhat from the collapse in FSU production that was centered in the manufacturing sectors.' (World Bank, 1994a:i). The same report also acknowledges that the relatively slow pace of the economic reforms has -at least temporarily- been another mitigating factor: 'Uzbekistan was slower than other FSU countries in removing state orders and subsidies. The continued controls helped temporarily in preventing drastic declines in Uzbekistan's

From among the more permanent structural features that set Uzbekistan apart from the European republics of the FSU and from the economies in transition in Central and Eastern Europe, its geographical position is particularly relevant for the issues that will be discussed in the remainder of this paper. Uzbekistan is a land-locked country that -apart from a short border with Afghanistan- is completely surrounded by other republics of the FSU. Because of this it is bound to remain heavily dependent -at least for the immediate future- on the other republics and on the rail and other connections that link it to its distant sea ports on the Black Sea, the Baltic and the Pacific. In this respect it finds itself in a quite different position from other republics of the FSU such as Russia, Belarus and the Baltic states, which are historically, culturally and -last but not least- geographically much closer to Western Europe. All this leads to specific practical micro-questions relevant to project planning, for example, (a) where to draw the future dividing line between traded and non-traded goods and services and (b) what sort of border prices to use when calculating economic import-parity and export-parity prices.

Organization of the paper and main conclusions

The remainder of the paper is divided into three main sections:

Section I will show that there can be very little doubt about the general relevance of economic cost-benefit methods to transitional economies. Prices in these economies tend to be even more highly distorted than those in the average less-developed market economy, so that current or expected financial profitability provides little or no guidance to the real profitability of the activities concerned.

Section II will show, however, that the nature and origin of these distortions are different from those in the average less-developed market economy. Transitional economies still show important remnants of administrative pricing, reflected -amongst others- in the prevalence of implicit (rather than explicit) taxes and subsidies and in the rather haphazard nature and rapidly changing magnitude of distortions.

Section III discusses the implications of this for the practical applicability of cost-benefit methods. The haphazard nature of the distortions -the direction and magnitude of distortions being very different for different categories of goods and services- makes it impossible to use short-cut methods such as the standard conversion factor, or its equivalent the premium on foreign exchange. Use of specific conversion factors, which in theory is the answer in such a situation, is in practice also very difficult as prices tend to be extremely volatile. Conversion factors would have to be recalculated from month to month and from week to

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economy; ......'(ibid.).

week and would thereby lose much of their rationale. Direct estimation of economic prices at a specific point in time, and repeated re-estimation of these prices for each new project, therefore seems the only solution.

The paper ends with a number of **Concluding Remarks** which serve to further refine or qualify its main conclusions and assumptions. It will be shown, for example, that the situation in transitional economies is in some respects less unique than initially posited. This is particularly true with regard to the prevalence of administrative pricing, a characteristic that is also found in quite a few less-developed market economies. At the same time it is also clear that economies in transition do face special pricing problems that cannot be solved within the context of standard methods of economic appraisal for the simple reason that these methods were not designed to cope with these problems. In situations such as in Uzbekistan - and for that matter many of the other republics of the FSU- the main issue is not that actual prices need to be corrected for distortions vis-a-vis a reasonably well-defined and stable set of relative scarcity prices. The real problem is that any realistic economic appraisal will have to be based on estimated/predicted post-transition prices that bear no relationship whatsoever to current prices, if these exist at all. In practice this problem will be largest for projects that are characterized by a high proportion of "non-traded" inputs and outputs. In the case of "traded" goods, world market (border) prices do of course serve as external (and relatively stable and predictable) points of reference.

I. THE RELEVANCE OF ECONOMIC COST-BENEFIT METHODS IN ECONOMIES IN TRANSITION

> The problem of assessing the competitiveness of industries in economies in transition has strong analytical links to the appraisal of investment projects in developing countries. (Hughes and Hare, 1994: 201)

Economic cost-benefit methods have been developed for situations where "market" or "financial" prices are so "distorted" that they no longer reflect the relative value of resources to the economy as a whole. This means that the current and expected financial performance of existing or newly-planned productive activities provides very little - if any - guidance to the real profitability of these activities.

In such situations decisions about new investments will have to be based on an economic analysis, in which "market prices" are replaced by "shadow" or "accounting prices" that provide a better indication of the value of resources to the economy as a whole than the distorted "market prices". The conventional financial analysis, based on "market prices", will continue to have some relevance, but only as an indicator of financial flows and financing requirements and not as an indicator of the (relative) attractiveness of the investment concerned.[10]

The degree of price distortion in economies in transition: preliminary evidence

The question if economic cost-benefit methods are also relevant in economies in transition obviously boils down to the question to what extent prices in these economies can also be considered "distorted." The answer to this question may perhaps appear so self-evident that it hardly needs posing. Most publications on economies in transition point indeed to the fact that prices in these economies are severely distorted and probably even more so than in most LDCs. A recent review of publications on reform and transformation in Eastern Europe puts this as follows:

> .... compared to Latin America price distortions are larger in Eastern Europe, much more wide-spread and have been present for much longer. (Reich, 1994 :228)

Another recent article, dealing with the international competitivenes of industries in four

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[10] We follow the common terminology in which the term "market prices" stands for "prices actually received or paid". These can be government-controlled prices or prices that reflect heavy subsidization or taxation. Use of the term "market" therefore does not imply that these prices are the outcome of the free play of market forces.

Central and Eastern European countries [11], mentions the 'astonishingly complex systems of taxes and subsidies which were applied to international transactions, domestic production, and consumption' and states that:

> As a result, the profits -or, more generally, the value-added- reported by particular enterprises or even entire economic branches, often gave little guide to the real profitability of the activities concerned in terms of any consistent and coherent measure that might be used. While the liberalisation component of the overall 'transition package' .... is typically accompanied by substantial reductions in these distortions, many still remain in all four countries and new ones are still being introduced. (Hughes and Hare, 1994 : 200)

This list of quotations could be easily extended with similar quotations from other sources. On basis of this preliminary evidence it therefore seems clear that the general rationale for applying economic cost-benefit methods is at least as strong in economies in transition as it is in the less-developed market economies for which these methods were originally developed. The last quotation also suggests that price distortions will continue to be an important feature of transitional economies for some time to come.

Measuring the degree of price distortion: concepts and methods

The whole discussion about price distortions obviously has a strong normative content: prices are not what they ought to be, i.e actual or market prices do not properly reflect the real costs of inputs and the real benefits of outputs to society. The two questions that immediately arise are (i) what are the proper "accounting" or "shadow prices"?, and (ii) why do actual prices diverge from these?

Discussion of the second question will be deferred until **Section II** of this paper. The answer to the first question is of immediate relevance, however, to the present section, which will consider empirical evidence on the extent of price distortions in transitional and less-developed market economies. This obviously requires comparison of actual with "proper" prices and measurement of the degree to which the former diverge from the latter.

The position taken in this paper is identical to the normative position taken in all economic cost-benefit analyses: the proper value of resources to the economy as a whole is their opportunity cost or value. In the case of an (internationally) traded good these are represented by its "border" price, i.e the "world market or international" price which an exported good will fetch at the point of export (the f.o.b. price) and the price which has to be paid for an imported good at the point of import (the c.i.f. price). In the case of non-traded factor inputs

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[11]   Bulgaria, Czechoslovakia, Hungary and Poland

(primarily land and labour) the opportunity costs of using the primary factor in the project considered is the value of the net output foregone in the next best alternative (revalued, if necessary, at border prices). Non-traded goods and services (e.g. domestic transport, water and electricity) are generally treated as bundles of traded goods and primary factors, i.e. decomposed into traded and non-traded (factor) inputs, and valued accordingly.

Given the appropriate shadow prices, one can calculate the ratios of shadow prices to actual or market prices. These ratios, which are commonly known as "conversion factors" (CFs) or "accounting ratios" (ARs), can serve as indicators of the extent or scale of distortion, while an additional and often also useful indicator is the dispersion of the individual accounting ratios around the mean or median.[12]

Irvin (1978:98) provides a very useful graphical method to illustrate in summary form the scale and pattern of price distortions in an economy. **Figure 1** (see page 12 overleaf) reproduces his original figure, which according to its heading shows hypothetical frequency distributions of accounting ratios by categories of goods, but which - judging by the accompanying text - appears to be fairly representative for the situation in Kenya around the mid-1970's.[13]

What can be immediately observed is that

(i)   in three of the four distributions represented in the figure the mean and median values (which are practically identical) have a value below 1.00, which means that on average the domestic market prices for these goods and services tend to lie above the corresponding shadow prices.

(ii)   in the case of non-traded goods and services and consumer goods and services the dispersion around the mean is relatively small which means that for these two categories nearly all individual ARs also lie below 1.00, contrary to imports where the dispersion is somewhat higher.

(iii)   in the case of exports the mean is practically equal to 1.00, which combined with a nearly symmetrical distribution, suggests that about one half of the ARs is lower and about one half higher than 1.00.

Compared to some of the data presented in the next few pages, the picture presented in

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[12]   Conversion factors or accounting ratios are primarily computed to facilitate conversion of a project's financial cash flow into the corresponding economic cost-benefit flow. The extent to which the values of individual conversion factors diverge from 1.00, i.e. from the "no distortion"-value, can of course also serve as an indication of the extent or scale of price distortions in an economy.

