

SECURITY SECURES INVESTMENT

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(Disclaimer: The views expressed in this paper are those of the authors and do not necessarily represent those of the IMF or IMF policy.)

Abstract: *This study looks at the relationship between insecurity challenges arising from criminal activities and private sector investment using firm level data. It assumes demand, costs of production, and profitability of the firm. Results show that when exposed to actual and/or perceived insecurity, firms tend to slow their investment. Since providing security infrastructure, and this encourages them to increase their investment. Although firms tend to sustain their profits by pushing a proportion of the costs of providing own possible loss of market share with changing consumer behavior heightens uncertainty on profitability and deters investment. Even if there are prospects for future profitability investments as this has implications on their cash flows and ability to mobilize resources to finance investments. Further, when there are no significant disruptions on the production it is important that adequate security is provided to maintain market confidence and reduce vulnerabilities to investment returns.*

Introduction

Security of persons and property is a major concern in the development process as it influences the status of business environment and therefore the readiness by the private sector to engage in economic activity (Fries et al., 2003). As a risk factor, rising crime creates uncertainty in investment returns as it impacts on consumer behavior, production costs, and market conditions. As a result, investment rate goes down as investors postpone their investment activities (Glaser, 1999). It is for this reason that faced with external security threats and rising criminal activities, Kenya government is implementing a wide range of reforms to ensure safety and security is maintained in support of economic activity.

The composition of reported crime in Kenya has changed overtime as noted in Table 1. Offences against persons and economic crime have increased while breakings have declined. Robbery shows an increasing trend in the recent period. Businesses are threatened by various categories of crime including burglary of business premises, theft of stock (including goods) and destruction of private property. Such crime threatens investment on irreversible capital due to the risk of property destruction. It also scales down business operations as it interferes with the production process increasing the opportunity cost to the private investors in terms of foregone opportunities and profits, and to the economy in terms of loss of productive opportunity and possible employment opportunity. Crime on persons creates uncertainty in the potential market for business activities making sales revenue vulnerable.

Table 1. *Number of Crimes Reported to the Police*

Year	Reported crime (total)	Robbery	Breaking	Theft of stock	Economic crime	Offences against persons	Drugs
2005	75400	6936	8454	2219	1390	22770	6356
2006	72225	5234	7420	2209	1873	24338	5821
2007	63028	3492	6337	1558	1908	23416	5401
2008	63476	3401	6626	2269	1898	21649	4407
2009	72255	2938	7053	2879	2324	26822	5541
2010	70779	2843	6453	2244	2662	27068	5081
2011	75733	3262	7325	2269	3036	27488	4649
2012	77852	3262	7578	2377	3369	28265	4181
2013	71832	3551	6397	1965	2750	27001	4316

Source: Kenya Economic Surveys, Various issues.

While the relationship between investment and uncertainty is debatable, part of the literature show evidence of a negative relationship between investment and uncertainty (for example, Leahy and Whited, 1996; Guiso and Parigi, 1999; Pattillo, 1998; Ghosal and Loungani, 2000 and Pindyck, 1993). These studies focus on uncertainty on output prices, consumer demand, firm profitability, and workers' wages given that all these factors influence investment returns. These studies though do not look at these factors as possible channels through which insecurity challenges can influence investment decisions.

This paper examines the relationship between insecurity and investment decision at firm level. The rest of the paper is organised as follows. Section two covers the empirical

framework, section three discusses the regression results and section four concludes the paper.

Empirical Framework

Insecurity¹ influences investment decisions as criminal activities have implications on the firm's ability to access and sustain the market demand, costs of production and profitability in general. Market condition may reflect changes in consumer tastes and preferences, constrained distribution of goods and services, and increased insecurity risk premium on prices of goods and services. Costs of production are affected by difficulties in accessing raw materials and utilities, and changing working shifts for workers. Given that insecurity has implications on prospects for future profitability of a firm, this study uses the Tobin's Q model as the basic investment model and introduces insecurity related variables and other control variables.

