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## Industrialization and urban labour absorption

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# INDUSTRIALIZATION AND URBAN LABOUR ABSORPTION

by

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## 1 Industrial growth, urbanization and employment - some major hypotheses

Considerable confusion still prevails as concerns the relationship between industrialization of developing countries and employment generation. On the one hand, "it is frequently claimed that the industrial sector's absorption of labour in developing countries has been inadequate in the sense that only a small proportion of the incremental labour force has obtained industrial jobs" (SQUIRE 1981, p. 3). On the other hand, it is maintained that manufacturing stands for "the only sector capable of absorbing large numbers of additional workers" and "growth in this sector must be seen as the only means of creating much-needed opportunities for productive employment in the long run" (PAPANEK 1985, p. 50).

Thus, it still seems valid what MORAWETZ concluded in his wellknown survey on employment implications of industrialization in the Third World in 1974 already, namely that much more research is needed to elucidate the nature of the output-employment trade-off (MORAWETZ 1974, p. 502). This postulate should have been a matter of course for the economic profession, since most important objectives of Third

World development are involved. However, the challenge was hardly met. Especially in the recent past, the rather short-term oriented discussion on adjustment strategies in the light of external shocks and foreign debt problems dominated the development debate. The major thrust of this conference to make a new attempt to tackle the structural problems of rural and urban poverty in the Third World is therefore just in time. The principal aim of the present paper is to contribute to this fresh impetus by re-assessing the relationship between economic growth, industrialization and employment generation.

The conflicting positions in the literature on the employment implications of industrialization may be summarized by the following hypotheses which provide the starting point for the discussion in the subsequent chapters of this paper: At one extreme, it is argued that rapid economic development can only be achieved through industrialization, and this, in turn, would require fairly advanced rather than labour-intensive technologies. Hence, employment generation in the formal sector, particularly in urban areas, has to be sacrificed to output growth, or vice versa (see the references cited in MORAWETZ 1974, and BRUTON 1973). In a different reading, output and employment growth are supposed to be in conflict at least if current employment in the formal sector is considered whereas "in many cases higher current output levels, and lower employment levels, may lead to higher future levels of employment as well as output" (STEWART, STREETEN 1983, p. 179, see also HAGEN 1982). In particular, "overurbanization" (TODARO, STILKIND 1983, p. 196) and high levels of urban un- and underemployment are attributed to industrialization. Assuming that rural-urban migration responds positively to both a positive urban-rural wage gap and improved probabilities of urban employment, any attempt to create more urban jobs in the formal sector may even lead to the paradoxical result of

higher overall unemployment (TODARO 1969, 1976, 1980; HARRIS, TODARO 1970).

On the other hand, it is argued that the failure of industrialization to solve developing countries' employment problems is far from surprising, since industrialization was only achieved by heavily discriminating non-industrial activities, in particular agriculture (LIPTON 1977). Excessive incentives granted to investment in manufacturing industries are supposed to have seriously affected the profitability of investment in other sectors and favoured capital-intensive modes of industrial production. Hence, the industrial sector did not absorb more than a fraction of the fast growing labour force, and industrial growth could not compensate for the policy-induced un- and underemployment in non-industrial activities.

The hypothesis that economic policies are of overriding importance in determining the employment effects of industrialization figures prominently in the following analysis. After addressing the question whether rural-urban migration and urban underemployment must be attributed to industrialization as such (section 2), the employment implications of different policy measures are quantitatively assessed in section 3, mainly by referring to research recently done at the Kiel Institute of World Economics. Simulation results are presented that were computed on the basis of a general equilibrium model for Mexico (for a detailed presentation, see FISCHER, GERKEN and HIEMENZ 1982). Mexico is representative of the group of semi-industrialized countries, especially in Latin America, where economic policies were primarily designed to foster industrialization. The analysis concentrates on trade and factor market policies, both of which are supposed to be of particular relevance as concerns the relationship between industrialization and employment. The paper is summarized by drawing

some more general conclusions as to how to improve the employment record of developing countries that strive for high economic growth and industrialization as well.

## 2 Internal migration and urban unemployment: an unescapable drawback of industrialization?

Though the rate of urban population growth in developing countries is likely to decline somewhat as compared to the sixties and seventies, it is expected to remain three to four times as high as in the industrialized world (WORLD BANK 1979, p. 72; WORLD BANK 1984). Consequently, nearly half of the Third World's population will live in urban areas at the end of this century. In Latin America, the urbanization level is likely to exceed 75 per cent.

