

A Firm's-Eye View of Commercial Policy and Fiscal Reforms in Cameroon

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After decades of high trade restrictions, fiscal distortions, and currency overvaluation, Cameroon implemented important commercial and fiscal policy reforms in 1994. Almost simultaneously, a major devaluation cut the international price of Cameroon's currency in half. This article examines the effects of those reforms on the incentive structure faced by manufacturing firms. Did the reforms create a coherent new set of signals? Did they reduce dispersion in tax burdens? Was the net effect to stimulate the production of tradable goods? The results of applying a cost function decomposition to detailed firm-level panel data suggest that the reforms created clear new signals for manufacturers, as effective protection rates fell by 80 to 120 percentage points. In contrast, neither the tax reforms nor the devaluation had a major systematic effect on profit margins. The devaluation did shift relative prices dramatically in favor of exportable goods, causing exporters to grow relatively rapidly.

On gaining independence in 1960, Cameroon adopted an interventionist approach to industrialization and development. Its commercial policies kept import prices high, and its tax code selectively promoted certain firms and penalized others. These policies continued into the late 1980s and early 1990s, when the distortions they created were compounded by significant currency overvaluation in the Communauté Financière Africaine (CFA) zone, of which Cameroon is a member. In the face of crisis, the CFA countries agreed to devalue in 1994. Almost simultaneously, Cameroon implemented significant commercial policy reforms and attempted to level the playing field by reducing tax system inequalities.

This article examines the effects of these reforms on the incentive structure faced by manufacturing firms. Did they create a coherent new set of signals? Was their net effect to stimulate the production of tradable goods? Each of these issues

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is addressed using annual survey data collected by the Regional Program on Enterprise Development (RPED), along with product-specific prices and quantities subsequently collected from a subset of the RPED sample.¹

The strength of the analysis lies in the data on which it is based. For each type of tax and tariff, the firms in the sample reported the amounts they paid before and after the reforms. Because we revisited the sample firms to collect price and quantity information on their major inputs and outputs, we are able to impute the effects of tariffs on input prices from official tariff schedules for firms that did not directly import the intermediate goods they used. We are also able to gauge the relative importance of each input and output to each producer. In sum, the data provide a far more detailed basis for inference than is typically available.²

To organize the analysis, we use a cost function decomposition. Fiscal and commercial policy reforms are treated as affecting the effective prices of inputs and outputs faced by firms; their net effects are then calculated in terms of the changes they induced in costs per unit revenue, firm by firm. Assuming that international trade determines the border prices of all inputs and outputs, the calculations capture all the effects of Cameroon's fiscal and commercial policy reforms on the incentive structure and firms' gross profit margins.³

By using a cost function approach rather than input-output tables, we allow for the possibility that firms are able to substitute away from inputs that become relatively expensive and toward inputs that become relatively cheap. Similarly, intrafirm substitutions among final products are recognized. Our effective protection figures therefore give a better measure of the true burden on producers than the traditional calculations.

I. TAX AND COMMERCIAL POLICY REFORMS

Until 1994 the Cameroonian government relied heavily on selective tax and tariff exemptions to promote industrial development. This strategy began in 1960, when the country enacted an Investment Code to attract foreign capital and encourage import-substituting industrialization. It was also shaped by the 1964 Treaty of Brazzaville, which dictated a number of taxes and duties to be implemented in all Central African Customs and Economic Union (*Union*

1. More details on the RPED surveys in Cameroon may be found in Gauthier (1995). Information on the follow-up surveys is provided in Tybout and others (1997).

2. Standard effective protection measures are based on input-output matrices at the two-digit or three-digit level, in combination with tariff schedules or international price comparisons (see, for example, Balassa 1965). Many examples of this type of calculation and further references can be found in the seven volumes of country studies produced for the World Bank's "Liberalizing Foreign Trade" project. Michaely, Papageorgiou, and Choksi (1991) summarize the main findings.

3. If this assumption is too strong, our calculations isolate only the direct effects of policy reforms on after-tax, after-tariff prices of inputs and outputs. The general equilibrium effects of the reforms on pretax, pretariff prices are not ignored; they are lumped in with all other residual factors, such as the exchange rate, that affect relative prices.

Douanière et Économique de l'Afrique Centrale; UDEAC) countries.⁴ Following these events, the Cameroonian government layered on additional special tax schemes and exemptions. The cumulative effect was to create one of the most complex and unfair systems of taxes and duties in Sub-Saharan Africa.

Under this pre-reform regime, firms that did not enjoy access to any of the special UDEAC-wide or Cameroonian programs were subject to a variety of direct and sales taxes. Firms that imported intermediate goods were subject to four tariffs unless they had special status.⁵ (Unlike most countries, Cameroon incorporated the equivalent of its domestic sales taxes into these tariffs.) The overall tariff structure was highly diversified, with rates ranging from 0 to 500 percent (World Bank 1995, appendix 6). The regime not only encouraged evasion but also provided considerable incentives for firms to seek special treatment from the tax authorities. Such treatment was available to manufacturers through a variety of mechanisms on a case-by-case basis. The appendix provides details on the direct and indirect taxes, tariffs, and special programs in effect in the prereform period.

Beginning in the mid-1980s, several adverse external shocks hastened the collapse of this policy regime. In 1985 the U.S. dollar, in which most primary commodity prices are denominated, depreciated sharply. Then oil prices (in dollars) fell in 1986, and the prices of other exported commodities—cocoa, coffee, and rubber—followed suit in the following year. The combined effect of these shocks was to induce massive fiscal deficits. Between 1985 and 1991, government's total revenues fell by 51 percent, largely because tariff and export tax revenues fell by 49 percent. The government financed this revenue shortfall by accumulating arrears with domestic suppliers and public servants, which led a banking sector crisis and a strong recessive effect on the economy. Despite the implementation of a structural adjustment program in 1989, per capita income had fallen in 1993 to *half* of its 1986 value.

Finally, in January 1994, the government began to dismantle this policy regime. In several decrees, it attempted to correct antitrade biases by increasing the importance of domestic taxes and reducing tariffs. It also attempted to reduce inequalities, distortions, corruption among administrators, and incentives for evasion.⁶ These reforms were partly motivated by the urgent need to restore fiscal balance and to lay the foundation for long-term economic recovery. But in addition, they were designed to comply with conditionality in a World Bank Structural Adjustment Program, and to further the UDEAC objective of promoting regional economic integration.

4. UDEAC is composed of Cameroon, the Central African Republic, Chad, the Democratic Republic of Congo, Equatorial Guinea, and Gabon. It was formed in 1964 by the Treaty of Brazzaville.

5. Although a handful of agro-industrial imports remained covered by quantitative restrictions in 1993, almost all nontariff barriers had been phased out by that time as part of a World Bank structural adjustment program.

6. In 1994 more than 50 percent of the 200 firms interviewed in the RPED sample reported that they had not paid their full tax obligations the previous fiscal year (Gauthier and Gersovitz 1997).

The new policy regime included several components that affected external trade:

- The four types of tariffs were replaced by a unified single system known as the common external tariff (TEC), applicable to imports from non-UDEAC countries.
- Imports were classified into four categories, with tariff rates of 5–35 percent.
- A general preferential tariff was introduced for trade between UDEAC countries, with an initial rate fixed at 20 percent of the applicable TEC.⁷

The reform package also essentially replaced the various sales taxes with a value-added tax and eliminated most special privileges. (The appendix provides details.)

Table 1 documents the coverage of special fiscal regimes within the RPED sample before and after the reforms. The proportion of manufacturing enterprises enjoying fiscal privileges dropped from 65 percent to 14 percent over the two-year period. Measured in terms of sales or share of the total tax burden, the phase-out of privileges was equally dramatic. However, most of the major importing firms continued to enjoy special privileges after the reforms. Special regimes applied to 99 percent of the total value of sample imports in 1992/93 and to 74 percent in 1994/95. This pattern reflects the fact that major importers in Cameroon are large, and large firms continued to receive privileges.

