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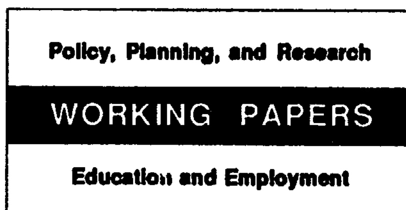

Population and Human Resources
Department
The World Bank
January 1989
WPS 141

Public Disclosure Authorized

Payroll Taxes for Financing Training in Developing Countries

Adrian Ziderman

Whether a developing country finances training through payroll taxes may depend on the country's stage of development.

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Education and Employment

In most developing countries, the major programs of vocational training and skill development are financed from general government revenues. Increasingly, however, earmarked payroll taxes have been introduced to finance training.

The authors summarize international experience with payroll taxes, the two major types of which reflect different objectives. Under the traditional, so-called Latin American model, revenues are earmarked to finance training provided by the state or a national training authority. Under the levy-grant (or rebate) scheme, payroll tax rebates are offered to enterprises to set up or broaden in-service training programs

Whether payroll taxes are a more desirable source of financing than other alternatives probably depends upon the stage of a country's development.

Few lower-income countries finance training through payroll levies. They may have only limited access to such broadly-based taxes as value-added taxes and tend to rely instead on trade taxes and specific excises (say, on drink, tobacco, and gasoline). In countries where the government's financing options are limited, payroll taxes may be attractive but administratively infeasible.

Most countries using the payroll tax approach are situated in the lower-middle income range. In this range, value-added taxes may be equally justifiable economically but two things make the payroll tax approach more attractive: the ability to target payroll taxes using differential tax rates by sector, and the rationale of the reverse social security scheme (that is, with workers receiving benefits when they are young and essentially paying taxes later to cover the training costs of workers who follow them.)

As a country develops, other financing alternatives should become realistic — for instance, government guarantees for worker loans, or tuition-paid programs (with partial recovery of costs through user fees and a student loan program).

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Produced at the PPR Dissemination Center

Abstract

In most developing countries, the major programs of vocational training and manpower-skill development are financed from general revenues. Increasingly, however, earmarked payroll taxes are employed to finance training. This paper summarizes international experience with these payroll taxes, drawing the distinction between the more traditional revenue raising schemes on the lines of the Latin American model and the newer levy-grant schemes.

Drawing upon experience of payroll taxes in advanced economies it discusses the incidence of these taxes in developing countries and presents an economic rationale for their growing use, as part of a reverse social security schemes. It concludes that the desirability of using payroll taxes to finance training, compared to other alternatives available to developing country governments, is likely to be contingent upon the stage of a country's development.

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1 Introduction

In most developing countries, the major programs of vocational training and manpower-skill development are financed from general revenues, although increasingly earmarked payroll taxes are being used. In this paper we both summarize experience with these payroll taxes, and evaluate the economic rationale for their growing use.

While their use would seem to run counter to the presumption that on efficiency grounds the financing of training should be by user fees, there are many reasons why governments are reluctant to employ user fees in this context, including such issues as the externality effects of training and arguments for parity with the trainees' counterparts in the highly-subsidized formal schooling system. Putting these aside, user fees are frequently regarded as impractical because participants in training programs are severely liquidity-constrained as far as their ability to raise funds through borrowing to pay fees and other program costs is concerned. In such circumstances, heavy reliance on user fees to finance these programs may have the effect of discouraging the very people towards whom the training programs are targeted.

Post-course equity participation under which participants in programs would surrender a share of their increased wages as whole or part payment for their participation in training programs might seem another option. There are, however, great difficulties in keeping track of changes in wages attributable to such programs. The administration of such equity-type arrangements is further complicated by the need to follow program participants through their future careers. Where there are well functioning nationally comprehensive income tax systems, this may be possible; but for the vast majority of developing countries such arrangements again seem infeasible.

A further option may be to attempt to deal directly with the liquidity constraints preventing user fee financing. This might be through government guarantees for loans made by private sector financial institutions to program participants, or through a separate government bank empowered to make such loans. This type of option does not, thus far, seem to have been used in any developing country.