The phenomenal growth of urban population in developing countries has largely been the result of internal rural-urban migration. Net migration has been estimated to account for up to 75 per cent of urban population growth (TODARO, STILKIND 1983, p. 198). The features of contemporary Third World urbanization differ markedly from historical experience in industrialized countries. Today's migration process is occurring extremely rapidly, which is supposed to result in serious transformation problems (WORLD BANK 1979, pp. 72 ff.; WORLD BANK 1984). The major concern is on urban poverty, manifested in the lack of remunerative employment, housing and public services for a large number of urban dwellers. For those who consider urbanization as "an inevitable part of industrialization" (TODARO, STILKIND 1983, p. 196), it is thus obvious to blame industrialization for giving rise to urban poverty, notwithstanding that it is the urban formal sector as a whole (i.e. the public sector and private services included) which attracts migrants.

Though it is widely agreed that rural-urban migration is dominated by financial motives, their exact nature and relative importance as well as the policy conclusions to be drawn remain controversial. According to the pioneering work of HARRIS and TODARO, the decision to migrate from rural to urban areas is determined by the gap between the rural income and the expected urban income (TODARO 1969; HARRIS, TODARO 1970; for a summarizing presentation, see SHAH 1981, pp. 13 ff.). The latter is a composite of the urban wage rate, which is assumed to be fixed and institutionally set above rural wages, and the probability to get an urban job, which, in turn, is assumed to be negatively related to the urban unemployment rate. Consequently, industrialization improving urban employment opportunities may add to rather than solve the employment problems of developing countries<sup>1</sup>.

HARRIS/TODARO - like models of internal migration have been subjected to various empirical tests (for an overview, see e.g. YAP 1977). Generally, income or wage differential emerged as the most important variable in explaining rural-urban migration. As concerns the urban unemployment rate as a separate explanatory variable, the evidence is less straightforward. Hence, the results of the various econometric exercises cannot yet be used to judge the validity or otherwise of the TODARO paradox (BLOMQVIST 1978, p. 16).

However, the favourable employment experiences of recent migrants, found in various empirical studies, call into

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1 In the words of TODARO (1980, p. 17), "for any given positive urban-rural wage differential, ..., higher urban employment rates will widen the expected differential and induce even higher rates of rural-urban migration. For every new job created two or three migrants who were otherwise productively occupied in rural areas may be induced to come to the city. Thus, if 100 new jobs are created, there may be as many as 300 new migrants and, therefore, 200 more urban unemployed".

question the notion of "excessive migration". It has been shown that between 65 and 85 per cent of migrants found work within one month (SQUIRE 1982, pp. 103 ff.; YAP 1977). Migration seems to be a promising way to escape rural poverty, and migrants, on average, enjoy employment and income opportunities similar to those experienced by the resident population. Actually, unemployment rates were usually found to be lower for migrants than for the resident population.

There is thus reason to assume that internal migration and urbanization in Third World economies cannot be generally blamed for adding to the persistent employment problems that these countries are facing. Labour mobility as an essential attribute of well-functioning labour markets rather helps an efficient allocation of production factors. Interventionist policies of artificially restricting rural-urban migration are likely to perpetuate rural poverty without reducing urban poverty.

This does not mean that the current pace of urbanization and internal migration in developing countries is economically optimal, not to speak of the employment record. The huge gap in labour returns between urban and rural areas, and manufacturing and agriculture, respectively, to be observed in most developing countries (see e.g. GREGORY 1977) rather suggests that rural-urban migration is partly due to policy-induced distortions in relative factor prices. Apart from directly intervening in factor markets, e.g. by fixing minimum wages (frequently being different for different regions), various other instruments are used by governments to direct economic resources into preferred activities. For example, trade policies have frequently favoured import-substituting industries at the expense of both traditional agricultural activities and export-oriented industries.

Such policies are supposed to have locational as well as employment effects:

- "Overurbanization" is likely to result from specific avenues of industrialization followed because of the preferences of planning agents in developing countries, rather than being an inevitable part of industrialization as such. The typical public neglect of small-scale industrial activities, particularly in rural areas<sup>2</sup>, adds to the agglomeration of productive activities in only a few industrial centres and reinforces the trade-off between employment and output (STEEL, TAKAGI 1983).
- Persistent protection against import competition and over-valued domestic currencies tend to favour capital-intensive industries (DONGES 1983; KRUEGER 1983; PAPANEK 1985, pp. 46 f.): Distortions in relative factor prices further add to this bias, since, in the typical developing country context, prevailing capital costs are lower and labour costs are higher as compared to an unrestricted market solution. Employment opportunities are thus likely to be impaired, for unskilled workers in particular, and may be significantly improved by re-orientating trade and factor price policies.

