

POLICY RESEARCH WORKING PAPER

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

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In Cameroon, neither a major devaluation nor a major simplification of the tax structure systematically affected profit margins. But trade liberalization—substantial tariff reductions—clearly signaled change to manufacturers. And devaluation shifted relative prices dramatically in favor of exportable goods.



Summary findings

After decades of heavy trade restrictions, fiscal distortions, and currency overvaluation, Cameroon implemented important commercial and fiscal policy reforms. Almost simultaneously, a major CFA devaluation cut the international price of Cameroon's currency in half.

Gauthier, Soloaga, and Tybout examine the effects of these reforms on the incentive structure that manufacturing firms face. Did they create a coherent set of new signals? Was the net effect to stimulate the production of tradable goods? Was the dispersion of tax burdens lessened?

They address each of these questions using a cost function decomposition applied to detailed firm-level panel data.

They observe that Cameroon's reforms appear to have sent clear new signals to manufacturers, as the effective rate of protection fell by between 80 and 120 percentage points.

Unlike trade liberalization, neither tax reforms nor the CFA devaluation had a major systematic effect on profit margins. But the CFA devaluation did twist relative prices dramatically in favor of exportable goods, so export-oriented firms exhibited rapid output growth.

This paper—a product of Trade, Development Research Group—is part of a larger effort in the group to explore conceptual and practical issues in the trade policies of developing countries. Copies of the paper are available free from the World Bank, 1818 H Street NW, Washington, DC 20433. Please contact Lili Tabada, room MC3-333, telephone 202-473-6896, fax 202-522-1159, email address ltabada@worldbank.org. Policy Research Working Papers are also posted on the Web at www.worldbank.org/research/workingpapers. The authors may be contacted at bernard.gauthier@hec.ca, isoloaga@worldbank.org, or jxt32@psu.edu. September 2000. (35 pages)

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**A FIRM'S-EYE VIEW OF POLICY AND FISCAL REFORMS
IN CAMEROON**

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We would like to thank Shanta Devarajan, Mark Gersovitz, and Thomas McCool for helpful discussions, and Michel Sylvain for assistance. This paper was funded by the World Bank and the Union Douanière et Économique de l'Afrique Centrale (UDEAC).

1. Overview

Upon gaining independence in 1960, Cameroon adopted an interventionist approach to industrialization and development. Its commercial policies kept import prices high, while 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 CFA (Communauté Financière Africaine) zone, of which Cameroon is a member. Finally, 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 paper 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? Was dispersion in tax burdens lessened? We address each of these questions 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 our analysis lies in the information at our disposal. For each type of tax and tariff, the firms in our sample reported the amounts they paid before and after the reforms. Further, because we re-visited the sample firms to collect price and quantity information on their major inputs and outputs, we are able to impute the effects of tariffs

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

on input prices from official tariff schedules for firms that 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 our analysis, we use a cost function decomposition. Fiscal and commercial policy reforms are treated as influencing 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, our 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, intra-firm 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 (see footnote 2).

² Standard effective protection measures are based on input-output matrices at the 2-digit or 3-digit level, in combination with tariff schedules or international price comparisons (e.g., 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. Michaley, *et al* (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 pre-tax, pre-tariff prices are not ignored; they are lumped in with all other residual factors, such as the exchange rate, that affect relative prices.

The paper is organized as follows. Section 2 describes the fiscal and commercial policy regimes before and after the reform of 1994. Section 3 attempts to quantify the effects of the commercial and policy reforms on the firms' unit costs from a firm-level perspective. Section 4 introduces the data used in this paper, which are based on surveys spanning the 1992/95 period. Section 5 presents our findings on the sources of change in unit costs, and their relation to policy. Section 6 summarizes and concludes.

2. 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 UDEAC countries.⁴ Subsequent to 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 programs—UDEAC-wide or Cameroonian—were subject to a variety of direct and sales taxes. Further, those that imported intermediate goods were subject to four tariffs unless they had special status. The overall tariff structure was highly diversified, with rates

ranging from 0 percent to 500 percent (World Bank, 1995, Appendix 6). The regime not only encouraged evasion, it 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. Appendix 1 provides details on the direct and indirect taxes, tariffs, and special programs that prevailed in the pre-reform period.

In January 1994, the government began to dismantle this system. In several decrees, it attempted to correct anti-trade 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.⁵ These reforms were motivated by several objectives: (1) to comply with conditionality in a World Bank Structural Adjustment Program; (2) to further the UDEAC objective of promoting regional economic integration; and (3) to shore up tax revenues, which had been eroding as oil exports fell and tax exemptions and evasion became increasingly prevalent.⁶

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

- a) *The four-types of tariffs were replaced by a unified single system known as the TEC (Tarif extérieur commun), applicable to imports from non-UDEAC countries.*

⁴ UDEAC, the Union Douanière et Économique de l'Afrique Centrale, is composed of Cameroon, the Central African Republic, Chad, Congo, Equatorial Guinea and Gabon . It was formed in 1964 by the Treaty of Brazzaville.

⁵ In 1994, more than 50 percent of the 200 firms interviewed in the RPED sample said they had not paid their full tax obligations in the previous fiscal year.

⁶ Tax revenues in 1992 amounted to only 12.3 percent of GDP, compared to a median of 18.5 percent for other Sub-Saharan African countries (World Bank, 1994, table A.2.)

- b) *Imports were classified into four categories, with tariff rates ranging from 5 percent to 30 percent, compared with rates ranging from 0 percent to 500 percent under the previous system.*
- c) *A general preferential tariff was introduced for trade between UDEAC countries, with an initial rate fixed at 20 percent of the applicable TEC.⁷*

Further, the reform essentially replaced the various sales taxes with a value-added tax and eliminated most special privileges. (Appendix 1 provides details.)