Finally, come the options of tax finance, which in turn raise questions of the choice of tax. Most developing (and many developed) countries use revenues from general taxation to subsidize programs of training both in formal training institutions or in-service. A growing number of countries, in addition or as an alternative, use various forms of earmarked taxes to finance vocational training and skill development, the most commonly used such tax being a percentage of the payrolls of companies.

While the popular view (see Dougherty and Tan, 1988) seems to be that the link between payroll taxes and benefit-related financing of training is at best tenuous, we present a rationale for earmarked payroll taxes in terms of a reverse social security scheme. Indeed, it can be argued that, potentially, earmarked payroll taxes approximate benefit-related taxation more closely than any other tax scheme, such as sales or income taxes.

In the next section, we summarize the extent and use of earmarked payroll levies in developing countries around the world. This is followed, in Section 3, by a discussion of the incidence of these taxes and their rationale as part of reverse social security scheme. Implications for policy are presented in the concluding section.

2 Schemes for the Financing of Training in Use in Developing Countries

In this paper, we use the term training to refer to programs of skill development and vocational preparation that operate outside of the formal educational system. These comprise a wide range of institutions, including training centers run by the state and national training authorities, group training schemes run by companies in concert, or company training schemes, on and off the job. Their basic aim is to meet perceived skilled manpower needs, both in the economy generally and within firms. Their growth in developing countries in recent years seems to reflect concerns over the labor market relevance and usefulness of vocational education programs offered by the traditional schooling system.

Governments can use taxes and incentives in a number of ways to influence the level of such training provision. General revenues may be used to provide training in state-run training centers. Within companies training can be stimulated, both directly by cash subsidies from general tax revenues, and indirectly by treating training expenditures as deductible costs for corporate tax purposes.[1/] Alternatively, or in addition, earmarked taxes for the finance of manpower training may be used.

Although there exist a wide variety of types of special taxes for the finance of training (such as the 0.2 percentage tax on imported equipment in Ecuador or the levy of 0.25 percent of the value of large construction projects in Hong Kong), the predominant form is a percentage tax levied on the

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[1] The following are amongst those countries allowing employers to deduct training costs from taxable profits (usually up to a specified percentage of such profits): Argentina, Brazil, Chile, Fiji, Korea, Mexico, Pakistan, the Philippines.

wage and salary bill of firms. Our discussion is confined to these payroll taxes.

Types of payroll taxes:

With some variation, there are basically two major types of payroll taxes in developing countries, reflecting rather different objectives (and, in practice, there are mixed models). The traditional scheme - the so-called Latin American model - is essentially concerned with generating revenues to finance training provided by the public sector (for a good discussion of the Latin American experience, see Kugler and Reyes, 1978). The alternative levy-grant, or rebate, scheme aims to encourage in-plant provision of training by firms themselves through tax incentives. Thus, payroll tax rebates are offered to enterprises to set up, or broaden, established programs of in-service training.

Both of these types of scheme are discussed below. It should be noted, however, that any particular scheme may entail additional, complementary, objectives. For example, the payroll tax-training scheme in Singapore was, at the outset, part of a broad based economic restructuring program, aimed at skill upgrading for the whole labor force, and ultimately a more capital intensive, mechanized economy. Unlike the case of the faulted and now largely defunct British levy-grant scheme[2/] (by far, the most elaborate and best documented), which attempted to counter inter-firm poaching of trained workers, such broader considerations have been largely absent in motivating the establishment or design of payroll levy schemes in developing countries. The, now discredited, poaching rationale for government

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[2] For critical accounts of the British scheme, see Ziderman (1978), and Lees and Chiplin (1970).

intervention in the training sector, however, does reappear on occasion: Mauritius constitutes a recent case in point.[3/]

Revenue-raising schemes: Under this group of tax financed training schemes, revenues are earmarked to finance training provided by the state or a national training authority. Schemes of this type are typically found in Latin American and Caribbean countries.

First introduced in Brazil in the early 1940s, payroll levies of this type are in place in ten countries in the region. Revenues from these levies have been employed to build up national training systems, usually run by a quasi-autonomous national training authority, which, at its own training centers, provides a wide range of pre-employment entry and in-service training courses for manual workers, office workers and managers.[4/] The emphasis is on public sector training provision, rather than on the encouragement of firms to undertake training themselves.