[13]   The figures used are those reported in the well-known study of Scott, MacArthur and Newbery (1976) (Irvin, op.cit.:97 footnote)

Figure 5.10 *Hypothetical Frequency Distributions of ARs by Category*

Traded Goods
Exports

Traded Goods
Imports

Non-traded goods
and services

Consumer goods
and services
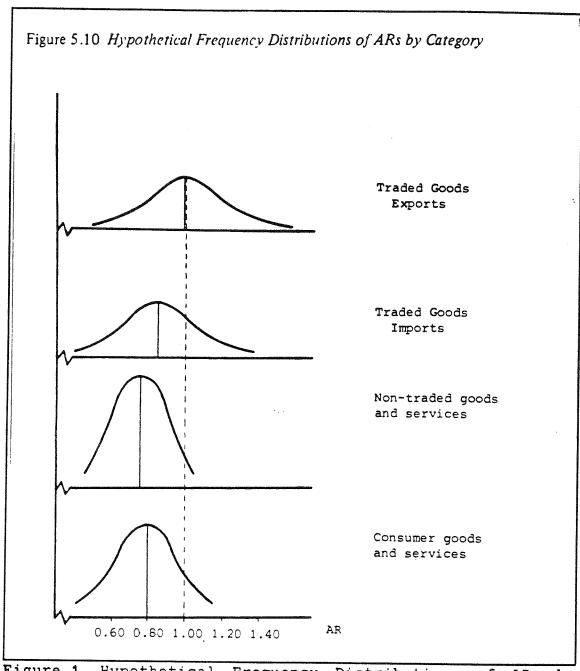
0.60 0.80 1.00 1.20 1.40   AR

Figure 1 Hypothetical Frequency Distributions of ARs by Category (copied from Irvin, 1978, Figure 5.10)

Figure 1 represents a moderate case of price distortion. It is therefore useful to point out that the extreme values of the range shown in the figure , viz. ARs of 0.40 and 1.60, nevertheless can be taken to represent an export subsidy of one hundred and fifty and an export duty of more than thirty-seven percent, while in the case of imports, where the range is slightly smaller, the extreme ARs would represent respectively an import duty of one hundred and fifty and a subsidy on imports of about twenty-nine percent! Figures that may be low in comparison to other, even more "thoroughly distorted" systems, but which taken by

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themselves certainly do not strike one as moderate.[14]

Price distortions in transitional economies: selective evidence

It is far easier to find verbal statements about the degree of price distortion in transitional economies than concrete empirical evidence that lends itself readily to quantitative expression and cross-country comparison. This limitation is also reflected in the evidence that will be presented below:

a) the concrete evidence on transitional economies is restricted to figures that relate to two countries, viz. Uzbekistan, which is the country that formed the direct source of inspiration for the present paper, and Bulgaria, which was chosen because there were some readily accessible data and because it represents a case outside the FSU.

b) the figures on these two economies are compared to figures from a limited number of less-developed market economies (Egypt, Jamaica, Kenya and Thailand), figures which indicate that within the group of market LDCs, the degree of price distortion can also show quite some variation.

c) the coverage of the country data in terms of commodities and commodity groups remains rather incomplete and quite uneven: the Egyptian case with 130 commodities divided over six main groups comes closest to what is needed to generate the smooth frequency distributions that are suggested by the stylized pictures of **Figure 1.** In the case of Uzbekistan data are limited, however, to about 25 commodities, consisting mainly of inputs and outputs of the large scale irrigated farming sector, and selected energy products. In the case of Bulgaria the variety of commodities covered is larger but their small number (18) does not allow a meaningful breakdown into sub-groups and the same is true for Jamaica and Thailand.

d) the most important limitation (in less-developed market as well transitional economies) concerns the availability of information regarding non-traded goods and services and primary factors of production . In the case of the primary factors (land and labour) markets and prices often do not exist, either by default (in ldc's) or by design (in former socialist economies). Where markets and prices for primary factors do exist, market imperfections and government intervention usually lead to a situation where these prices do not reflect the opportunity cost of resources. This in turn reflects on the prices of non-traded goods and services, including government services, some of which -also for other reasons- are non-priced or heavily underpriced in relation to their real cost of production. In the case of Uzbekistan -and for that

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[14]   The term "thoroughly distorted" is used by Ward and Deren who point out that since the 1970s and early 1980s, i.e the period in which most of the leading treatises on economic cost-benefit analysis were published, 'changes in the world trade and monetary situation have led to the development of increasingly distorted trade, fiscal, and financial policies in many developing countries, increasing both the importance and the difficulty of using shadow prices in project economic analysis.' (op.cit.: vii)

matter most other republics of the FSU- prices of land (zero), irrigation water (zero), labour, rail transport and electric power are all heavily distorted but how heavily is difficult to say as lack of information makes it difficult to prepare reasonable estimates of their true opportunity cost.

Notwithstanding these limitations, the data presented in **Table I**, clearly show a number of things:

i)   To start with it is striking how close the figures for the first three countries in the table (**Kenya, Jamaica and Thailand**) lie together. This is true for the mean as well as the standard deviations and it is likely that the resemblance would even be larger if the data for Jamaica and Thailand would have allowed a similar breakdown by category as that shown for Kenya. Inspection of the individual ARs for Jamaica would show, for example, that -with one exception - all ARs are smaller than or equal to 1.00, the exception being agricultural exports with an AR of 1.15. This suggests that the figures for Kenya as well as the stylized frequency distributions of **Figure 1** can be considered fairly representative for the scale and pattern of price distortions in quite a number of less-developed market economies during the 1970s and early 1980s: most traded imports are subject to duties or other trade restrictions, thereby raising domestic prices above the corresponding border prices (AR < 1.00), while they at the same time - in view of the overvaluation of the domestic currency - remain underpriced relative to most nontraded goods, and overpriced relative to most exports. A situation in other words where industries manufacturing import substitutes would on the whole be protected, while the exports of agricultural (and other) raw materials tends to be subject to export duties (AR > 1.00), i.e to negative protection.

(ii)   Egypt, which is our fourth example of a less-developed market economy, illustrates an already quite different situation. All the mean ARs of the different commodity groups lie above 1.00 with as an extreme example of subsidization the category of petroleum products of which the average price is only about one-sixth of the corresponding border price. The standard deviations for the different commodity groups are also very much higher than in the first three cases, which in fact is the reason why Ward and Deren (op.cit.: 216ff.) chose the example of Egypt to illustrate the limitations of using a standard conversion factor (or summary AR in the Little-Mirrlees terminology). With such high dispersions around the mean, the use of the mean or average AR as a summary AR for all goods and services in a particular category, could be highly misleading and it would be safer to use commodity specific ARs, particularly for very important project inputs and outputs (cf. Irvin, op.cit.: 97). Ward and Deren (op.cit.: 219) conclude that in the case of Egypt the results of the study demonstrate how inadequate private profits can be as indicators of the social profitability of investment. In economies where the distribution of conversion factors are close to one another and less than unity and projects propose to produce exports

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selling at fixed world prices, profitability at domestic market prices would also imply social profitability. Here, despite an SCF of about 1, we cannot confidently say anything about the efficiency of Egyptian export, or of import-substituting production.

Table I   Mean, Standard Deviation and Range of Frequency Distributions ARs - Selected Countries

Country	Category	Frequency Distribution ARs		
		Average	Stand. Dev.	Range
Kenya (1973)	Imports	0.86	0.25	na
	Exports	1.00	0.25	na
	Non-traded g.	0.77	0.06	na
	Urban cons.g.	0.80	na	na
Jamaica (1983)	All	0.80	0.17	0.60
Thailand (1975)	All	0.89	0.06	0.22
Egypt (1982)	Traded goods	1.02	0.39	1.62
	Agric.inp.outp.	1.57	0.85	3.29
	Petroleum prod.	5.88	4.38	14.29
	Urban cons. g.	1.57	1.41	5.02
	Rural cons. g.	1.31	0.57	1.95
	Nontraded g.	1.33	0.70	3.45
Bulgaria (1990) (US$=2.4 leva) (US$=7.0 leva)	All All	1.74 5.07	0.63 1.85	2.24 6.53
Uzbekistan(1993)	Agric.inp.outp. Oil prod./coal	18.33	25.43	77.57

Sources: Irvin, 1978 (Kenya), Ward and Deren, 1991 (Thailand and Egypt), Weiss, 1985 (Jamaica), World Bank, 1991a (Bulgaria), World Bank, 1994b (Uzbekistan)

(iii)   the figures in Table I also show that Egypt occupies a more or less intermediate position, i.e. in between the first three, more 'typical' less-developed country cases and the cases of Bulgaria and Uzbekistan, the two transitional economies represented in the table. In these last two cases one finds once again average ARs that lie clearly above 1.00, with an incredibly high mean value of more than 18 in the case of

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Uzbekistan, and with high to very high standard deviations which are of course also reflected in the values of the absolute ranges. Individual ARs all lie - and in the lower range of figures presented for Bulgaria nearly all lie - above 1.00.[15] The similarity between the figures for Egypt and those for the two transitional economies also indicates that Egypt at the particular time (the early 1980s) still occupied an intermediate position in the institutional sense, viz. somewhere halfway between a market and a socialist economy. The extent of domestic price controls was such that there remained very little of a direct connection between domestic and international prices.

The case of Uzbekistan

The extremely high ARs of agricultural inputs and outputs in Uzbekistan mean two things, viz. extremely high <u>implicit</u> taxes on agricultural outputs and extremely high <u>implicit</u> subsidies on agricultural inputs, particularly on fertilizers, chemicals, irrigation water (which is free) and fuel.[16] The overall result of this is a very high net contribution of the irrigated sector to the government budget, which became necessary as fiscal transfers from Moscow were discontinued after the break-up of the SU.