Table 1: Coverage of Special Regimes

| | 1992-93 | 1993-94 | 1994-95 |
|--|------------|------------|------------|
| <i>Percentage of firms enjoying at least one special tax regime*</i> | 64.8% (83) | 60.9% (78) | 14.1% (18) |
| <i>Privileged firms' sales as a percentage of total sales</i> | 98.5% | 94.4% | 29.5% |
| <i>Privileged firms' imports as a percentage of total imports</i> | 99.1% | 98.2% | 74.0% |

*The number of firms in each category is given in parentheses. The total number of firms = 128

Table 1 documents the coverage of special fiscal regimes within the RPED sample before and after the reforms. Note that the proportion of manufacturing enterprises enjoying fiscal privileges dropped from 64.8 percent to 14 percent over the two year period, and the phase-out of privileges was equally dramatic when measured in terms of sales. 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 still applied to 74 percent in 1994-95. This pattern reflects the

⁷ This rate was to be reduced to 10 percent on January 1 1996 and 0 percent on January 1 1998.

fact the major importers in Cameroon are large, and large firms continued receiving privileges in 1994-1995.

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

Table 2: Average Indirect Tax Rates for Different Categories of Firms based on their 1992-93 Status*

| | 1992-93 | 1993-94 | 1994-95 |
|--|---------|---------|---------|
| Sales Taxes | | | |
| Privileged firms | | | |
| • <i>Special incentive programs (UDEAC and Cameroon)</i> | 8.4% | 8.3% | 14.9% |
| • <i>Free trade zone or ad hoc agreements</i> | 10.9% | 8.7% | 16.5% |
| No privileges | 10.3% | 10.7% | 16.0% |
| Customs | | | |
| Privileged firms | | | |
| • <i>Special incentive programs (UDEAC and Cameroon)</i> | 15.8% | 17.8% | 19.8% |
| • <i>Free trade zone or ad hoc agreements</i> | 18.5% | .. | 30.0% |
| No privileges | 66.8% | 52.4% | 20.2% |

* The total number of firms is 128. Figures in parentheses are averages of 1994/95 sales taxes (TCA) weighted by the ratio of value-added to total sales, firm by firm.

Firms with special incentive programs in 1992-93 reported that they faced an average sales tax rate of 8.4 percent in that year. However, 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 are generally not as favorable as those of the special program firms. Therefore, although they saw their sales tax rates increase, the special program group continually enjoyed a discount of several percentage points, and there was no obvious tendency for this group to converge toward the others. (Whether the effective tax burden increased or decreased must be analyzed in conjunction with figures on value-added, and this will be done in the following section.)

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

3. Quantifying the Effects of Commercial Policy and Fiscal Reforms

Tables 1 and 2 demonstrate that the reforms did indeed change the level and distribution of the tax burden. However, they 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 et al (1997), we begin with a cost function:

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

Here C is the minimum attainable cost at output level Q , 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 Shepard's lemma, we have:

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

where η is the elasticity of output with respect to cost, or returns to scale. Normalizing by the value of output, we obtain a decomposition of the sources of growth in cost per unit revenue:

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

A second-order Tornqvist approximation to this expression in discrete time is given by:

$$(4) \quad \begin{aligned} \Delta \ln C - \Delta \ln(Q \tilde{P}_Q) &= \left(\frac{1}{n} - 1\right) \Delta \ln Q + \overline{s_I} (\Delta \ln \tilde{P}_I - \Delta \ln \tilde{P}_Q) + \overline{s_L} (\Delta \ln \tilde{P}_L - \Delta \ln \tilde{P}_Q) \\ &+ \overline{s_K} (\Delta \ln \tilde{P}_K - \Delta \ln \tilde{P}_Q) + \left(\frac{\partial \ln C}{\partial \ln A}\right) d \ln A \end{aligned}$$

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 1). The balance of this paper 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 However these channels of transmission are empirically intractable, and we will not attempt to measure them separately.

Linking prices to policy. Let us 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 pre-reform regime, directly imported inputs were subject to tariffs but not to sales taxes (t), while domestically produced inputs were subject to sales taxes but not to 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 pre-tax price of the domestically produced version of input i , τ_i is the tariff

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

rate, and t is the sales tax rate. Analogously, after taxes, a Cameroon producer of the j^{th} output received $\tilde{P}_{Q_j} = P_{Q_j} = P_{Q_j}^* (1 + \tau_{Q_j}) / (1 + t)$ 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. On the other hand, 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), $P_{Q_j} (1 + t) = P_{Q_j}^* (1 + \tau_{Q_j}) (1 + v)$, and they kept $\tilde{P}_{Q_j} = P_{Q_j}^* (1 + \tau_{Q_j})$. So under the perfect arbitrage assumption, 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 exhibit different prices, and the response of these prices to changes in commercial policy and the fiscal regime will doubtless depend on market of origin. To deal properly with these problems, an extremely detailed computable general equilibrium (CGE) model would be needed. No such models exist for Cameroon, nor is it feasible to construct one.

Because the general equilibrium effects are too complex to disentangle, we isolate the discrepancy between domestic and foreign prices in the endogenous scaling variables, λ_i and λ_Q , which apply to the i^{th} input and the j^{th} output, respectively. Accordingly, the effective price of the i th domestic input is $P_i = P_i^* \lambda_i (1 + \tau_i)$ and the price of the j^{th} domestically produced output is either $P_Q = \lambda_Q P_Q^* (1 + \tau_Q) / (1 + t)$ or $P_Q = \lambda_Q P_Q^* (1 + \tau_Q)$, depending on whether the old or the new regime is in force. These relationships are summarized in Table 3 below.