In the following, the hypothesis that employment problems of developing countries are due to misguided industrialization policies, rather than industrialization as such, is subjected to an empirical test, mainly by referring to the Mexican example. This country represents the large group of Third World economies where industrialization has been guided by almost all policy measures mentioned above (GERKEN 1983), so that the analysis may allow some more general conclusions as concerns possible conflicts between output and employment.

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2 For the anti-rural bias in economic policies of developing countries see LIPTON (1977); for the discrimination of small-scale enterprises in various economic policy areas see e.g. the study on small- and medium-scale industries in the ASEAN countries by BRUCH and HIEMENZ (1984, pp. 57 ff.).



3            Employment implications of industrial policies:  
              The case of Mexico

The employment effects of various policy measures are assessed in the framework of a computable, numerically specified general equilibrium model for the Mexican economy, built along neoclassical lines (for the exact model specification, see FISCHER, GERKEN, HIEMENZ 1982, pp. 27 ff.; the following presentation draws largely on this source). This sectorally and regionally disaggregated JOHANSON-type model allows to analyze policies actually applied in Mexico as well as hypothetical interventions suited to alleviate specific distortions. The net effects of policy changes are measured with respect to GDP growth, the degree of industrialization (share of manufacturing in GDP) and employment.

As in most developing countries, the Mexican employment problem presents itself as a problem of underemployment rather than of open unemployment. Underemployment accrues either from lowly paid rural occupations in agriculture and rural services or from self-employment and casual jobs in the urban informal sector. To capture this possibility, Mexican labour markets are fragmented in the model into rural and informal urban employment with unrestricted wage flexibility and into formal urban employment, which is governed by an administered wage rate fixed above the equilibrium wage. Underemployment then has two dimensions: the number of underemployed persons and the wage rates outside the formal sector. Both aspects are combined in the indicators for rural and urban underemployment presented in the last two columns of Table 1.

Table 1 presents comparative static model solutions for the following policy measures, each coefficient indicating the

**Table 1: The Impact of Industrial Product and Factor Market Policies and Regional Industrialization Policies on Real Income, Industrialization and Employment: Comparative Static Solutions of the General Equilibrium Model for Mexico<sup>a</sup>**

	Real income <sup>b</sup>	Industrialization <sup>c</sup>	Employment <sup>d</sup>						Underemployment <sup>e</sup>	
			rural north	rural south	formal north	formal south	informal north	informal south	rural	urban
a) Increasing the import protection of										
1. processed food	0.003	-0.014	0.000	0.001	0.002	0.001	-0.008	-0.011	-0.006	-0.012
2. traditional consumer	0.003	-0.005	-0.002	-0.004	0.003	0.007	0.004	0.009	-0.009	0.005
3. industrial intermediates	0.002	-0.014	-0.002	-0.001	0.005	0.003	0.002	-0.001	-0.007	-0.002
4. chemicals	-0.012	0.016	0.008	0.005	-0.024	-0.017	0.004	0.016	0.049	0.018
5. investment goods and consumer durables	-0.021	0.019	-0.003	-0.005	-0.002	-0.002	0.040	0.050	0.048	0.048
6. total industrial manufactures	-0.025	0.002	0.001	-0.005	-0.016	-0.008	0.041	0.063	0.074	0.057
b) Increasing the export subsidy to										
7. processed food	0.029	-0.078	-0.006	-0.001	0.028	0.021	-0.042	-0.060	-0.075	-0.067
8. traditional consumer goods	0.014	-0.010	-0.008	-0.011	0.022	0.025	0.006	0.010	-0.048	0.000
9. industrial intermediates	0.009	0.006	-0.019	-0.013	0.046	0.028	0.033	0.011	-0.054	0.012
10. chemicals	0.009	-0.006	-0.003	-0.006	0.006	0.012	0.004	0.011	-0.012	0.005
11. investment goods and consumer durables	0.018	0.004	-0.021	-0.022	0.052	0.046	0.032	0.025	-0.072	0.017
12. total industrial manufactures	0.078	-0.084	-0.056	-0.053	0.153	0.132	0.033	-0.004	-0.256	-0.033
c) Increasing the production subsidy to										
13. processed food	-0.027	-0.131	-0.005	-0.002	0.021	0.016	-0.026	-0.035	-0.085	-0.047
14. traditional consumer goods	0.018	-0.070	-0.032	-0.037	0.103	0.129	-0.040	-0.128	-0.216	-0.029
15. total industrial manufactures	0.043	-0.243	-0.132	-0.146	0.384	0.409	-0.012	-0.170	-0.780	-0.079
d) 16. Lowering urban minimum wage rates	0.211	0.380	-0.620	-0.619	1.838	1.705	0.193	-0.626	-5.291	-1.961
e) 17. Lowering industrial subsidies to capital input	-0.020	-0.131	-0.029	-0.005	0.077	0.016	0.021	-0.014	-0.159	-0.023