If the reforms had bite, many firms that had enjoyed special status in 1992/93 should have borne a larger tax burden in 1994/95. To quantify this effect, we present the tax rates firms reported facing in each fiscal year (table 2). The firms are grouped into three categories: those in special programs (which lost most of their benefits), those with free trade zone status or ad hoc agreements (some of which retained their benefits), and firms operating under the common law regime in 1992/93.

Firms with special incentive programs in 1992/93 reported that they faced an average sales tax rate of 8.4 percent that year, whereas in 1994/95 they were confronted with an average quasi-value-added tax of 14.9 percent. Similar patterns emerge for the free trade zone/ad hoc agreement group and the unprivileged group, although their rates were generally not as favorable as those of the special program firms. The special program group enjoyed a discount of several percentage points, and there was no obvious tendency for this group to converge toward the others. Furthermore, as a percentage of sales, the 1994/95 value-added taxes were generally lower than the 1992/93 turnover tax. (See the 1994/95 figures in parentheses.) Thus, although it is possible that the tax burden was spread more evenly among the privileged firms after the reforms, it did not increase for them on average.

With respect to customs, the rates faced by the firms that originally enjoyed special programs increased from 15.8 percent in 1992/93 to 19.8 percent in 1994/

7. This rate was reduced to 10 percent on January 1, 1996, and eliminated altogether on January 1, 1998.

TABLE 1. Coverage of Special Regimes (percent)

Item	1992/93	1993/94	1994/95
Percentage of firms enjoying at least one special tax regime	64.8 (83)	60.9 (78)	14.1 (18)
Privileged firms' sales as a percentage of total sales	98.5	94.4	29.5
Privileged firms' imports as a percentage of total imports	99.1	98.2	74.0
Privileged firms' taxes as a Percentage of total taxes	98.3	97.4	22.8

Note: Number of firms in each category is given in parentheses. Total number of firms is 128.

Source: Authors' calculations.

95, as privileges were phased out. The free trade zone firms and firms with ad hoc arrangements faced an even greater increase, with average rates jumping from 18.5 percent to 30 percent. This reflects the fact that more than half of the sample firms under these regimes lost their privileges after 1992/93. For firms operating under the normal regime in 1992/93, average customs rates fell from 66.8 percent in 1992/93 to 20.2 percent in 1994/95. Thus there is some evidence that the tariff reforms tended to level the playing field.

II. QUANTIFYING THE EFFECTS OF COMMERCIAL POLICY AND FISCAL REFORMS

The reforms did indeed change the level and distribution of the tax burden. However, the data do not document the combined effects of these reforms on after-tax costs per unit revenue for individual firms. This is our next objective. As in Tybout and others (1997), we begin with a cost function:

$$(1) \quad C = f(Q, \tilde{P}_L, \tilde{P}_I, \tilde{P}_K, A)$$

TABLE 2. Average Indirect Tax Rates for Different Categories of Firms Based on 1992/93 Status (percent)

Item	1992/93	1993/94	1994/95
<i>Sales or value-added taxes</i>			
Special incentive programs (UDEAC and Cameroon)	8.4	8.3	14.9 (7.0)
Free trade zone or ad hoc agreements	10.9	8.7	16.5 (5.9)
No privileges	10.3	10.7	16.0 (9.5)
<i>Customs</i>			
Special incentive programs (UDEAC and Cameroon)	15.8	17.8	19.8
Free trade zone or ad hoc agreements	18.5	—	30.0
No privileges	66.8	52.4	20.2

— Not available.

Note: Total number of firms is 128. Figures are cross-firm averages of 1994/95 *taxes sur le chiffre d'affaires* (TCA; sales tax). Figures in parentheses are averages of 1994/95 TCA weighted by the ratio of value-added to total sales.

Source: Authors' calculations.

where C is the minimum attainable cost of producing output level Q , given productivity level A and the vector of effective (after tax, after tariff) prices for intermediate goods, \tilde{P}_I ; labor, \tilde{P}_L ; and capital, \tilde{P}_K . By Shephard's lemma, we have:

$$(2) \quad d \ln C = \left(\frac{1}{\eta} \right) d \ln Q + s_I (d \ln \tilde{P}_I) + s_L (d \ln \tilde{P}_L) + s_K (d \ln \tilde{P}_K) + \left(\frac{\partial \ln C}{\partial \ln A} \right) d \ln A$$

where s_j denotes the share in total cost of the j th factor ($\sum_{j=1}^J s_j = 1$) and η is the elasticity of output with respect to cost, or returns to scale. Normalizing by growth in the value of output, we obtain a decomposition of the sources of growth in cost per unit revenue:

$$(3) \quad d \ln C - d \ln (Q \tilde{P}_Q) = \left(\frac{1}{\eta} - 1 \right) d \ln Q + s_I (d \ln \tilde{P}_I - d \ln \tilde{P}_Q) + s_L (d \ln \tilde{P}_L - d \ln \tilde{P}_Q) \\ + s_K (d \ln \tilde{P}_K - d \ln \tilde{P}_Q) + \left(\frac{\partial \ln C}{\partial \ln A} \right) d \ln A$$

(Note that unlike effective input prices, the effective output price, \tilde{P}_Q , is the pretax price to the buyer.) A second-order Tornqvist approximation to this expression in discrete time is given by:

$$(4) \quad \Delta \ln C - \Delta \ln (Q \tilde{P}_Q) = \left(\frac{1}{\eta} - 1 \right) \Delta \ln Q + \bar{s}_I (\Delta \ln \tilde{P}_I - \Delta \ln \tilde{P}_Q) + \bar{s}_L (\Delta \ln \tilde{P}_L - \Delta \ln \tilde{P}_Q) \\ + \bar{s}_K (\Delta \ln \tilde{P}_K - \Delta \ln \tilde{P}_Q) + \left(\frac{\partial \ln C}{\partial \ln A} \right) d \ln A$$

where Δ is the difference operator for period t versus $t - 1$ and overbars denote cross-period averages of the associated variable.

Commercial policy affects costs per unit revenue by changing the after-tariff prices of inputs and outputs. Domestic tax policy similarly affects input and output prices net of taxes and may further change after-tax costs through lump sum taxes such as the *patente* (see appendix). The rest of this article is devoted to quantifying these channels of transmission from policy reforms to the incentive structure at the firm level.

It is possible that commercial and domestic tax policy affect the efficiency parameter, A . Similarly, if there are scale economies, they may affect unit costs by changing the volume of output.⁸ These channels of transmission are empirically intractable, and we do not attempt to measure their separate effects on A .

Perhaps more important are some dimensions of response that our methodology misses entirely. In particular, some relatively efficient firms were presu-

8. Head and Reis (1999) provide a recent survey of the theoretical channels through which commercial policy can affect scale efficiency.

ably able to enter because government connections became less important, and some relatively inefficient firms were presumably forced to exit for the same reason. Without data on the population of plants, however, we cannot measure the net benefits generated by induced entry or exit.

Linking Prices to Policy

Suppose for the moment that every good used or produced by Cameroon firms is also available in foreign markets and that arbitrage between domestic and foreign goods is perfect. It is then straightforward to calculate the effects of the fiscal and commercial policy on the after-tax, after-tariff prices faced by producers.

Specifically, under the prereform regime, directly imported inputs were subject to tariffs but not sales taxes (t), and domestically produced inputs were subject to sales taxes but not tariffs. With perfect arbitrage, Cameroon firms paid $\tilde{P}_i = P_i(1 + t) = P_i^*(1 + \tau_i)$ for the i th input, where P_i^* is the external price of this input, P_i is the pretax price of the domestically produced version of input i , τ_i is the tariff rate, and t is the sales tax rate. Analogously, after taxes a Cameroon producer of the j th output received $\tilde{P}_j = P_j = P_j^*(1 + \tau_j) / (1 + t)$ per unit produced.

