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Labour Market Effects of Trade Liberalisation: The Case of Mauritius

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This article uses a partial equilibrium approach to measure the impact of trade liberalisation on the demand elasticity of labour in the apparel industry in Mauritius, a sector where, in general, those in the work force are poor. The findings reveal that there is no evidence that trade liberalisation has increased the overall labour demand elasticity with respect to wages, though it has increased the demand elasticity for female workers. We further examine the relationship between trade liberalisation measures and characteristics of poor households and find that the overall results are mixed and inconclusive, probably due to the high level of data aggregation.

Keywords: trade liberalisation, poverty alleviation

Introduction

In the last 40 years of the 20th century, several countries have been highly successful in increasing incomes and reducing poverty. Most notable has been the experience of the South-East Asian economies, especially Singapore, Hong Kong, Japan, Taiwan and Korea (Bevan, Collier and Gunning, 1990). In the final 15 years of the century, Mauritius also saw substantial increases in income. All of these countries dramatically increased their exports (and trade-to-GDP ratios), raised incomes and are now active participants in the global trading environment. Although export expansion is the common element to these success stories of poverty reduction, there are considerable differences among the models of trade policy these countries have adopted. The experience of Mauritius provides an example of a country that expanded exports significantly through an export processing zone (EPZ).

In 1968, Mauritius was a poor country, with per capita income of only $350. The eradication of malaria had led to rapid population growth that threatened to overwhelm a stagnant sugar economy. Its labour force was expanding at 3 percent annually, and unemployment was estimated to be about 16 percent. Per capita income was actually falling (Meade, 1961). Since independence, the long-term objectives of successive governments of Mauritius have been to ensure a reduction in poverty through employment creation and provide better quality of life for its population while maintaining social cohesion. Accordingly, the government formulated a development plan as early as 1970 and followed a mixed strategy of import substitution coupled with incentives for exports through the export processing zone (for example, duty-free access to raw materials for exports; low corporation tax rates; free repatriation of capital, profits and dividends; and permanent residence permits). Two trade regimes co-existed, one for the small home market and a different one for those producing for export.

One of the distinctive features of trade liberalisation in Mauritius was its approach to reducing import protection and reforming other aspects of its industrial regime. Over the period 1979-1983, when emphasis was on macroeconomic stabilisation and exchange rate adjustment, trade policy was used in a more restrictive manner, with stamp duty on imports progressively increased. The initial period of trade liberalization, from 1983 to 1985, was concerned mainly with some liberalisation of foreign exchange and of import licensing restrictions. However, import duty charges were increased further in 1984 and 1985 for fiscal reasons. The main phase of import liberalisation and reduction of protection for local firms came in the period 1985-1987 with the progressive dismantling of quantitative import restrictions.

The late 1980s and early 1990s saw a gradual reduction in the effective protection of industry and more vigorous export promotion through preferential interest rates on development loans, tax concessions and the establishment of the Mauritius Export Development and Investment Authority to provide overseas marketing support. According to the IMF Trade Restrictiveness Index, Mauritius obtained a rating of 10, the highest possible category of policy restrictiveness during the early 1990s. It was only by the mid-1990s that conventional measures of trade protection began to decline.

In 1994, following the conclusion of the Uruguay Round, Mauritius consolidated its general preferential and fiscal duties, reduced the number of tariff rates from 60 to 8 and lowered duties on more than 4,000 items. Tariffs for agricultural products were bound at a ceiling rate of 122 percent, with the exception of certain major imports including such items as frozen beef, dairy products and certain grains. With regard to trade in services, Mauritius made market access commitments to foreign service suppliers in the tourism and telecommunications sectors (Milner and Wright, 1998). At the same time, the economy experienced a fall in poverty rates. Quality of life in Mauritius has significantly improved. The Gini coefficient declined from 0.5 in 1962 to 0.42 in 1975 and to 0.39 in 1996-97; it reached 0.37 in 2001-02. Eighty-four percent of households have piped water and 99 percent have electricity. Life expectancy at birth increased from 63 years in 1972 to 72 years in 2000 (CSO).

There has been little work on the effects of trade policy on absolute measures of well-being, such as poverty. There are many studies of the labour market effects of trade reform, but most of them assume that the labour market is segmented and deal only with the manufacturing sector, and so make it difficult to draw conclusions about overall poverty. The present article takes a step toward filling this gap. A partial equilibrium approach is used to identify the link between poverty and trade liberalisation in the short to medium run. It must, however, be noted that the concern is with poverty rather than inequality. The focus is on the relationship between trade liberalization and the welfare of those whose standard of living is below an appropriate poverty line. In particular, the effects examined are those of trade liberalisation on poverty via the employment channel.