continues Table 1:

f)18. Lowering industrial non-wage labour costs	0.023	-0.112	-0.161	-0.151	0.461	0.425	0.009	-0.183	-0.939	-0.101
g) Promoting rural manufacturing industries by										
19. production subsidies to the rural north	-0.032	0.042	0.202	0.268	-0.280	-0.279	-1.123	-1.265	0.492	-1.320
20. production subsidies to the rural south	-0.080	-0.054	0.183	0.216	-0.502	-0.524	-0.094	-0.027	-0.026	-0.023
21. subsidies for capital inputs in the rural north	-0.015	0.001	0.137	0.176	-0.213	-0.211	-0.670	-0.742	0.370	-0.783
22. subsidies for capital inputs in the rural south	-0.075	0.072	0.115	0.139	-0.319	-0.343	-0.039	0.005	0.131	-0.009
23. subsidies for labour inputs in the rural north	-0.018	0.043	0.066	0.091	-0.068	-0.068	-0.453	-0.523	0.123	-0.537
24. subsidies for factor inputs in the rural south	-0.005	-0.126	0.069	0.077	-0.183	-0.181	-0.055	-0.031	-0.157	-0.013

a) Within the model applied, the system of independent non-linear equations is transformed into a system of linear growth equations. Matrix inversion and multiplication by the sector of exogenous (policy-) variables then yields a solution matrix for the endogenous variables. Each coefficient shows the percentage change in an endogenous variable in response to a 1 per cent change in a policy variable; e - g refer to the list of measures indicated in the text. - b) Growth in gross domestic product of market prices. c) Share of manufacturing industries in gross domestic product at factor costs. d) The model applied incorporates both the rural-urban and the north-south dualism in Mexico; i.e., within the two regions, the industrial urban centres are isolated from predominantly agricultural areas (for details, see the source, pp. 28 ff.). Within the urban south and urban north, a further disaggregation relates to the application of minimum wage regulations, i.e. formal and informal employment. e) Rural (urban) underemployment is measured as the number of the rural employed (number of employed in the informal urban sector) multiplied by the difference between the minimum wage rate, rural and urban underemployment can therefore be reduced in two ways. Either the number of underemployed, i.e. those employed in the rural and in the urban informal sectors, declines due to migration between economic sectors while the unregulated wage rates do not fall, or unregulated wage rates increase while the number of underemployed does not grow.

Source:

FISCHER, GERKEN, HIEMENZ 1982, pp. 76 f. and pp. 98 f.

percentage change in an endogenous variable in response to a one per cent change in a policy variable:

- a) increasing import protection;
- b) increasing export subsidies;
- c) increasing production subsidies;
- d) lowering minimum wage rates;
- e) lowering industrial subsidies to capital input;
- f) lowering industrial non-wage labour costs;
- g) promoting rural manufacturing industries.

Positive employment effects are expected in case of policies suited to improve the allocation of productive resources. For example, export subsidies may help to reduce the anti-export bias of the Mexican industrialization strategy and provide incentives to re-allocate economic resources towards activities in which the country is assumed to enjoy comparative advantages. Policies d, e, and f are supposed to alleviate policy-induced distortions in relative factor prices and may correct for the artificially high capital intensity of Mexican production<sup>3</sup>. On the other hand, intensifying import protection is most likely to add to Mexico's employment problems.

