

### Enhancing the sustainability of VET-funding in developing countries

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of VET-Funding in  
Developing Countries

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## 1. Introduction<sup>1</sup>

The aim of the study at hand is to investigate the factors positively (or negatively) affecting and determining the sustainability of development projects in vocational education and training. This study is part of a more comprehensive research and evaluation project conducted by Deutsche Gesellschaft für Technische Zusammenarbeit (GTZ) and funded by Federal Ministry of Development Cooperation (BMZ) and is to provide the foundation for future technical assistance and donor policy as regards vocational education and training at the beginning of the 21<sup>st</sup> century.

With the paper at hand we want to provide the basis for an evaluation project which is aimed at identifying those factors positively or negatively affecting the sustainability of VET-funding in developing countries. We will start from the point of view of each stakeholder involved in VET in developing countries.

Our main thesis is that public VET-funding so far is that it is neither targeted at those who are in need of public assistance or incentives nor does it reach them. On the contrary, public programmes appear to be directed towards those stakeholders who are in a position and prepared to fund their vocational education and training by themselves. This leads to a windfall profit for the latter and reduces the financial basis of vocational education and training because private money is crowded out by public money instead of broadening the financial basis of VET.

Before we come to the economic analysis of those factors affecting individual and employers cost-benefit analysis we will look at the environment in which this decision takes place.

In the next chapter we will consider some aspects and definitions of the VET-system. The context of the individual decision making and that of the employers will be reviewed in chapter 3.

The different opportunities of private and public funding will be reviewed and discussed in chapter 5, while chapter 4 is directed towards market failure and externalities.

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<sup>1</sup> This paper is a summary of a project report (Dohmen, 2001) prepared upon request and with financial support by GTZ – German Agency of Technical Assistance.

## 2. Characteristics of Vocational Education and Training

Vocational education and training is not a unique 'product' or service, so that this chapter is to provide a short overview about some definitions and differentiations.

### 2.1 Training related to Target Group

Grubb and Ryan (1999) favour a distinction according to the type of vocational education and training or the level of qualification VET is targeted at. They distinguish between

1. pre-employment training which aims at preparing (mostly young) people for their initial entry into the labour market,
2. upgrade training, directed to already trained individuals who are prepared for upcoming ('more demanding') tasks or technologies etc.,
3. retraining is for people who have been trained but have lost their jobs and need to be trained for a new job or another qualification,

The level of qualification at which training is aimed has several consequences. For example, pre-employment training may have to provide qualifications which are more basic for employment while upgrading may include more advanced skills like book-keeping, marketing etc. Depending on the level of graduation even pre-employment training may be aimed at basic skills like numeracy or reading if it is targeted at people without or with just a few years of schooling.

Such a differentiation seems to be of major importance for several reasons. Firstly, the course content is very different according to the level of pre-qualification of the particular target group. Secondly, the mode of instruction might be very different and be associated with totally different costs and benefits. For example, upgrade training is important for the advantaged and proper prospective executives and thus probably related to higher rates of returns than e.g. remedial training would be for disadvantaged (Grubb and Ryan, 1999). This means that the target group of a course will be of relevance for course content and design but also affect the costs and benefits of VET courses.

If these differences were neglected the findings of rates of returns and cost-benefit analysis are biased.

### 2.2 Training – Modes and Locations of Delivery

Another distinction of vocational education and training can be made according to the mode of delivery. As regards to the scope of our study one could move one step further

and rely on the location of delivery. VET can be conducted as:

1. Private vocational/technical schools/centers – classroom,
2. Private vocational/technical schools/centers – laboratory,
3. Private vocational/technical schools/centers – workshops,
4. Public vocational/technical schools/centers – classroom,
5. Public vocational/technical schools/centers – laboratory,
6. Public vocational/technical schools/centers – workshops,
7. In-company training centers,
8. In-company on-the-job training (intentional/unintentional),
9. Inter-company training facilities,
10. The individual home (as location for distance or correspondence courses).

Another extension can be introduced which – in case of classroom training – distinguishes between public and private training providers. One can assume that the costs and possibly also the benefits will differ in dependence from the all these categories mentioned in this section.

### **2.3 General, firm-specific and transferable Training**

The distinction between general and firm-specific training, introduced by Becker (1964), is of major importance for the preparedness of firms to bear the costs of training. General training refers to skills which can be applied in many firms. On the contrary, firm-specific training is of use only for the firm providing it. Thus, while the latter will commonly be provided within the firm, the general training can also be provided by (independent) training institutions and centers.

The differentiation between firm-specific and general training has been extended by Stevens (1996) who has introduced the term transferable training. That is neither general nor firm-specific training but relevant for a certain number of companies, “transferable training is defined as training which is potentially of use to some (rather than many) other firms” (p. 23). Thus, as most of training provided within the German dual system is occupation-specific it could be seen as transferable training.<sup>2</sup>

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<sup>2</sup> In fact, it has to be taken into account that even this distinction is not unambiguous. As particular qualifications might be of interest for other occupations or branches as well no clear cut can be drawn e.g. in defining which firms or which branches are to contribute to a branch related levy scheme.



The general issue for the study at hand is that - in theory - firms will not be prepared to bear any of the costs of general training, so that it would have to be financed by the trainee. On the contrary, the firms will be prepared to bear at least some of the costs of firm-specific training. Summing up, Becker suggests that firms would be the more willing to provide training the more it is firm-specific. In this case, he suggests, that employer and employee would share the costs.

It has to be considered that there is no clear demarcation line between all three kinds of training, thus we will have to identify possible artificial lines.

## 2.4 Formal, informal and non-formal Training

Another distinction as regards education and training is between formal, non-formal and informal vocational education and training. The first is provided within the formal public schooling system while non-formal education is delivered outside. Informal education (e.g. within the family or at the workplace) might be intended but does not consist of a plan, but is provided more "en passant". It is therefore difficult to identify and to take into consideration within this study.

## 2.5 Summary

According to the aforementioned topics, Picture 1 combines the level of qualification and the mode of delivery.

If the different kinds and aims of VET presented in this section were not taken into account appropriately general remarks on the effectiveness or rates of return may prove worthless (Chung, 1995).