The article examines whether trade reforms led to changes in employment conditions in the short to medium run that may have affected poverty rates. The obvious shortcoming of this approach is the inability to deliver an overall assessment of the effect of trade liberalisation on poverty. By focusing on the labour income channel, the study abstracts from the effects that trade policy may have had on poverty through the consumption or household production channels. Given that trade policy

affects the prices of goods, and that both consumption and household production decisions are a function of these prices, these channels are potentially important. Furthermore, the partial equilibrium approach allows us to link poverty (or at a minimum some of the variables that are highly correlated with it) to trade liberalisation using plausibly exogenous variations in trade policy over time, so that identification of the pure trade policy effects is arguably more compelling. Given that the adjustment costs associated with trade liberalisation are potentially high, a study of the short- or medium-run effects is important from a policy point of view, especially since a negative stance towards free trade is often attributed to the negative effects that reforms are expected to have in the short run.

Evolution of Poverty in Mauritius

There is no officially established poverty line in Mauritius, and the Central Statistical Office (CSO) neither tracks nor reports on the proportion of people who earn less than US$1 a day. However, the CSO does report the incidence of lower-expenditure households, establishing a cut-off point below which a household is considered as poor, though this reporting was done only up to the 2001/2002 period. Table 1 summarises some of the poverty indicators provided by the CSO.

Table 1 Summary of Poverty Indicators

	1996/97	2001/02
Estimated number of poor households	23,800	23,700
Proportion of poor households (%)	8.7	7.7
Estimated number of poor persons	92,700	93,200
Proportion of poor persons (%)	8.2	7.8
Income gap ratio (%)	21.0	22.6
Poverty gap ratio (%)	1.7	1.8

Source: CSO (2006)

The headcount ratio, which is the proportion of households or persons below the poverty line, declined from 8.7 percent to 7.7 percent between 1996/97 and 2001/02; in terms of number, there was a marginal decrease from 23,800 to 23,700. The income gap ratio is an indicator of the depth of poverty and measures the difference between the poverty line and the mean income of the poor, expressed as a ratio of the poverty line. Note that, though the proportion of poor people declined from 1996/97 to 2001/02, the situation of the poor deteriorated slightly during that period. This is

indicated by an increase in the income gap ratio from 21.0 percent to 22.6 percent. The poverty gap ratio indicates the total resources needed to bring all the poor out of poverty. It is thus an important indicator for programmes and policies concerned with poverty reduction. The poverty gap ratio for the island was 1.8 percent in 2001/02. Given a relative poverty line of Rs 2,804[1] per adult equivalent per month, this implies that around Rs 50.50 would be needed per adult equivalent per month to bring all persons out of poverty. In other words, around Rs 450 million would have been needed in financial year 2001/02 to bring all persons out of poverty.

In Mauritius, the well-being of a household is also largely determined by the socioeconomic characteristics of its head, mainly the gender characteristic of the head, that person's education attainment and his or her economic activity (employment status).

Table 2 Percentage of Households in Poverty by Sex of Head and by School Attendance

Sex of head	1996/97	2001/02
Male	6.7	6.5
Female	19.7	14.1
Both Sexes	**8.7**	**7.7**

School attendance of head	1996/97	2001/02
Past	7.4	7.1
Never	18.2	13.5
Total	**8.7**	**7.7**

Source: CSO (2006)

Table 2 points out that female-headed households were more likely to be in poverty than male-headed households in both 1996/97 and 2001/02. Note, however, that there was a significant improvement in the poverty situation of female-headed households between 1996/97 and 2001/02. During that period, the poverty incidence of such households declined from 19.7 percent to 14.1 percent. As expected, households headed by persons who never attended school were more likely to be poor than households with a head who had attended school in the past. In 2001/02, the poverty incidence for households whose heads never attended school (13.5 percent) was nearly two times as high as that for households with heads who had attended school in the past (7.1 percent).

Table 3 Percentage of Households in Poverty by Activity Status of Head

Activity Status of Head	1996/97	2001/02
Economically active	6.0	6.5
Economically Inactive	19.0	12.1
Total	**8.7**	**7.7**

Source: CSO (2006)

As shown in table 3, households headed by inactive persons (neither working nor looking for work) were more likely to be poor than other types of households. For instance, in 2001/02, poverty incidence was 12.1 percent among households with an economically inactive head, nearly twice as high as among households headed by an economically active person. Compared to 1996/97, however, an improvement is observed in the poverty situation of households with economically inactive heads. Poverty incidence among such households declined from 19.0 percent in 1996/97 to 12.1 percent in 2001/02. By contrast, poverty incidence among households headed by economically active persons increased during that period from 6.0 percent to 6.5 percent.