When Cameroon moved to a value-added tax, domestic and foreign purchases of the i th input were effectively tax free (albeit not tariff free) because the value-added taxes paid on these purchases were rebated. But perfect arbitrage implies that the price of domestic inputs still matched the tariff-distorted world price, $\tilde{P}_i = P_i^*(1 + \tau_i)$. Hence under the perfect arbitrage assumption, Cameroon's fiscal and commercial policy reforms influenced input prices only by affecting tariff rates. In contrast, in the product markets the new regime meant that Cameroon firms collected the tariff-distorted world price adjusted upward by the value-added tax rate (v), $P_j(1 + t) = P_j^*(1 + \tau_j)(1 + v)$, and kept $\tilde{P}_j = P_j^*(1 + \tau_j)$. Under the perfect arbitrage assumption, then, moving to a value-added system increased the after-tax price of outputs relative to inputs by eliminating the cascading effect of sales taxes.

Of course, perfect arbitrage is not a realistic assumption for most products. Transaction costs and product differentiation will typically allow domestic and foreign varieties of the same good to command different prices, and the response of these prices to changes in commercial policy and the fiscal regime will doubtless depend on firm-specific perceptions of demand elasticities, if not strategic considerations. Dealing properly with these problems would require an extremely detailed computable general equilibrium model. No such models exist for Cameroon, nor is it feasible to construct one.

Because the general equilibrium and mark-up effects are too complex to disentangle, we isolate the discrepancy between domestic and foreign prices in the endogenous scaling variables, λ_i , which applies to the i th input, and λ_j , which applies to the j th output. Accordingly, the effective price of the i th domestic input

TABLE 3. Effective Producer Prices (\tilde{P}_I , \tilde{P}_Q) under Alternative Regimes

Item	VAT regime		Sales tax regime	
Outputs (\tilde{P}_Q)	$\lambda_Q P_Q^* (1 + \tau_Q)$		$\lambda_Q P_Q^* (1 + \tau_Q) / (1 + t)$	
	Domestic	Imported	Domestic	Imported
Inputs (\tilde{P}_I)	$\lambda_I P_I^* (1 + \tau_I)$	$P_I^* (1 + \tau_I)$	$\lambda_I P_I^* (1 + \tau_I)$	$P_I^* (1 + \tau_I)$

Note: Input prices with tildas are inclusive of taxes and tariffs; output prices with tilde are exclusive of any taxes collected and passed on to the government. Prices with asterisks are pretax border prices, converted to domestic currency.

is $\tilde{P}_{li} = P_{li}^* \lambda_{li} (1 + \tau_{li})$ and the price of the j th domestically produced output is either $\tilde{P}_{Qj} = \lambda_{Qj} P_{Qj}^* (1 + \tau_{Qj}) / (1 + t)$ or $\tilde{P}_{Qj} = \lambda_{Qj} P_{Qj}^* (1 + \tau_{Qj})$, depending on whether the old or the new regime is in force. These relationships are summarized in table 3.

Before we substitute these producer prices back into equation (4), we must deal with the fact that firms use multiple inputs and produce multiple outputs. We use Tornqvist indices of the growth rates in effective input and output prices, which amount to share-weighted aggregations of the growth rates in the prices of the individual goods. Specifically, for intermediate inputs, we calculate

$$(5) \quad \begin{aligned} \Delta \ln \tilde{P}_I &= \sum_{i=1}^N \bar{s}_i \Delta \ln \tilde{P}_{li} = \sum_{i=1}^N \bar{s}_i \Delta \ln (P_{li}^*) + \sum_{i=1}^N \bar{s}_i \Delta \ln (1 + \tau_{li}) + \sum_{i=1}^N \bar{s}_i \Delta \ln (\lambda_i) \\ &= \Delta \ln \tilde{P}_I^* + \Delta \ln (1 + \tau_I) + \Delta \ln (\lambda_I) \end{aligned}$$

where \bar{s}_i is the share of expenditures on the i th input (inclusive of tariffs) in total intermediate input costs, averaged across periods. Given that producers report prices paid inclusive of tariffs, as well as tariffs paid, we observe both \tilde{P}_{li} 's and τ_{li} 's, so the left-hand side and the tariff component of the right-hand side can be isolated. However, we do not have micro-data on the external prices of each product, so we cannot disaggregate the sum $\Delta \ln P_I^* + \Delta \ln (\lambda_I)$.

Analogously, for effective output prices we write:

$$(6) \quad \begin{aligned} \Delta \ln (\tilde{P}_Q) &= \Delta \ln (1 + \tau_Q) + \Delta \ln (P_Q^*) - \Delta \ln (1 + t_Q) + \Delta \ln (\lambda_Q) \\ &= \sum_{j=1}^J \bar{\alpha}_j \Delta \ln (1 + \tau_{Qj}) + \sum_{j=1}^J \bar{\alpha}_j \Delta \ln (P_{Qj}^*) - \sum_{j=1}^J \bar{\alpha}_j \Delta \ln (1 + t_{Qj}) + \sum_{j=1}^J \bar{\alpha}_j \Delta \ln (\lambda_{Qj}) \end{aligned}$$

where $\bar{\alpha}_j$ is the average share of the j th product in total revenues in periods t and $t - 1$. It should be remembered from table 3 that the sales tax is phased out between the initial and the final period, so $\Delta \ln (1 + t_Q)$ amounts to $-\ln (1 + t_Q^0)$, where t_Q^0 is the prereform sales tax rate. Also, as with effective input prices, it is not possible to distinguish the effects of imperfect arbitrage from the effects of changes in external prices.

A Generalized Cost Decomposition

Substituting these relative price expressions into the unit cost decomposition (equation [4]) and writing costs and revenues as net of taxes yields:

$$\begin{aligned}
(7) \quad \Delta \ln C - \Delta \ln(Q\tilde{P}_Q) &= \left(\frac{1}{\eta} - 1\right) \Delta \ln Q + \left(\frac{\partial \ln C}{\partial \ln A}\right) \Delta \ln A \\
&+ \bar{s}_I \Delta \ln(1 + \tau_I) - \Delta \ln(1 + \tau_Q) \\
&+ \Delta \ln(1 + t_Q) \\
&+ \bar{s}_I \left[\Delta \ln(P_I^* \lambda_I) - \Delta \ln(P_Q^* \lambda_Q) \right] \\
&+ \bar{s}_L \left[\Delta \ln \tilde{P}_L - \Delta \ln(P_Q^* \lambda_Q) \right] + \bar{s}_K \left[\Delta \ln \tilde{P}_K - \Delta \ln(P_Q^* \lambda_Q) \right]
\end{aligned}$$

The first line on the right-hand side reflects the scale and other efficiency effects, which we treat as a residual; the second line reflects the direct effects of commercial policy on unit costs; the third line reflects the direct effect of eliminating sales taxes; and the last two lines reflect the changes in relative prices not directly related to commercial policy or taxes. Of course, the general equilibrium effects of these policy changes come partly through λ_I , λ_Q , \tilde{P}_L , and \tilde{P}_K . We are unable to isolate these indirect effects. Note also that under the perfect arbitrage assumption (that is, when $\lambda_I = \lambda_Q = 1$), these last lines simply pick up changes in wages and world prices.