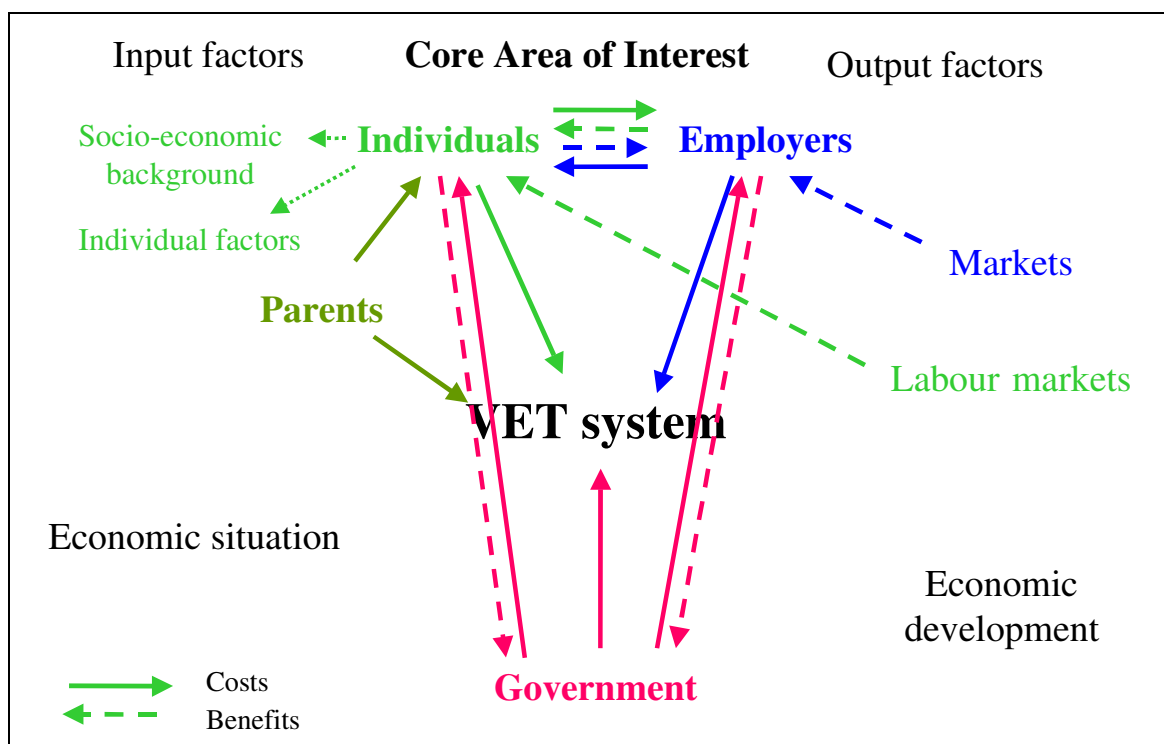
	Classification of Training		
	Pre-employment	Skills Upgrading	Retraining
Location of Delivery	1. Private vocational/technical schools/centers – classroom, 2. Private vocational/technical schools/centers – laboratory, 3. Private vocational/technical schools/centers – workshops, 4. Public vocational/technical schools/centers – classroom, 5. Public vocational/technical schools/centers – laboratory, 6. Public vocational/technical schools/centers – workshops, 7. In-company training centers, 8. In-company on-the-job training (intentional/unintentional), 9. Inter-company training facilities, 10. Individuals house, for distance or correspondence courses		

Picture 1: Classification of Training

### 3. Private Costs and Benefits and Private Funding

The following investigation considers all three (private) stakeholders, i.e. the firms, the individuals and the government (see Picture 2).<sup>3</sup> We will assume that individuals act on the basis of their individual choices which are based on economically rational behaviour.<sup>4</sup> The same will be valid for employers. Furthermore, we will assume that private markets will work when firms and or individuals have a strong (economic) incentive to invest in VET. We will furthermore assume that the government should act only if markets do not work appropriately. In contrast to this assumption, we will find that governments act contrary to this approach what is associated with crowding out effects of private investment by public incentives. This narrows the financial basis for VET instead of broadening it.

In the subsequent section the term cost-benefit analysis is used on a broader basis, it covers all the costs and benefits, both monetary and non-monetary. It covers therefore more than the common rate of return approaches which are too narrow as they rely on monetary indicators only.