For the purpose of measuring poverty globally, the World Bank has come up with international poverty lines set at $1 a day and $2 a day. However, the $1-a-day poverty line is more relevant to least developed countries, where there is extreme poverty. Hence, to ensure that the empirical results are not due to the particular choice of the poverty line, several multiples of the $1-a-day measure ($2, $3, $4, $5, $7, $8) are considered. Based on the per capita household–income[2] measure, various poverty headcount ratios are computed, each corresponding to a different poverty line.

The results reveal that the poverty rates based on the $1- and $ 2-a-day measures are approximately equal to zero. This is not surprising given that Chen and Ravallion (2004) suggest that the $1 line is indicative of poverty lines used in poor countries, and not in upper middle–income countries such as Mauritius. The results also suggest that the extreme poverty rate corresponds roughly to a definition of poverty that uses the $3-a-day measure as the poverty line. Moreover, even though the magnitudes of poverty rates differ depending on what poverty lines we use, they all exhibit similar time trends. In all cases, poverty steadily declines between 1983 and 1994. Hence, it

seems safe to conclude that no matter what poverty definition is adopted, empirical results concerning the effects of trade policy on poverty will not depend on the particular choice of the poverty line.

Correlations between poverty and various demographic and employment-related characteristics can give us a preliminary idea as to how likely is it that trade policy has had an impact on poverty in Mauritius. The most interesting pattern emerging from table 4 is that poverty is highly correlated with unemployment. For example, for the $3-a-day measure the calculations suggest that 34.8 percent of individuals living in households with an unemployed household head are poor; for the $8-a-day line this proportion is as high as 70.4 percent. Clearly, one cannot contemplate a poverty reduction in Mauritius without addressing the issue of unemployment. However, it is worth noting that even among employed, the poverty rates are not negligible. The $8-a-day line implies that 53.3 percent of individuals living in households with an employed household head live in poverty.

Table 4 Headcount Ratios by Household Head Characteristics (Source: CSO Household Budget Survey 2006/07)

	$3	$4	$5	$6	$7	$8
Inactive	0.058	0.079	0.243	0.381	0.435	0.516
Unemployed	0.348	0.396	0.462	0.549	0.622	0.704
Employed	0.031	0.066	0.194	0.327	0.405	0.533
Educational Status:						
Primary- below CPE	0.202	0.347	0.472	0.556	0.607	0.672
-passed CPE	0.321	0.377	0.458	0.543	0.606	0.695
Secondary- below SC	0.198	0.205	0.371	0.447	0.492	0.553
-passed SC	0.097	0.104	0.232	0.308	0.39	0.464
Tertiary	0.008	0.011	0.014	0.032	0.057	0.078
Male	0.031	0.037	0.052	0.083	0.167	0.284
Female	0.036	0.044	0.079	0.188	0.254	0.359
Age:						
≤ 20	0.036	0.074	0.115	0.239	0.335	0.400
21-30	0.028	0.049	0.089	0.206	0.288	0.393
31-40	0.032	0.068	0.126	0.245	0.339	0.422
41-50	0.024	0.065	0.133	0.209	0.321	0.399
51-60	0.019	0.051	0.094	0.198	0.317	0.427
> 60	0.030	0.083	0.105	0.223	0.290	0.416

Moreover, no matter what poverty definition one adopts, poverty rates are substantially higher for individuals living in households where the household head is a female or whose educational status is only up to the primary level.

Modeling Framework II: Trade Liberalisation and Probability of Unemployment

The high incidence of poverty among the unemployed (as shown in the preceding section) leads to a natural question about whether trade liberalisation has had a significant impact on unemployment. Unfortunately, this is not a question that can be answered convincingly with the available data. Ideally, one would like to identify the relationship between trade policy and unemployment by relating detailed industry tariff changes to changes in industry unemployment. However, the lack of detailed data precludes such an analysis.

One assessment of the impact of trade liberalisation on unemployment consists of directly relating the probability of becoming unemployed to trade-related variables, such as tariffs, lagged imports and lagged exports (following Goldberg and Pavcnik, 2004). These variables relate to the 3-digit ISIC code industry in which the currently unemployed person used to work (or the industry in which a person is looking for work, for first-time job seekers). In particular, an indicator of whether an individual is unemployed is regressed on his/her demographic characteristics (provided in footnote 3), industry dummies (manufacturing only, since, as mentioned earlier, the drastic tariff and non-tariff barrier reductions between 1983 and 1994 were concentrated in the manufacturing sector), year dummies, tariff rates, lagged imports and lagged exports. For industries for which no tariffs are reported, the tariff rate is set to zero.