Because we are unable to observe effective prices for capital services directly, we henceforth assume that they grow at the same rate as the pretariff rate of growth in domestic output prices, $\Delta \ln(P_Q^* \lambda_Q)$. The last line then becomes a wage effect alone:

$$\begin{aligned}
(7') \quad \Delta \ln C - \Delta \ln(Q\tilde{P}_Q) &= \left(\frac{1}{\eta} - 1\right) \Delta \ln Q + \left(\frac{\partial \ln C}{\partial \ln A}\right) \Delta \ln A && \text{(residual efficiency effect)} \\
&+ \bar{s}_I \Delta \ln(1 + \tau_I) - \Delta \ln(1 + \tau_Q) && \text{(effective protection effect)} \\
&+ \Delta \ln(1 + t_Q) && \text{(tax reform effect)} \\
&+ \bar{s}_I \left[\Delta \ln(P_I^* \lambda_I) - \Delta \ln(P_Q^* \lambda_Q) \right] && \text{(relative pre-tax input price effect)} \\
&+ \bar{s}_L \left[\Delta \ln \tilde{P}_L - \Delta \ln(P_Q^* \lambda_Q) \right] && \text{(relative cost of labor effect)}
\end{aligned}$$

It is worth noting that equation (7) deals only with changes in marginal tax rates and misses the effects of lump sum taxes entirely. We experimented with a more general formula that accommodates lump sum taxes and found that they played a negligible role during the sample period.⁹

Measuring Dispersion in Protection

A major objective of the Cameroonian reforms was to reduce cross-firm dispersion in protection. To quantify the government's success in this regard, we need to measure the effects of protection on firm-specific unit cost levels rather than unit cost growth rates. For this purpose we use our decomposition to measure

9. To treat lump-sum taxes, define these taxes to be T and write costs inclusive of lump-sum taxes as $C^* = C + T$. The decomposition can then be generalized to $\Delta \ln(C^*) - \Delta \ln(QP_Q) = \theta[\Delta \ln(C) - \Delta \ln(QP_Q)] + (1 - \theta)[\Delta \ln(T) - \Delta \ln(QP_Q)]$, where $\theta = C / (C + T)$ is the share of costs before lump-sum taxes in total costs and an overbar denotes the cross-period average. The first right-hand term is simply equation 7 weighted by θ ; the second term picks up the effect of growth in the ratio of lump sum taxes to net revenue. We implemented this generalized decomposition on our data and found extremely small values for the second term.

the change in unit costs that would have occurred for each firm in moving from a hypothetical regime of zero tariffs to the tariff rates it actually paid. Cross-firm dispersion in this rate of unit cost increase—before versus after commercial policy reforms—provides a basis for assessing changes in the amount of preferential treatment in the tariff code.

Constructing these measures of net tariff protection requires several additional assumptions. First, in the tradition of most effective protection calculations, we assume perfect international arbitrage and set $\lambda_I = \lambda_Q = 1$. Second, we need figures for the hypothetical expenditure shares that would have prevailed if producers had faced zero tariffs. Our solution is to assume that the elasticity of substitution among all intermediate inputs is unity. Then the same shares prevail with and without tariffs, and the level form of the tariff effect in the second line of equation (7')

becomes approximately $\tau_Q - s_I \tau_I = \tau_Q - \sum_{i=1}^N s_{II} \tau_{II}$.¹⁰ This expression is a variant of the standard effective protection measure when expressed as a ratio to value-added per unit revenue:

$$\frac{\tau_Q - \sum_{i=1}^N s_{II} \tau_{II}}{1 - \sum_{i=1}^N s_i} .^{11}$$

III. THE DATA

The RPED surveys collected data on costs, sales, taxes, tariffs, and other variables from about 200 Cameroon firms for the fiscal years 1992/93 and 1994/95.¹² However, these surveys did not collect information on the prices of inputs and outputs. About 80 firms in the RPED data base were revisited as part of a recently completed project and asked for recall information on the values and quantities of their five major inputs and five major outputs in both fiscal years. Only 36 firms were able to supply complete and credible information, a subsample we henceforth refer to as the resurveyed firms.

Using this subsample, we constructed unit prices for each product by dividing the value of production by the number of units produced. For example, indexing products by j , we obtained, $P_{jt} = V_{jt} / Q_{jt}$, $j = 1, J$. Intermediate input prices and the cost of labor were imputed analogously. The prices were reported inclu-

10. This follows because $\ln(1+x) \cong x$ for small values.

11. The most common alternative approach is to assume there are no substitution possibilities at all among intermediate inputs. This approach implies that our translog cost function is a poor approximation to technology and that effective protection calculations are best done using input shares based on international prices.

12. The firms in these surveys do not constitute a stratified random sample because no sampling frame was available to the survey designers. Instead, firms were selected from the 1989 Directory of Businesses published by the Chamber of Commerce, as well as from business associations and cooperatives. They were chosen to be broadly representative of the size distribution across the four manufacturing sectors studied: textile and garments, wood products and furniture, food processing, and metal product and machinery. Gauthier (1995) provides further details.

sive of tariffs and sales taxes, so they correspond to the effective prices \tilde{P}_Q and \tilde{P}_I described earlier. We augmented tariff data reported by the firms with official tariff information by product line obtained from the Cameroon government. Hence we were able to impute $\Delta \ln(\lambda_Q P_Q^*)$ and $\Delta \ln(\lambda_I P_I^*)$ using the identities in Table 3.¹³ Finally, with these building blocks, we were able to solve for the residual scale economy and productivity effect, $\left(\frac{1}{\eta} - 1\right) \Delta \ln Q + \left(\frac{\partial \ln C}{\partial \ln A}\right) \Delta \ln A$.

Before reform tariffs (τ) included the *droits de douanes* (DD), *droits d'entrée* (DE), *taxe sur le chiffre d'affaires à l'importation*, and *taxe complémentaire à l'importation* tariffs applied to firms operating under the normal regime and the *tax unique* (TU) or *taxe intérieure à la production* (TIP) applicable to imports for firms receiving special privileges. (The appendix provides descriptions of these tariffs and taxes.) After reforms tariffs included the TEC or *tarif préférentiel généralisé* (TPG). The tax burden (t) included the *impôt sur le chiffre d'affaires intérieur* (ICAI) for firms operating under the normal regime before the reform and the TU or TIP applicable to local sales for firms operating under a special regime. After reform the indirect tax burden is composed of the TCA. Further discussion of the data may be found in Tybout and others (1997).

IV. BASIC FINDINGS: POOLED SAMPLE

Let us begin with an overview of the magnitudes of the different shocks to unit cost. Equation (7') provides the relevant decomposition; it is empirically rendered in table 4. We also report real output growth. Each mean component of our decomposition is accompanied by a t -ratio; asterisks indicate whether the means are significantly different from zero. (Tests are done under the assumption that the firm-specific realizations are independent and normally distributed.) Alternative renderings of the same decomposition based on output-weighted averages and medians are shown in tables 5 and 6. Medians are calculated component by component, so they do not satisfy our identity exactly. Table 7 provides descriptive statistics on the prices that are used to construct our unit cost decomposition. Table 8 reports the levels and dispersion in effective protection measures discussed in section III.

For the pooled sample of 36 firms, the average increase in unit costs was 8 percent and not significantly different from zero. But this mild cost increase reflected several more dramatic offsetting forces. The single most important shock was commercial policy reforms, which drove up cost per unit revenue by 20.5 percent (t -ratio 8.45) on average. Increases in the (pretariff) relative price of intermediate goods added an additional 5.5 percent (t -ratio 1.15). Offsetting these effects were tax reforms, which reduced unit costs 2.7 percent (t -ratio 5.4); re-

13. An interesting extension would be to exploit data on international prices and isolate growth in λ 's from growth in P^* 's.