A variant of the scheme (operating in Brazil, Venezuela and more recently in Honduras), allows for at least partial exemption from the levy

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[3] See Mauritius Employers Association (1987). The illusion stems from the widely held view that firms are discouraged from financing training because of a fear that their trained workers will be "poached" (recruited) by competitors, thus resulting in an overall undersupply of skilled workers. However, as argued by Becker (1964) training in general skills (usable in more than one firm) are paid for by the workers themselves, not the firm; firm-financed training in skills specific to the training firm are, by definition, of no value to other firms. Thus, on theoretical grounds, poaching will not result in market failure of this type. Lees and Chiplin (1970) offer a good account of the "poaching illusion".

[4] In revenue raising schemes, payroll levies may not be the sole source of finance of the national training authority. They are for SENAI and SENAC in Brazil, for SNPP in Paraguay and SENATTI in Peru. They constitute the dominant source for SENA in Colombia, Costa Rica, Honduras, and Venezuela, and considerably less in Ecuador (SECAP) and Guatemala (INTECAP). In Argentina, the levy is only a small percentage of the financial sources of COMET. (See Kugler and Reyes 1978 for additional details).

payment for those firms that provide an acceptable in-company training program. As well as raising revenue for public sector provision of training, this option also offers financial incentives to employers to set up their own in-plant training programs.

Rebate schemes: Under this group of tax assisted programs, the payroll levy is linked to a disbursement scheme, in which firms receive grants related to their level of provision of training. Rather than use the payroll tax proceeds to establish public sector industrial training centers, the disbursement scheme creates incentives for firms to set up, or broaden, established programs of in-service training, thus qualifying for a rebate up to a specified percentage of the tax paid.

Grant schemes operate in two different ways (see Greig, 1976). First, under the cost reimbursement method of grant payment (as in Singapore or Tunisia), the training authority pays grants to firms on a cost incurred basis, for certain designated types of training (on or off the job). Cost reimbursement schemes, however, may be wasteful since, in order to receive a rebate on the payroll tax, firms have an incentive to undertake various eligible forms of training that may not be germane to their activities. More important, cost reimbursement encourages an ad hoc, piecemeal approach to training provision, rather than pressing the firm to plan its training program in a systematic, comprehensive way.[5]

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[5] The Korean scheme is not strictly a payroll tax system. Large firms are required by law to provide training courses (of at least 6 months duration) for a certain proportion of their workers annually (now standing at somewhat under 2 percent). Firms that do not meet their training obligations pay a per capita training levy (in reality, a fine from which training firms are exempt), which is kept significantly below average training costs - a factor encouraging firms to pay the levy, rather than train, for some 30 percent of workers legally required to receive training.

Under the alternative approval approach a grant is paid to the firm conditional on criteria expected to be met once a systematic training approach has been adopted. The grant is usually paid according to a system of points earned, which in turn are based on the criteria describing systematic training. Thus, in thinking about its eligibility to qualify for a rebate of the levy, the firm is encouraged to act systematically in relation to its training program. The systems approval approach appears in the schemes found in Nigeria and Zimbabwe.

Geographical distribution:

Table 1 shows the geographical distribution of such payroll tax schemes across developing countries by broad region and by type of scheme. It is clear that revenue raising schemes have not spread widely in the developing world beyond Latin America; the only other examples of pure revenue-raising payroll taxes seem to be those in Zaire and Morocco, where a similar payroll tax system is in force, and Turkey where one is planned. On the other hand, while rebate schemes are absent in the Latin American countries, this seems to be the preferred form of payroll levy scheme in other continents.

The distribution by income level of payroll tax schemes for the finance of training in developing countries is shown in Table 2 along with information on the tax rates used. This table shows that such schemes are typically found in lower to middle level income countries, i.e. those countries with GNP per capita in the range $401 to $1,635, as defined in the World Development Report (World Bank, 1987). Nearly half of all such countries have introduced payroll taxes of this type.