The study uses the following model for analysis.

$$INVEST = \beta_0 + \beta_1 PROFIT + \beta_2 SALE + \beta_3 PRODR + \beta_4 CONP + \beta_5 COST + \beta_6 CRIME + \beta_7 PRICE + \varepsilon$$

Where:- *INVEST* is the rate of growth of investment; *PROFIT* is the rate of growth of expected profits; *SALE* is the average rate of growth of sales; *PRODR* is an interaction variable of the impact of insecurity on production process (*PROD*) and the feel of being insecure (*RISK*); *CONP* is an interaction variable of expected future profits (*PROFIT*) and changes in consumer behavior due to insecurity (*CONSUMER*); *COST* is the cost of providing own security services; *CRIME* is a proxy for firms experience with criminal activities; *PRICE* is the proportionate change in consumer prices attributed to insecurity risk premium; ε is the error term, which is assumed to be independently and normally distributed with zero mean and constant variance.

Data and measurement of variables

The study uses business survey data set from a survey conducted in Nairobi in 2004 by KIPPRA on *Security Risk and Private Sector Growth* (KIPPRA, 2004)². The data set covers 854 firms of which 11 percent are in manufacturing, 41 percent in services and 47 percent in commerce. When asked if they faced insecurity in their business operations over 70 percent indicated they faced insecurity. The types of crime encountered and rated as major and severe problem included burglary of firm property (40 percent), and street robberies (43 percent). Asked whether incidences of crime influence their investment decision, 71 percent indicated it was an important factor, while 53 percent indicated criminal justice was a critical factor. Asked how they felt when doing business, over 50 percent indicated they felt unsafe. Over 84 percent noted that crime was a major threat to their business, 80 percent indicated it influenced their profitability while 59 percent noted that insecurity influenced market conditions for their goods and services. When asked about the channels through which insecurity affects their market conditions, over 60 percent indicated through market access;

over 50 percent through consumer tastes and preferences; and 50 percent through prices of commodities.

Measurement of variables

- a) Investment rate (*INVEST*) is measured as the change in levels of investment in a period of five years. The survey data showed a trend in investment rate that was consistent with the observed national trend. Firms reported an average investment rate of 11.8 percent in a period of 5 years and expected it to increase to 19.4 percent in medium term.
- b) Profitability (*PROFIT*) is the expected growth in profits in the next two years. The expected growth in profits was higher (18.7 percent) compared to the realized growth in profits (11.2 percent).
- c) Accelerator effect (*SALE*) is captured using the average rate of growth in sales in the past five years. The average growth in sales shows the same pattern as investment and profit growth rates.
- d) Insecurity effects on demand pattern are proxied by *CONSUMER* which takes the value 1 if the impact of insecurity is classified as *somewhat important*, *important*, and *very important* in the litter scale and zero otherwise.
- e) The impact of insecurity on production (*PROD*) is defined as the average rating on the impact of security on location of plant and machinery, acquisition of raw materials, and workers operations. The higher the value the lower the impact.
- f) *COST* is the cost of providing own security measured as the ratio of costs of providing security to total sales.
- g) Respondents were asked: '*how do you feel while conducting your business?*' Feeling unsafe (*RISK*) takes the value of 1 if feeling *somewhat unsafe*, *unsafe* and *very unsafe* and zero otherwise.
- h) Experience with criminal activities (*CRIME*) is measured by the average ratings for the various crimes. The higher the value, the less important the criminal act.
- i) The insecurity risk premium (*PRICE*) is the proportionate change in prices attributed to own security service costs.

Estimation results

Table 2 reports the summary statistics while the regression results are reported in Table 3. The correlation results in Table 2 show the expected signs with regard to correlation between investment (*INVEST*) and all variables except *RISK*. An expected negative correlation is indicated between feeling unsafe (*RISK*) and the importance of criminal act to the firms (*CRIME*). A negative correlation is indicated between *CONSUMER* and *SALE* implying that when there is a significant impact of insecurity on consumer behavior, firms tend to lose their market share and this results in a decline in sales. When firms are able to push the insecurity costs (*PRICE*) to consumers by adding a premium on the prices of goods and services they can sustain their profitability. However, when insecurity has significant impact on consumer behavior, firms are not able to load a significant proportion of the insecurity premium to the consumer prices as depicted by the negative correlation between *CONSUMER* and *PRICE*.

¹ Beland (2005) defines insecurity as the state of fear or anxiety stemming from a concrete or alleged lack of protection.

² Details of the sampling procedure, methods of data collection used and data description can be obtained from KIPPRA Special Report; *Security Risk and Private Sector Growth in Kenya: Survey Report*, SP/06/2004.