TABLE 4. Commercial Policy, Tax Reform, and Unit Production Costs (equation [7]): Unweighted Averages

Subsample (number of firms)	Net unit cost growth	Tariff effect, outputs (1)	Tariff effect, inputs (2)	Effective protection effect (1) + (2)	Labor price effects	Intermediate input price effects	Residual productivity effects	Domestic tax effects	Real output growth
Food (14)	0.081 (0.463)	0.176** (3.943)	-0.027** (-2.349)	0.149** (3.241)	-0.065 (-1.398)	0.130** (2.547)	-0.107 (-0.746)	-0.026** (-3.243)	0.028 (0.183)
Textiles (9)	0.029 (0.219)	0.243** (10.125)	0.008 (1.000)	0.250** (11.538)	-0.059 (-0.932)	-0.029 (-0.422)	-0.104 (-0.429)	-0.029** (-2.900)	0.222 (0.915)
Wood products (4)	0.230 (1.247)	0.355** (1775.0)	0.000 n.a.	0.355** (1775.0)	0.012 (0.289)	-0.095 (-1.284)	-0.034 (-0.301)	-0.007 (-0.933)	0.004 (0.035)
Metal products (9)	0.063 (0.604)	0.216** (5.143)	-0.037* (-2.921)	0.205** (4.184)	-0.118* (-1.914)	0.091 (1.162)	-0.085 (-0.399)	-0.027* (-2.250)	-0.335 (-1.573)
Small (17)	0.053 (0.353)	0.239 (1.060)	-0.020** (-2.425)	0.219** (8.361)	-0.053 (-1.316)	0.077 (1.470)	-0.210* (-1.941)	-0.021** (-2.793)	0.084 (0.430)
Medium (11)	0.045 (0.450)	0.209** (4.126)	-0.016 (-1.561)	0.193** (3.903)	-0.117 (-1.748)	0.004 (0.061)	0.000 (0.000)	-0.034** (-3.317)	-0.139 (-1.155)
Large (8)	0.185 (1.553)	0.208** (3.440)	-0.016 (-0.823)	0.193** (2.689)	-0.032 (-1.052)	0.081 (1.076)	-0.025 (-0.305)	-0.031** (-3.812)	-0.063 (-0.459)
All firms (36)	0.080 (0.996)	0.222** (9.867)	-0.018 (-1.340)	0.205** (8.425)	-0.068** (-2.386)	0.055 (1.150)	-0.085 (-1.275)	-0.027** (-5.400)	-0.017 (-0.165)
Domestic input- intensive (18)	0.104 (1.134)	0.238** (10.410)	-0.005 (-0.707)	0.233** (10.629)	-0.032 (-0.930)	-0.030 (-0.957)	-0.045 (-0.622)	-0.022** (-3.457)	0.194 (1.556)
Imported input- intensive (18)	0.056 (0.416)	0.208** (5.316)	-0.031** (-3.131)	0.177* (4.081)	-0.104** (-2.322)	0.140** (2.434)	-0.125 (-0.116)	-0.033** (-4.243)	-0.227 (-1.498)
Nonexporters 92/93 (24)	0.089 (0.787)	0.214** (7.280)	-0.021** (-2.939)	0.192** (6.030)	-0.056* (-1.533)	0.091** (2.093)	-0.116 (-1.237)	-0.021** (-3.319)	0.043 (0.303)
Exporters 92/93 (12)	0.061 (0.673)	0.241** (7.075)	-0.010 (-0.770)	0.231** (6.351)	-0.091* (-1.970)	-0.016 (-0.280)	-0.023 (-0.310)	-0.039** (-5.004)	-0.136 (-1.096)
Nonexporters 94/95 (21)	0.133 (1.064)	0.198** (6.771)	-0.019** (-2.353)	0.179** (5.327)	-0.060 (-1.440)	0.048 (0.944)	-0.009 (-0.098)	-0.025** (-3.819)	-0.177 (-1.382)
Exporters 94/95 (15)	0.005 (0.060)	0.258** (7.513)	-0.016 (-1.511)	0.242** (7.100)	-0.080** (-2.152)	0.065 (1.361)	-0.191** (-2.169)	-0.031** (-4.002)	0.208 (1.323)

n.a. Not applicable.

*Significantly different from zero at the 90 percent confidence level.

**Significantly different from zero at the 95 percent confidence level.

Note: *t*-statistics are in parentheses.

Source: Authors' calculations.

TABLE 5. Commercial Policy, Tax Reform, and Unit Production Costs (Equation 7'): Output-Weighted Averages

Subsample (number of firms)	Net unit cost growth	Tariff effect, outputs (1)	Tariff effect, inputs (2)	Effective protection effect (1) + (2)	Labor price effects	Intermediate input price effects	Residual productivity effects	Domestic tax effects	Real output growth
Food (14)	0.300	0.209	-0.059	0.150	-0.034	0.160	0.064	-0.040	-0.075
Textiles (9)	-0.070	0.269	0.009	0.278	-0.059	-0.045	-0.224	-0.021	0.145
Wood products (4)	0.080	0.355	0.000	0.355	0.005	-0.112	-0.160	-0.008	0.091
Metal products (9)	0.018	0.378	-0.011	0.367	-0.140	-0.103	-0.075	-0.030	-0.242
Domestic input- intensive (18)	0.009	0.264	-0.017	0.247	-0.066	-0.021	-0.126	-0.025	0.226
Imported input- intensive (18)	0.161	0.286	-0.023	0.263	-0.074	-0.050	-0.043	-0.035	-0.297
Nonexporters 92/93 (24)	0.089	0.214	-0.021	0.193	-0.050	0.280	-0.116	-0.021	0.043
Exporters 92/93 (12)	0.061	0.241	-0.010	0.231	-0.075	-0.053	-0.023	-0.039	-0.137
Nonexporters 94/95 (21)	0.253	0.125	-0.035	0.091	-0.016	0.128	0.087	-0.033	-0.196
Exporters 94/95 (15)	0.082	0.274	-0.020	0.254	-0.090	-0.027	-0.086	-0.030	0.034
Small (17)	0.204	0.175	-0.038	0.137	-0.033	0.197	-0.067	-0.030	-0.261
Medium (11)	-0.034	0.285	-0.013	0.272	-0.116	-0.039	-0.106	-0.045	-0.052
Large (8)	0.103	0.277	-0.020	0.257	-0.061	0.016	-0.082	-0.026	-0.009
Total (36)	0.082	0.274	-0.020	0.254	-0.070	-0.013	-0.086	-0.030	-0.027

Source: Authors' calculations.

TABLE 6. Commercial Policy, Tax Reform, and Unit Production Costs (Equation [7]): Medians

Subsample (number of firms)	Net unit cost growth	Tariff effect, outputs (1)	Tariff effect, inputs (2)	Effective protection effect (1) + (2)	Labor price effects	Intermediate input price effects	Residual productivity effects	Domestic tax effects	Real output growth
Food (14)	0.343	0.209	-0.007	0.202	-0.011	0.123	0.067	-0.014	-0.120
Textiles (9)	0.143	0.244	0.000	0.244	-0.038	-0.079	-0.136	-0.027	0.117
Wood products (4)	0.130	0.356	0.000	0.356	-0.008	-0.078	-0.147	0.000	0.032
Metal products (9)	0.205	0.213	-0.030	0.180	-0.068	0.099	-0.096	-0.024	-0.315
Domestic input- intensive (18)	0.156	0.244	-0.000	0.238	-0.017	-0.013	-0.140	-0.009	0.083
Imported input- intensive (18)	0.259	0.224	-0.024	0.214	-0.055	0.151	-0.314	-0.021	-0.314
Nonexporters 92/93 (24)	0.263	0.224	-0.005	0.215	-0.020	0.077	0.005	-0.006	-0.028
Exporters 92/93 (12)	0.022	0.271	-0.001	0.262	-0.068	-0.023	-0.116	-0.042	-0.151
Nonexporters 94/95 (21)	0.324	0.215	-0.000	0.215	-0.013	0.045	0.083	-0.010	-0.298
Exporters 94/95 (15)	-0.018	0.266	-0.005	0.263	-0.089	0.048	-0.157	-0.024	0.049
Small (17)	0.205	0.233	0.000	0.215	-0.031	0.055	-0.139	-0.004	0.018
Medium (11)	0.143	0.244	-0.008	0.244	-0.046	0.017	-0.083	-0.027	-0.128
Large (8)	0.259	0.243	-0.004	0.246	-0.011	0.050	-0.035	-0.027	-0.162
Total (36)	0.190	0.237	-0.002	0.230	-0.035	0.046	-0.067	-0.014	-0.116

Source: Authors' calculations.