#### a) Import protection

The estimates for a tariff-induced one per cent increase of import prices (policies 1.-6.; Table 1) indeed reveal that higher industrial import protection is counterproductive for both economic growth and employment, notwithstanding

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3 In Mexico, subsidies to capital input, minimum wage legislation and other interventions in the labour markets, which are to improve non-wage income of the labour force, as well as the structure of effective protection traditionally favoured the producers of rather sophisticated, highly capital-intensive manufactures (FISCHER, GERKEN, HIEMENZ 1982, p. 72).

that slightly positive real income effects as well as positive employment effects can be derived from equalizing effective protection within manufacturing through higher trade barriers for the hitherto less protected branches: food processing, traditional consumer goods and industrial intermediates (policies 1.-3.). Increased protection for the already highly protected chemical and investment goods industries results in a decline in GDP and formal employment as well as higher levels of both rural and urban underemployment. The latter effects are sufficiently strong to likewise determine the negative income and employment effects for an increase of the overall level of industrial import protection (policy 6).

The estimates thus indicate that liberalizing restrictive import policies does not face a trade-off between income growth and employment creation. In any case, however, positive income and employment effects are associated with declining shares of manufacturing in GDP. The latter conflict reflects the varying impact of import protection for the different manufacturing sectors on the relatively large local service sector in Mexico, i.e. allocative effects that are not captured in traditional two-sector models.

#### b) Export subsidies

The positive real income effects show that export promotion for manufactured goods improves the allocative efficiency in the economy even if import protection is not altered<sup>4</sup>. This basic mechanism turns out to be very similar for each

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4 Positive income effects of export subsidies to industrial manufactures exceed the growth-enhancing effects of liberalizing import policies, which indicates that, in the Mexican case, the discrimination of non-industrial activities through import protection.

industry. As the employment variables indicate, real income growth is not only derived from a re-allocation of labour between agriculture on the one hand and manufacturing and services on the other hand, but also from an increase in total employment. In contrast to liberalizing restrictive import policies, however, less straightforward results emerge as concerns underemployment, when looking at the industry-specific model solutions 7.-11. Apart from export subsidies for food processing, where both rural and urban underemployment is reduced, subsidies granted to other industries rather shift underemployment from rural to urban areas (although it should be kept in mind that overall formal employment increases).

- Non-food industrial activities are heavily concentrated in urban areas, so that the additional income from export subsidies and the significant amount of new jobs are generated in the cities. The induced rural-urban migration helps to ease the problem of rural underemployment; however, the large numbers of urban in-migrants add to urban underemployment, notwithstanding additional formal employment and higher informal wage rates. In the case of some industrial export subsidies, there is thus evidence in support of the Todaro-paradox.
- On the contrary, food processing is regionally more equally distributed. The expansion of this industry stimulates labour demand in agriculture and rural services as well, thus slowing down rural-urban migration. Since the urban demand for labour is not met by rural-urban migration, informal urban employment declines, informal wages rise and, hence, also urban underemployment is diminished.

For similar reasons, the level of industrialization is cut down most significantly when export subsidies are granted to food processing. But also with respect to the other industrial export subsidies, which all enhance industrial growth in absolute terms, the industrialization variable nevertheless shows varying signs. This is due to varying

degrees of resources transferred from agriculture to manufacturing and services<sup>5</sup>.

### c) Production subsidies

The model solutions for a one per cent increase in subsidies to industrial value added (policies 13.-15.) support the notion that production subsidies to manufacturing industries could serve the purpose of improving the allocation of resources much in the same way as export subsidies do. Except for the case of food processing<sup>6</sup>, real income growth is positively affected, though to a significantly lesser extent than in the case of export subsidies. Export subsidies are superior as regards the industrialization variable as well, since production subsidies are detrimental to structural change and cause industrial prices to deteriorate<sup>7</sup>. However, the positive employment effects of production subsidies clearly exceed the decline in underemployment induced by export subsidies, since the former po-

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5 Whether or not industrialization is enhanced depends mainly on the degree of export orientation already achieved. Export subsidies granted to industries with relatively large export shares (policies 9 and 11) induce a sizeable increase in the respective volumes of production and exports so that total industrial output expands considerably; whereas subsidizing more inward-oriented branches has only limited effects on total manufactures production, and resources are mainly re-allocated between agriculture and services.

6 The negative real income effect associated with production subsidies to the processed food sector reflects the relatively strong additional factor-absorption in low-productivity agriculture due to the backward linkages of food processing.