Table 1

Earmarked Payroll Taxes Used to Finance Training in Developing Countries, by Region +

Region	Revenue Raising Scheme	Rebate Scheme: Cost Reimbursement	Rebate Scheme: Systems Approval
Africa	Mauritania* Zaire	Benin* Ivory Coast Kenya Mauritius**	Nigeria Zimbabwe
Asia		Fiji Singapore Taiwan Korea***	
Latin America and the Caribbean	Argentina Barbados Brazil Colombia Costa Rica Dominican Republic Ecuador Guatemala Haiti* Honduras Jamaica Paraguay Peru Venezuela		
North Africa and the Middle East	Morocco Turkey**	Jordan** Tunisia	

* Revenues in practice not earmarked for training.

** Planned, not yet implemented.

*** Not, strictly speaking, a payroll tax scheme (see text).

\+ El Salvador, Malaysia, Pakistan, and Senegal have all, in recent years, considered and rejected proposals for a payroll tax.

Although the division between countries with revenue raising schemes and those operating rebate schemes is analytically useful, as with all institutional generalizations, the distinction should not be pressed too far. Countries may seek dual objectives from payroll levy schemes which, in practice may, incorporate elements of both approaches.

Thus in 1979, the Industrial Training Fund in Nigeria (the national training authority financed by the training tax), opened its first vocational training center (with direct, state provided training); this supplemented its major activity of encouraging enterprises to train through the offer of financial incentives. Similarly, in a number of Latin American countries, national training authorities (which are financed by payroll levies), have broadened their traditional role as a leading training institution, to become outward-oriented, encompassing promoting and guiding training activities in outside enterprises (Ducci, 1983). Colombia, Peru and Paraguay provide examples of this dual, complementary approach.

<u>Coverage of schemes</u>:

These earmarked payroll levy schemes all differ among the countries that use them. Variations exist in the tax rate and coverage (both in terms of economic sectors and size of firms included in the scheme).

Table 2 shows rates of tax, most varying from 0.5 percent to 2.0 percent, (in the case of Venezuela, there is an additional 0.5 percent levied on the wages of trainee workers). The tax rates have tended to be stable over time, although there are some exceptions. In Singapore, rates were set initially at 2 percent and raised some months later to 4 percent of the payroll of low-paid workers only; the rate subsequently fell and is now 1 percent. In Nigeria the rate, which stood at 3 percent at the outset, fell

quickly to the current level of 1 percent, while in Morocco the rate was recently raised from 1 to 1.6 percent.

Table 2

Financing Training: Payroll Tax Rates in Developing Countries, by Income Level

Income Level (GNP per capita, 1985)	Revenue Raising Scheme		Rebate Scheme	
	Country	Tax Rate (%)	Country	Tax Rate (%)
Low	Haiti*	1.0	Benin*	2.0
($ 400 and less)	Zaire	1.0	Kenya	1.0
Lower-Middle	Columbia	2.0	Ivory Coast	1.5
($401-$1635)	Costa Rica	1.0	Jordan**	1.0
	Dominican Republic	1.0	Mauritius**	1.0
	Ecuador	0.05	Nigeria	1.0
	Guatemala	0.5-1.0	Tunisia	2.0
	Honduras	0.5-1.0	Zimbabwe	1.0
	Jamaica	3.0		
	Mauritania*	n/a		
	Morocco	1.6		
	Paraguay	1.0		
	Peru	1.5		
	Turkey**	1.0		
Upper-Middle	Argentina	1.0	Fiji	1.0
($1636-$4300)	Barbados	0.5	Singapore	1.0
	Brazil	1.0-1.2	Taiwan	1.5
	Venezuela	2.0	Korea***	-

* revenues in practice not earmarked for training.

** planned, not yet implemented.

*** Not, strictly speaking, a payroll tax scheme (see text).

n.a. = not available.

Countries also differ in the sectors covered by the tax. In some cases agriculture and, more frequently, the public sector, is excluded. Generally, there are uniform tax rates across sectors, but in some countries (such as Colombia and Honduras) the government sector is taxed at a lower rate. In some countries, larger firms pay a higher tax (in both Colombia and Brazil, there is a surtax of 0.2 percent on firms with more than 500 employees), while in others small firms are exempt. Such exemptions are usually based on the number of employees (less than 5 workers in Honduras, Peru and Venezuela, less than 10 in Colombia, less than 25 in Nigeria), while in Costa Rica and Honduras exemption may be claimed alternatively, on the basis of size of capital assets.