TABLE 7. Growth in Prices of Output, Intermediate Input, and Labor among Resurveyed Subsample, 1992/93–1994/95 (cumulative percentages)

Item	Mean (\bar{x})	SD (s_x)	SD of mean (s_x / \sqrt{n})	Median	Interquartile range
<i>Pooled sample (36)</i>					
Output price (P_Q)	37.3	67.3	11.2	21.4	2.0 to 51.9
Input price (P_I)	73.0	68.3	11.4	72.1	20.6 to 108.4
Wage rate (P_L)	21.4	65.2	10.9	11.7	-21.1 to 45.8
Relative input price (P_I / P_Q)	44.2	65.3	10.9	35.8	2.7 to 73.7
Relative labor cost (P_L / P_Q)	5.3	68.1	11.4	-19.3	-34.9 to 39.8
<i>Domestic input-intensive (18)</i>					
Output price (P_Q)	26.8	72.3	17.0	14.6	-8.6 to 37.4
Input price (P_I)	50.9	59.4	14.0	48.5	0.0 to 73.5
Wage rate (P_L)	37.3	75.4	17.8	33.3	-17.5 to 53.6
Relative input price (P_I / P_Q)	37.3	57.6	13.6	33.3	6.0 to 56.0
Relative labor cost (P_L / P_Q)	31.9	80.2	18.9	21.3	-29.1 to 70.2
<i>Imported input-intensive (18)</i>					
Output price (P_Q)	47.9	62.2	14.7	33.2	19.2 to 58.5
Input price (P_I)	95.0	71.1	16.8	94.6	71.3 to 133.6
Wage rate (P_L)	5.4	50.3	11.9	3.1	-34.6 to 23.8
Relative input price (P_I / P_Q)	51.0	73.3	17.3	44.3	-2.2 to 98.3
Relative labor cost (P_L / P_Q)	-21.3	40.0	9.4	-31.8	-43.0 to -4.4
<i>Nonexporters (24)</i>					
Output price (P_Q)	25.3	56.7	11.6	18.5	-4.3 to 39.3
Input price (P_I)	73.2	71.5	14.6	69.6	10.7 to 120.5
Wage rate (P_L)	27.9	76.5	15.6	21.6	-32.3 to 57.0
Relative input price (P_I / P_Q)	50.7	61.9	12.6	44.3	6.5 to 91.1
Relative labor cost (P_L / P_Q)	15.8	72.0	14.7	4.7	-34.4 to 53.3
<i>Exporters (12)</i>					
Output price (P_Q)	61.4	82.2	23.7	50.6	15.0 to 84.2
Input price (P_I)	72.5	64.6	18.6	73.2	35.0 to 96.3
Wage rate (P_L)	8.3	32.2	9.3	3.3	-13.5 to 31.7
Relative input price (P_I / P_Q)	31.2	72.8	21.0	25.9	-8.7 to 52.9
Relative labor cost (P_L / P_Q)	-15.8	56.4	16.3	-30.7	-37.0 to -8.8

Note: Numbers of firms in each subsample are given in parentheses.

Source: Authors' calculations.

ductions in the relative price of labor, which reduced unit costs 6.8 percent (t -ratio 2.39); and productivity gains, which reduced unit costs 8.5 percent (t -ratio 1.27).¹⁴ The same patterns emerge from the medians and weighted averages; hence our results are robust with respect to measure of central tendency.¹⁵

14. Several other studies of productivity growth among Cameroonian manufacturers have been based on sector-level price deflators and have found smaller average rates of productivity growth (Biggs and Srivastava 1996, Bigsten and others 2000). The one study that uses the same firm-level deflators we use here (Tybout and others 1997) arrives at the same figure of 8.5 percent.

15. Qualitatively, the patterns match almost exactly. The only exception is the intermediate input price effect, which does not show up in our weighted averages.

TABLE 8. Traditional Effective Rates of Protection: Unweighted Averages

Number of firms	All	Food	Textile	Wood product	Metal & metal product		Non-exporters	Exporters	Domestic input-intensive		Imported input-intensive		Large
					7	4			16	18	16	11	
<i>Only imports tradable</i>													
<i>ERP 1992/93</i>													
Mean	1.60	1.46	1.83	2.27	1.18	1.58	1.65	1.73	1.45	1.84	1.60	1.04	
SD	0.90	0.94	1.01	0.50	0.64	0.87	1.02	0.70	1.08	0.79	1.06	0.69	
Maximum	4.02	3.20	4.02	2.88	2.21	3.20	4.02	3.20	4.02	3.20	4.02	2.45	
Minimum	0.22	0.22	0.70	1.79	0.45	0.22	0.70	0.70	0.22	0.22	0.52	0.30	
<i>ERP 1994/95</i>													
Mean	0.59	0.68	0.51	0.80	0.42	0.69	0.37	0.73	0.45	0.78	0.40	0.46	
SD	0.34	0.40	0.26	0.17	0.27	0.34	0.19	0.33	0.28	0.36	0.26	0.08	
Maximum	1.69	1.69	0.94	1.01	0.79	1.69	0.66	1.69	1.20	1.69	0.96	0.59	
Minimum	0.10	0.23	0.10	0.63	0.11	0.23	0.10	0.31	0.10	0.23	0.10	0.37	
<i>All inputs tradable</i>													
<i>ERP 1992/93</i>													
Mean	1.15	0.92	1.62	1.09	1.02	1.01	1.48	0.96	1.35	1.08	1.34	0.98	
SD	0.81	0.67	1.14	0.25	0.66	0.67	1.05	0.46	1.07	0.68	1.04	0.75	
Maximum	4.02	2.33	4.02	1.46	2.21	2.33	4.02	2.29	4.02	2.29	4.02	2.54	
Minimum	0.24	0.24	0.49	0.92	0.45	0.24	0.58	0.30	0.24	0.24	0.41	0.26	
<i>ERP 1994/95</i>													
Mean	0.35	0.37	0.36	0.29	0.34	0.39	0.25	0.33	0.37	0.40	0.26	0.37	
SD	0.17	0.15	0.18	0.03	0.25	0.14	0.20	0.14	0.20	0.16	0.16	0.19	
Maximum	0.79	0.68	0.61	0.32	0.79	0.79	0.61	0.68	0.79	0.79	0.46	0.61	
Minimum	0.03	0.03	0.10	0.25	0.07	0.23	0.03	0.03	0.07	0.23	0.07	0.03	

Source: Authors' calculations.

What explains the signs and magnitudes of these effects? The tax reforms reduced unit costs because, as noted in connection with table 1, prereform turnover taxes were a larger fraction of total sales than postreform value-added taxes. Nonetheless, the impact of the domestic tax reforms was small because most of the prereform fiscal privileges took the form of tariff reductions. The significant reduction in relative labor costs is also unsurprising because nominal wages typically take some time to adjust to major devaluations. However, it is remarkable that productivity tended to improve rather than decline given the magnitude of the reduction in effective protection and the associated profit margin squeeze.