The resulting ARs are so high and lie so far outside the range of figures found for other countries, that one cannot help but become suspicious. We nevertheless take the figures included in **Table I** at face value:

a)   they tally with the net tranfers to the government from irrigated cotton, wheat, maize

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[15]   The two ranges of figures shown for Bulgaria can be taken to represent the extreme 'volatility' of the figures that seems to be typical for most transitional economies and which we believe very much restricts the usefulness in these economies of ARs/CFs as commonly applied in economic cost-benefit methods. The two sets of figures illustrate a sudden change in the external value of the domestic currency (a devaluation of the leva from 2.4 to 7 per US$) with apparently no corresponding change in the (controlled) domestic prices.

[16]   Comments received on earlier versions of this paper have questioned the correctness of the statement that high taxes and high subsidies both lead to high ARs. In its generality the statement is indeed not correct. Essential in the situation described for Uzbekistan, however, is that it shows a "tax" on agricultural <u>outputs</u>, which lowers the domestic <u>producer</u> prices below the relevant border prices (in this case of cotton and wheat). The result of this "tax" is therefore an AR > 1 (as P_w > P_d), just as a "subsidy" on <u>inputs</u> -by lowering the price paid by domestic producers- also leads to ARs > 1. The fact that the "taxes" and "subsidies" are <u>implicit</u> , i.e. the resultants of administrative price setting, also means that standard tax incidence analysis as used to analyze the impact of taxation and subsidization in market-determined price systems, is not of much help here. This does not mean , however, that the situation described cannot also be found in market economies with government price controls. Heavy taxation of domestic agricultural output, e.g. through export duties or government-controlled producer prices for major export crops is also fairly common in less-developed market economies. It represents the typical export marketing board situation, which was often inherited from the colonial period and is often also found in combination with subsidization of inputs. This situation is also reflected in the frequency distributions of the ARs for traded goods (exports and imports) shown in **Figure 1** (see page 12 above).

and rice production that are presented in the same report on which we have based our calculations (World Bank,1994 a and b); a printing error or a misplaced decimal point seems therefore excluded; if the World Bank figures on net transfers out of the irrigated sector are correct then the ARs calculated on basis of the same price information should also be correct;

b)   in a situation where prices are purely administrative, i.e. are not expected to affect behaviour and have no logical relationship with prices in foreign trade, extreme values of ARs/CFs are much more likely than in situations where prices (though distorted) are still affecting allocative behaviour and in some way are related to international prices.

Though the figures in themselves may be correct they clearly represent a momentary situation; it is not likely that such extreme figures remain valid for extended periods of time, though they may (re-)occur over certain limited periods of time for a reason also referred to in the footnote on the Bulgarian situation on the previous page: in transition economies, price ratios (including domestic to border price ratios) tend to be highly volatile as controlled prices cannot be adjusted frequently enough to situations of galloping inflation and related currency devaluations.

This situation of high price volatility does certainly increase the risk of committing real (and grave) errors, e.g. when price ratios are calculated on basis of sets of prices that do not relate to exactly the same point in time (or time period). This last point was brought home to us forcefully when we in December 1994 seriously considered to apply the ARs derived from the World Bank report of mid-1994 in a teaching case study based on end-1994 price information. Price adjustments, especially on the side of agricultural inputs, had been so large that many of the earlier set of ARs had already completely lost their relevance.

II   THE NATURE AND ORIGIN OF PRICE DISTORTIONS

The previous section of this paper has convincingly shown that prices in transitional economies are often as "distorted" as those in less-developed market economies and in many cases are even more "distorted". This means that economic cost-benefit methods are in principle as relevant in economies in transition as they are in the less-developed economies for which they were originally developed.

A question that logically follows from this conclusion, is <u>why</u> prices are distorted, i.e why do actual prices diverge - and in many instances diverge substantially - from prices that can be considered to represent the true opportunity cost of resources to an economy?

In tackling this question we shall again compare the situation in transitional with that in less-developed market economies. This will show that the nature and origin of price distortions in the former is very different from that in the latter type of economy. Key-words or concepts that are central to the argument are the following:

- <u>distorted market</u> versus <u>administrative</u> prices;
- <u>explicit</u> versus <u>implicit</u> taxes and subsidies; and
- <u>open</u> versus <u>closed</u> economies.

We shall start our analysis, however, with a brief digression to the advanced market economies in which prices are usually assumed <u>not</u> to be distorted or at least not sufficiently distorted to warrant the use of economic cost-benefit methods.

Prices and resource allocation in advanced market economies

In a market economy most consumption, saving, investment and production decisions, are in principle taken by individual consumers and producers and based on prices (and price expectations) that are the result (or the expected result) of market transactions. An exception are the so-called "public goods" which are subject to "budget allocation" (in the average developed market economy 20-25 per cent of total National Expenditure) and the sphere of public production (state enterprise and general government) which in most developed market economies contributes less than ten per cent to GDP.

The actual allocation of resources in such a market-based system will -at a given point in time- reflect overall resource endowments, the prevailing distribution of income and wealth (between nations and individuals), the state of technology and, finally, the preferences of consumers, which in the case of "public goods" are assumed to find their expression - however imperfectly- through the political system. Mainstream <u>normative</u> (i.e. static neoclassical welfare) economics teaches that this system is "efficient" insofar markets can

exist and are perfectly competitive, which they are not in a good many cases. It has nothing to say about the merits or demerits of (changes in) the existing distribution of income and wealth. Income distributional judgments are kept separate from efficiency considerations by definings improvements in efficiency as improvements in "Pareto efficiency", i.e improvements that would enable the "winners" to compensate the "losers" (and still be left with a net gain), independent of the question if compensation actually takes place or not.

In this neo-classical framework the efficiency case for government intervention is based on (i) cases of "market failure" (markets and market prices cannot exist as is the case with pure "collective" goods and "externalities"); (ii) the existence of "market imperfections" (monopolies, including "natural" monopoly situations); and (iii) the existence of so-called "merit" or "demerit" goods, i.e goods or services for which government and society do not want to accept the valuation of individual users as an indication of the true value to society (rejecting therefore, in these cases, the principle of consumer sovereignty). These three categories form the main justification, on efficiency grounds, for

(a)   "budget provision" of collective goods;
(b)   "corrective" subsidization or taxation in the case of mixed goods, i.e goods
            that combine private good characteristics with important non-priced
            externalities;
(c)   "corrective" subsidization or taxation in the case of merit or demerit goods;
(d)   price and other forms of regulation in the case of (natural) monopoly
            situations (e.g public utility regulation); and
(e)   regulations that serve to prevent negative externalities, such as noise, air,
            water and visual pollution.

In many market economies equity considerations form a second major ground for government intervention. This may take the form of progressive taxation, preferential (free or subsidized) provision of certain goods and services to low income groups and direct redistribution via income transfers.

Market forces and prices are therefore certainly not the only determinants of resource allocation and income distribution in market economies. In addition to the twenty to twenty-five percent of total expenditure on national income that is budget-allocated, the public budget of most high-income market economies plays an important redistributive role, meaning that a sizable part of national income is directly redistributed via the budget in the form of transfer and social security payments. In some cases, e.g Sweden and the Netherlands, these income transfers can run as high as twenty-five to thirty percent of national income, thereby raising the total proportion of national income that is channeled through the public budget to more than fifty percent. (cf. Lybeck and Henrekson, 1988)

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It is important to note (a) that in the literature on economic cost-benefit analysis price distortions are mainly seen as originating from different types of government "interference" in the operation of markets, but that (b) these distortions are only assumed to occur and to be really 'problematic' in less-developed market economies. This is clearly the position taken by Little and Mirrlees, in what probably will remain the single most influential contribution to the debate. After pointing out that their guidelines for the use of cost-benefit analysis in developing countries 'pay special attention to industry and agriculture, as well as to infrastructural projects where the output has a market' they continue with the following statement:

> Thus we are concerned with the application of cost-benefit analysis precisely in fields in which it is considered unnecessary in developed economies. The justification for this can only be that it is felt that within such sectors of more advanced economies the price mechanism works in such a way that profits are a reasonable measure of net benefit, but that this is not true for most developing countries. (Little and Mirrlees, 1974:29)

In developed economies, markets are - in other words - considered to do a proper job, corrected - where necessary - by the forms of intervention that were outlined in the preceding one or two pages. Government intervention in the form of taxation, subsidization, free provision of public goods, or direct regulation of prices and economic activities is not considered "distortive" but on the contrary is seen as "corrective". It leads to a more "efficient" allocation of resources in cases where markets cannot function properly and brings in distributional and other non-efficiency considerations which the market mechanism tends to ignore. Cost-benefit methods as developed in France during the 19th century and further developed in the US and in Western Europe just before and after WWII, were therefore not meant to correct for price distortions. They were developed to evaluate public investments in infrastructural projects where the output has no market value (e.g. roads, bridges, flood protection) or consists of a mixed, private/social good (e.g. public transport).[17]

The nature of price distortions in less-developed market economies

In LDCs, however, certain markets are either completely absent or function less well than their counterparts in developed economies (a high degree of "market failure"), while "government failure" (a term first used in World Bank publications) is responsible for (a) inadequate government intervention where market failure calls for such intervention and (b) misplaced intervention in markets that would function well without any intervention.

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[17] The standard reference is of course the well-known survey article by Prest and Turvey (1966).

This is the position reflected, for example, in Ward and Deren (1991: 22) who (1) tend to put much emphasis on government failure, which 'occurs when the government intervenes in the economy in an unwarranted, inappropriate, or nonoptimal manner', (2) acknowledge that interventions 'may be important to other objectives', but (3) nevertheless appear to equate unwarranted and inappropriate interventions with all interventions that impose economic (efficiency) costs on society.[18]

The standard literature on economic cost-benefit analysis provides many concrete examples of the most common distortions, some of which were already illustrated in the figures presented in Section I of this paper. Most ubiquitous, most widely discussed (and probably most easily dealt with in practice) are the so-called "border distortions". While their basic cause is the common overvaluation of the domestic currency, they become visible through tariff and other trade restrictions, which create a gap between the domestic market and the border prices of traded goods and lead to distortions in the relative prices of different traded goods vis-a-vis one another and vis-a-vis nontraded goods. Protective tariffs and import quotas that may have been initially introduced as 'a deliberate interference with the price mechanism designed to make it operate in a manner more conducive to society's benefit' (Little and Mirrlees, 1974:32) may in the end become an additional source of border distortions, affecting different industries to very different degrees, a problem that may be further exacerbated by the use of import quota to control balance of payments problems.