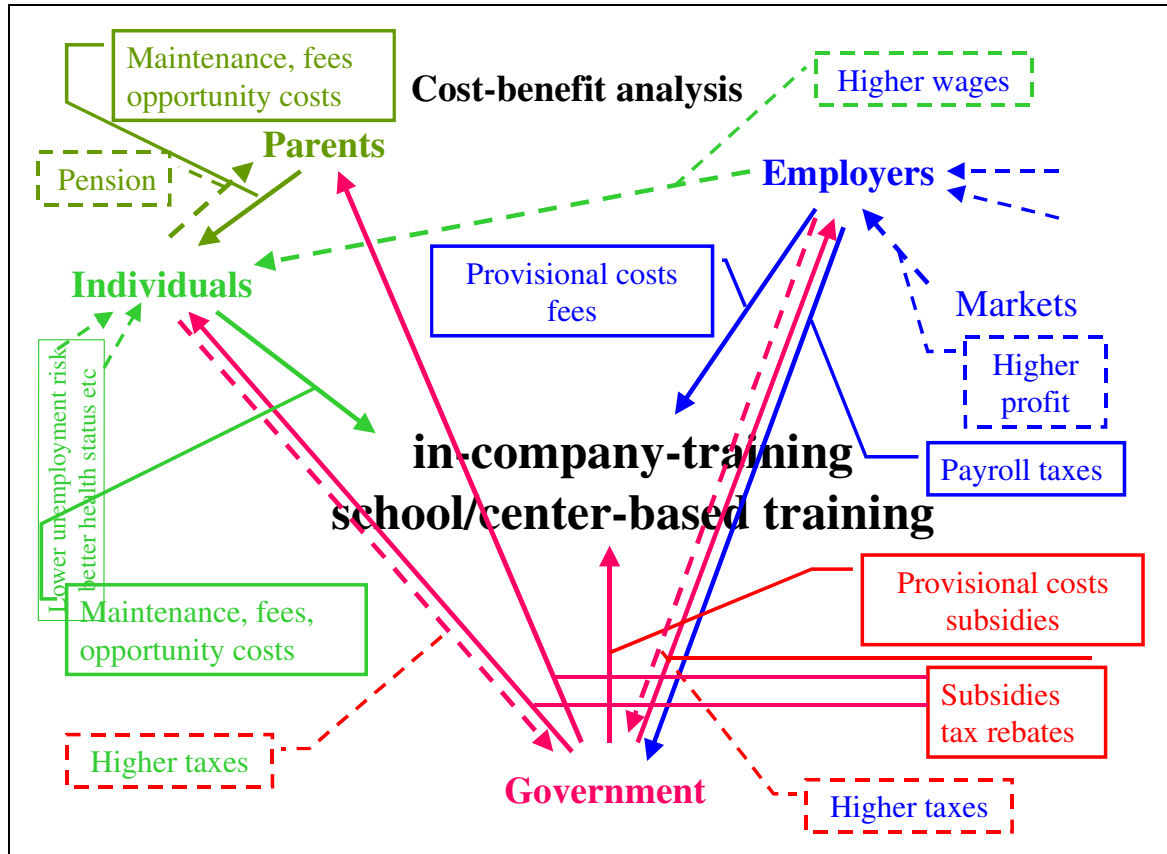


Picture 2: The environment of VET and its stakeholders

<sup>3</sup> Employer organisations and unions are also stakeholders, but they are more involved in the administration and organisation of VET-systems.

<sup>4</sup> We are well aware that the narrow economic approach is insufficient for the analysis of human behaviour. Therefore, we will try to expand this approach by including for example social and psychological factors.

Picture 3 shows the relationships between the major stakeholders of VET – in developing as well as industrialised countries – and their monetary and non-monetary costs and benefits.



Picture 3: Core factors of a cost-benefit analysis of VET

The major costs of the individuals, especially for center-based VET, are the opportunity costs, i.e. the income foregone, and the fees they often have to pay, particularly for private institutions. The major part of the costs for maintenance are just expenditure but no costs in the common sense as maintenance would have to be covered even without training. Thus, they are no costs of training. Furthermore, they are covered by the opportunity costs because a labourer would finance his livelihood out of his wage payment. Only those additional costs which are originally due to training are to be included in the cost-benefit analysis. The major benefit of an individual due to training is the higher income s/he earns because of their higher productivity or of a lower risk of unemployment. Other benefits are a better health status and several non-monetary returns.

The employer's costs are the trainee's income, the costs of trainers etc. and the other costs of providing training, such as material, wastage and the (calculated) rent for buildings and equipment etc. The trainee's wage is to be imputed only if and so far it is beyond his productivity minus the other training costs. The training benefit of the employers

is the reduced costs of production which improves the position at the commodity or service markets and increases their profit.

The government incurs the costs of training provision if it is conducted in training centers and for subsidies and tax incentives for parents, individuals and employers. The major benefits stem from higher tax payments and – if established – higher social insurance payments and lower unemployment payments etc. Positive external effects increase the social returns to VET, e.g. higher growth rates or lower birth rates, improved health status etc. If accounting only for the government's return one calculates the fiscal return to training while a broader approach covers the social costs and benefits, i.e. the costs and benefits to the whole nation.

The parents are often only considered in relation to their contributions to their children's maintenance and fee payments.<sup>5</sup> The major opportunity costs component may be the child's contribution to family income even if it is family work. The parents' returns are the children's contribution to their retirement income or parents' housing etc. Yet, it has to be considered that parental investment in children is rather risky e.g. because of moral hazard and the impossibility of diversification. From an economic viewpoint investment in children is a rational decision only if a capital market is not established or if parents are highly altruistic (Dohmen, 1999).<sup>6</sup>

Teachers and instructors are also involved in VET and have their own interests. Thus, one might add another cost-benefit analysis. Within this study they are just mentioned for completeness.

It appears possible to identify environments when individuals and employers are willing to bear the cost of VET by themselves. We will start with the economic environment and then move on to individuals, finally regarding employers.

The probability that education and training will be financed by private sources, i.e. without public assistance, can be assumed to increase with the country region's economic development. The economic development can be measured by per-capita income, gross national product (per capita) etc. Furthermore, one can assume that people are more prepared in a growing than in steady or shrinking economy, although this may depend on individual factors, such as socio-economical background, the particular VET-program etc.

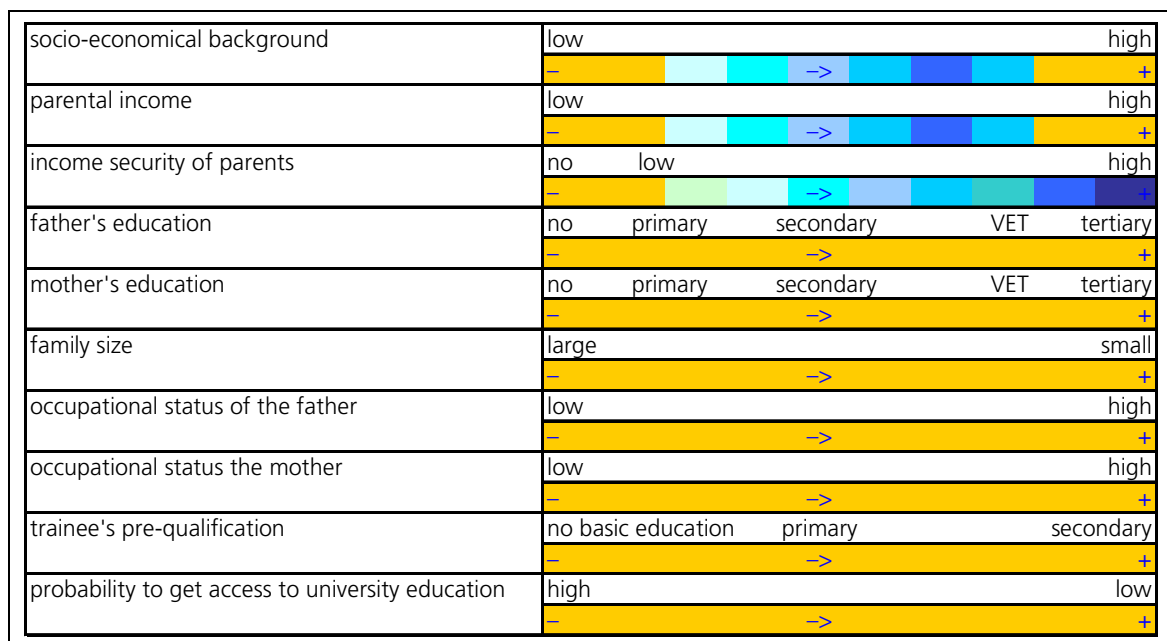
Picture 4 relies on some individual issues that may affect the preparedness to bear the

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<sup>5</sup> In contrast to the trainee, the full parental contribution for maintenance has to be imputed as a cost of training.