The large effect of the commercial policy reforms reflects a drop in the average nominal tariff rate on outputs from 68 percent to 27 percent, combined with a much smaller drop in the average nominal tariff rate on inputs (from 21 percent to 17 percent). The reforms had a greater effect on tariffs on products that the firms sold than on products they bought because protection levels on imported intermediate goods were already relatively modest before the reforms. This liberalization effect is also apparent in table 8, which shows that the effective protection measures fell 80–100 percentage points on average, depending on whether all inputs and outputs were treated as perfectly tradable (upper panel) or nonimported inputs were treated as nontradable (lower panel).¹⁶

Table 8 also reveals that the amount of cross-firm dispersion in effective protection dropped dramatically with the reforms. The cross-firm standard deviation in effective protection rates was a whopping 0.90 before the reforms, and the firm-specific values ranged from 0.22 to 4.02. After the reforms the standard deviation was 0.34 and the range was 0.10–1.69. This leveling of the playing field was due largely to the elimination of special exemptions.

One issue that often arises in Africa is whether policy reforms tend to work at cross-purposes. This appears to have occurred to some extent in Cameroon. The removal of implicit subsidies that took place with the commercial policy reforms was somewhat offset by the domestic tax reforms and the exchange rate devaluation. Nonetheless, the reductions in effective protection and the devaluation did systematically change the returns to tradable versus nontradable goods production.

V. DISAGGREGATED FINDINGS

We now explore the contributions of various subgroups of firms to the sample-wide summary statistics discussed. Our objective is to determine whether particular types of producers systematically did relatively well or poorly.

16. These figures are not “traditional” in the sense that firm-specific input shares are used rather than an economy-wide input-output table. In keeping with convention, these figures describe the percentage change in value added (rather than the percentage change in cost per unit revenue), so neither set of calculations is directly comparable to the fourth column of table 4. Specifically, the percentage change in costs due to tariff reforms has been divided by the share of value added in gross output.

Exporters versus Nonexporters

Breakdowns by market orientation reveal that, on average, firms that were exporting in 1992/93 resembled nonexporters in most respects, although they avoided the increases in relative intermediate input prices that nonexporters suffered. This contrast probably reflected the 100 percent CFA devaluation against the French franc that took place between the sample years, which should have driven up their output prices relatively rapidly. It probably also reflected some general equilibrium effects due to the commercial policy reforms.

If we divide our sample of firms according to whether they exported in 1994/95, the contrast is more dramatic. Exporters in this group did not do unusually well in terms of their relative input prices. Nonetheless, they avoided unit cost increases altogether, mainly because they managed to increase their productivity by 19.1 percent (*t*-ratio 2.17). (They also registered rapid output growth, on average, although it was not statistically significant.) Qualitatively, the same picture emerges from output-weighted averages and medians. The fact that firms exporting at the end of the sample period did better than firms exporting at the beginning of the sample period probably reflects self-selection effects. Firms that experienced cost reductions tended to begin exporting, and those that experienced cost increases tended to cease (Clerides and others 1998). Another interpretation is that the prereform incentive structure induced some firms to export products that were not to the country's comparative advantage.

Imported Input-Intensive Firms

Producers who relied relatively heavily on imported inputs fared a bit better than those that did not, but the contrast was not statistically significant. Several opposing forces were at work. First, as one might expect, the import-intensive group was hurt a bit less by the commercial policy reforms.¹⁷ Second, and also as one would expect, the devaluation raised their intermediate input prices, whereas these prices remained stable relative to output prices for the firms that sourced their inputs domestically. Finally, labor costs relative to output prices fell relatively rapidly among the import-intensive producers.

The same pattern emerges from sample medians (table 6), but output-weighted figures tell a somewhat different story about the relative performances of the two sets of firms (table 5). The output-weighted figures show larger cost increases for import-intensive producers and smaller cost increases for domestic input-intensive producers. However, the contrast does not stem from direct commercial policy or fiscal policy effects. It is due to pretariff intermediate input prices, which are sensitive to whether averages are weighted, because large import-intensive firms experienced major adverse shocks.

17. One reason why we do not record larger disparities is that the net tariff effect presumes perfect arbitrage between domestic and imported inputs. Hence, regardless of whether firms actually imported their inputs, they are assumed to benefit equally from liberalization-induced price reductions.

Sector-Based Breakdowns

On average wood-sector firms recorded greater unit cost growth than other firms, with a 23 percent increase. This finding stems from a large commercial policy-based reduction in output prices, which more than offset the relatively large improvements in pretariff relative prices and relatively small domestic tax effects.¹⁸ Output-weighted averages and median figures reveal that larger wood-sector firms fared better than smaller ones, making sectorwide output growth positive.

In the food sector, weighted averages and median figures indicate that larger firms experienced substantial increases in unit costs. Despite a smaller commercial policy impact on the food sector and larger productivity gains than in other sectors, this sector was hit more severely by pretariff intermediate input price effects, which increased unit costs by 16 percent (output-weighted). Textiles and metal products experienced relatively modest cost increases, despite substantial reductions in protection, partly because they realized large productivity gains (see table 7).

VI. SUMMARY AND CONCLUSIONS

We quantified several basic changes in the incentive structure that resulted when a maxi-devaluation was accompanied by substantial tariff reductions and a major simplification of the tax structure. First, the combined effect of these changes was to increase average costs per unit revenue by 8 percent. Second, the main force driving up unit costs was the commercial policy reform, which reduced nominal protection rates on outputs much more rapidly than protection rates on inputs. The cross-firm dispersion in effective protection rates also fell markedly. Thus, despite the presence of other shocks, Cameroon's trade reforms appear to have created clear new signals for manufacturers. Third, tax reforms, reductions in the relative price of labor, productivity growth, and changes in the domestic tax structure cushioned the effects of the trade liberalization on profit margins. Finally, the CFA devaluation shifted relative prices in favor of exportable goods. Hence, as with commercial policy, the new exchange rate regime shifted the incentive structure as intended at the ground level.

Firm-level panel data allowed us to measure the effects of the policy reforms on different types of firms with considerably more precision and detail than aggregate data afford. We hope that this study provides a useful methodological example for researchers and policymakers concerned with the consequences of similar reform packages.

18. In our sample in 1994/95, 6 of the 15 food producers, 6 of the 9 textiles producers, and 4 of the 9 metal producers are exporters. However, none of the four wood producers in the sample is an exporter. In this regard, our sample is not representative of the full RPED population. Indeed, despite the fact that 7 of the 40 wood sector firms in the RPED survey are exporters, these firms did not give us complete price and tax information and hence do not appear in the resurveyed sample. Our sample of wood producers is thus composed of nonexporters who did not experience much increase in their output price.

APPENDIX. FISCAL AND COMMERCIAL POLICY IN CAMEROON
BEFORE AND AFTER REFORM

In this appendix we provide further details on the fiscal and commercial policy regimes that prevailed before and after the reforms of 1994.