3 The Incidence of Payroll Taxes, and the Reverse Social Security Rationale for Their Use

Incidence:

If earmarked payroll taxes are so widely used in the developing world, the question this begs is, why? Payroll taxes for financing training are formally levied on enterprises and are widely believed to be borne by these same enterprises, making these taxes (in conventional thinking in these countries at least) fair. But on whom does the ultimate burden of these levies fall? Do firms themselves indeed bear these taxes or are they passed on to either the consumer in the form of higher prices (and thus indirectly on labor) or directly on labor in terms of lower net-of-tax wages?

While these issues have not been examined empirically for developing countries, there is a sizeable literature relating to the economic effects of payroll taxes in industrialized countries. The most prevalent type of payroll taxes in these countries are combined employer and employee contributions to various social insurance funds, which in turn provide such benefits as old age security, health care, unemployment insurance and the like.

It is widely believed among economists, based on empirical studies for economically developed countries, that the burden of social security taxes falls largely on labor (see Levin, 1983 for a recent reiteration of this view). The incidence of employer, as well as employee, contributions to social insurance programs are thought to be borne by labor in the form of lower real wages; the authoritative source of this empirical result is the

study by Brittan (1972) of the payroll tax as a financing vehicle for the wider social security system in the United States.[6]

What underlies this argument is the following. The tax on the payroll of the firm is treated as a total tax which is paid by labor independently of whether or not taxes are paid by employers or employees. With low labor supply elasticities, labor, being the fixed factor, will bear the burden of the tax. Figure 1 illustrates this outcome. If the supply of labor is perfectly inelastic the only effect of a payroll tax is to reduce the wage received by labor from the gross-of-tax wage (w_g) to the net-of-tax wage (w_n) with the difference between the two being given by the tax. There is no impact of the tax on labor supplied, nor is there any impact on the costs of firms. In this case, the payroll tax is borne exclusively by labor.

This simple result, (which we shall argue is relevant to developing countries) is, however, almost certainly not applicable to developing countries in quite the same way. This is for a number of reasons. Firstly, the labor market in developing countries is not of the same form as operates in industrialized countries. Secondly, the payroll tax in developing countries is effectively restricted to urban employment since agriculture is excluded.

