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**Why do Nigerian manufacturing firms
take action on AIDS?**

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Abstract

Objective: To identify differences between manufacturing firms in Nigeria that have undertaken HIV/AIDS prevention activities and those that have not as a step toward improving the targeting of HIV policies and interventions.

Methods: A survey of a representative sample of registered manufacturing firms in Nigeria, stratified by location, workforce size, and industrial sector. The survey was administered to managers of 232 firms representing most major industrial areas and sectors in March-April 2001.

Results: 45.3 percent of the firms' managers received information about HIV/AIDS from a source outside the firm in 2000; 7.7 percent knew of an employee who was HIV-positive at the time of the survey; and 13.6 percent knew of an employee who had left the firm and/or died in service due to AIDS. Only 31.7 percent of firms took any action to prevent HIV among employees in 2000, and 23.9 percent had discussed the epidemic as a potential business concern. The best correlates of having taken action on HIV were knowledge of an HIV-positive employee or having lost an employee to AIDS (odds ratio [OR] 6.36, 95% confidence interval [CI]: 2.30, 17.57) and receiving information about the disease from an outside source (OR 7.83, 95% CI: 3.46, 17.69).

Conclusions: Despite a nationwide HIV seroprevalence of 5.8 percent, as of 2001 most Nigerian manufacturing firm managers did not regard HIV/AIDS as a serious problem and had neither taken any action on it nor discussed it as a business issue. Providing managers with accurate, relevant information about the epidemic and practical prevention interventions might strengthen the business response to AIDS in countries like Nigeria.

Introduction

Across sub-Saharan Africa, national governments, international agencies, and bilateral donors are looking to the private sector for leadership, resources, and action in the fight against HIV/AIDS. A few companies have responded energetically, joining national and international AIDS business councils, implementing “best practice” prevention and treatment programs, and sponsoring local NGOs that educate communities and care for the sick and the orphans they leave behind.¹ Many other companies have done little or nothing in response to the epidemic. Understanding what motivates the first set of firms to take action while the second set does nothing would improve the ability of UNAIDS, the World Bank, governments, donors, and national business councils to adopt effective policies, target interventions, and plan for the future.

Within the sub-Saharan region, Nigeria is of particular concern in the AIDS battle because of its large population, economic importance, newly democratic government, and fragile balance among ethnic and religious groups. Using data from public antenatal clinics, Nigeria in 2001 estimated its mean adult HIV prevalence to be 5.8 percent. This rate is modest in comparison to the double-digit rates of southern and eastern Africa, but given Nigeria’s large population it implies that the country has more than 3 million HIV-positive adults. Moreover, the national median rate masks tremendous geographic variation among the antenatal clinics surveyed, from a low of 1.0 percent to a high of 15.0 percent.^{2†}

In view of this geographic variation in HIV prevalence, one would expect that some Nigerian companies are losing employees to AIDS rather frequently, while others might have seen very little of the disease. In March and April of 2001, we participated in a World Bank survey of some 230 formal-sector manufacturing firms in Nigeria, in an attempt to understand how AIDS is affecting Nigerian businesses, what they are doing about it, and why.[§]

Methods

Survey sample

The survey was designed by the Regional Program for Enterprise Development of the World Bank’s Africa Region and implemented by World Bank staff and consultants and six teams of local interviewers recruited by the Nigerian offices of an international accounting firm. It was administered to a representative, stratified sample of Nigerian manufacturing firms that were registered in the country in 1996. Stratifiers included industrial sector, workforce size, and location.^{**} The 232 firms surveyed ranged in size from 5 employees to just under 5,000. The human resources director or personnel

† The previous antenatal survey, carried out in 1999, revealed even greater variation, from 0.5 percent prevalence at the least affected sentinel site to 21 percent at the most.³

§ The full results of the survey are described in the Regional Program for Enterprise Development, Africa Region, World Bank report, “The implications of HIV/AIDS for Nigerian manufacturing firms. Results of the HIV/AIDS component of the RPED Nigeria survey, March-April 2001,” Center for International Health of the Boston University School of Public Health.

** A detailed description of the sample frame and the final sample is contained in Marchat et al.⁴

manager in each firm was the principal respondent for the questions about HIV/AIDS. If such a person did not exist within the firm or was unavailable, the owner or general manager was interviewed.

Table 1 summarises the distribution of firms by industrial sector and size. The firms represented 10 manufacturing sectors. Of the 232 firms surveyed, 103 had fewer than 100 employees, 95 had between 100 and 500 employees and 32 had more than 500 employees.