<sup>6</sup> This approach enables us, for example, to analyse the parental decision not to invest in a girl's education if she moves to the husband's family after marriage.

costs of training by private sources. The general principle of this and the other pictures is that private funding can be expected the more we are on the right side of the continuum. For example, individuals from a high socio-economic background will be much more prepared to pay for training than someone from a low background. Yet, one should acknowledge that people will most probably opt for higher education if they are from the 'upper class'; thus the probability of private funding for VET will increase the more we move from the lowest socio-economical groups to the 'middle class' and will then decrease the more we come to the upper class. I have tried to underpin this assumption by darkening the is area in Picture 4. The same assumption may hold as regards the parental income. If we refer to the income security, higher security may increase the training.



Picture 4: The individual background and training finance

It should be noted that there are more factors affecting the individuals' preparedness to pay for training. If we look at a short-term course in evening classes even individuals from comparatively low-income families may be prepared to pay the comparatively low fees for e.g. service oriented courses. In contrast, if we refer to very expensive long-lasting technical courses even people from the upper middle class will possibly not be prepared to pay the fees if there is no public assistance aimed at fee reduction. Informal in-company training may take place more for individuals from the 'underclass' than for others as it may be associated with some pay and a poor reputation.

The parents' education and their occupational status, distinguished for father and mother, will affect children's education the same way as family size does. As regards the individual himself, his pre-qualification and his ability will influence VET. Yet the higher

the academic record of an individual the more it will opt for higher education instead of VET.

training	pre-employment	in-service	upgrading
	->		+
quality of training	low		high
	->		+
information about training programmes	no	low	good
	->		+
reputation of VET programme/course	no	low	good
	->		+

Picture 5: The particular programme and training finance

Another issue of relevance is the particular program or course an individual refers to (see Picture 5). The probability of private funding may be least for pre-employment training and highest for upgrading while in-service training may be in between. Quality and reputation which are not necessarily inter-related will positively contribute to individual willingness. A necessary pre-condition for training is that individuals are informed about the existence of training programmes and courses. It is quite often mentioned that individuals as well as employers lack information about programmes and policies.

Picture 6 relies on the labour market factors affecting private training finance. One can assume that perceived high job security, high pay expectations and low expectation of unemployment will increase the probability of privately financed training. The question whether a competitive or a monopsony labour market improves or makes worse this probability is not immediately obvious but it appears to be reasonable that a competitive labour market, i.e. a labour market with many employers, is more attractive for individuals than markets with only one employer. The standpoint of an employer will be contradictory, he will the more be willing to bear the costs of training (partially) if he is a monopsonist.

labour markets	monopsony	oligopsony	competitive
	->		+
job security expectation/perception	no	low	high
	->		+
pay expectation	low		high
	->		+
unemployment rate expectation	high		low
	->		+

Picture 6: Labour market conditions and training finance

Finally, the individual preparedness to pay for VET will depend on a very crucial factor, i.e. the individual ability to pay. If the individual or family income is not high enough to bear the costs of training private or public assistance is needed. According to theoretical as well as practical evidence one can assume that private credit markets will not be estab-

lished or will depend on public securities. Besides the availability of funds the readiness to rely on these grants and loans is of major importance. If people refrain from taking up (interest-bearing) loans the existence of public and private support programs will not lead to higher access to VET. If people are highly risk averse they will refrain from taking up loans, they may also refrain from training. If people have a high preference for present consumption they will not opt for training since it is associated with a comparatively low income, i.e. if it is much lower than the wage payment for an unskilled job.

By looking at the ability and willingness of the individual (trainee) to pay for VET one often overlooks that the individual is embedded into a family where parents may affect the decision due to their own or the family costs and benefits. As their benefits are comparatively low – except if they are very altruistic and / or a capital market is not available – they will often not be prepared to invest in their children's vocational education and training.

risk aversity	high	low
	-	→ +
preference for future consumption	low	high
	-	→ +
access to private credit markets	no	low
	-	→ +
access to public loans	no	low
	-	→ +
access to public grants	no	low
	-	→ +
willingness to rely on private credits	no	low
	-	→ +
willingness to rely on public loans	no	low
	-	→ +
willingness to rely on public grants	no	low
	-	→ +

Picture 7: The individual ability to pay and training finance

### The employer's decision to finance VET

We can identify also a number of factors affecting the preparedness of the employer to bear the costs of VET. These factors can be differentiated by issues of the firm itself, the trainee and the particular training programme.

If we look first at the firm itself, then the 'nature' of the firm is very important (see Picture 8). The probability of paying for VET is very low the more a firm is domestically oriented. In contrast, it will most probably be prepared to bear the costs of training the more it is an externally-oriented firm or even a joint venture or multi-national firm. The training preparedness increases also if firms are larger and/or the more they use modern technology. A crucial issue is the availability and the access to credit markets which is

generally easier for firms with a high profit rate.

firm	domestic	joint-venture/multi-national
	-	-> +
company size	micro	small medium large
	-	-> +
technology	mature	modern
	-	-> +
division of labour	low	high
	-	-> +
qualification requirements	low	high
	-	-> +
profit rate	no	high
	-	-> +
access to credits	no	very good
	-	-> +

Picture 8: Factors affecting the firms' preparedness to pay for VET

The firms' preparedness to pay for training depends also on some factors of the particular trainee. For example, the higher the pre-qualification or the job position of a worker the higher is the firm's preparedness to pay for training. In contrast, disadvantaged individuals will experience fewer opportunities for training (see Picture 9).

pre-qualification of work-force	low	high
	-	-> +
job-position	low	high
	-	-> +
individual	disadvantaged	advantaged
	-	-> +

Picture 9: The trainee factors affecting the firms' preparedness to pay for VET

training specificity	general	firm-specific
	-	-> +
training targeted at	pre-employment	in-service upgrading
	-	-> +
quality of training	low	high
	-	-> +
Product market orientation	domestic	internationally
	-	-> +
information about training program	low	high
	-	-> +
duration of programmes	long-term	short-term
	-	-> +
programmes	expensive	low-cost
	-	-> +

Picture 10: The training factors affecting the firms' preparedness to pay for VET



Picture 10 reviews the training factors influencing the willingness of the employer to bear the costs of training. The probability of firm-financed training is higher for firm-specific training and for upgrading than for pre-employment training. High-quality training and good information about training opportunities raise the probability the same way as international orientation does with regard to product markets.