Inflation, which through its effect on the overvaluation of the domestic currency, is also partly responsible for the so-called border distortions, has in addition a number of distortive effects of its own, particularly in cases where government price controls in selected fields lead to different rates of inflation in different sectors of the economy.

These and most of the other sources of border price distortion in less-developed market economies have in common, however, that market forces, for example those operating in the

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[18] That price distortions mainly occur in less-developed market economies represents of course an oversimplified (if not "distorted") view of reality. It is extremely difficult to maintain, for example, that the common agricultural policy of the EU is not an example of severe price distortion or that the very low natural gas price charged to Dutch horticultural producers is not a protective measure with relatively high efficiency costs. The problem is, however, that when one brings in non-efficiency considerations, as one should, the discussion necessarily becomes one about the legitimacy of these considerations and about the trade-off between the efficiency costs and the non-efficiency benefits that are implicit in these examples: does the low gas price indeed reflect a genuine concern for an underprivileged group or does it represent continuation of an economic rent to a politically influential interest group, and - if the non-efficiency benefits are considered genuine - are they worth the implicit efficiency costs? This paper is not the proper place to pursue these points much further. It is not unlikely, however, that the one-sided concern about the efficiency costs of price distortions in LDCs at least partially reflects a value judgment from the side of donors, viz. that rich countries can afford to sacrifice some efficiency in favour of non-efficiency considerations but that the trade-off ought to be different in the case of low income countries.

international economy, will continue to have an influence on domestic prices, however much the latter may be distorted as a result of currency overvaluation, protective and revenue tariffs and quantitative restrictions on trade. All these interventions do drive a 'wedge' between international and domestic prices and lead to differences in domestic and border price relatives, but the economy remains an open economy in the sense that the relationship between domestic and international prices is not completely broken. The differences between actual market prices and the relevant border or other shadow prices also take in many cases the exclusive form of an explicit tax or subsidy, for example an ad valorem duty on imports, which in this specific example will mean that the ratio of shadow to domestic prices (the AR or CF) is solely dependent on the tariff and independent of price movements in the international market.

A second major source of distortions, viz. the "domestic distortions" , consist of distortions in prices of primary factors, e.g. minimum wage legislation raising the price of modern sector unskilled labour above its opportunity cost or interest subsidies decreasing the rate of interest below the opportunity cost of investible funds. These, together with the 'border' distortions, are in their turn considered co-responsible for possible distortions in the prices of non-traded goods and services, as most of the standard ECBA literature -and more in particular that part that comes in the form of manuals for practitioners- assumes that the prices of non-traded goods are not primarily distorted in their own right but mainly reflect the distortions in the prices of the primary factors and traded inputs that enter into their production.

If fossil fuels are underpriced relative to the relevant border price (which is the c.i.f price if the country is a net importer and the f.o.b price if it is a net exporter of fossil fuels), it is assumed that the prices of energy-using non-tradables (e.g. domestic transport and electricity) are likewise distorted. If modern sector unskilled labour receives a minimum wage that exceeds its opportunity cost (which is the value of output foregone at border prices when withdrawing that labour from e.g. family farming) it is assumed that the prices of non-traded goods that require inputs of unskilled labour will also reflect this distortion. This assumption is usually not made explicit but is implicit in most of the numerical examples that illustrate how CFs/ARs of non-traded goods can be derived from the CFs/ARs of their major inputs. Though these examples also allow for distortions due to domestic taxes and subsidies, the underlying assumption remains that the direction and extent of distortions is primarily related to the extent and direction of the price distortions of major inputs. [19]

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[19] The method commonly presented is to derive the AR of a non-traded commodity by calculating the weighted average of the ARs of the different inputs that enter into its production, the weights used being the input coefficients at market prices (see for example Ward and Deren, 1991, Table 1.01 which illustrates the use of this method for calculating the conversion factor for electricity in Thailand or Irvin, 1978: 106 with a similar example for an imaginary country). The example from Ward and Deren clearly illustrates the points made in

The nature of price distortions in transitional economies

Though transitional economies are by definition expected to move away from the old system of central planning, it is clear that -particularly in the republics of the FSU- many features of the old system still persist. Some of these features may even have to persist for some time to come if a total breakdown of the economy, due for example to a breakdown in the extremely important flows of inter-republican trade, is to be avoided. A major hypothesis of this paper is therefore that the functioning of many of the present-day transitional economies -and more especially those in the FSU- can only be properly understood by enumerating and carefully considering the implications of the differences between the price system in the former centrally-planned economies and that prevailing in the average market economy.

i)   In CPEs prices were not the outcome of market transactions, corrected or distorted by taxes, subsidies, regulations and other forms of government intervention, but were centrally-determined. If the domestic price of a consumer good or of an intermediate good or service was lower than its border price or the local cost of producing that good or service, this created a gap that had to be closed by a compensating or implicit subsidy. The opposite -an implicit tax - would arise if the administered price of a consumer good or intermediate exceeded the border price. Setting a domestic producer price below or above the border price would have the reverse effect, viz. creating respectively an implicit tax and an implicit subsidy. These gaps or distortions were therefore not the result of conscious government intervention in an otherwise functioning market system but the partially accidental by-products of a system of administered prices. Taxes and subsidies were not the determinants of price differentials, but followed from these. The literature on transitional economies (and CPEs) is full with references to this phenomenon. Good examples are the following quotations from A World Bank Country Study on Bulgaria:

> Net budgetary receipts also result from price differences on imports. These occur when the domestic wholesale price is different from the import cost at the prevailing commercial exchange rate. If the wholesale price is above import costs, the importer pays the difference to the budget. In the opposite case, the budget pays the difference to the importer. (World Bank, 1991a:27)

> and

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the main text of this paper. It shows that only a minute part of the distortion in the electricity price in Thailand is the result of domestic taxation. The major causes lie in the distortions in the prices of intermediate inputs and primary factors.

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.....the distorted system of prices and <u>compensating</u> subsidies (underlining
added,vdW) neither provides a real indication of the economic scarcity of
inputs and outputs nor reflects social costs..... (<u>ibid.</u>: 70)

With reference to the so-called price equalization fees and compensations on foreign
trade transactions it is further noted that

> the designation of these financial transactions as "taxes" and "subsidies" may
> be a convenient shorthand, but it is likely to be misleading, for two reasons.
> First, their purpose is exactly the reverse of the purpose of the use of trade
> taxes and subsidies in market economies: conceptually they are to prevent
> inefficient transactions by stripping away price differences unrelated to
> comparative advantage. And second, they have no fiscal function.(<u>ibid.:118)</u>

Relevant examples from Uzbekistan are the large implicit subsidies and taxes on respectively agricultural inputs and outputs, which were already discussed in **Chapter I** and which result on balance in huge fiscal transfers to the Government.[20]

ii) The examples given above all refer to differences between domestic and border prices and therefore also point to the intrinsic feature of any centrally-planned system, viz. that of being a "closed" economy, a concept that does not indicate the absence of trade ("autarky") and can well go together with sizable foreign trade transactions, but that indeed implies the absence of any <u>direct</u> relationship between domestic and foreign prices.

iii) The same applies <u>pari passu</u> to domestic transactions in non-traded goods, with the difference that in that case there is no <u>direct</u> relationship between prices and economic cost of production. The basic assumption underlying most standard ECBA methods, viz. that the direction and extent of distortions of the prices of non-traded goods is primarily related to the extent and direction of the price distortions of their major inputs, cannot be made in a centrally-planned economy and -for that matter- in a transitional economy to the extent that the latter still possesses some of the traits of the former. The reason is that in these economies two basic conditions that are reasonably characteristic for most market economies are not satisfied, viz. (1) that prices of commodities and services are uniform throughout the economy, except for differences that arise because of transport costs, and (2) that prices of locally-produced goods and services reflect their cost of production. "Differential pricing" and "soft budget constraints" are the key terms commonly used to indicate the non-satisfaction of these two basic conditions.

iv) Two important features that therefore complete the picture and that in fact are part of the 'internal logic' of the system are (a) that "losses" of state entities were more

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[20] Before independence, i.e during the Soviet Period, these pricing arrangements resulted in large transfers to the centre, as pointed out by Spoor (1993), and to the republics (Russia and the Baltics) where the cotton textile factories are located. (Yasin,1993:20).

or less automatically compensated by contributions from the public budget, and (b) that prices of inputs and outputs were not necessarily uniform among regions, sectors or enterprises, and could be in fact varied to allow enterprise to break even.[21] [22]

The upshot of all this is clear. Much of the system of economic cost-benefit analysis as applied in less-developed market economies implicitly assumes that prices of different goods and services are in some way interrelated and the system for deriving shadow prices and conversion factors is in fact very much based on this. This assumption cannot be made, however, for CPEs and what remains of the old system of administrative pricing in PCPEs (previously centrally-planned economies).

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[21] Sice the introduction of the term by Kornai (1979, 1980) the phenomenon mentioned under (a) is increasingly known as "the soft budget constraint". Like Kornai (1986) himself we have our doubts, however, about the usefulness of the concept for understanding the situation as it existed in the Soviet centrally-planned economy. The term suggests a certain 'laxity' or permissiveness, while in the case of the FSU 'making up for losses' was to a large extent the logical consequence of the existing system of administered prices.