Statistical Analysis

We used logistic regression models to analyse correlates of firm actions in response to HIV/AIDS. The dependent variables in the models referred to the following three possible actions:

1. Firm provided information to employees: handed out informational materials, put up posters, or arranged for speakers or performances about AIDS prevention.
2. Firm undertook proactive prevention measures: distributed condoms on company premises or trained employees to serve as peer educators or counsellors.
3. Managers of the company have discussed HIV/AIDS as a potential business concern.

We hypothesized that firms' actions were influenced by the availability of information about HIV/AIDS, firm characteristics, and managers' experience with the disease. The independent variables we constructed to capture these effects can be categorized as follows:

Variables related to information:

- Firm received information about HIV/AIDS last year, from any source.
- Firm received information from the government.
- Firm received information from a health or medical organisation.

Variables related to firm characteristics:

- Ownership: private vs. government-owned, listed on the Nigerian stock market, ethnic origin of owners (if private).
- Size: total number of employees, total annual sales.
- Formal status and practices: legal rights to the business site, keeps accounts on an annual basis, has accounts audited by an outside agency.
- Financial status: gross profits before taxes last accounting year.
- International linkages: part of a family of firms or an industrial group, percent of production that is directly exported.
- Medical: has on-site medical clinic.

Variables related to disease experience:

- Someone currently working for the firm is known to be HIV-positive.
- In the last two years, someone who worked for the firm died or left the company due to HIV/AIDS.
- Median 2001 HIV prevalence rate at antenatal clinics in state where firm is located. We constructed this variable using the results of Nigeria's 2001 antenatal clinic survey.² Based on the antenatal HIV rates, we classified Nigerian states into three "prevalence regions," as shown in Table 2.

We first estimated univariate models, in which we regressed each dependent variable on the independent variables one at a time. The final model was constructed using a backwards elimination selection process and confirmed with a forward selection process. Statistical analyses were carried out using the SAS System (SAS Institute Inc., Cary, NC) version 8.2. Odds ratios and 95 percent confidence intervals were predicted from logistic regression parameter estimates and Wald confidence intervals using PROC LOGISTIC.

Results

Questions about firms' awareness of HIV/AIDS, the actions they had taken, and the proportion of firms responding affirmatively to each question are shown in Table 3. More than 45 percent of the managers reported receiving information from outside the company about HIV/AIDS in the past year. Of the firms that did receive information from external sources, the main sources of information were health or medical organisations (62.9 percent) or the government (48.5 percent). Just 13.6 percent of the managers reported being aware of an AIDS-related death or retirement in the past two years, and even fewer—only 7.7 percent—knew of anyone in the company who was currently HIV positive.

Almost a third (31.7 percent) of the managers reported company activities to prevent HIV/AIDS among employees. Providing information, putting up posters, and arranging for speakers were far more frequent activities than those requiring a greater effort or investment, such as distributing condoms, training employees as peer educators and counsellors, treating STDs, or implementing HIV prevention projects in the community. Fewer than a quarter of the respondents (23.9 percent) reported that the managers of the company had discussed HIV/AIDS as a potential business concern.

Table 4 shows the univariate odds ratios and 95 percent confidence intervals for correlates of actions that firms are taking against HIV/AIDS. Correlates for providing information to employees included being listed on the Nigerian stock market, European ownership, large total number of employees, large gross profits, belonging to a family of firms or industrial group, having an on-site medical clinic, knowledge of someone currently in the workforce being HIV positive, and knowledge of someone who worked for the firm having died or left the company due to HIV/AIDS in the past two years. Correlates for taking more proactive prevention measures were the same as the correlates for providing information, with the exception of belonging to a family of firms or

industrial group. Correlates for the managers of the firm discussing HIV/AIDS as a potential business concern were high percentage of government ownership, being listed on the Nigerian stock market, large number of employees, and knowledge of someone who worked for the firm having died or left the company due to HIV/AIDS in the past two years.

Table 5 shows the multivariate regression odds ratios and 95 percent confidence intervals for correlates of actions that firms were taking against HIV/AIDS. In these models, only those correlates that were statistically significant at the 0.05 level were included. Having received information about HIV/AIDS last year from any source was a predictor common to all three actions. Identifying someone with HIV/AIDS currently in the workforce or who left the firm due to HIV/AIDS in the past two years was a correlate of providing information to employees or taking proactive prevention measures.

Discussion

Involving the private sector in the social response to the HIV/AIDS epidemic is important. The earlier the Nigerian business community engages with the issue, the greater chance it has to mitigate the types of economic impacts already seen in southern Africa.⁵ This study was the first in Nigeria to attempt to relate firm response to HIV/AIDS to firm characteristics, experience with HIV/AIDS, and the availability of information in order to understand which firms take action and why. Identifying the determinants of business decisions, and thus the steps that international agencies, regional economic and political communities, national and local governments, and civil society can take to encourage a strong business response, will improve resource allocation, policy formulation, and program design.