The Fiscal Environment before 1994

Before 1994 firms that did not enjoy access to any of the special programs offered by the UDEAC or Cameroon were subject to a variety of direct and indirect (sales) taxes (see World Bank 1992, 1995 and Gauthier and Gersovitz 1997). They included:

- *Impôt sur le chiffre d'affaires intérieur* (ICAI): Businesses in all UDEAC countries were subject to a domestic sales tax. The ICAI in Cameroon was generally levied at a rate of 10.9 percent on sales value but a reduced rate of 4.5 percent and a special rate of 2.5 percent for bakeries also existed. The ICAI was a cascading tax, because it was imposed on the value of the good or service at each level of the production process and not only on the value added. This cascading effect meant that the production tax increased with the number of intermediaries.
- *Impôt sur les bénéfices industriels et commerciaux* (BIC) and *impôt minimum forfaitaire* (IMF): Cameroon businesses were also required to pay a company tax based on the highest of the following taxes: the BIC, a tax on profits imposed at a rate of 38.5 percent (including a 10 percent communal tax) for incorporated businesses and 24.2 percent for unincorporated businesses; a 1 percent tax on sales; and the IMF, a minimum presumptive tax. Businesses in their first two years of operation were exempt from the IMF (600,000 CFA franc) and the 1 percent tax, but they had to pay the franc. During years three and four, they paid half the IMF and 1 percent tax.
- *Contribution des patentes*: Cameroon businesses were required to pay a *patente*, a kind of business license fee collected annually to help finance local governments. This tax was based on broad business activity indicators (output, equipment, number of employees).
- *Impôt spécial sur les sociétés*: Cameroon corporations were subject to a special tax, applied to capital at rates of 0.5–1.5 percent. A variety of other registration fees and taxes was also applicable. These included a registration fee for corporate charters charged at a rate of 0.25–2.0 percent, according to the firm's level of capital, and a proportional tax on income from securities (*taxe proportionnelle sur les revenus de capitaux mobiliers*) for corporations paying dividends or fees to associates and shareholders. Residents faced a tax rate on their dividend income of 16.5 percent, and non-residents faced a rate of 25 percent. Other taxes included duties on property leases, labor housing rental, stamp duties, advertising fees, and tax licenses on land, mining, and forests.

- Taxes on insurance contracts, a trade union income tax, an apprenticeship tax, and various community taxes.

Producers subject to full taxation who engaged in international trade faced additional fiscal obligations. Imports of intermediate goods were subject to four taxes, the first three dictated by UDEAC norms and the fourth created by Cameroon. The *droits de douanes* (DD) was applied at rates of 5–30 percent on all products, regardless of origin. The *droits d'entrée* (DE) applied to all products and origins, at rates of 5–90 percent, although certain goods were exempt. The *taxe sur le chiffre d'affaires à l'importation* was imposed at a rate of 10 percent of the CFA franc value plus DD + DE. The *taxe complémentaire à l'importation* was charged ad valorem, at rates of 0–100 percent. Imports were also subject to other taxes, including an unloading fee, a municipal tax, a tax imposed by the Conseil National des Chargeurs, a tax on meat inspection, a veterinary tax, and a special tax on fuel.

Special treatment from the tax authorities was available to manufacturers through a variety of mechanisms, on a case-by-case basis. These included:

- *Taxe unique* (TU): Originally designed as a means of encouraging industrialization and trade between UDEAC countries, the TU offered firms several advantages. Qualifying firms were exempt from the domestic sales tax (ICAI), which was replaced by a firm-specific TU rate. The TU rate also replaced the tariff system. Furthermore, the TU granted preferential access to export markets in other UDEAC countries because products were exempt from duties. Neither the ICAI nor the TU tax were collected on sales to other firms with TU status. TU rates were negotiated on a firm-specific basis, and different firms may thus have paid different rates for the same product. In addition, the same firm would pay different rates on its products, depending on the country to which they were exported. To obtain TU status, firms applied to the Management Committee of the UDEAC Secretariat.
- *Taxe intérieure à la production* (TIP): Access to the TU proved difficult, so Cameroon created a domestically administered variant. This special regime also provided sales tax and tariff advantages, but in contrast to the TU, it did not give preferential access to the UDEAC market. Benefits and rates were negotiated with the Cameroon Ministry of Finance instead of with the UDEAC.
- *Investment Code*: Major tax concessions were also available under the Investment Code. Augmented in 1990 with the help of the Foreign Investment Advisory Service of the International Finance Corporation and the U.S. Agency for International Development, the Investment Code provided tax exemptions and reductions for firms meeting certain criteria. Five different schemes existed: the basic regime, the small and medium-sized enterprise regime, the strategic enterprise regime, the reinvestment regime, and the free trade zone regime. (For more details on the eligibility criteria and the benefits associated with each regime, see Gauthier and others 1995.) In

contrast to the TU/TIP rates, which could be negotiated with the authorities, Investment Code benefits were supposedly nonnegotiable. However, benefits under the TU/TIP and Investment Code regimes were not mutually exclusive, so a firm could benefit under more than one scheme at once.

- *Zone franc and point franc*: Free trade zones were part of the Investment Code in 1990 but were covered by separate legislation and administered by a separate organization. To be eligible for a free trade zone, a firm had to export 80 percent of its output and its activities had to be eligible for the basic Investment Code regime. The firm had to be located in an industrial free zone or be designated *point franc industriel* (factory-specific free zone) if it needed to be adjacent to raw materials. Free trade status brought full exemption from international and indirect taxes, and profit taxes were imposed at a reduced rate.
- *Convention spéciale*: Firms that did not find special tax schemes suited to their own specific needs could negotiate directly with the Ministry of Finance to establish a *convention spéciale* (special agreement). No guidelines existed regarding the benefits and exemptions available under such agreements, and in theory a firm could have obtained full exemption from all tax obligations, including the *patente*, for its lifetime. This unusual tax scheme was generally reserved for public or very large enterprises.

The Fiscal Environment after 1994

On January 24, 1994, Cameroon issued decrees implementing fiscal and trade reforms. The reforms included four components affecting external trade:

- *Tarif extérieur commun* (TEC): The four types of tariffs were replaced by a unified single system known as the TEC, applicable to imports from non-UDEAC countries. All external trade privileges under the Investment Code and special production regimes (TU, TIP, *conventions d'établissement*) were eliminated.
- *Reduction of tariff rates*: Imports were classified into four categories, with tariff rates ranging from 5 to 30 percent, down from 0–500 percent under the previous system.
- *Tarif préférentiel généralisé* (TPG): A general preferential tariff was introduced for trade with UDEAC countries with an initial rate fixed at 20 percent of the applicable TEC. This rate was to be reduced to 10 percent on January 1, 1996, and eliminated altogether on January 1, 1998. (The phase-out was indeed implemented.)
- A mechanism was created for charging a temporary surtax of not more than 30 percent on a set of products previously covered by quantitative restrictions and a list of designated products.

With respect to indirect taxes, the reform essentially replaced the various sales taxes with a value-added tax and eliminated special privileges. These measures included the following:

- Elimination of all indirect tax privileges under the special production regimes (TU, TIP, *conventions d'établissement*) and the Investment Code, except the free trade zone.
- Introduction of a *taxe sur le chiffre d'affaires* (TCA), a quasi-value-added tax applicable to domestic production and to imported inputs and intermediates, replacing the former sales and production tax (ICAI, TU, TIP). (We use the term "quasi" because firms initially paid taxes on their purchases, then periodically applied to the government for reimbursement.) Three categories of products were specified: those subject to the normal rate (12.5 percent, increasing to 15 percent on January 1, 1995, and to 17 percent in 1996); those subject to the reduced rate (5 percent, increasing to 8 percent on January 1, 1995); and exempted goods.
- Creation of a mechanism for applying excise taxes to certain products.

On February 1, 1994, the reform went into force for firms governed by the common law system. Firms receiving special fiscal privileges were allowed a transition period. Those governed by the IC, TU, and TIP were not subject to the new regime until the 1994/95 fiscal year (beginning July 1, 1994). Firms governed by special agreements were given until December 31, 1995, to regularize their situation. This period of negotiation was later extended to March 31, 1996.

The reforms left the free trade zone intact. Hence qualifying firms continue to enjoy full exemption from import duties and TCA, and they are exempt from income taxes in the first 10 years of their existence. Firms that already existed before the free trade zone was created pay an income tax of 15 percent instead of the normal rate (38.5 percent). Exporters not in the free trade zone can apply for refunds of a portion of the customs they pay on imported inputs. The fraction refundable is equal to the share of their total sales exported outside the UDEAC. However, given the inefficiency of the administration and the delays in paying tax credits, this benefit has proved of little use to marginal exporters.

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