Table 3: Producer Prices (\tilde{P}_I, \tilde{P}_Q) Under Alternative Regimes

| Type of good | Market source/ Destination | Perfect Arbitrage | Imperfect Arbitrage: |
|---|-------------------------------|--------------------------------------|--|
| Sales Tax Regime | | | |
| Inputs (\tilde{P}_I): | <i>imported</i> | $P_I^* (1 + \tau_I)$ | $P_I^* (1 + \tau_I)$ |
| | <i>domestic</i> | $P_I = P_I^* (1 + \tau_I)$ | $P_I = \lambda_I P_I^* (1 + \tau_I)$ |
| Outputs (\tilde{P}_Q) | | $P_Q = P_Q^* (1 + \tau_Q) / (1 + t)$ | $P_Q = \lambda_Q P_Q^* (1 + \tau_Q) / (1 + t)$ |
| VAT Regime | | | |
| Inputs (\tilde{P}_I): | <i>imported</i> | $P_I^* (1 + \tau_I)$ | $P_I^* (1 + \tau_I)$ |
| | <i>domestic</i> | $P_I = P_I^* (1 + \tau_I)$ | $P_I = \lambda_I P_I^* (1 + \tau_I)$ |
| Outputs (\tilde{P}_Q) | | $P_Q = P_Q^* (1 + \tau_Q)$ | $P_Q = \lambda_Q P_Q^* (1 + \tau_Q)$ |

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. To this end, 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

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

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}_{Ii} 's and τ_{Ii} '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:

$$\begin{aligned}
 \Delta \ln(\tilde{P}_O) &= \Delta \ln(1 + \tau_O) + \Delta \ln(P_O^*) - \Delta \ln(1 + t_O) + \Delta \ln(\lambda_O) \\
 &= \sum_{j=1}^J \bar{\alpha}_j \Delta \ln(1 + \tau_{Oj}) + \sum_{j=1}^J \bar{\alpha}_{ji} \Delta \ln(P_{Oj}^*) - \sum_{j=1}^J \bar{\alpha}_j \Delta \ln(1 + t_{Oj}) + \sum_{j=1}^J \bar{\alpha}_j \Delta \ln(\lambda_{Oj})
 \end{aligned}$$

It should be remembered from Table 3 that the sales tax is phased out between the initial and the final period, so $\Delta \ln(1 + t_O)$ amounts to $-\ln(1 + t_O^0)$, where t_O^0 is the pre-reform sales tax rate. Also, as with effective input prices, note that we will be unable 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 our unit cost decomposition (4) and writing costs and revenues as net of taxes, we obtain:

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

Here, the first line on the right-hand side reflects the scale and other efficiency effects that we will 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 $\lambda_I, \lambda_Q, \tilde{P}_L$ and \tilde{P}_K —we are unable to isolate these indirect effects. Note also that under the perfect arbitrage assumption, these last lines simply pick up changes in wages and world prices.

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

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

Relation to Effective Protection Measures. The above formula is useful for calculating *levels* of protection as well as growth rates. These can be obtained by setting all initial protection rates to zero and measuring the increase in cost when actual protection rates are imposed. However, to do this, it must be assumed that $\lambda_I = \lambda_Q = 1$, and some assumptions must also be made about the expenditure shares that would have prevailed if producers had faced zero tariffs.

One possibility 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 tariff effect in second line of equation (7') becomes approximately

$\tau_Q - s_I \tau_I \approx \tau_Q - \sum_{i=1}^N s_{Ii} \tau_{Ii}$.⁹ This expression is a variant of the standard effective protection measure when expressed as a ratio to value-added per unit revenue:

$$\frac{\tau_Q - \sum_{i=1}^N s_i \tau_{Ii}}{1 - \sum_{i=1}^N s_i}$$

The most common alternative approach is to presume there are *no*

substitution possibilities at all among intermediate inputs. Then the translog cost function

⁹ This follows because $\ln(1+x) \approx x$ for small x values.

is a poor approximation to technology, and effective protection calculations are best done using input shares based on international prices.

Lump-sum Taxes. Finally, we must adjust our formula to account for lump-sum business taxes. Denoting these taxes by T , we write costs inclusive of lump-sum taxes as $C^* = C + T$. Our final and most general form of the decomposition is then:

$$(8) \quad \Delta \ln(C^*) - \Delta \ln(Q\tilde{P}_o) = \bar{\theta} [\Delta \ln(C) - \Delta \ln(Q\tilde{P}_o)] \\ + (1 - \bar{\theta}) [\Delta \ln(T) - \Delta \ln(Q\tilde{P}_o)]$$

where $\theta = \frac{C}{C+T}$ 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 $\bar{\theta}$, and the second term picks up the effect of growth in lump sum taxes relative to growth in net revenue.

4. The Data

Data on costs, sales, taxes, tariffs and other variables were collected from roughly 200 Cameroon firms for the fiscal years 1992-93 and 1994-95. However, these surveys did not collect information on the prices of inputs and outputs. Hence, as part of a recently completed project, roughly 80 firms in the RPED data base were re-visited and asked for recall information on the values and quantities of their five major inputs and five major outputs in both fiscal years. Only a subset of 37 firms was able to supply complete and credible information; we will henceforth refer to this sub-sample as the “re-surveyed” firms.