[22] Clear examples of differential pricing in Soviet agriculture ('farm-specific procurement pricing') are provided in Cook (1992:201ff.)

III THE APPLICABILITY OF ECONOMIC COST-BENEFIT METHODS IN TRANSITIONAL ECONOMIES

The previous sections have shown that prices in transitional economies are highly distorted, but that the nature of these distortions is quite different from those found in less-developed market economies. The present section will discuss the implications of this for the applicability of economic cost benefit methods in economies in transition. It is divided into three subsections:

The first of these explains why we shall focus on only one of the two main approaches to economic cost-benefit analysis, viz. the approach which is based on the use of foreign exchange as a "numeraire", also known as the "conversion factor approach".

The second subsection will deal with the practical (as distinct from the intrinsic) problems of applying the "conversion factor approach" in present-day transitional economies.

The third and final sub-section will deal with limitations of a more intrinsic nature which flow from the fact that standard ECBA methods offer "second-best" rather than "first-best" solutions.

Choice of methodology

There are two main approaches to economic cost-benefit analysis. These differ from one another on one main point, viz. the common denominator or "numeraire" in which project costs and benefits are expressed. The first approach, associated with the names of Little and Mirrlees and Squire and van der Tak (the OECD/World Bank approach) uses the so-called foreign exchange numeraire: traded inputs and outputs are valued in terms of their direct impact on foreign exchange, while non-traded inputs and outputs must be valued in terms of their indirect foreign exchange impact by applying so-called "conversion factors". The second approach (the UNIDO-method) uses domestic willingness to pay (WTP) as its numeraire, which implies that non-traded goods and services are valued on basis of domestic willingness to pay, while traded goods and services are converted into domestic willingness to pay by applying a shadow exchange rate (SER).

Both approaches, which are also known under the names "conversion factor" and "shadow exchange rate" approach, are discussed in EDI handbooks, such as Price Gittinger (1982: Ch. 7) and Ward and Deren (1991: Chs. 4-7 and 13). These show that the two approaches are fully equivalent, provided that the conversion factor approach is applied in a highly-simplified version, using a standard conversion factor (SCF) for all nontraded items or that the UNIDO-method is extended in the fashion described in footnote 24 below.

In the remainder of this section we shall only deal with the conversion factor approach and more in particular with its extended version which requires (a) the calculation of economic import and export parity values for traded inputs and outputs and (b) the calculation of the specific conversion factors needed to convert the domestic value of non-traded inputs and outputs into their border price equivalents.

There are two reasons for this choice. The first is that the conversion factor approach has gradually become the most prominent method in use, also within the World Bank. A second and in the context of this paper much more important reason is that this method -i.e. the version that uses specific conversion factors- is the only one appropriate under present conditions in the FSU (and probably most other transitional economies).

The evidence presented in **Section I** of this paper on price distortions in transitional economies has shown that conversion factors for individual commodities and services tend to show such a wide dispersion around the mean or median that use of a single or standard conversion factor (SCF) could give highly misleading results.[23] This is exactly what one does, however, when adopting the standard shadow exchange rate approach, as the use of a SER is equivalent to using a SCF in the conversion factor approach.[24]

Practical problems in applying the conversion factor approach

Having rejected the SER-approach in favour of the conversion factor approach, it should be immediately pointed out that full application of the latter can be very difficult in present-day transitional economies. The principles of the method are fully applicable but calculation and use of the conversion factors that give the method its name will in most cases make very little sense. The reasons for this can only be fully appreciated on basis of a brief explanation of the rationale for calculating and using conversion factors.

The rationale behind the use of conversion factors

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[23] See also Ward and Deren (op. cit.: Part V, Case 1) who make the same point for Egypt, and Irvin (1978:97).

[24] It is possible, in principle, to use the UNIDO-method in an extended form that makes it fully equivalent to the methods advocated in Little and Mirrleees (1974) and Squire and van der Tak (1975). This is very clearly demonstrated in Irvin (1978: 86ff.), who shows (a) that this requires full decomposition of inputs and outputs into foreign exchange and use of a project-specific version of the SER and (b) that this in fact amounts to introducing an extra (and redundant) step. For the purposes of the present paper we continue to equate the UNIDO-method with the standard version that is commonly found in project manuals (and in the EDI teaching materials translated for use in the FSU) and that uses a SER that is non-project specific.

The normal practice in project appraisal is to first prepare a financial analysis based on "financial", i.e "market" or actual prices and then to convert the resulting financial cash flow into an economic cash flow by replacing the financial prices -where necessary- by "shadow" or "accounting" prices:

> The financial prices are the starting point for the economic analysis; they are adjusted as needed to reflect the value to the society as a whole of both the inputs and outputs of the project. (Price Gittinger,, 1982: 243)

This basic procedure can be illustrated by the following two equations which show that the financial cost of an input, e.g. fertilizers used in an agricultural project (C_{fin}) is obtained by multiplying the quantity of fertilizers required (Q) by its financial (or market) price (P_{fin}), while the corresponding economic cost (C_{econ}) is obtained by multiplying the same quantity with the economic (or shadow) price of fertilizers (P_{econ}):

$$C_{fin} = Q \times P_{fin} \qquad (1)$$

$$C_{econ} = Q \times P_{econ} \qquad (2)$$

The same result can also be obtained, however, by calculating first the relevant specific conversion factor (CFi), which is the ratio of the economic price of a good or service (in this example fertilizers) to its financial price:

$$CFi = P_{econ} / P_{fin} \qquad (3)$$

and then use this conversion factor to directly convert the financial cost of fertilizers into its economic cost:

$$C_{econ} = C_{fin} \times CFi \qquad (4)$$

That the two methods, represented respectively by equations (1) and (2) and equations (3) and (4), are fully equivalent can be demonstrated by substituting (1) and (3) into (4):

$$C_{econ} = \{Q \times P_{fin}\} \times \{P_{econ} / P_{fin}\} = Q \times P_{econ} \qquad (5)$$

It will also be clear from the last equation that the use of conversion factors is in a sense a rather roundabout way for computing economic costs (or benefits), unless (a) the conversion factors can be centrally computed and applied to all or most projects in a country or sector, and (b) the conversion factors are reasonably stable over time. Under those conditions -which standard ECBA-methods assume to obtain in most less-developed market economies- the use

of conversion factors is in fact not a roundabout way but a short-cut method. It enables project planners to directly convert the financial cash flows, which are assumed to be the starting point for the analysis, into their economic counterparts. Instead of each individual project preparation team having to find out the relevant border price of fertilizers and the border price equivalent of the cost of domestic storage and transport needed to get the fertilizers to the project site, there would be specific conversion factors that can be applied directly to the relevant cost (and benefit) items. A similar reasoning applies of course to all project inputs (e.g. pesticides, irrigation equipment, tractors and implements, fuel, electricity, domestic transport) and to all relevant outputs (e.g. cotton, wheat, vegetables etc.).

Validity of the rationale in transitional economies

The problem is that in most transitional economies neither condition (a) country- and sector wide applicability, nor condition (b) stability over time, will be fulfilled. A main reason for the instability of conversion factors is that the border distortions that are found in most transitional economies are not primarily the result of explicit (ad valorem or specific) duties and subsidies, but the implicit result of an administrative pricing system that completely delinks domestic from international prices, while under the conditions of rapid inflation that are common in these economies the required adjustments in the exchange rate and ajustments in controlled prices only take place periodically and in a non-synchronized way (see below).[25]

Another but closely-related reason that primarily applies to non-traded goods and services is that the domestic prices of these items were and still are largely delinked from their domestic production cost. Prices of fuel, energy and transport form -at least for the countries of the FSU- prime examples of this as has been amply discussed in earlier parts of this paper. Country- and sector-wide applicability will moreover remain an illusion as long as there are remnants of differential pricing.

The above is certainly not an argument for going back to a standard conversion factor approach, neither does it say that specific CFs should not be calculated. Calculation of ARs(CFs) as done in **Section I** of this paper can give a useful indication of the direction and scale of distortions at a specific point in time. It is very risky and therefore unadvisable, however, to use these same ARs only one or two months later as the ratios between domestic

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[25]   In reality the situation can become even more complicated as the wedge between the domestic and the border prices of traded goods often consists of a combination of the effects of (a) explicit taxes or subsidies and (b) administrative pricing. The standard handbook recommendation to start the economic analysis by first removing all transfers (taxes and subsidies) from prices is in itself not incorrect but it is not sufficient in cases where part of the wedge consists of implicit subsidies or taxes. It is of course totally inadequate in a purely administrative price system.

and shadow prices tend to be highly unstable, while the existence of differential pricing may make a set of CFi's calculated for one project rather useless for another. Direct estimation of economic prices at a specific point in time, and repeated re-estimation of these prices for each new project, therefore seems the only solution.

Problems due to inflation

It is clear that an administrative pricing system in a closed economy does not respond (or with considerable time lags) to external price changes. This is probably not the prime reason for the instability of conversion factors and the extreme values found in cases such as Uzbekistan. These are also -and probably primarily- related to the high rate of inflation and to the fact that exchange rate adjustments normally take place periodically and therefore are never fully synchronized with the general increase in the price level.

The literature on project planning provides relatively little guidance on how to deal with this situation or -more generally-with situations of inflation. The advice that is usually given and widely followed in actual practice is very simple, viz. to completely ignore inflation. Financial and economic cash flows used to calculate a project's IRR and NPV are therefore usually prepared in real prices, which means that the general price level of the base year is assumed to prevail throughout the project period. The justification for this is that "true" inflation, i.e. a mere increase in the overall price level, will equally affect both the benefit and the cost streams and will therefore not alter their relative positions and the indicators of profitability that are based on these. Use of real as distinct from nominal prices does of course also require the use of a real instead of a nominal interest or discount rate.