When interpreting the results of this regression it is important to keep in mind that variations in tariff rates are available for only 16 of the 3-digit ISIC industries, some of which actually never experience tariff changes. Hence, due to the high level of aggregation, there may be insufficient variation in the data to identify the link between trade-related variables and unemployment, even though such a link might be evident at a finer level of aggregation.

Table 5 Unemployment and Trade Exposure

Variable	Coefficient
Tariff	0.034
Lagged imports	0.00046**
Lagged exports	-0.00022
Industry indicators	yes
Year dummies	yes
R^2	0.087

The results of the regression are presented in table 5[3] and show no association between tariff and unemployment. Furthermore, there is no evidence that there is a relationship between exports and unemployment. However, it can be noted that as (lagged) imports increase, the probability of becoming unemployed increases. Overall, the evidence seems mixed and inconclusive. While, as emphasized above, the results are only suggestive given the high level of aggregation and the potential endogeneity of some of the variables employed on the right hand side (such as imports or exports), it seems fair to say that whatever effects the trade reforms may have had on unemployment, they were not substantial enough to be evident in the raw data, at least not at the 3-digit SIC level of aggregation.

Conclusion

While economic theory has long advocated openness to trade as an important element of sound economic policy, empirical evidence of the actual effects of trade liberalisation on income distribution and welfare has been difficult to measure. Recently, discussion of the effects of globalisation on poverty has rekindled the debate. At an analytical level, it is recognised that one must trace through the effects of trade policy changes on household welfare via the price transmission mechanism (for example, how much of the tariff reduction gets translated into changes in household income), via effects on household earnings (significant trade policy changes have general equilibrium repercussions via adjustment in factor markets), via adjustment in the public sector (tariff revenue changes) and via influences on wages and employment.

It must be pointed out that to establish a link between trade liberalisation and poverty reduction, a general equilibrium model may be more helpful, since it will illustrate the potential effects of lower tariffs on the prices of consumer goods and the potential impact of free trade on growth.

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Endnotes

1. US$1 = Rs 32.70
2. Household income is measured in the Household Survey on a monthly basis as the sum of the incomes of all individuals in the household. Income of employed individuals consists of disposable income derived from employment, property and transfers (pensions and other social security contributions). To obtain per capita household income, the household income is adjusted by the number of household members. Two alternative adult-equivalency formulas are used. The first one follows Deaton and Paxson (1998) who compute adult equivalency as $(Na + \alpha Nc)\theta$, where Na is the number of adults in a household, Nc is the number of children (defined as individuals aged 15 or less), α is the adult-equivalency scale and θ is an economies-of-scale parameter. α and θ can take on the values 1, 0.75, 0.5. This yields nine measures of per capita household income. This is the formula most commonly used in developing countries, though there is no consensus on the particular values of the parameters α and θ. The second adult-equivalency formula is the OCED formula: 1+ 0.7 (Na > 1) + 0.5 Nc (based on the World Poverty Manual, online document, p. 21). Because there is little agreement in the development literature as to which equivalency formula is more appropriate, per capita income was computed based on alternative equivalency and scale parameters, and the correlations across these alternative definitions were examined. The results suggest that alternative measures of per capita income are highly correlated, with the correlations ranging from 0.91 to 1. In general, the income measures seem more sensitive to changes in the scale parameter θ than to changes in the adult-equivalency parameter α. As a further robustness test, poverty headcount ratios were computed using $3-a-day and $4-a-day measures for alternative adult-equivalency formulas. Such an exercise reveals that while the exact ratio headcount varies with the values of α and θ, the time trends regarding the evolution of the poverty headcount ratios are similar across alternative per capita income definitions. Hence, it is unlikely that different income measures will yield different conclusions regarding the effects of trade policy on poverty. In turn, a per capita–income measure based on α=1 and θ=1 (in other words simple per capita household income without any adult-equivalency adjustment) is used for the rest of the analysis.
3. ** indicates 10 percent significance. All regressions also include controls for age, age squared, gender, whether a person is married, head of the household, education indicators, household size and literacy indicators. Tariff, lagged imports and lagged exports are for the 3-digit ISIC industry of previous employment (or the industry in which a person is looking for work, for first-time job seekers). Industry indicators are on the 3-digit ISIC level.