Using this sub-sample, 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 inclusive of tariffs and sales taxes, so they correspond to the \tilde{P}_Q and \tilde{P}_H concepts described above. Tariff data reported by the firms were augmented 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.¹⁰ Finally, with these building blocks, we were able to solve for the residual scale economy and productivity effect,

$$\left(\frac{1}{n} - 1\right) \Delta \ln Q + \left(\frac{\partial \ln C}{\partial \ln A}\right) \Delta \ln A.$$

For the purpose of variable construction, tariffs (τ) before the reform were composed of the four types of tariffs (DD, DE, TCAI and TC) for firms operating under the normal regime, and of the TU or TIP applicable to imports for firms receiving special privileges. After the reform, tariffs (τ) included the TEC or TPG. On the other hand, tax burdens (t) included the 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 the reform, the indirect tax burden is composed of the TCA. Further discussion of the data may be found in Tybout *et al* (1997).

¹⁰ An interesting extension would be to exploit data on international prices and isolate growth in λ 's from growth in P^* 's.

5. Basic Findings: Pooled Sample

Turning to our findings, 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.

The general pattern: For the pooled sample, the increase in unit costs was roughly 8.5 percent. This reflected a substantial increase of 20.2 percent due to commercial policy reforms, partially offset by residual productivity improvements of 15.2 percent. The dominant shock the producers faced was therefore trade liberalization, and this was partly offset by productivity improvements. The productivity gains were *not* due to scale effects or improved capacity utilization, on average, because real output did not grow in the typical firm. (The fact that output did not shrink is surprising, given the extent of the profit margin squeeze endured by the firms.) Instead, as we have argued elsewhere, improved efficiency of input use appears to be part of the story (Tybout et al, 1997).

The effect of trade liberalization is strong because the average nominal tariff rate on outputs in our sample fell from 68 percent to 27 percent, while the average nominal tariff rate on inputs fell from 21 percent to 17 percent. In other words, most of the reduction in protection affected products that the sample firms sold rather than those they bought. This liberalization effect is also apparent in Table 7, where it can be seen that traditional effective protection measures fell on average between 80 and 120 percentage

points, depending on whether all inputs and outputs are treated as perfectly tradable (upper panel), or whether non-imported inputs are treated as non-tradable (lower panel).¹¹

Table 7 also reveals that the amount of cross-firm *dispersion* in effective protection dropped dramatically with the reforms, as intended. This leveling of the playing field was largely due to the elimination of special exemptions, as discussed in section 2 above.

One issue that often arises in Africa is whether the reforms worked at cross purposes. In the present context, it is interesting to ask whether the tax reform and the exchange rate devaluation undid the strong signal sent by the commercial policy reforms. The answer is that on average they did not. The tax reforms actually further increased unit costs, although their 2.6 percent effect was modest in comparison with that of the commercial policy reforms. The reason it was not greater is that most of the pre-reform fiscal privileges took the form of tariff reductions, which have continued to be the government's primary source of revenue.

If the CFA devaluation had systematically raised or lowered firms' gross margins, this would have been seen under "other relative price effects." On average, however, this type of shock had almost no effect: manufacturing activities were neither hurt nor helped on average. The notion that devaluation eased the pain of trade liberalization is therefore

¹¹ 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.

not supported by our findings. Nonetheless, the real devaluation *did* considerably change the returns to tradable versus non-tradable goods production, as we will discuss shortly.

Simple averages across firms are sensitive to outliers, and assign disproportionate weight to small firms. Accordingly, we also examined output-weighted averages and medians to determine whether these basic results are robust. The results, reported in Tables 5 and 6, confirm that the commercial policy, tax policy, relative price and residual productivity figures remain very similar when we use medians, although the median output growth is -10.3 percent. Output-weighted figures produce a similar picture, although they exhibit cost-increasing relative price effects (10.3 percent), offset by larger residual productivity growth (23.5 percent).

6. Dissaggregated Findings

Exporters vs. Non-exporters: Breakdowns by sector reveal that, on average, firms that were exporting in 1992-93 reported relatively modest unit cost growth (6.1 percent compared to 9.7 percent for non exporters), even though the direct effects of the commercial policy reforms were more favorable to non-exporters. The exporters gained ground mainly because relative price effects reduced their unit costs by 10.9 percent, while they *increased* unit costs for non-exporter by 6.4 percent. This probably reflected the 100 percent CFAF devaluation against the French Franc that took place between the sample years, and possibly also some general equilibrium effects on export prices due to the commercial policy reforms.

If we divide the firms according to whether they exported in 1994/95, the contrast is more dramatic. Exporters registered a unit cost growth of only 2.3 percent, compared

with 13.3 percent for non-exporters. Furthermore, 1994/95 exporters showed a productivity increase of 27.4 percent and an output growth of 21.2 percent. Hence, only firms that exported under the new regime showed unusually rapid output and productivity growth. Qualitatively, the same picture emerges from output-weighted averages and medians, although the results on productivity growth vary with the type of summary statistic. 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, et al, 1998). It also suggests that the pre-reform incentive structure induced a number of firms to export products that were not to the country's comparative advantage.

Imported Input-intensive Firms: Producers who relied fairly heavily on imported inputs fared better than those that did not, although the contrast was not dramatic. As one might expect, this difference is partly attributable to the fact that the former group was hurt less by the commercial policy reforms. One reason we do not record larger disparities is simply 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.¹²

The output-weighted figures tell a different story than the unweighted means about the relative performances of the two sets of firms. They show larger cost increases

¹² If there is imperfect substitutability between domestically produced and imported intermediates, this should show up in other relative price effects. But these price effects also favored firms that relied on

for import-intensive producers, and smaller cost increases for domestic input-intensive producers. However, the contrast does not trace to direct commercial policy or fiscal policy effects. It is due to other relative price effects, which are sensitive to whether averages are weighted because large import-intensive firms experienced major adverse shocks.

Sector-based Breakdowns. In terms of sectors, wood sector firms, on average, recorded a larger unit cost growth, with a 23 percent increase. This finding traces to a large commercial policy-based reduction in output prices, which more than offset the relatively large improvements in pre-tariff relative prices and relatively small domestic tax effects. Output-weighted averages and median figures reveal that larger wood sector firms fared better than smaller ones, making sector-wide output growth positive.