In summary, short-term and low-cost programmes will be much more privately funded than long-term and expensive courses, e.g. for technicians.

#### **4. Market Failure and External Effects**

The question whether the government or public agencies should intervene in the education market appears to be a very crucial discussion. There seems to be no general understanding whether VET is associated with external effects or not and whether they can justify public intervention.

External effects are discussed in a number of areas which will be summarized in short in this chapter.

##### **Risk and Uncertainty of Individuals**

Training is a risky investment particularly for individuals. They never know whether they will get a job afterwards and they cannot reduce the risk by diversification. Even if people are risk-neutral the possibility of unemployment reduces the expected individual rates of return to training under the average rate. Thus, the social rate of return will be higher than the expected individual rate so that less than the optimal amount of people will opt for training.

The higher the risk aversity of people the more will they refrain from training. The same is true the more people have to rely on their own income to finance livelihood, i.e. if a loan system is non-existent or training wages are below subsistence level.

In all these cases public intervention by reducing training costs might increase the number of trainees. The minimum intervention would be to introduce a loan scheme to refund training costs.

##### **Capital Market Imperfections**

Another widely accepted argument for public intervention is capital market imperfection. Due to moral hazard and adverse selection private capital markets will not be established. Yet it has to be taken into account that such a scheme will not be accepted if

people are risk averse and that they have to face very high default rates. In some countries the default rates are so high that the introduction of a grant scheme would be less costly.

It might have to be tested whether micro-lending is more successful as people would be more willing to repay their loan repayment if it enabled others to invest in education and training.

### **Distributional and Social Aspects of Public Intervention**

There is a lot of agreement that some kind of public intervention is necessary for distributional and social reasons, e.g. equality of opportunity (e.g. see World Bank, 1991), even though this does not necessarily justify public provision. In designing such policies one should also consider their distortionary effects, i.e. the changes in relative prices. In any case, they have to be targeted to serve the disadvantaged.

### **Poaching**

Poaching means that trained workers will be hired by other firms which have not invested in training. Thus, they can offer a higher wage payment due to the saved training costs. The more competitive the labour markets are, and the more workers quit after training, the less will firms be prepared to bear the costs of training.<sup>7</sup> In contrast, the longer workers stay with their firms and the less firms risk workers to quit the more will employers be prepared to invest in training.

In summary, the poaching risk is depending on the particular labour market structure. In monopsonistic labour markets firm will provide training opportunities while in competitive settings not. In the latter case firms will under-invest in skilled staff.

One might expect that workers will invest in their own qualification if training markets are competitive because they will gain all the returns of training. A pre-condition is that they can afford the costs of training and pay for their livelihood.

### **Economic Growth**

The upcoming of the endogenous growth theory has been a milestone for the discussion on the contribution of education to economic growth in the last decade. Yet it is concerned with education in general and not with training, so that there is no information as to how vocational education and training affects economic growth.

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<sup>7</sup> It might be sufficient that firms perceive a high risk that a worker quits after training.

## **Complementarities between General and Specific Training**

There is no specific training without (some kind of) general training and general training has to be complemented by specific training, so that they can be assumed to be complements. Employers will not invest in specific training unless workers have sufficient general training and workers will not invest in general training until they know that specific training will follow. If both parties lived in a world of security as regards long-lasting contracts, employers might be willing to participate in the costs of general training because they will gain due to spillovers for specific training. If turnover is high they fear that they will not gain and they will not be prepared to pay, resulting in under-investment in training (Ritzen and Stern, 1991).

## **Brain Drain in Developing Countries**

An effect which seems to be more of economic relevance for developing than for already industrialised countries is human capital mobility. Brain drain is another kind of poaching which occurs if highly qualified and, thus, international competitive personnel moves to another country. An external effect arises if the country that invested in a person, i.e. has borne the costs of education and training, receives no compensation by the country to which the worker moves.

## **Summary: Is there a Case of Public Intervention in VET**

If we refer to the arguments in favour of public intervention mentioned in this section some of them appear to be strong. Yet in any case one has to investigate the overall effects of intervention policies as they might tend to make things worse. Intervention policies must be targeted to address and improve the problems they should solve.

## **5. Financing vocational education and training**

The costs of VET can finally be borne by trainees (and their parents), employers and the government and it can take place in firms or at public or private VET-institutions.<sup>8</sup> All these three financiers can rely on past, present and future income to finance VET (see Table 1).

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<sup>8</sup> It has to be noted that it is not sufficient to rely on VET-funding only but that the financing of general education should also be considered because e.g. some distortionary effects may arise if the costs of individuals for general education are lower than for VET.

Opportunities to finance education			
Financiers	Present Income	Future Income	Past Income
Government	Taxes and Fees	Public Debt	Selling of Public Property
Trainees/Students (Families)	All Kinds of Income (Salaries, Rent, Scholarships, Tax Reductions)	Credits, Loans	Withdrawing, Liquidisation of Property, Saving Accounts
Provider/ Institutions	Fees, Income Generation	Credits, Loans	Withdrawing from Bank Accounts
Employers/ Companies	Income, Revenues, Turnover, Returns, Rent-, Interest-, Leasing-Income	Credits, Loans	Withdrawing from Bank Accounts
Employees	All Kinds of Income (Salaries, Rent, Scholarships, Tax Reductions)	Credits, Loans, Drawing rights	Withdrawing from Bank Accounts, Drawing rights

Source: Timmermann, 1999

Table 1: Sources of Liquidity and Financiers of VET-Funding

Power (1999) refers to five funding sources: national budgets, employers' contributions, learners' contributions, voluntary contributions and self-funding. The latter comprises all activities which do not immediately refer to the training activities but are a by-product of training or opportunities to generate income such as selling services to enterprises and perhaps alumni fund-raising (Moura Castro, 1999a) as well as evening courses and consultancy services (Fluitman, 1999; World Bank, 1991). Such activities might be restricted when the major task of these institutions, i.e. training, becomes neglected or if competing companies are disadvantaged due to subsidised production. An exemption might be production schools which combine training with other market activities.

## 5.1 Trainee financed Training

### 5.1.1 Wage Reductions

In a traditionally private organised training system the trainee would get either no payment or a payment which is below his productivity. As far as the wage payment of the apprentice is below his productivity he bears the costs of training reducing the financial

burden of the employer. Such a low payment can be justified with the lower productivity of the trainer and/or other direct and indirect costs of training to be borne by the training firm.