7 The results are confirmed by GERKEN (1983, p. 15 and p. 21 ff.). Assuming a re-orientation in Mexican industrial policies, i.e. a shift from factor cost subsidies to export subsidies for consumer and capital goods industries, simulation results indicate positive effects on both real GDP and industrialization.

policy amounts to a much larger transfer of income from the public budget to the factors of production than the latter.

The summarizing lesson to be drawn from the analysis of industrial product market policies is that none of the discussed trade and production policies will simultaneously foster output-growth, industrialization and full employment. Although there is no trade-off between real income and employment growth, as one might have expected, more employment in both rural and urban areas is achieved only at the expense of a lower degree of industrialization. It should be stressed, however, that this conclusion holds only under the condition of a labour market distortion which discriminates against employment in manufacturing and likewise in services. Given such a distortion, income and employment implications of product market policies crucially depend on the induced re-allocation between manufacturing and services and only to a small extent on the policy impact on agricultural factor absorption, which plays the central role in two-sector models. The analysis nevertheless reveals a problem of ranking between export and production subsidies, which cannot be solved without an aggregate welfare function. Whether more income growth and less employment creation (as in the case of export subsidies) is to be preferred over less income growth and more employment is a matter of relative weights attached to the two welfare indicators.

#### d) Factor market policies

In the subsequent paragraphs, the welfare implications of policy measures suited to correct existing distortions in relative factor prices are discussed. As many other developing countries, the Mexican government enacted a minimum



wage legislation in order to secure a certain standard of living of workers and, in a parallel attempt to foster industrialization, subsidized industrial capital costs. Both measures induce the substitution of capital for labour which is supposed to significantly add to persistent employment problems.

The most important impediment to enhanced economic development and industrialization in Mexico seems to consist in the discrimination of formal employment due to minimum wage legislation. Lower minimum wages would equally promote income growth, industrialization and employment of a significant extent. Both a one per cent industrial wage subsidy (policy 18.)<sup>8</sup> and a reduction of the subsidy to industrial capital costs (policy 17.) reduce total underemployment as well, but employment effects are considerably smaller, in particular when factor price distortions are corrected by raising capital costs. Moreover, both subsidy measures are characterized by the trade-off between income growth and industrialization which was already observed in connection with product market interventions. A trade-off between output and employment only prevails in the case of capital market interventions.

It might be surprising that correcting distorted relative factor prices by policies 17. and 18. has, in sum, only a minor positive real income effect. This is due to the assumption of a partial adjustment of relative factor prices which concerns merely industrial factor absorption, whereas the service sector still faces the distorted price ratio. On the contrary, lower minimum wages reduce labour costs in the service sector as well, though by assumption in urban areas exclusively. Comparing wage subsidies and

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8 This policy may be politically more viable than reducing minimum wages.

lower minimum wages, the former policy is less efficient in relocating labour to productive occupations and, additionally, constitutes a burden on the public budget which reduces total savings and investment. The negative impact on industrialization in the case of wage subsidies is due to deteriorating prices of manufacturing products<sup>9</sup>.

The different output changes of wage subsidies and lower minimum wages immediately clarify the different degree of employment effects. Both policies lead to rural-urban migration, although this is true to a lesser extent for wage subsidies, which also promote rural industries. The rural labour force declines, and the average rural wage rate goes up due to the relocation of labour from agriculture to manufacturing and services, thus reducing rural underemployment sharply. In urban areas, lower minimum wages result in a substantial expansion of formal employment which is able to absorb the inflow of rural labour and even large parts of the existing informal labour force. Wage subsidies, on the other hand, directly increase the manufacturing demand for labour while the factor demand of services is derived only from intermediate product demand. Therefore, the total effect on formal employment is more moderate than it is for the other policy, but urban informal employment still declines.

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9 Restoring equilibrium in the balance of payments, after exports have expanded, requires a currency appreciation in the case of wage subsidies. Lower minimum wages, on the contrary, imply a currency devaluation since imports increase faster than exports; the significant relocation of production factors from less remunerative rural occupations to urban manufacturing and services generates substantial increments to factor incomes, which enlarge private demand for imported as well as for domestically produced goods.