In the food sector, weighted averages and median figures indicate that larger food sector firms endured a substantial increase in unit costs. Despite a smaller commercial policy impact on the food sector and larger productivity gains than in other sectors, it was hit more severely by (pre-tariff) relative price effects, which increased unit costs by 39.9% (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.)

domestic inputs over those that were import-intensive, suggesting that other factors are at work as well.

7. Summary and Conclusions

To summarize, we have quantified several basic changes in the incentive structure that resulted when a maxi-devaluation was accompanied by substantial tariff reductions and a major simplification in the tax structure. First, the combined effect of these changes in the economic environment was to increase costs per unit revenue by 20 percent at the median firm, and by 9 percent on average. This constitutes a major change in the return to manufacturing activities, and it is somewhat remarkable that output did not contract.

Second, the dominant force behind these reductions in gross profit margins was a substantial drop in the rate of nominal protection for firms' final products. Since protection levels on imported intermediate goods were relatively modest before the reforms, unifying the tariff structure mainly meant bringing down tariffs on final goods, thereby reducing effective protection rates by somewhere between 80 and 120 percentage points. The cross-firm dispersion in effective protection rates also fell markedly. Accordingly, despite the presence of other shocks, Cameroon's trade reforms appear to have created clear new signals for manufacturers.

Third, substantial productivity growth cushioned the effects of the trade liberalization on profit margins. The unweighted average rate of productivity growth was 15.2 percent in the pooled sample, and the weighted average was 23.5 percent. As we have documented elsewhere, at least part of the explanation seems to be that firms economized on intermediate inputs (Tybout et al, 1997).

In contrast to trade liberalization, neither the tax reforms nor the CFA devaluation had a major systematic effect on profit margins. For most firms, the new tax code

increased after-tax costs per unit revenue by several percentage points, and the changes in relative prices not directly linked to taxes or tariffs had an even smaller net effect for the average firm. Nonetheless, the CFA devaluation *did* twist relative prices dramatically in favor of exportable goods, and firms that directed their output toward foreign markets exhibited relatively rapid output growth. Here too, then, the intended shift in incentives clearly registered at the ground level.

Overall, our firm-level panel data have 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. Accordingly, we hope that this study provide a useful methodological example for researchers and policy makers concerned with the consequences of related reform packages elsewhere.

Table 4: Commercial Policy, Tax Reform, and Unit Production Costs (Equation 7)
Unweighted Averages

| Industry | <i>net unit cost growth</i> | <i>tariff effect, outputs (i)</i> | <i>tariff effect, inputs (ii)</i> | <i>effective protection effect (i)+(ii)</i> | <i>Other relative price effects</i> | <i>residual productivity effects</i> | <i>domestic tax effects</i> | <i>real output growth</i> |
|-------------------------------------|-------------------------------------|---|---|---|---|--|-------------------------------------|-------------------------------|
| <i>Food</i> | 0.094 | 0.172 | -0.026 | 0.146 | 0.113 | -0.189 | 0.025 | 0.046 |
| <i>Textiles</i> | 0.029 | 0.243 | 0.008 | 0.250 | -0.089 | -0.161 | 0.029 | 0.219 |
| <i>wood products</i> | 0.230 | 0.355 | 0.000 | 0.355 | -0.084 | -0.049 | 0.007 | 0.004 |
| <i>metal products</i> | 0.063 | 0.216 | -0.017 | 0.179 | -0.027 | -0.125 | 0.035 | -0.335 |
| <i>Domestic Input Intensive</i> | 0.104 | 0.238 | -0.005 | 0.232 | -0.062 | -0.088 | 0.022 | 0.192 |
| <i>Imported Input Intensive</i> | 0.067 | 0.202 | -0.030 | 0.173 | 0.076 | -0.212 | 0.030 | -0.200 |
| <i>uNon-Exporters 92- 93</i> | 0.097 | 0.209 | -0.021 | 0.188 | 0.064 | -0.177 | 0.020 | 0.053 |
| <i>Exporters 92-93</i> | 0.061 | 0.241 | -0.010 | 0.230 | -0.109 | -0.100 | 0.039 | -0.139 |
| <i>Non-Exporters 94-95</i> | 0.133 | -0.198 | -0.019 | 0.179 | -0.011 | -0.058 | 0.025 | -0.177 |
| <i>Exporters 94-95</i> | 0.023 | -0.249 | -0.016 | 0.233 | 0.035 | -0.274 | 0.029 | 0.212 |
| <i>Small</i> | 0.053 | 0.239 | -0.020 | 0.219 | 0.024 | -0.210 | 0.021 | 0.084 |
| <i>Medium</i> | 0.064 | 0.201 | -0.016 | 0.185 | -0.038 | -0.113 | 0.031 | -0.103 |
| <i>Large</i> | 0.185 | 0.208 | -0.016 | 0.193 | 0.047 | -0.086 | 0.031 | -0.066 |
| <i>Total</i> | 0.085 | 0.220 | -0.017 | 0.202 | 0.009 | -0.152 | 0.027 | -0.009 |