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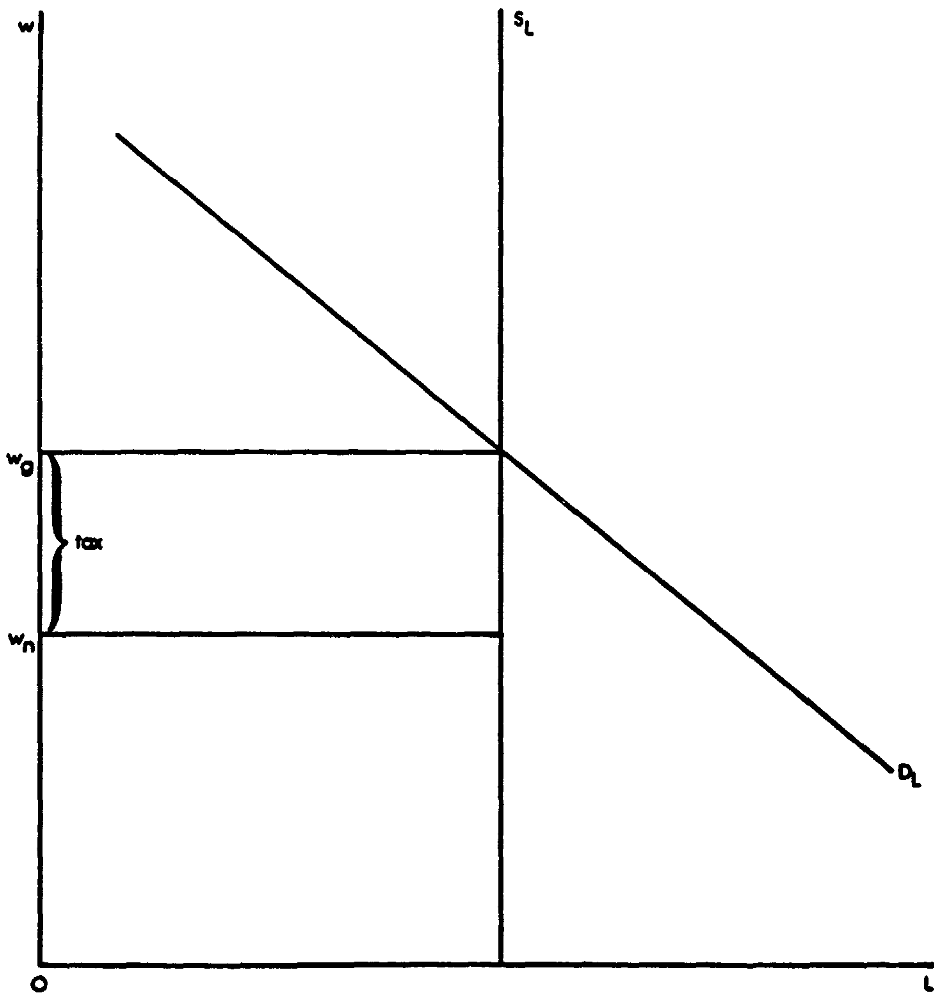
[6] Brittain result that firms do not bear the burden of a payroll tax but shift it entirely onto labor, has been repeated in further research (e.g. Vroman 1974). Other studies, however, show a less than full shifting onto labor in the short run, e.g., 75 percent for the U.K. (Parkin, Sumner and Ware, 1976), 50 percent for Ireland (Hughes 1985) and for Sweden (Holmlund 1983). One limitation of the Brittain result, in the present context, is that it was unable, statistically, to distinguish between backward and forward shifting.

FIGURE 1
Incidence of the Payroll Tax with Inelastic Labor Supply



The differences these factors make as regards the outcome of tax incidence experiments can be clearly seen if a Harris-Todaro (1970) structure is assumed as representative of the labor market in developing countries. In the Harris-Todaro model of developing country rural-to-urban migration, there is a downward rigid real wage in the urban sector reflecting extensive government involvement in the modern urbanized sector through wage fixing powers of government-owned enterprises.

In response to the fixed urban wage, labor leaves the rural sector but does not do so in a way which equates wages across the two sectors, since some of the labor which migrates to the urban sector remains unemployed. This is often rationalized on the basis of the so-called "one-way ticket" assumption, i.e. that due to liquidity constraints laborers are only able to obtain the funds to pay for a one-way ticket to the city. Once in the city, labor is unable to return. Unemployment is alternatively sometimes rationalized in Harris-Todaro models by the presence of repeated re-selection for hiring and, hence, unemployment is always probalistic.

Under either of these rationalizations for unemployment, the labor market equilibrium condition in a Harris-Todaro model is given by

$$(1) \qquad w^R = p.w^u$$

where w^u represents the fixed urban wage, p is the probability of being employed in the urban sector conditional upon location in the urban sector, and w^R represents the free market wage in the rural sector. In the risk neutral case, urban-rural migration will proceed up to the point where the expected wage is equalized across the two sectors.

If a payroll tax at rate t is now introduced in the urban sector only, as is common in developing countries, this reduces the fixed wage received by employees in the urban sector to $w^u(1-t)$. As a result, the tax will cause some of the labor which was previously unemployed in the urban sector to return to the rural sector, which in turn depresses the wage rate in the rural sector. Both w^R and p change in response to the tax, and the effect on the total return to labor is ambiguous.

As Imam and Whalley (1985) have shown in an analysis of the incidence effects of a sector-specific minimum wage, unlike in a traditional tax model there are additional incidence effects in a Harris-Todaro model due to changes in induced unemployment. In that paper, numerical simulations for a model of Mexico are reported. In several of the analyses, capital is found to bear the burden of a government sector-specific minimum wage in the urban sector.