#### e) Rural industrialization policies

In almost all semi-industrialized countries, economic development was accompanied by an increasing regional dualism, particularly between rural and urban areas. The regional concentration of industrial activities in a few urban centres can be supposed to be at least partly due to policy-induced discrimination against rural locations, for example emerging from the promotion of capital-intensive, large-scale manufacturing which is typical for excessive import-substituting development strategies. Hence, regional policies may be postulated under the auspices that a persistent rural-urban income gap is socially unbearable and, because of the social costs involved, should not be closed by rural-urban migration exclusively. Besides agricultural promotion policies, rural industrialization may help to achieve more balanced regional employment and output growth. Overall production subsidies to rural manufacturing (policies 19., 20.), subsidizing capital costs of rural firms (policies 21., 22.), and reducing rural wage costs in manufacturing (policies 23., 24.) may serve this purpose.

The question whether such policies suited to alleviate regional distortions and to decentralize manufacturing activities, would also support a more efficient allocation of resources in the economy is addressed in the lower part of Table 1. The model solutions show that all rural industrialization policies are in fact successful in diminishing underemployment in the urban informal sector and in promoting decentralization by rural employment creation. The economy as a whole, however, has to pay for this in terms of real income losses; the social gains attached to less urban informal employment are eroded since formal employment in urban areas declines as well.

In particular, the employment implications of capital subsidies to both the rural north and the rural south are ambiguous since underemployment is merely transferred from urban to rural areas. The same holds for wage subsidies to manufacturing in the rural north, which mainly consist of highly capital-intensive food processing. By wage subsidies to the more diversified and labour-intensive manufacturing in the rural south, however, resources are subtracted from urban activities and become employed in rural manufacturing (and rural services as well). In this case, the larger rural labour force can be employed at a steeply increasing average wage rate so that both rural and urban underemployment is diminished. Moreover, wage incentives provided for rural development in the south almost succeed to outweigh the adverse income effect of declining urban production, although the relocation of production factors from urban to rural occupations amounts to productivity losses as indicated by the negative sign of the industrialization variable. Thus, a well-designed policy change from the hitherto heavy reliance on production subsidies and subsidies for capital inputs to subsidies for labour inputs would not only yield positive employment effects, but also reduces the social costs of regional industrialization policies.

#### 4 Conclusions and some general policy recommendations

The policy analysis of the preceding paragraphs refers to the results of a general equilibrium model of the Mexican economy. Not all parameters required for the model specification could be estimated from an accurate data base, so that policy conclusions may be misleading if the model results are highly sensitive to alternative parameter assumptions. Extensive sensitivity analysis indicated the general

validity of the results, however<sup>10</sup>. Despite rather extreme variations in critical parameter values, the solutions for all major policies proved to be robust in the sense, at least, that the sign of the base run (FISCHER, GERKEN, HIEMENZ 1982, pp. 118 ff.)<sup>11</sup> is maintained.

The second major objection to generalizing the policy recommendations of the preceding analysis refers to country-specific characteristics of the model applied. Actually, it is not suggested that conclusions based on empirical findings for Mexico can be simply transferred to other countries without further research. However, it should be recalled that Mexico has been chosen because, in many respects, it stands for the large group of already semi-industrialized economies, especially in Latin America, characterized by similar factor and product market distortions and common features in the development strategies pursued. Moreover, the results of the general equilibrium approach reported in the present paper, in several respects, fit reasonably well to policy recommendations derived from other empirical analyses based on partial rather than general equilibrium approaches.

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10 In particular, the general trade policy conclusion, according to which a shift in the industrialization strategy towards less export discrimination is beneficial in terms of real income and employment, even holds under very pessimistic assumptions as concerns the long-run export demand elasticity.

11 Considerable changes in the absolute size of welfare effects as reported in Table 1 emerge as concerns the employment effects of factor market interventions and of export subsidies for traditional industrial products, in particular. With respect to the latter policy, variations in the elasticity of substitution concerning consumption of domestic and imported goods rather signal a remarkably stronger positive employment effect as compared to the base run. Not surprisingly, reduced elasticities of factor substitution negatively affect the employment outcome of alleviating factor market distortions. However, the signs of solutions remain unaffected in this case as well. Moreover, employment generation of regional industrialization policies is improved in case of lower factor substitution elasticities.