Table 5: Commercial Policy, Tax Reform, and Unit Production Costs (Equation 7)
Output Weighted Averages

| Industry | <i>net unit cost growth</i> | <i>tariff effect, outputs (i)</i> | <i>Tariff effect, inputs (ii)</i> | <i>effective protection effect (i)+(ii)</i> | <i>Other relative price effects</i> | <i>residual productivity effects</i> | <i>domestic tax effects</i> | <i>real output growth</i> |
|-------------------------------------|-------------------------------------|---|---|---|---|--|-------------------------------------|-------------------------------|
| <i>Food</i> | 0.291 | 0.172 | -0.043 | 0.129 | 0.399 | -0.262 | 0.025 | 0.090 |
| <i>Textiles</i> | -0.070 | 0.269 | 0.009 | 0.278 | -0.110 | -0.258 | 0.021 | 0.133 |
| <i>wood products</i> | 0.080 | 0.355 | 0.000 | 0.355 | -0.107 | -0.177 | 0.008 | 0.091 |
| <i>metal products</i> | 0.018 | 0.378 | -0.011 | 0.367 | -0.244 | -0.135 | 0.030 | -0.242 |
| <i>Domestic Input Intensive</i> | 0.009 | 0.264 | -0.017 | 0.247 | -0.092 | -0.171 | 0.025 | 0.216 |
| <i>Imported Input Intensive</i> | 0.198 | 0.231 | -0.021 | 0.210 | 0.246 | -0.283 | 0.024 | -0.093 |
| <i>Non-Exporters 92-93</i> | 0.249 | 0.118 | -0.038 | 0.080 | 0.548 | -0.396 | 0.016 | 0.140 |
| <i>Exporters 92-93</i> | 0.049 | 0.312 | -0.010 | 0.302 | -0.131 | -0.151 | 0.029 | -0.015 |
| <i>Non-Exporters 94-95</i> | 0.253 | 0.125 | -0.035 | 0.091 | 0.108 | 0.021 | 0.033 | -0.196 |
| <i>Exporters 94-95</i> | 0.080 | 0.278 | -0.015 | 0.026 | 0.101 | -0.306 | 0.022 | 0.103 |
| <i>Small</i> | 0.204 | 0.175 | -0.038 | 0.137 | 0.165 | -0.128 | 0.030 | -0.261 |
| <i>Medium</i> | 0.137 | 0.191 | -0.016 | 0.175 | 0.389 | -0.447 | 0.021 | 0.171 |
| <i>Large</i> | 0.103 | 0.277 | -0.020 | 0.257 | -0.049 | -0.131 | 0.026 | -0.015 |
| <i>Total</i> | 0.118 | 0.245 | -0.020 | 0.226 | 0.103 | -0.235 | 0.025 | 0.038 |

**Table 6: Commercial Policy, Tax Reform, and Unit Production Costs (Equation 7)
Medians**

| Industry | <i>net unit cost growth</i> | <i>tariff effect, outputs (i)</i> | <i>tariff effect, inputs (ii)</i> | <i>effective protection effect (i)+(ii)</i> | <i>other relative price effects</i> | <i>residual productivity effects</i> | <i>domestic tax effects</i> | <i>real output growth</i> |
|-------------------------------------|-------------------------------------|---|---|---|---|--|-------------------------------------|-------------------------------|
| <i>Food</i> | 0.336 | 0.203 | -0.012 | 0.148 | 0.115 | 0.046 | 0.011 | -0.103 |
| <i>Textiles</i> | 0.143 | 0.244 | 0.000 | 0.244 | -0.052 | -0.248 | 0.027 | 0.117 |
| <i>wood products</i> | 0.130 | 0.356 | 0.000 | 0.356 | -0.081 | -0.176 | 0.000 | 0.032 |
| <i>metal products</i> | 0.205 | 0.213 | -0.030 | 0.180 | -0.012 | -0.144 | 0.024 | -0.315 |
| <i>Domestic Input Intensive</i> | 0.156 | 0.244 | -0.000 | 0.238 | -0.029 | -0.187 | 0.009 | 0.083 |
| <i>Imported Input Intensive</i> | 0.278 | 0.215 | -0.020 | 0.213 | 0.147 | -0.030 | 0.018 | -0.313 |
| <i>Non-Exporters 92-93</i> | 0.278 | 0.215 | -0.008 | 0.215 | 0.079 | -0.038 | 0.004 | 0.002 |
| <i>Exporters 92-93</i> | 0.022 | 0.271 | -0.001 | 0.262 | -0.157 | -0.151 | 0.042 | -0.151 |
| <i>Non-Exporters 94-95</i> | 0.324 | 0.215 | -0.000 | 0.215 | 0.027 | 0.046 | 0.009 | -0.298 |
| <i>Exporters 94-95</i> | 0.001 | 0.255 | -0.012 | 0.254 | 0.026 | -0.257 | 0.021 | 0.167 |
| <i>Small</i> | 0.205 | 0.233 | 0.000 | 0.215 | 0.030 | -0.155 | 0.004 | 0.018 |
| <i>Medium</i> | 0.182 | 0.179 | -0.013 | 0.186 | -0.093 | -0.094 | 0.017 | -0.094 |
| <i>Large</i> | 0.259 | 0.243 | -0.004 | 0.246 | 0.078 | -0.117 | 0.027 | -0.162 |
| <i>Total</i> | 0.205 | 0.233 | -0.003 | 0.229 | 0.027 | -0.144 | 0.011 | -0.103 |