Our finding that managers' first-hand knowledge of HIV-positive employees is strongly associated with decisions to take action is consistent with behavior-change experience in both developed and developing countries.⁶ The small number of managers who reported knowing of a current or former employee with HIV/AIDS might reflect the relatively low prevalence of HIV in some parts of Nigeria. On the other hand, knowledge of an HIV-positive employee or an AIDS death might also depend on how well-informed a manager is about AIDS and the health of the workforce. In some parts of sub-Saharan Africa, the cause of death for those with AIDS is typically reported as an opportunistic infection or specific symptom.⁷ The stigma and potential sanctions associated with AIDS in Nigeria, moreover, mean that employees might go to great lengths to hide evidence of HIV infection from their employers. For these reasons, we suspect that far more than 14 percent of the companies in the survey had lost employees to AIDS and far more than 8 percent had HIV-positive employees in their workforces at the time of the survey.

The results of our survey can be considered both good news and bad. To start with the bad news: as of 2001, most of the Nigerian business managers sampled did not regard HIV/AIDS as a serious concern and had neither taken any action on it nor discussed it as a management issue. While discouraging, this finding is not surprising when taken in the context of the climate for business in Nigeria overall. Nigerian firms face extraordinarily

high costs for basic inputs, such as electricity and water, and for a range of transactions with government agencies (e.g. customs and tax collection services), labour unions, and private institutions like banks.⁴ We believe that these other problems are keeping HIV off the list of priority concerns of Nigerian managers—and may continue to do so for some time to come. When combined with the fact that most Nigerian managers sampled in this survey believed they had never seen a case of AIDS, it is not difficult to understand their lack of concern. Expectations that business will take a leading role in fighting the epidemic in Nigeria may thus be unrealistic, or at least premature. At the same time, persuading managers to act now, before it is too late to stem the tide of the epidemic, is of critical importance.

The good news is that it might be possible to influence firm behaviour through practical, low-cost interventions. In this study of Nigerian firms, managers' access to information and experience with AIDS in the workforce were significant predictors of action. A program that provides high-quality, relevant information may thus be effective in improving the business response to AIDS. Pressure from head offices of multinational corporations on their national subsidiaries also appeared to influence decisions. Voluntary, anonymous HIV seroprevalence surveys of workforces, a practice that has become common in South Africa,⁸ might prompt managers to take action if the surveys reveal that there are many more HIV-positive employees in the workforce than managers realize. Promotion of voluntary counselling and testing (VCT) might achieve similar ends, if the aggregate results were available. Ensuring that accurate, relevant information about HIV/AIDS prevalence, costs, risk factors, and prevention makes its way into boardrooms and executive offices—precisely the function of global and national business councils on AIDS—may not be sufficient to induce behaviour change, but it is almost certainly a necessary component of a broad and sustained business response.

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Table 1: Number of firms in the sample, classified by industrial sector and number of employees

Industrial sector	Number surveyed firms having:			
	<100 employees	100-500 employees	>500 employees	Total
Food or beverage processing	11	17	6	34
Wood, furniture, or leather	14	4	1	19
Textiles or garments	5	8	15	28
Metal	10	20	1	31
Machinery and tools	4	4	2	10
Nonmetal	8	9	1	18
Chemicals and paints	13	10	3	26
Pharmaceuticals	11	8	2	21
Plastics	14	8	1	23
Paper/printing	13	7	0	20
Total	103	95	32	230

Note: Of the 232 firms in the sample, 230 responded to the questions relevant to HIV/AIDS and were included in the analysis.

Table 2: Number of firms in the sample classified by 2001 HIV prevalence region

Low prevalence region (<4% HIV prevalence)	Medium prevalence region (4-8% HIV prevalence)	High prevalence region (>8% HIV prevalence)
Abia (15 firms, 3.3% prevalence) Jigawa (3, 1.8%) Kano (32, 3.8%) Lagos (98, 3.5%) Ogun (10, 3.5%) (158 firms: 68% of total)	Anambra (14 firms, 6.5% prevalence) Enugu (3, 5.2%) Kaduna (17, 5.6%) Kwara (4, 4.3%) Oyo (17, 4.2%) River (10, 7.7%) (65 firms: 28% of total)	Benue (5 firms, 13.5% prevalence) Plateau (4, 8.5%) (9 firms: 4% of total)

Table 3: Proportion of managers responding affirmatively to questions about HIV/AIDS