It can be easily demonstrated that use of real prices and a real interest rate will lead to exactly the same results as that obtained by using nominal prices and a nominal rate of discount. It also does not require prediction of future rates of inflation, which in most cases will be a well-nigh impossible task. The conclusion is therefore simple: when we are carrying out an investment analysis, i.e. want an answer to the question if a project is "worthwhile" and - if yes - how well it compares to alternative investments, we do all our calculations in real or constant prices.

The above is a fair summary of what the average textbook or manual on project planning has to say on the subject. Changes in relative prices that can be foreseen at the time of appraisal should of course be reflected in the cost-benefit estimates (see e.g. Ward and Deren: 156ff). The assumption is, however, that these changes will take place irrespective of the rate of increase in the general price level, i.e. are not related to the inflationary process but are due to real changes, for example changes in the relative scarcity of different resources or changes in production cost that are due to technological developments.

This assumption cannot be maintained, however, for transitional economies with extremely high rates of inflation, with remnants of administrative pricing and with only periodic adjustments in the official exchange rate. This last point came out very clearly when in the case of Uzbekistan we tried to use the information provided in the most recent World Bank studies for the calculation of conversion factors to be applied in the economic analysis of a local agricultural project case. While the staff and course participants working on this case took great care to make the price information used in the <u>financial</u> analysis as up-to-date as possible, this also meant that the conversion factors that could be directly derived from the World Bank Studies had in the meantime lost their value. The most recent of these two studies, dated June 20, 1994 (World Bank,1994a/b) was in fact based on the findings of a mission to Uzbekistan which took place in November 1993, i.e. a year before the first version of the project case study was prepared. Since then the Ruble (which was the currency unit still used in the report) was replaced by a temporary domestic currency (Sum Coupon), which a few month later was replaced by the Sum, a process that was accompanied by several devaluations vis-a-vis the dollar and an inflation of around one thousand percent per year. [26]

One important practical lesson that can be drawn from this is the following: In a situation such as in Uzbekistan, i.e. with an extremely high rate of inflation and with some prices controlled and others de-controlled, it is necessary to strictly relate all price and other information used in the economic and financial analysis to the situation as it exists at one particular point in time. Particularly in a situation where information is scarce and scattered there will be the tendency to draw on many different sources so as to be able to piece together as complete a picture as possible of the existing situation. While this may yield reasonably reliable results under 'normal' circumstances, it may easily lead to misleading figures and conclusions when used in a quickly-changing transitional situation such as in Uzbekistan.

Intrinsic problems

First-best and general equilibrium issues

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[26] The procedure actually used was (a) to assume that the border prices included in the World Bank Report and expressed in US$ had remained the same and to base the calculation of the conversion factors on the most recent domestic prices converted to US$ at the official exchange rate in force at the end of November 1994 (US$ 1.00 = SUM 25.00). This yielded a set of conversion factors that was very different from those initially obtained by using the figures from the World Bank Report. On the whole the value of the conversion factors declined but remained in nearly all cases substantially above 1.00. This indicates that government reform measures led to a decrease in both implicit taxation and implicit subsidization in real terms. Prices of certain agricultural inputs were indeed raised by more than the rate of inflation and the same was true for those agricultural products which until a year before could only be sold under the state order system.

The practical problems just discussed do not invalidate the standard methods of economic appraisal. They only show that certain approaches (use of a SER or a SCF) are not appropriate or that certain practical short-cut methods (use of specific conversion factors) are not practicable. At the same time it is also clear that economies in transition do face special pricing problems that cannot be solved within the context of standard methods of economic appraisal for the simple reason that these methods were not designed to cope with these problems.

In the case of former Soviet republics such as Uzbekistan, transition implies much more than the in itself already complicated process of 'systemic' change. Transition is also -and unavoidably- accompanied by adjustments in the 'real' economy, reflected in a reallocation of resources (e.g. changes in cropping patterns), a relocation of industries and a re-orientation of trade flows. All this as a result of the introduction of a market-based relative price structure that may be quite different from the relative prices that were implicit in the decisions taken under the command system.

In such situations the main issue is not that actual prices need to be corrected vis-a-vis a reasonably well-defined and stable set of relative scarcity prices. The real problem is that any realistic economic appraisal will have to be based on estimated/predicted post-transition prices that bear no relationship whatsoever to current prices, if these exist at all.

This requires a combination of (a) assumptions about the extent to which future trade and other policies will be "first-best" with (b) an analysis that in principle should be able to answer questions that are of a general equilibrium nature. Will future investments in (the improvement of cotton production be based on cost calculations that include the continued use of the specially-developed three-wheel tractors that until a few years ago were turned out by the large tractor assembly plant in Tashkent on basis of engines and gear boxes manufactured in the Ukraine and tyres coming from Wladiwostok or do we base our calculations on Massey-Ferguson equipment imported via ports in the Mediterranean, the Persian Gulf, the Black Sea or the Baltic?

In the context of this paper we can only draw attention to this problem and try to describe it somewhat further in the specific context of a land-locked country such as Uzbekistan in which future trading patterns will very much depend on the transport cost to and from distant (overseas) markets. We shall do this by discussing a question that has to be answered at the beginning of any project analysis, viz. which inputs and outputs can be considered "traded" (i.e internationally-traded) and which can be considered "non-traded"?

Classifying inputs and outputs and outputs as traded or non-traded: the role of transport cost

The very first step in any economic analysis is to subdivide project inputs and outputs into (1) traded goods, (2) non-traded goods and (3) primary factors of production. The importance of this derives from the fact that each of these categories requires a different method of valuation.

Traded goods, which in this context stands for internationally-traded goods, are valued at their border prices (i.e. at the cif price in the case of imports and at the fob price in the case of exports).

Non-traded goods, i.e. domestically-produced good and services that are neither exported nor imported are somewhat more difficult to handle. If they are project inputs (e.g. electricity or domestic transport services) they are usually first decomposed into their different cost components (fuel, labour etc.) which then in their turn are revalued: at border prices, if they are traded (fuel) and at their opportunity costs in the case of primary factors (labour). Non-traded outputs pose special problems, that cannot be further discussed in the context of this paper.

Primary factors, such as land and labour, are valued at their opportunity cost, i.e. at the value of the output foregone by withdrawing them from their present use. As the value of the output foregone is normally available in financial prices a further revaluation in economic prices is necessary following the appropriate method, i.e. depending on whether the output foregone is a traded or a non-traded good.

It is easy to distinguish primary factors of production (land and labour), which are always non-traded, from intermediate inputs which are either traded (e.g. fertilizers) or non-traded (e.g. irrigation water). It is also relatively easy to make the distinction traded/non-traded for those goods and services (either inputs or outputs) which -because of their nature- cannot be traded internationally, i.e. are non-tradable in principle. Examples are (again) irrigation water and domestic transport.

There are, however, also borderline cases, where much depends on the specific situation. In most countries electricity can be considered as non-tradable, but in those parts of the world where national grids are inter-connected (e.g. Western Europe) it is not only a tradable but also de facto a traded good. The example of electricity shows that tradability very much depends on transportability. If transport cost (transmission cost in the case of electricity) are prohibitively high a good may be non-tradable notwithstanding large international differences in production (generation) cost. Bulky or perishable goods, i.e. goods that have a high freight-to-value ratio, therefore have a much greater chance of being "non-tradable" than

non-perishable high-value goods.[27]

The same point is made in a slightly more formal fashion in EDI handbooks (e.g. Ward and Deren, 1991: 56) and in the course handouts that are used in EDI-sponsored courses in the FSU. These define non-tradable goods as goods that are subject to the following inequality:

$$P_{cif} > \text{Local cost} > P_{fob} \qquad (1)$$

where P_{cif} stands for the border price of competing imports and P_{fob} for the border price that could be obtained in case the good in question were exported.

As
$$P_{cif} = P_w + TC_{int} \qquad (2)$$

and
$$P_{fob} = P_w - TC_{int} \qquad (3)$$

it follows that
$$P_{cif} - P_{fob} = 2(TC_{int}) \qquad (4)$$

where P_w is the world market price and TC_{int} the cost of international transport and insurance. Equation (4) shows that the difference between the two border prices and thereby the range within which a locally-produced good is non-tradable equals twice the cost of transport to or from external markets and will be larger the higher these costs.

In the case of Uzbekistan and the other CAR's, which are all landlocked countries situated at great distance from their main sea-ports and markets, one would therefore expect to find a situation in which many goods are de facto non-traded, as high transport cost causes their domestic prices (P_d) to lie in between the correponding FOB and CIF border prices: $P_{cif} > P_d > P_{fob}$.[28] In reality the situation is - at least for the time being - quite different. If one

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[27] In some of the literature the term "non-tradable" is reserved for goods and -more generally- services that by their nature can never be traded internationally, e.g. domestic transport and irrigation services. In the present paper we follow, however, the terminology used in Ward and Deren (1991) and Price Gittinger (1982) in which the dividing line between tradable and non-tradable goods and services is seen as dependent on the height of international transport or transmission cost. This is also in line with the discussion in Little and Mirrlees (1984: 68-9) who use electricity in the Seychelles as an example of a "non-tradable". Following this terminology the distinction "traded" versus "non-traded" becomes a distinction between goods and services that are de facto traded or non-traded. Non-tradables are of course always non-traded, while goods which are tradable in principle may be non-traded in practice because of government trade policies (quantitative restrictions or prohibitive tariffs).(cf Ward and Deren, op.cit.: 56-7).