Since a payroll tax in the Harris-Todaro model is equivalent to a reduction in a sector-specific minimum wage, Imam and Whalley's analysis suggests that labor would bear the burden of such a tax, as in a traditional developed country analysis. Their numerical simulations, however, depend on several key parameters, including factor substitution elasticities.

Payroll taxes vs reverse social security:

If it is indeed plausible to argue that workers do, in fact, bear the burden of payroll taxes in the form of lower wages, the use of payroll taxes in developing countries to finance vocational training involves taxing employees rather firms. In terms of benefit-related taxation, to developing-country ways of thinking, the payroll tax may seem to involve poor targeting.

Alternatively, however, a finding that the workers bear the burden of payroll taxes in developing countries may provide a rationale for the use of the payroll taxes to finance training programs, in terms of a reverse social security scheme. Under such a scheme, workers receive the benefits of training while they are young, and then pay the taxes through the rest of their working life to cover the training costs of workers who follow them. In this way, transfers take place to younger workers from older ones through the tax financing training, but over the life-cycle of workers individual benefits approximate taxes paid.

As with all social security schemes, there are difficulties with the start-up of such operations. When a scheme is first introduced, there will be older workers who are taxed, but who are unlikely to receive training benefits financed by the scheme. They are the losers. Should such a scheme be terminated, there will be workers who have benefitted from training but will not be required to pay taxes to the full.

However, while it is true that workers are likely to receive the bulk of their training when they are young at the outset of their careers as initial or job-entry level training, continuous skill development and in-service training, spread over the life-cycle, is both significant and widespread (see Ben-Porath, 1967, and Mincer, 1974, for life-cycle models of human capital accumulation). Continuous training serves such varied purposes as performance upgrading, skill renewal, career development and promotion within the firm, as well as retraining to facilitate occupational mobility in response to structural and technological change.

Thus, it would be mistaken to view the reverse social security scheme, at any given time point, as a simple transfer from older and

experienced workers to younger ones. As with social security schemes, where health and unemployment benefits may be available over the life-cycle, in addition to old age security benefits, so in the case of the reverse social security scheme to finance training, the worker may benefit from training (financed by payroll tax revenues) at various points in his working life, though more usually at the outset.

The efficacy of any given scheme will depend on how closely individual tax payments match the training benefits received. The nature of training programs is such that costs will differ markedly by sector; workers in the financial sector, for instance, clearly need to undergo very different training programs than workers in heavy manufacturing: these differing training programs are likely to involve substantially different training expenditures. While most countries have uniform payroll levies by sector, in some instances there are different rates by broad sector group. Benefit-related taxation would suggest the introduction of appropriate differentiation in tax rates across sectors, to reflect these differences in training costs. Within sectors, the larger absolute tax payments made by higher earning workers (given that payroll taxes are proportional, with no ceilings in operation), is consistent with the positive relationship between the level of a worker's formal education (and therefore earnings) and the amount of training received on-the-job (Mincer, 1974).

The central question, however, in examining how far earmarked payroll tax-training provision schemes approximate reverse social security, is how equitably training opportunities are spread amongst workers. This, in turn, may be very much influenced by the main purpose that the payroll tax serves (whether to raise revenues for public sector training provision or to

encourage on-the-job training by firms), as well as by the particular set of training programs that are financed by the tax. For payroll tax schemes without rebates, that finance public sector training centers, the question at issue is: are training opportunities well spread across the various sections of the labor force, by age (thus offsetting the start up problem), by skill and occupational category, and by education level? Presumably, workers from levy-exempt firms are entitled to attend public sector training courses financed by the payroll tax, thereby reaping the benefits of the scheme without contributing to its costs: how far this constitutes a serious problem will depend on the number of firms, and workers, involved.

Of the two main types of rebate scheme, cost reimbursement is likely to be less acceptable in terms of reverse social security considerations, than systems-based schemes. The former, in encouraging training along limited, specified directions, is unlikely to provide the broad range of training opportunities that are associated with the latter type of scheme.