It depends on the specificity of the training how much of the costs will be recovered by the employers due to wage reductions. According to theory, firms are willing to contribute to general training while they share the costs of firm-specific (Becker, 1964, 1993; Dougherty and Tan, 1997). Some other factors, such as the structure of the training market or the quit rates of graduates etc., will be important, too.

Empirical research suggests that employers bear more of the costs as appears to be justified by the share of firm-specific training.<sup>9</sup>

From the viewpoint of the trainee a wage reduction might be accepted as long as the remaining wage is sufficient to cover his maintenance costs. In any other case, the opportunity costs will become prohibitively high, so that no future return will be high enough to exceed the costs.

### **5.1.2 Tuition and Apprenticeship Fees**

In a number of countries students or trainees have to pay a fee covering the total or a share of the training costs not only for classroom or school-based training but – as Velenchik (1995) reports for apprentices in Ghana – also in small enterprises for their training. According to Dougherty (1989) and Dougherty and Tan (1997) this is common in West Africa.

The most common argument for a general introduction of fees is that the individuals gain monetary and non-monetary benefits from training while otherwise the firms or the government would have to bear the total costs. Some economists argue that only the trainees gain from training, so that they would have to bear the full costs of training.

Other arguments in favour of fees are the expectation that they enhance the efficiency of training measures and contribute to the resources as well. Participants are likely to pay for training if it is of good quality and can bring personal benefits and high private rates of return (Bolina, 1996; Gasskov, 1994, 2000). Fees can be used to bring supply and demand together as they can be raised if there is an excess in demand and can be reduced

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<sup>9</sup> For example, referring to Germany, it is said that the costs of training are higher than the returns for most training companies, thus incurring a loss (van Bardeleben and Beicht 1996). But it has to be taken into account that the results differ according to costs-concept, branch and company size. For example, the net costs are typically higher in technical areas than in service-oriented occupations; estimating the total costs of training for all companies independent of size leads to net costs for all, whilst small companies gain a profit due to training if only the marginal costs of training are imputed.

if the supply is not fully demanded. Different fee levels can also be linked to different levels of quality, if better institutes request a higher fee rate (Bolina, 1996). Yet the latter argument may exclude trainees from lower socio-economical backgrounds as they have difficulties in paying and thus to opt for a high quality education at expensive institutions. Therefore, the social consequences of differentiated fee system should be considered.

### **Individual's Affordability of Fee Payments and Public Intervention Strategies**

The acceptance of loans and its (economic) rationale has to be questioned. It is generally assumed by economists that loans are in principal accepted by students or trainees and if not that better information would be able to overcome reservation. In this case, trainees would be prepared to take up a loan if the interest rate is below the (discounted) rate of return to training. The assumption holds only if trainees are risk neutral and / or if they are sure to benefit from training as expected.

It should be noted that the discount rate for future earnings depends on an objective component – the interest rate – and the subjective component, the risk preference and the preference for present and future consumption. People who are risk averse will discount future earnings more than risk neutral or risk loving people. This leads to comparatively low rates of return so that they will not take up a loan at a market interest rate. Even these assumptions demand a public subsidy because the interest rate for training loans would have to be higher than the market rate due to the higher risk of training investments. Thus, without public involvement the investment in training would be socially sub optimal.

Furthermore, the interest rate has to be the more subsidised the more trainees are risk averse. Combined with the high default and deferment rates, it will most probably be more efficient to set up grants instead of loans. Loans might be a good instrument for trainees in highly prestigious courses and university students, but not for trainees in the informal sector or in training with an average reputation.

Another mode would be the introduction of an individual training tax, meaning that a trained person would have to pay a higher (marginal) tax rate than an untrained person or would have to repay a certain share of his income to a recovering fund.<sup>10</sup> If an income tax system is poorly developed and difficult to control it is difficult to organise a training credit system as a tax repayment. But it still might be an opportunity for some advanced

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<sup>10</sup> In recent years, research on student loans found that the deferment rate of income-related repayments are lower than of mortgage loans (Albrecht/Zideman, 1991, World Bank, 1995). Based on this results education economists increasingly demand that loan repayments are to become income-related (West, 1994; Barr, 1989b; 1998)

developing countries.

An alternative to loan strategies, at least for trainees who are not prepared to take up interest bearing loans are scholarships or grant programmes. Compared to loan agreements a grant does not negatively affect the preparedness of people from disadvantaged backgrounds, either socio-economically or locally, for training. It is an item of discussion whether fellowship programmes lead to more (Herschbach, 1993, quoted in Bolina, 1996) or less administration and management costs.

## **5.2 Employer financed training**

### **5.2.1 Single Employer Funding**

According to Bolina (1996), vocational training in large companies in Japan is organised as a "single employer financing system". The large companies organise their own vocational training, and the expenditure for in-house training is considered part of the labour costs. In Japan the relationship between employers and employees is unique and often for the whole working life of a person. Due to the lifelong relationship the company can expect to earn the returns on training and will be prepared to bear the costs.

Georg and Demes (1996) point out that these principles – which are quite often mentioned as the general principle of the Japanese labour market – are valid only for core staff but not for all employees. Furthermore, the training of an employee is strongly related to his tasks and duties but not to a general job qualification as, for example, in Germany. This can be regarded as firm-specific training (Becker, 1963, 1994), hindering workers in moving from one firm to another. Furthermore, the latter will receive a lower salary.

As there is no report on whether the trainee is paid according to his or her marginal productivity or not, and whether the training expenditure is tax deductible or not, it has to be noted that the net costs to the employer is the important issue. The term "single employer's funding" would be misleading if cost-sharing occurs.

### **5.2.2 Training Levy/Payroll Tax System**

Two general principles of a levy system can be distinguished. The first is that all companies (of a particular branch) contribute to the fund with a certain share of their payroll to finance public provision of training institutions, the so-called revenue generating scheme. The second principle is that the levy is used either to repay the costs or to reduce the contribution of firms which train their staff. This is the so-called levy-rebate or levy-grant scheme. The idea of the latter approach is to redistribute the training costs between

companies which train people and firms which do not.<sup>11</sup>

Training levies have been introduced in several countries, particularly in Latin America and the Caribbean, e.g. in Brazil some 50 years ago. Other Latin American countries are Argentina, Colombia, Ecuador, Guatemala, Honduras, Peru, and Venezuela. But training levies are not restricted to Latin America but, however, have been introduced around the world, e.g. Côte d'Ivoire imposed a levy in 1977 covering 1.5% of the wage bill. Companies which provide training opportunities do not have to contribute (Bas, 1988). Taiwan introduced a levy scheme in 1972, South Korea imposed it in 1974.