Table 2. Summary Statistics

	<i>Invest</i>	<i>Profit</i>	<i>Sale</i>	<i>Consumer</i>	<i>Crime</i>	<i>Prod</i>	<i>Risk</i>	<i>Cost</i>
Correlations								
<i>INVEST</i>	1							
<i>PROFIT</i>	0.5816	1						
<i>SALE</i>	0.7053	0.6409	1					
<i>CONSUMER</i>	0.0132	0.0295	-0.0970	1				
<i>CRIME</i>	0.1282	0.0599	0.0348	-0.0292	1			
<i>PROD</i>	0.0674	0.0535	-0.0097	0.0961	-0.0146	1		
<i>RISK</i>	0.0712	0.0302	0.0100	-0.0772	-0.0886	0.1043	1	
<i>COST</i>	0.1702	0.1145	0.2661	-0.0954	-0.0199	0.1491	0.0086	1
<i>PRICE</i>	0.1358	0.2620	0.2650	-0.0200	-0.0861	0.0578	0.0208	0.2420
Descriptive statistics								
Observations	683	637	636	477	661	854	854	599
Mean	11.328	10.925	12.508	0.751	3.162	1.127	0.584	9.162
Min	-50	-27.8	-21	0	1	1	0	0
Max	-100	8.8	100	1	5	4	1	70
Std deviation	16.336	19.452	15.548	0.433	0.918	1.304	0.493	11.001

Model 1 in Table 3 estimates the investment function with only the future expected profits. It shows that prospects for future firm profitability are critical in determining investment growth. The sales variable is included in Model 2 to capture the accelerator effects. Results show positive and significant relationship implying that prevailing market conditions are essential in making investment decisions as they impact on profitability of the firm today and its ability to finance investment. When the insecurity factors are introduced in the model the results are as follows.

One, insecurity makes firms' sales vulnerable, adversely impacting on current profitability. The interaction variable between the future profitability and the impact of insecurity through the consumer behavior (*CONP*) shows a negative and significant relationship with investment. This implies that while expected future profits see an increase in investment, in case there is a significant impact of insecurity on consumer behavior through for example, changes in tastes and preferences which reduce market demand, firms will tend to lower their investment.

Two, significant experience with crime is a deterrent to investment. Considering such crimes as burglary of firm property, robbery on the street, and theft of company vehicles which are rated as major security problems, the study shows that

firms tend to lower their investments as market confidence wanes.

Three, as long as insecurity does not significantly disrupt the production process firms will invest. The study considered four channels through which crime can result into uncertainty in production process including acquisition of raw materials, acquisition of plant and equipment, location of factory, and implications on workers operations. Results with the interaction variable *PRODR* show that if the impact of insecurity on production process is not significant firms will invest even if they feel unsafe operating their business.

Finally, firms feel safe and secure when they provide their own security services, as this reduces their vulnerability. Looking at the various reasons why firms invest in security infrastructure, majority of the firms noted that they invest in security infrastructure because of the perceived insecurity in the locality, for precautionary purposes, and experience with crime.

Table 3. Regression Results

	Model 1	Model 2	Model 3
<i>Constant</i>	6.1209(0.000)	2.5318(0.001)	-4.4005(0.215)
<i>PROFIT</i>	0.2902(0.000)	0.1425(0.000)	0.3940(0.000)
<i>SALE</i>		0.4536(0.000)	
<i>CONP</i>			-0.1360(0.053)
<i>CRIME</i>			2.6139(0.019)
<i>PRODR</i>			1.1486(0.081)
<i>COST</i>			0.1528(0.066)
<i>R²</i>	0.2040	0.3723	0.3147
<i>Adj-R²</i>	0.2026	0.3698	0.3020

Conclusion and policy implications

This paper looks at the implications of insecurity challenges on investment decisions at the firm level. Results show that it is important to provide a safe and secure environment to build market confidence. When firms feel insecure they do not invest. If they are not guaranteed protection of their property and the safety of their customers, insecurity becomes a deterrent to investment. Even if there are prospects for future profits, as long as market conditions deteriorate due to insecurity, firms will lower investment. However, if criminal activities have no significant impact on the production process firms invest. Furthermore, while firms tend to load costs of providing their own security services on consumers, they risk losing market share is consumer behavior is significantly affected.

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