Most noteworthy perhaps, persistent protectionist trade policies must be blamed for having caused a seriously distorted structure of industrial production (KRUEGER 1983). Inefficiencies manifest themselves in real income losses for the whole economy and higher levels of un- and underemployment. Consequently, the reversal of such policies is rather unlikely to aggravate the trade-off between output and employment, although the share of manufacturing in GDP may be somewhat reduced. Comparing economic performance under export-oriented industrialization with that under excessive import substitution, "country-specific peculiarities apart, it is safe to state that the more open framework in which the economies ... had to operate: (1) has provided for fast rates of growth of GDP ..., as export expansion was pulling production upwards and economies of scale could be taken advantage of; (2) has enlarged the opportunities for an increasing number of job-seekers to obtain employment (with accompanying increases in remuneration), since the exploitation of comparative advantage was bringing about a higher labour intensity in manufacturing...; and (3) has eased the typical balance-of-payments constraint on economic development" (DONGES 1983, p. 285; see also HIEMENZ, LANGHAMMER 1986, pp. 28 ff.).

The social costs of excessive import protection can be diminished in several ways:

- As a first step, import protection may be equalized between industries. Both trade theory and empirical evidence suggest that higher real income growth as well as positive employment effects could be achieved by liberalizing imports of hitherto highly protected goods, in particular.
- Positive income and employment effects are stronger in case of import liberalization as compared to increased protection for so far discriminated industries. It is thus to be recommended to proceed with an overall reduction of trade barriers.

- A more efficient allocation of productive resources in the economy is also supported by correcting for the discrimination against manufactured exports via export subsidies or by granting compensatory production subsidies. Further research should be directed to the question whether the positive welfare effects of export and production subsidies exceed the effects of import liberalization in other developing countries as well, and whether the income and employment effects of export subsidies on the one hand and production subsidies on the other hand generally reveal a problem of ranking, as was the case in the Mexican example.

Notwithstanding distorted factor prices, export-oriented production in by far the most developing countries is relatively labour-intensive, which is in accordance with their relative factor endowments. To encourage those products and industries that are relatively labour-intensive, by granting equally strong incentives to export and import-substituting activities, is thus the relevant policy choice that a country has in attempting to stimulate industrial employment, rather than choosing between a labour-intensive technique for a given product (HUGHES 1984, p. 154). The direct employment effects of investments in labour-intensive manufacturing industries may be not sufficient to eliminate un- and underemployment. However, indirect employment creation has to be accounted for as well, since investment in manufacturing, to varying degrees, generates pressure not only for other industrial products but also for agriculture and services. Consequently, the degree to which industrialization is integrated into the whole economy and the location of industrial activities are critical for overall economic development.

The demand for labour will be further increased if not only the foreign trade regime is re-orientated towards greater economic efficiency, but also distortions in relative factor prices are abolished (KRUEGER 1983; PAPANЕК 1985). In the typical developing country context, capital costs are artificially reduced by officially imposing upper limits to

interest rates for both credits and deposits. Moreover, many governments raise labour costs, mainly by enacting minimum wage and social security legislation. It has been shown that urban employment possibilities were negatively affected where real wages for urban workers were very high or steeply increasing (KRUEGER 1983); that poverty has been most successfully reduced in countries with sustained high rates of economic growth (HIEMENZ 1982); and that countries characterized by heavily distorted price structures experienced lower economic growth (both in agriculture and manufacturing), lower domestic savings rates, higher incremental capital/output ratios, and lower export growth (WORLD BANK 1983, pp. 57 ff.).

Though it is hardly possible to isolate the growth effects of specific price distortions in the context of partial cross-country analysis, the general equilibrium model for Mexico has provided strong evidence for the relevance of correcting factor price distortions in order to reduce unemployment and to improve economic growth. Thus, the cost of labour should be reduced and the cost of capital increased (PAPANEK 1985, p. 52). The cost of labour can be reduced even without lowering minimum wages; if this option is considered politically unfeasible, i.e. by granting subsidies for the employment of unskilled labour in the formal sector in urban regions. Moreover, what matters is lowering the cost of labour in international currency. Therefore, an over-valuation of the domestic currency must be avoided.

Evidently, the degree of additional employment generated by less interventionist factor market policies hinges on the elasticity of factor substitution which is likely to differ between developing countries. Furthermore, the relative importance of factor market policies and trade policies is still a matter of controversy. While minimum wage legislation was of overwhelming importance in the Mexican case,



SQUIRE suggested (1981, pp. 132) "that the removal of labour market distortions will be of limited significance in many countries unless supported by other measures" that influence labour demand and supply, notwithstanding that removing distortions improves short-run allocative efficiency and has potentially significant dynamic repercussions on capital accumulation. Thus, MORAWETZ' postulate is certainly still relevant, namely to direct more research efforts to this issue and related questions as to how to improve the employment record in the context of industrialization and industrial policies.

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