Question	Number of firms whose managers responded to question (n) ^(a)	Proportion responding "Yes"
1. Did you receive any information from outside the company about HIV/AIDS last year? <i>If "yes," the source was:</i>	225	45.3%
<i>Proportion of those responding "Yes"</i>		
Government	48.5%	
Religious organisation	11.0%	
Health or medical organisation	62.9%	
Other NGO	28.7%	
Other	7.4%	
2. To your knowledge, is anyone in your company currently HIV-positive?	196	7.7%
3. To your knowledge, has anyone in your workforce died or left your company in the past two years due to HIV/AIDS?	214	13.6%
4. Did your firm undertake any activities in the last accounting year to prevent HIV/AIDS among employees? If yes, what did you do?	227	31.7%
<i>Proportion of those responding "Yes"</i>		
Handed out informational materials	61.6%	
Put up posters	64.4%	
Arranged for speakers or performances about AIDS prevention	70.3%	
Distributed condoms on company premises	34.7%	
Trained employees to serve as peer educators or counsellors	20.8%	
Provided additional resources for STD treatment	5.6%	
Implemented HIV prevention projects in the community	4.2%	
Other	10.3%	
5. Have the managers of your company discussed HIV/AIDS as a potential business concern?	226	23.9%

^(a) Although a total of 232 firms participated in the survey, not all questions were answered by managers at all firms.

Table 4: Univariate odds ratios and 95% confidence intervals for predictors of actions that firms are taking against HIV/AIDS

Predictor	Actions that firms are taking against HIV/AIDS		
	Firm provided information to employees	Firm undertook proactive prevention measures	Managers of the firm have discussed HIV/AIDS as a potential business concern
Government ownership (%)	1.00 (0.99 1.02)	1.00 (0.98 1.02)	1.02 (1.00 1.04)*
Foreign ownership (%)	1.00 (0.99 1.01)	1.00 (0.99 1.01)	1.00 (0.99 1.01)
Listed on Nigerian stock market	2.77 (1.34 5.72)*	5.952 (2.56 13.82)*	2.16 (1.00 4.66)*
Indian ownership	0.99 (0.39 2.54)	1.03 (0.28 3.82)	1.17 (0.45 3.04)
Lebanese ownership	0.85 (0.22 3.26)	0.00 (0.00 1000.00)	1.12 (0.29 4.39)
European ownership	3.64 (1.26 10.5)*	4.92 (1.57 15.47)*	1.12 (0.34 3.72)
Other ownership	1.89 (0.87 4.10)	1.37 (0.46 4.06)	1.03 (0.43 2.51)
Total number of employees	1.00 (1.00 1.00)*	1.00 (1.00 1.00)*	1.00 (1.00 1.00)*
Keeps accounts on an annual basis	0.93 (0.08 10.45)	0.31 (0.03 3.51)	0.16 (0.01 1.76)
Accounts audited by an outside agency	3.18 (0.7 14.49)	2.320 (0.29 18.32)	2.01 (0.44 9.3)
Gross profits before taxes last accounting year (millions of Naira)	1.00 (1.00 1.01)*	1.00 (1.00 1.01)*	1.00 (1.00 1.01)
Part of a family of firms or industrial group	2.66 (1.41 5.04)*	2.17 (0.89 5.30)	0.98 (0.52 1.85)
Percent of production directly exported	1.02 (1.00 1.04)	0.99 (0.95 1.03)	1.02 (1.00 1.04)
Has on-site medical clinic	4.18 (2.29 7.64)*	4.18 (1.87 9.35)*	1.86 (0.99 3.50)
Someone in the firm is known to be HIV positive	4.16 (1.41 12.29)*	5.69 (1.82 17.73)*	2.33 (0.78 6.95)
In the last two years someone who worked for the firm died or left the company due to HIV/AIDS	6.91 (2.94 16.26)*	6.04 (2.45 14.87)*	2.348 (1.02 5.39)*
Mean 2001 HIV antenatal prevalence rate in state where firm is located	1.07 (0.93 1.23)	1.08 (0.90 1.29)	1.08 (0.93 1.26)

* indicates significance at $p < 0.05$

Table 5: Multivariate odds ratios and 95% confidence intervals for predictors of actions that firms are taking against HIV/AIDS (only results that were statistically significant at the 5 percent level are shown)

Predictor	Actions that firms are taking against HIV/AIDS		
	Firm provided information to employees	Firm undertook proactive prevention measures	Managers of the firm have discussed HIV/AIDS as a potential business concern
Firm received information about HIV/AIDS last year, from any source	7.83 (3.46 17.69)	9.64 (2.69 34.42)	2.77 (1.37, 5.59)
Part of a family of firms or industrial group	2.86 (1.22 6.71)		
Has on-site medical clinic	2.22 (1.04 4.76)		
Someone in the firm is known to be HIV positive and/or In the last two years someone who worked for the firm died or left the company due to HIV/AIDS	6.36 (2.30 17.57)	4.20 (1.57 11.25)	
Listed on Nigerian stock market		4.39 (1.60 12.05)	