The contribution in most countries is between 1.0 and 2.0% of the payroll and is typically paid by firms. In Venezuela the levy is 2.5%, also covering employee contributions. The contribution might differ between industries or be limited to certain branches.

Dougherty and Tan (1997) point out that the levy scheme is restricted to the industrial sector in most countries. In just a few countries it also covers commerce, or is all-embracing, like in Honduras. In general, small firms are exempted but with different definitions as to what a small firm is. Sometimes it comprises only large firms e.g. with more than 300 employees.

According to Dougherty and Tan (1997) there is evidence that the net impact of the new programmes is not as impressive as appears to be at first glance. At first, the total expenditure on approved training schemes was 1% in Chile and 2% in Brazil although large firms contributed disproportionately to their numbers in the programme. Furthermore, they assumed that the training would have been undertaken anyway, so that the real impact of the programme would be rather low.<sup>12</sup>

In Taiwan there was a discussion whether the introduction had worked like an 'initial ignition' as the number of trainees, which had more than tripled within 2 years and covered 8% of the labour force, has only been slightly reduced after the scheme was abandoned (Dougherty and Tan, 1997). Some, like San and Chao-Nan (1986), argue that the scheme might have had some kind of demonstration effect regarding the benefits of training.

In Malaysia a training levy was established in 1993 with a matching government grant

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<sup>11</sup> This is different to a general tax reduction or tax rebate for companies which do not train people. If the training costs were to be included in the tax system, companies not providing training would not bear a part of the training costs. Instead, individuals would have to pay a part of the costs.<sup>11</sup>

<sup>12</sup> This is stated also for South Korea (Booth and Snower, 1996), where the training levy relies on firms with more than 300 workers which do not provide a sufficient percentage of their employees with training. Thus the levy is a panel tax for companies not providing sufficient training or spending to less for training.



(World Bank, 1997a; Tan and Gill, 2000). Employers contributing at least 6 months are entitled to claim a portion of their allowable training expenses up to the limit of their own levy which is 1% of the payroll. The levy is compulsory for all companies with more than 50 workers, firms with up to 50 employees are under the umbrella of the 'Double Deduction Incentive for Training' Scheme (DDIT), which is a tax reduction (see chapter 5.3.2). Even if the levy is mandatory, roughly 27% of the firms are non-compliance, particularly small firms with less than 100 employees. The firms which are non-compliance avoid the payroll levy as well as the high fix costs for setting up a formal training programme if one is not already in existence which would enable them to get the expenses reimbursed. Thus, non-compliance is advantageous for small firms which do not intend to provide any or only informal training which is not covered by the levy system.

It is reported that quite a number of firms pay the levy but do not claim for reimbursement. This can be explained only with the non-provision of training for a minority of 6%. More than half train informally and are therefore not eligible, while 40% train formally and would get reimbursed. That they do not apply for reimbursement is often because of low expenses and thus, a too low reimbursement compared to the costs of application. This is also most relevant for small firms with mature technology needing low skill levels and weak training capabilities.

Contrary to many other researchers, Dougherty and Tan (1997) are very reserved regarding the effects and the arguments in favour of a training levy. In their opinion, the arguments for the introduction of training levies are not very convincing as the trainees are the only one who benefit from training. So, they ask, why should companies contribute to the financing of training.

An important question is whether the contribution to the levy scheme is really paid out of the firms' profits or is shifted to purchasers via higher prices or workers by reduced wages. As the literature suggests for developed countries, the tax burden is shifted to the workers. Whalley and Ziderman (1990) assume that this is the case for developing countries as well. Thus, the payroll tax can be regarded as a reverse social insurance contribution, an income contingent loan or training tax because repayment depends on wage payment. Therefore, the higher the income, the higher the repayment. Finally it is unclear how far workers contribute to the scheme and how far they benefit from training.

Dougherty and Tan (1997) point to three problems associated with a levy: (1) they see no reason to shelter the public funding of training more than e.g. general education, as it is often said to be the case of training levies; (2) the revenue from the levy is quite often much higher than the expenses, so that there is an incentive to increase administration or

to spend ineffectively; (3) all ear-marked taxes, and so for a levy as well, are subject to diversion and a misuse of funds.

Some advantages of a levy, are, first, the general security of the availability of funds for training independent of changes in the economic environment. Secondly, a levy might be an opportunity to mobilise additional funds for public spending which are otherwise not available. Thirdly, it could be used not only for the promotion of training but also to re-structure the labour force, e.g. as it intended in Singapore. The failure of the programme might be another argument against a levy.

Levin (1977) has pointed to distortionary effects because a payroll tax increases the costs of labour compared the capital. Undesirable redistribution effects can be the higher taxation of labour income which is the most important source of income for the working poor and the middle class, while unearned income like rents, dividends, profits and income which are major sources of the rich are unaffected.

### **5.3 Public Financing of VET**

The important aspect of public funding is that it reduces the expenditure and costs of training to be borne by the immediate stakeholders, i.e. the companies providing and/or paying for training and the trainees (and their parents).

One can distinguish between two major kinds of public subsidies: direct subsidies or payments and indirect transfers, like tax reductions. Public provision might be regarded as a special case of public funding as it is a direct public subsidy.

#### **5.3.1 Direct Payments/Subsidies out of Tax Revenues**

The financing of education as well as vocational education and training by tax revenues is the main source of public spending all over the world. There are two major arguments responsible for strong public intervention and financing. The first is the assumption that education and training is linked to large social benefits and the second is to ensure social equity for the poor in the rural and urban informal sector. Because public spending reduces the costs to be borne by the individuals it is suitable for providing training opportunities for socially disadvantaged groups, not only but also in deprived areas of the country (Bolina, 1996).

As well as the economic rationale, a political argument of public spending for education and training is the much stronger opportunity of public control, influence and restriction.

A direct subsidy is a common way to provide incentives for education. A general

mechanism is to bear the costs of public or private VET schools or to subsidise the wages of trainees.

As Dougherty and Tan (1997) report, a number of, countries, particularly Asian, such as Sri Lanka, India or Nepal contribute to the wages of trainees even when they are carrying out on-the-job training. Subsidizing off-the-job training for apprentices is reported for Fiji, New Zealand and Australia.