**Table 7: Traditional Effective Rates of Protection
Unweighted Averages and Standard Deviations**

| | | <i>ALL</i> | <i>Food</i> | <i>Textile</i> | <i>Wood Product</i> | <i>Metal & Metal Product</i> | <i>Non Exporters</i> | <i>Exporter</i> | <i>Domestic Input Intensive</i> | <i>Imported Input Intensive</i> | <i>Small</i> | <i>Medium</i> | <i>Large</i> |
|------------------------|------|------------|-------------|----------------|-------------------------|--|--------------------------|-----------------|---|---|--------------|---------------|--------------|
| <i>Number of firms</i> | | 34 | 14 | 9 | 4 | 7 | 24 | 10 | 18 | 16 | 16 | 11 | 7 |
| <i>Only imports</i> | | | | | | | | | | | | | |
| | Mean | 1.6 | 1.46 | 1.83 | 2.27 | 1.18 | 1.58 | 1.65 | 1.73 | 1.45 | 1.84 | 1.6 | 1.04 |
| ERP: | Std. | 0.9 | 0.94 | 1.01 | 0.5 | 0.64 | 0.87 | 1.02 | 0.7 | 1.08 | 0.79 | 1.06 | 0.69 |
| 92-93 | Max. | 4.02 | 3.2 | 4.02 | 2.88 | 2.21 | 3.2 | 4.02 | 3.2 | 4.02 | 3.2 | 4.02 | 2.45 |
| | Min. | 0.22 | 0.22 | 0.7 | 1.79 | 0.45 | 0.22 | 0.7 | 0.7 | 0.22 | 0.22 | 0.52 | 0.3 |
| | Mean | 0.59 | 0.68 | 0.51 | 0.8 | 0.42 | 0.69 | 0.37 | 0.73 | 0.45 | 0.78 | 0.4 | 0.46 |
| ERP: | Std. | 0.34 | 0.4 | 0.26 | 0.17 | 0.27 | 0.34 | 0.19 | 0.33 | 0.28 | 0.36 | 0.26 | 0.08 |
| 94-95 | Max. | 1.69 | 1.69 | 0.94 | 1.01 | 0.79 | 1.69 | 0.66 | 1.69 | 1.2 | 1.69 | 0.96 | 0.59 |
| | Min. | 0.1 | 0.23 | 0.1 | 0.63 | 0.11 | 0.23 | 0.1 | 0.31 | 0.1 | 0.23 | 0.1 | 0.37 |
| <i>All inputs as</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 |
| ERP: | Std. | 0.81 | 0.67 | 1.14 | 0.25 | 0.66 | 0.67 | 1.05 | 0.46 | 1.07 | 0.68 | 1.04 | 0.75 |
| 92-93 | Max. | 4.02 | 2.33 | 4.02 | 1.46 | 2.21 | 2.33 | 4.02 | 2.29 | 4.02 | 2.29 | 4.02 | 2.54 |
| | Min. | 0.24 | 0.24 | 0.49 | 0.92 | 0.45 | 0.24 | 0.58 | 0.3 | 0.24 | 0.24 | 0.41 | 0.26 |
| | Mean | 0.35 | 0.37 | 0.36 | 0.29 | 0.34 | 0.39 | 0.25 | 0.33 | 0.37 | 0.4 | 0.26 | 0.37 |
| ERP: | Std. | 0.17 | 0.15 | 0.18 | 0.03 | 0.25 | 0.14 | 0.2 | 0.14 | 0.2 | 0.16 | 0.16 | 0.19 |
| 94-95 | Max. | 0.79 | 0.68 | 0.61 | 0.32 | 0.79 | 0.79 | 0.61 | 0.68 | 0.79 | 0.79 | 0.46 | 0.61 |
| | Min. | 0.03 | 0.03 | 0.1 | 0.25 | 0.07 | 0.23 | 0.03 | 0.03 | 0.07 | 0.23 | 0.07 | 0.03 |

References

- Baldwin, Richard E. and Paul Krugman. 1989. "Persistent Trade Effects of Large Exchange Rate Changes." *Quarterly Journal of Economics* 104(4): 635-54.
- Balassa, Bela. 1965. "Tariff Protection in Industrial Countries: An Evaluation." *Journal of Political Economy*. 73(6): 573-94.
- Chamber, Robert G. 1988. *Applied Production Analysis*. New York: Cambridge University Press.
- Clerides, S.K., Lach, S. and Tybout, J. 1998. "Is learning by exporting important? Micro-dynamic evidence from Colombia, Mexico and Morocco," *Quarterly Journal of Economics* 113(3): 903-947.
- Devarajan, Shanta. 1996. "How Overvalued was the CFA Franc? Estimates of Real Exchange Rate Misalignment with a Simple General Equilibrium Model." Processed. The World Bank, Washington, D.C.
- Dixit, Avinash. 1989. "Entry and Exit Decisions Under Uncertainty." *Journal of Political Economy* 97(3): 620-38
- Gauthier, Bernard (ed.) 1995 "Economic Reform and the Development of the Manufacturing Sector in Cameroon", RPED Paper 44, The World Bank, Washington, D.C.
- Gauthier, Bernard and Mark Gersovitz. 1997. "Revenue Erosion Through Exemption and Evasion in Cameroon, 1993", *Journal of Public Economics*, 64(3): 407-424.
- Head, Keith and John Reis. 1999. "Rationalization Effects of Tariff Reductions," *Journal of International Economics* 47(2): 295-320.
- Hopenhayn, Hugo and Richard Rogerson. 1993. "Job Turnover and Policy Evaluation: A General Equilibrium Analysis." *Journal of Political Economy* 101: 915-938.
- Michael, Michael, Demetris Papageorgiou, and Armeane Choksi. 1991. *Liberalizing Foreign Trade: Lessons of Experience in the Developing World. Volume 7*. Cambridge, MA: Basil-Blackwell for the World Bank.
- Sullivan, Theresa, James Tybout and Mark Roberts. 1995. "What Makes Exports Boom? Evidence from Plant-Level Panel Data," processed, The World Bank, Washington D.C.
- Tybout, James, Gauthier, Bernard; Barba Navaretti, Giorgio; de Melo, Jaime 1997, "Firm-Level Responses to the CFA Devaluation in Cameroon", *Journal of African Economies*, 6(1): 3-34.