[28] "Being landlocked is a major geographic determinant of the Uzbekistan transport sector. Distances to many of its current and potential export/import markets are very far (for example, about 3,000 kilometers to the Black Sea, 3,500 kilometers to Moscow, and about 5,000 kilometers to the main Chinese ports)." (World Bank, 1993: 170)

takes inter-republic trade (i.e trade with the other republics of the FSU) and foreign trade with the rest of the world together, then one finds that the Uzbek economy is surprisingly dependent on foreign trade (cf. footnote 6, page 5 of this paper).

Also at the project level, e.g. in the case of the agricultural project study carried out in the context of the EDI-sponsored programme in Tashkent, most outputs turned out to be de facto traded. This was not only so in the case of easily transportable and storable crops such as wheat, barley, onions and potatoes, but also in the case of more perishable crops such as tomatoes and other fruits and vegetables, which were traditional exports to the other republics of the FSU. It seemed therefore in principle possible to value most outputs by using either export or import parity values, and the same was true for most material inputs, such as fertilizers, other agro-chemicals and fuel. The remaining non-traded items were primarily non-tradables, i.e primary factors (land and labour), irrigation water, electricity (though that is a traded good for certain parts of the country), domestic transport and construction.

It is important to realize, however, that the high proportion of traded goods found both at national and project level is the result of the extremely (and irrealistically) low level of transport cost. In the FSU transportation services, and more in particular railroad services, have traditionally been heavily underpriced, thereby implicitly subsidizing other sectors such as machine-building and agriculture (Kontorovich, 1992: 189). This phenomenon is also noted in the World Bank Country Study on Uzbekistan:

> Transport is highly subsidized. The cost of moving cotton by rail from
> Tashkent to the Baltics is roughly $9 a ton. That compares to $165 a ton
> from Mexico to Georgia and the Carolinas in the United States.(World
> Bank, 1993: 124)

It is clear that these high transport subsidies have led to a relatively higher proportion of traded goods in the economy than would have been the case if transport had been priced more realistically. FOB prices for exports, such as cotton and fruit and vegetables, have been higher, and CIF prices for imports into Uzbekistan lower than they would have been without subsidized rail transport. An important question that remains to be answered is therefore in how far a more realistic pricing of transport services will change the situation.

For the financial and economic analysis of agricultural projects, which produce perishable products such as fruits and vegetables, a projection of what is likely to happen to future transport prices in inter-Republican trade is obviously of great importance. An increase in transport prices would shift comparative advantage in favour of import substitutes, such as wheat (cf World Bank 1994b: 13ff.) and against perishable export products, such as vegetables and fruits, and less-perishable but high-volume/low-value products, such as cabbage.

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These are obviously important considerations for a project such as considered in the teaching case study referred to above, where at present grain crops (wheat and barley) and fruit and vegetables are the most important sources of income. In the first version of the teaching case study these considerations could not yet be incorporated, as preparation of reasonable projections would have required more time. A sensitivity analysis showing how overall results respond to different assumptions about transport cost would be feasible, however, provided that FOB and CIF cost can be broken down in more detail, showing in particular the external transport cost component.

The above considerations are indeed important for any investment-type of analysis, the results of which will of course very much depend on the assumptions that are made about the future post-transition relative price structure. We have illustrated this dilemma - the solution to which will not be found in standard ECBA-methods- with reference to a factor (transport cost) that is of particular importance to a land-locked country such as Uzbekistan. Its implications are much wider, however, as the same points can be repeated for all those commodities, services and primary factors for which past administrative prices (including zero-priced items) give no indication whatsoever of the true relative scarcities.[29]

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[29] It could be argued that the case of irrealisticaly low transport cost is a good example of a situation where use of ECBA , i.e. of the "proper" scarcity prices, would be beneficial, while the argument made in the preceding pages is exactly the opposite, viz. that standard ECBA-methods do not offer a solution. The answer to this lies, however, in the fact that in a situation that is so "thoroughly-distorted" as in the case of the FSU the proper scarcity prices cannot be derived by the corrections to actual prices that are prescribed by the standard ECBA methods.

CONCLUDING REMARKS

Omissions and limitations

In the **INTRODUCTION** to this paper we set ourselves the task to systematically map out the main issues and problems that we might arise when trying to apply economic cost-benefit methods in present-day transitional economies. Looking back at the main sections of this paper we have the feeling that we did succeed but only to a certain extent. Some parts of the resulting map show a satisfactory amount of detail but other parts just show the contours, somewhat comparable to old maps of Africa, where the early explorers managed to draw the coast-lines but had to leave blank the vast expanse of the interior.

This lack of detail is particularly worrying with regard to the treatment of non-traded items and more in particular the treatment of the primary factors (land and labour) for which in CPEs markets and prices simply did not exist and for which the markets in present-day PCPEs are still in rudimentary form if they exist at all.

To satisfactorily deal with these underexposed parts of the picture will require a further paper, and moreover a paper that can draw more generously on the accumulated experience of project practitioners in the World Bank and other relevant institutions than has been possible so far. The present paper draws its inspiration primarily from teaching project appraisal methods to students from a number of Central Asian Republics and though that obviously gave rise to questions about the relevance of what we were teaching, a more satisfactory answer to these questions would require more direct exposure to project realities than could be obtained from the development of the teaching cases that were used in the course.

For teaching purposes we also had access to the Staff Appraisal Reports on two major agricultural projects in the FSU. These reports, which form the last but one important link in the chain of decision-making for Bank-financed projects, are usually not explicit enough, however, to provide a real insight in the valuation methods and principles used. One probably would have to consult the different documents in the project-file (and interview the staff and consultants involved) to obtain further insights into the way estimates were prepared:

> It is often possible to use "realistic" price forecasts, even for politically sensitive prices, without having to advertise their use and without incurring the wrath of the political hierarchy. These forecasts can be used implicitly in the worksheets without presenting them explicitly in the published project reports. Even sophisticated readers of the report will need the help of the report preparer to sort their way back to the price forecasts which underlay the final numbers." (Ward and Deren, 1991: 182)

This is evident when looking, for example, at the Staff Appraisal Report of one of the major agricultural projects financed by the Bank in the FSU, viz. the Cotton Sub-Sector Improvement Project, Republic of Uzbekistan (World Bank, 1995). The Staff Appraisal Report (and the accompanying Implementation Volume) only provide details on the valuation of the main incremental outputs, viz. cotton and cotton seed (which are valued at economic export parity prices) but say very little about the valuation of the main inputs.[30]

Problems or non-problems?

In the **INTRODUCTION** to this paper we expressed surprise about the fact that the abundant literature on economies in transition pays so little attention to the implications of the process of transition for the use of methods and techniques of investment decision-making. Though this statement -in its original form- dates back to early 1995 we have the impression that it still holds good to-day, i.e. nearly two years later. On the one hand this can be considered gratifying: notwithstanding its long gestation period our paper may still have a certain claim to originality. On the other hand it might also indicate something more worrying from the perspective of an author, viz. that in practice some of the problems discussed can be considered "non-problems".

The **INTRODUCTION** to the paper already listed a number of factors that might explain the apparent neglect of issues related to investment decision-making and we shall briefly reconsider some of these in the light of the preceding analysis.

One possible explanation is that practitioners in the Bank and elsewhere are fully aware of the problems but consider these as problems of a transitory nature about which very little can be usefully done during the period of transition; it is more useful to concentrate on reforms (and measures to keep up the momentum of reforms), so as to make the period of transition as brief as possible, than to worry about the applicability of certain methods during transition. The following passage (taken from the EDI guide on The Economics of Project Analysis referred to earlier) was not written with the transitional economies in mind but may well provide the general rationale for this attitude:

> We can make three generalizations regarding countries which have serious
> government-induced price distortions:

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[30] In this particular case there may be another reason, however. Though the general problems identified in this paper are important in principle, it is quite possible that these problems play little or no role in judging a particular project proposal and therefore -for purely pragmatic reasons- are given relatively little attention. We shall briefly return to this issue in the next and last sub-section of this paper.

a. It will be difficult to plan and implement viable projects in such an environment.
b. It will be difficult to estimate the economic values to use in project analysis in such an environment.
c. Changing the policy environment which is responsible for the price distortions will often be more productive than implementing another project in the existing, highly-distorted environment. (Ward and Deren, 1991:28)

Possible further reasons for the apparent lack of concern about the applicability of cost-benefit methods in the former CPE's could be the general shift in emphasis from project to programme and policy lending (see e.g. Singer, 1995) and -partly but not wholly-related to this- the general loss of interest within the Bank in methods of social and economic cost-benefit analysis (see Little and Mirrlees,1991).

We believe that most of these points indeed help to explain the present situation. Looking at some of the concrete agricultural projects which the Bank financed in the FSU it seems clear that some of these serve objectives (privatization and restructuring at the sectoral and sub-sectoral level) that do not lend themselves so easily to standard methods of economic appraisal for the simple reason that their rationale does not lie in obtaining a certain rate of financial or economic return but rather in the leverage these projects provide towards certain changes in the wider policy environment. [31]

It is finally also possible that some of the projects considered by the World Bank or other international financing agencies do not require very sophisticated methods of appraisal even though their main objectives are the attainment of a certain minimum rate of return or level of efficiency. If nearly all inputs and outputs of a project are traded and represent -let us say-ninety percent of total costs and benefits, the problems of estimating the economic prices of the remaining ten percent non-traded items still exist in principle but are not that important from a practical point of view. If projects are also predominantly aiming at improving the efficiency of existing production units and systems, some of the more intractable problems of valuing labour and land may also partly recede to the background. This may well be relevant to the Cotton Sub-Sector Improvement Project referred to above. The essence of this project is to bring about an improvement in "technical" or "X"-efficiency with essentially unchanged quantities of land and labour. This allows one to concentrate on the incremental inputs and outputs (most of which are traded) and to completely circumvent the problems of valuing labour and land.