### **5.3.2 Tax reductions /Tax rebates**

Tax reductions or tax rebates provide an incentive for firms to bear the costs of training by a reduction of the net-costs of training. According to Bolina (1996) a tax reduction is – like a payroll levy system – directed towards cost-sharing by those who benefit from training. Barr (1998, p. 325) mentions another and, for some tax systems, more important argument for tax deductible training costs: "Education, to the extent that it raises an individual's future earnings, increases her future tax payments; in absence of any subsidy, an individual's investment in education confers a 'dividend' on future taxpayers." Thus, tax systems relying on individual earnings should declare training expenses as tax deductible or reduce training costs by subsidies.

Dougherty and Tan (1997) point to some problematic topics of tax rebate schemes. Even if acknowledging that investments in physical and human capital are supposed to be treated equally they point out that the latter have typically better conditions of depreciation as it can be deducted with total or even more than total expenditure in the investment period while physical capital can be depreciated only over a couple of years. In combination with a progressive marginal tax system the higher marginal tax reduction of a one year depreciation leads to lower net investment costs. Such an investment becomes more favourable if more than the total expenditure can be deducted, e.g. in the Philippines 150% of the expenditure are tax deductible, in Brazil 200%.

The effect on the net costs of training depends on the applied modalities of tax reduction so that the general treatment of this issue in the literature is often somewhat confusing as it is not specified which modalities are applied. One can distinguish between a reduction of the tax base and a reduction of the tax payment. The first one is a tax allowance or tax exemption while the latter is a tax credit. Terms as tax rebates or tax reductions can cover both kinds so that they are not specific and thus open for confusion.

A recent World Bank (1997a) study on Malaysia points to the poor performance of the 'Double Deduction Incentive for Training' Scheme (DDIT) which allowed a tax deduction if firms send their workers to approved training courses. While small companies have more

or less not participated in the scheme, multi-national or joint-venture companies in particular have benefited. More than one third of the applications for approval of in-house training have been refused so that only 3,250 trainees within a 6-year period have been supported. Also the utilisation between the economic subsectors has been uneven. Industrial firms (e.g. electrics, electronics, chemicals) have benefited most while programmes in food and beverage industries, wood and furniture or textiles have participated rather seldom.

As multi-national and joint-venture firms will train their staff even without such an incentive the programme missed its aim to encourage training provision. According to the authors, these findings confirm other studies pointing out the low cost-effectiveness of tax reduction policies (World Bank, 1997a).

The most important reasons for not using the DDIT programmes were: no awareness of the programme (45%), no need or no provision of training (25%), not met requirements (11%), insufficient information about programme details (6%) or too few trainees (4%) and some other minor points. Thus, the most important problem was no or imperfect information, despite of great governmental efforts to inform about the availability, referred to by one out of two employers not applying to the programme. And one out of four employers were not in need of or currently not training or did not know how to train. Roughly 15% did not meet the requirements or trained too few people, thus applying would be of limited reward.

Relating these results to firm size reveals that all issues are more relevant for small scale firms, even if large firms lack information or do not provide training, too. As already stated small scale firms provide less training than large companies (see also Lynch and Black, 1995), so that such a programme is immediately more targeted to the latter. On the other hand it means that other incentive policies are necessary to encourage small firms to engage in training.

### **5.3.3 Public Provision of Training Institutions**

The most important subsidisation of training in most countries is the public provision of training institutions typically belonging to the formal educational system. These institutions usually working under the immediate responsibility of the Ministry of Education or the Ministry of Labour and Social Affairs or the National Training Authority.

The major weakness of the public provided institutions compared to private ones is the weaker accountability of administrators and trainees of the former. A common finding of assessments of these institutions is their very low cost-effectiveness due to high unit costs,

insufficient use of available resources, failure to realise economies of scale and high administrative overhead costs, poor maintenance of equipment etc. (Dougherty and Tan, 1997).

One difficulty regarding the question whether an institution is publicly provided or not seems to be a lack of a sound basis for evaluation. For example, Dougherty and Tan (1997) refer to the weaknesses of well-funded systems which, as they say, are typically financed by payroll levies. According to our distinction referring to 'who is bearing the costs of training', a levy scheme is financed by the employers so that it can not be regarded as a public financing scheme but a publicly administered institution or system if in line of a ministry.<sup>13</sup>

If training institutions or a training system is organised under the responsibility of a National Training Authority like the tripartite boards in Latin America, including government as well as representatives of the employers and employees, it is hardly a public body. This differentiation has to be taken into consideration while conducting the field studies for our investigation.

#### **5.3.4 Some General Remarks**

A common problem of all kinds of public subsidies is that they are difficult to target and to avoid windfall gains. Dougherty and Tan (1997) point out that professional and managerial workers have profited quite disproportionately in terms of numbers as well as costs of training.

In some countries the introduction of subsidies had only a small impact on increasing training participation while companies which have been providing training even before the scheme was introduced have benefited most due to the reduced net costs. Thus, the net increase of training measures appears to be comparatively low. But up to now, according to Dougherty and Tan (1997), no study has been carried out to investigate the impact of levy schemes or direct subsidies, so that the aforementioned findings are limited to tax reductions.

On the contrary, they point out that much enterprise-sponsored training remains out of range, because of high administrative costs possibly exceeding the benefits of the subsidy either to set up a programme or to redirect a programme to become eligible for the

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<sup>13</sup> It has to be acknowledged that this distinction is not without any difficulty as in the end all public funding is funding by private sources as any tax is paid by private individuals. A more sound distinction might be whether a tax or, more generally, a contribution is ear-marked, like a training levy, or not, as income tax or VAT disappearing in the public budget.

subsidy.

Another effect is that programmes are redirected to meet the eligibility criteria for the subsidy, e.g. by extending the duration of a course if a minimum duration is required etc. Concluding, each subsidy programme that is directed towards certain target groups or areas of training etc. contains the risk of becoming ineffective while each unspecified programme risks high public expenditure and low additional training provision. In both cases the cost-effectiveness of the programme would be less than optimal.

Dougherty and Tan (1997) stress the problems of minimum wage legislation which might increase training wages to a too high level, and therefore either undermining training provision by firms or hindering that trainees bear an appropriate share of the costs. Another issue in increasing the number of trainees in companies could be the exclusion of trainees from social security contributions or payments.

If it is necessary or advantageous to improve training provision by private companies, Dougherty and Tan (1997) favour working contracts committing trainees to work for their training company for a certain period after graduation for a below-market wage.

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