An interesting exercise in fine tuning is provided by financing arrangements for training in Malawi. The Industrial Training Fund (ITF), established in 1973, meets the bulk of the costs of running the national apprenticeship scheme (both the reimbursement of apprentice wages and the grants-in-aid to technical colleges providing formal training). The ITF assesses both government and private sector employers on the basis of the number of workers employed in particular skilled occupations, leading to a tax per skilled worker, levied on all enterprises with a skilled labor force. The head tax for each skill occupation is set sufficiently high to raise the required revenues to meet training outlays. The tax thus varies by skilled occupational category and cost of training. Assuming that this tax is passed

on to the skilled worker, the scheme, although not strictly a payroll tax scheme, does represent a focussed form of reverse social security, with skilled workers financing the training of apprentices.

Finally, the reverse social security argument requires that the funds raised by payroll taxation be indeed earmarked for training: unfortunately this is not always the case. For example, in both Brazil and Singapore, revenues have been subject to diversion to other uses, and there is also the risk that the funds will not be spent but amassed as surpluses, as has occurred in some Latin American countries, Kenya, Nigeria and Singapore. Again, the training levies in Benin, Haiti and Mauritania, for differing reasons, have not been earmarked for training but rather enter public revenues.[7/]

Clearly, no general conclusions can be drawn; the question of how closely the benefits of training programs financed by payroll taxes are tied to those bearing the tax, will depend on the equity of training opportunities associated with the program as a whole. This is a policy issue that must be resolved by individual developing countries: in some cases efficiency arguments may indicate less equity in the spread of training opportunities than would be required of payroll tax schemes that are rationalized in terms of reverse social security arguments.

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[7] For example in Haiti payroll taxes are not, in practice, earmarked for training because all taxes (and other revenues including, for example, university student fees) have been agglomerated, and passed to the Treasury.

4 Implications for Policy:

The payroll tax is likely to be a relatively efficient revenue raising device compared to other tax sources, but probably no more so than other broadly based alternatives, such as a value-added tax. If, largely for administrative reasons, developing countries are constrained to tax only the urban sector, this might weaken the efficiency argument favoring payroll taxes, although it is often the case in such countries that the value-added tax is similarly restricted to manufacturing.

It is important to caution against the belief that the form of the tax is of much consequence for assessing its economic effects. As we have argued, taxes levied formally on employers, which may seem attractive because the firm rather than the worker is being taxed, may be deceptive. Most developed country literature treats all, or at least a significant part, of payroll taxes, whether employer or employee based, as borne by labor. The situation in developing countries is different to the extent that labor market imperfections are present and payroll taxes apply only to the urban sector. Existing literature, limited as it is, suggests that similar incidence conclusions will nonetheless apply, i.e. that workers ultimately pay the cost of payroll taxes in the form of lower wages.

The desirability of using payroll taxes to finance training, compared to the other alternatives available to developing country governments, is likely to be contingent upon the stage of a country's development. Low income developing countries may have only limited access to such broadly based taxes as value added taxes and tend to rely instead on trade taxes and specific excises such as on drink, tobacco and gasoline. It seems clear that where the financing options of governments are limited as in

lower income countries, payroll taxes remain attractive, though they may not be administratively feasible. We have seen that very few lower income countries resort to payroll levies to finance training.

For countries in the lower middle income range, and where more broadly based financing alternatives are available, genuine issues of choice come to the fore. Yet the formal economic equivalence between value added taxes and payroll taxes suggests that this choice can be overblown in importance. Nonetheless, the reverse social security scheme rationale for the use of payroll taxes to finance training programs, and the ability to target payroll taxes by using differential tax rates by sector, all suggest that the payroll tax approach may be more attractive. In fact we have noted that most of the countries utilizing payroll taxes to finance training are situated in the lower middle income range.

With the process of further economic and institutional development, it should become realistic to consider other alternatives to tax finance of training. For instance, thinking through the reasons why such training is offered by the public rather than the private sector may lead to conclusions as to the nature of the market failure involved. Attacking any such failures directly, such as by government guarantees for worker loans if liquidity constraints are the problem, rather than indirectly by tax financed public sector programs, may be one way to proceed. Tuition paid programs could perhaps be more fully investigated, with a partial recovery of costs through user fees and a student loan program. Earmarking revenues from payroll taxes as financing vehicles for vocational training no doubt remains an active option for many developing countries, but both the tax and non-tax alternatives, as they become available, should be kept under scrutiny.

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