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[31] Apart from the Cotton Sub-Sector Project (Uzbekistan) which was already referred to above we can also mention the Agricultural Reform Implementation Support (ARIS) Project (Russian Federation), both of which are being implemented, while a further clear example would be the project for decollectivization and restructuring in the agricultural sector in Uzbekistan that is currently still in the early phases of preparation (cf. footnote 4, page 4 of this paper).

A final remark

The starting point of this paper was to identify problems of applying established methods of appraisal in an environment for which these methods were not originally designed. One point that became increasingly clear in the course of writing the paper was that these methods are not always that well-established, i.e. may even pose insuperable problems of application in the market economies for which they were originally developed.

The difficulty of applying specific conversion factors which was clearly identified with respect to transitional economies can also occur in less-developed market economies insofar price distortions are caused by administrative pricing and other direct controls and do not follow from explicit subsidies or taxes. There is certainly a difference of degree between a country where all (or nearly all) prices are administrative prices and a market economy with ubiquitous price controls, but the nature of the resulting problems is essentially the same.

Consultation of the standard ECBA literature and prescriptions on the valuation of primary factors will finally show that also these are also exceedingly meagre on this important point. This is not a valid excuse for the inadequate coverage in this paper of the valuation of primary factors and we are convinced that more and useful work on this can be and ought to be done. It is nevertheless another indication that a number of the problems met when preparing project analyses in the FSU are of a more general nature.

REFERENCES

Bergson, A. (1964) The Economics of Soviet Planning. New Haven: Yale University Press

Borensztein, E. and M.S. Kumar (1991) 'Proposals for Privatization in Eastern Europe', IMF Staff Papers, 38(2) : 300-26

Calvo, G.A. and Frenkel, J.A. (1991) 'From Centrally-Planned to Market Economy; the Road from CPE to PCPE', IMF Staff Papers, 38(2) : 268-99.

Cook, E.C. (1992) 'Agriculture's Role in the Soviet Economic Crisis' in: Ellman, M. and V. Kontorovich. The Disintegration of the Soviet Economic System. London and New York: Routledge, pp. 193-216

Craumer, P.R. (1992) 'Agricultural Change, Labor Supply, and Rural Out-Migration in Soviet Central Asia' in: Lewis, R.A. (ed.), pp. 132-80

Dyker, D.A. (1976) The Soviet Economy. London: Crosby Lockwood Staples

Dyker, D.A. (1992) Restructuring the Soviet Economy. London and New York: Routledge

Ellman, M. (1989) Socialist Planning (2nd ed.). Cambridge: Cambridge University Press

Ellman, M. (1992) 'Money in the 1980s; From disequilibrium to collapse' in: Ellman, M. and V. Kontorovich, pp. 106-33

Ellman, M. and V. Kontorovich (1992) (eds) The Disintegration of the Soviet Economic System. London and New York: Routledge

Ellman, M. and V. Kontorovich (1992) 'Overview' in: Ellman, M. and V. Kontorovich, pp. 1-39

Ellman, M. (1994) 'Transformation, Depression, and Economics: Some Lessons', Journal of Comparative Economics, 19(1): 1-21

Gittinger, J. Price (1982) Economic Analysis of Agricultural Projects. Baltimore, Md.: The John Hopkins University Press

Hughes, G. and P. Hare (1994) 'The International Competitiveness of Industries in Bulgaria, Czechoslovakia, Hungary, and Poland', Oxford Economic Papers, 46(2) : 200-21

Irvin, G.W. (1978) Modern Cost-Benefit Methods. An Introduction to Financial, Economic and Social Appraisal of Development Projects. London: Macmillan

Khan, A. and Ghai, D. (1979) Collective Agriculture and Rural Development in Soviet Central Asia. London: Macmillan

Kontorovich, V. (1992) 'The Railroads' in: Ellman, M. and V. Kontorovich, pp. 1-39

Kornai, J. (1979) 'Resource-Constrained versus Demand-Constrained Systems', Econometrica, 47(4): 801-19

Kornai, J. (1980) Economics of Shortage. Amsterdam: North-Holland

Kornai, J. (1986) 'The Soft Budget Constraint', Kyklos, 39(1) : 3-30

Lewis, R.A. (ed.) (1992) Geographic Perspectives on Soviet Central Asia. London and New York: Routledge

Lavigne, M. (1995) The Economics of Transition: from Socialist Economy to Market Economy. Basingstoke and London: Macmillan Press Ltd.

Liebowitz, R.D. (1992) 'Soviet Geographical Imbalances and Soviet Central Asia' in: Lewis, R.A. (ed.), pp. 101-31

Little, I.M.D. and J.A. Mirrlees (1974) Project Appraisal and Planning for Developing Countries. London: Heinemann Educational Books

Little, I.M.D. and Mirrlees, J.A. (1991) 'Project Appraisal and Planning Twenty Years On', Proceedings of the World Bank Annual Conference on Development Economics 1990, pp.351-95. Washington, DC: The World Bank

Lybeck, J.A. amd M. Henrekson (eds.) (1988) Explaining the Growth of Government. Amsterdam: North-Holland

Marnie, S. and J. Micklewright (1994) 'Poverty in Pre-Reform Uzbekistan: What do Official Data Really Reveal?, The Review of Income and Wealth, 40(4) : 395-414

McAuley, A. (1992) 'The Central Asian Economy in Comparative Perspective' in: Ellman, M. and V. Kontorovich, pp. 137-56

Narzukilov, R. (1993) 'The Central Asian Republics' in: Williamson, J. (ed.), pp. 429-53

Nove, A. (1961) The Soviet Economy: an Introduction. London: George Allen & Unwin Ltd.

Prest, A.R. and R.Turvey (1966) 'Cost-Benefit Analysis : a Survey' in Surveys of Economic Theory, Volume III Resource ALLocation, prepared for the American Economic Association and the Royal Economic Society. London : Macmillan

Reich, U.-P. (1994) 'Eastern Problems and Western Solutions', The Review of Income and Wealth, 40(2) : 227-37

Singer, H.W. (1994) 'From Project Lending to Programme Lending: Shifting World Bank Priorities' in MacArthur, J.D. and J. Weiss (eds) Agriculture, Projects and Development: Papers in honour of David Edwards. Aldershot etc.: Avebury

Spoor, M.S. (1993) 'Transition to Market Economies in Former Soviet Central Asia: Dependency, Cotton and Water', The European Journal of Development Research, 5(2) : 142-58

Spoor, M.S. (1995) 'Agrarian Transition in Former Soviet Central Asia: a Comparative Study of Uzbekistan and Kyrgyzstan', ISS Working Paper no. 202. The Hague: Institute of Social Studies

Spoor, M.S. (1996) 'Upheaval along the Silk Route; the dynamics of economic transition in Central Asia', ISS Working Paper no. 216. The Hague: Institute of Social Studies

Scott, M.FG., J. MacArthur and D.M.G. Newbery (1976) Project Appraisal in Practice: the Little-Mirrlees Method Applied in Kenya. London: Heinemann

Squire, L. and H.G. van der Tak (1975) Economic Analysis of Projects. Baltimore, Md.: The John Hopkins University Press

Ward, W.A. and B.J. Deren (1991) The Economics of Project Analysis (EDI Technical Materials). Washington, D.C.: The World Bank

Weiss, J. (1985) 'National Economic Parameters for Jamaica', Project Planniong Centre occasional papers, no. 7, Bradford: University of Bradford, Project Planning Centre for Developing Countries

Wel, P.P. van der (1986) 'Transfer Pricing and State Sector Surplus: the Case of the Sudanese Sugar Industry' in A.G.A. Ahmed and Paul van der Wel (eds.) Perspectives on Development in the Sudan. The Hague/Khartoum: Institute of Social Studies/Development Studies and Research Centre, University of Khartoum, pp. 87-124

Williamson, J. (ed) (1993) Economic Consequences of Soviet Disintegration. Washington, D.C.: Institute for International Economics

World Bank (1991a) Bulgaria: Crisis and Transition to a Market Economy, Volume I: The Main Report. Washington, D.C.: The World Bank

World Bank (1991b) Bulgaria: Crisis and Transition to a Market Economy, Volume II: Sectoral Analyses. Washington, D.C.: The World Bank

World Bank (1993) Uzbekistan: an Agenda for Economic Reform (a World Bank Country Study). Washington, D.C.: The World Bank

World Bank (1994a) Uzbekistan Economic Memorandum: Subsidies and Transfers, Volume I : Main Report. Washington, D.C.: The World Bank

World Bank (1994b) Uzbekistan Economic Memorandum: Subsidies and Transfers, Volume II : Annexes. Washington, D.C.: The World Bank

World Bank (1994c) Staff Appraisal Report Russian Federation, Agricultural Reform Implementation Support (ARIS) Project, Agriculture, Industry and Finance Division, Country Department III, Europe and Central Asia Region. Washington, D.C.: The World Bank

World Bank (1995) Staff Appraisal Report Republic of Uzbekistan, Cotton Sub-Sector Improvement Project, Agriculture, Industry and Finance Division, Country Department III, Europe and Central Asia Region. Washington, D.C.: The World Bank

World Bank (1996) World Development Report 1996: From Plan to Market. Oxford etc.: Oxford University Press

Yasin, E. (1993) 'The Economic Space of the Former Soviet Union, Past and Present' in: Williamson, J. (ed.), pp. 13-35

Yavlinsky, G. and Braguinsky, S. (1994) 'The Inefficiency of *Laissez-Faire* in Russia: Hysteresis Effects and the Need for Policy-Led Transformation', Journal of Comparative Economics, 19(1); 88-116