World Bank 1992. *Regional Cooperation for Adjustment: A Program of Trade and Indirect Tax Policy Reforms for Member Countries of the Customs Union of Central African States (UDEAC)*. Report No.9747-AFR. Washington D.C.: The World Bank, Washington, D.C.

World Bank. 1994. *Adjustment in Africa: Reforms, Results and the Road Ahead*. New York: Oxford University Press

World Bank. 1995. *Republic of Cameroon. The Challenge: Harnessing Unrealized Potential (A Private Sector Assessment Report No. 13955-CM, Washington, D.C.*

APPENDIX

Fiscal and commercial policy before 1994¹³

Prior to 1994, firms that did *not* enjoy access to any of the special programs (UDEAC-wide or Cameroon) were subject to the following direct and indirect (sales) taxes:

- a) *Impôt sur le chiffre d'affaires intérieur* (ICAI): Businesses in all the 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.¹⁴
- b) *Impôt sur les bénéfices industriels et commerciaux* (BIC) and *Impôt minimum forfaitaire* (IMF): Cameroon businesses were also required to pay a company tax comprising the highest of the following taxes: (i) 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; (ii) a 1 percent tax on sales; and (iii) the IMF, a minimum presumptive tax.¹⁵
- c) *Contribution des patentes*: In addition, 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).
- d) *Impôt spécial sur les sociétés*: Cameroonian corporations were subject to a special tax on corporations, applied to capital at rates varying between 0.5 percent and 1.5 percent. A variety of other registration fees and taxes were also applicable. These included a registration fee for corporate charters (DESCA and DESBI) charged at a rate of between 0.25 percent and 2 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*, TPRCM) for corporations paying dividends or fees to associates and shareholders. Residents were charged 16.5 percent and non-residents 25 percent. Other taxes included duties on property leases, labor housing rental, stamp duties, advertising fees, together with tax licences on land, mining and forests.

¹³ This section is based on World Bank (1992, 1995) and Gauthier and Gersovitz (1997)

¹⁴ The ICAI was a cascading tax, since 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 production tax increased with the number of intermediaries.

¹⁵ Businesses in their first two years of operation were exempt from the IMF (600,000 CFAF) and 1 percent tax although they had to pay the BIC. During years 3 and 4, their IMF and 1 percent tax obligations were reduced by half.

- e) Finally, Cameroon corporations were subject to taxes on insurance contracts, trade union income tax, an apprenticeship tax and various community taxes.

Producers subject to full taxation who engaged in international trade faced the following additional fiscal obligations:

- a) 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 varying from 5 percent to 30 percent on all products, regardless of origin. The *Droits d'Entrée* (DE) also applied to all products and origins, with rates varying between 5 percent and 90 percent, although certain goods were exempt. The *Taxe sur le chiffre d'affaires à l'importation* (TCAI) was imposed at a rate of 10 percent of the CFAF value plus DD+DE. Finally, the *Taxe complémentaire à l'importation* (TC) was charged ad valorem, with rates varying between 0 and 100 percent.
- b) 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:

- a) *Tax 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, since products were exempt from duties. Finally, 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.
- b) *Taxe Intérieure à la Production* (TIP) Since access to the TU proved difficult, 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 UDEAC.
- c) *Investment Code*. Major tax concessions were also available under the Investment Code (IC). The IC was augmented in 1990 with the help of FIAS and USAID, and provided tax

exemptions and reductions for firms meeting the Code 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 (see below).¹⁶ In contrast to the TU/TIP rates, which could be negotiated with the authorities, IC benefits were supposedly non-negotiable. However, benefits under the TU/TIP and IC regimes were not mutually exclusive. Thus a firm could benefit under more than one scheme at once.

- d) *Zone Franc and Point Franc* Free trade zones (FTZ) 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 FTZ, 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 itself 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 material. Free trade status brought full exemption from international and indirect taxes, and profit taxes were imposed at a reduced rate.
- e) *Convention Spéciale* (CS) 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

Decrees were adopted in Cameroon on January 24, 1994, to implement the fiscal and trade reforms. These reforms included four components affecting external trade:

- a) *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. Also, all external trade privileges under the Investment Code and special production regimes (TU, TIP, Conventions d'établissement) were eliminated.
- b) Imports were classified into four categories, with tariff rates ranging from 5 percent to 30 percent, compared with rates ranging from 0 percent to 500 percent under the previous system.

¹⁶ For more details on the eligibility criteria and the benefits associated with each regime, see RPED (1993a), Table 5, Appendix C.

- c) *Tarif preferentiel generalise* (TPG) A general preferential tariff was introduced for trade between UDEAC countries, with an initial rate fixed at 20 percent of the applicable TEC.¹⁷
- d) 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. The specific measures were:

- a) The elimination of all indirect tax privileges under the special production regimes (TU, TIP, Conventions d'etablissement) and the Investment Code, except the Free Trade Zone.
- b) The introduction of a "Taxe sur le chiffre d'affaire" (TCA) (sales tax), a quasi-VAT tax applicable to domestic production and to imported inputs and intermediates, replacing the former sales and production tax (ICAI, TU, TIP). 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.¹⁸
- c) The 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 1994-1995 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.

¹⁷ This rate was to be reduced to 10 percent on January 1 1996 and 0 percent on January 1 1998.

¹⁸ We use the term "quasi" because firms initially paid taxes on their purchases, then periodically applied to the government for reimbursement.

Notably, the reforms left the free trade zone (FTZ) intact. Hence, qualifying firms continue to enjoy full exemption from import duties and TCA, and are excused from income taxes in the first 10 ten years of their existence.¹⁹ Also, exporters not in the FTZ 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.

¹⁹ Firms that already existed before the creation of the FTZ pay an income tax of 15 percent instead of the normal rate (38.5 percent).

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