Conviction in White Collar Crime and Economic Growth with special reference to Pakistan

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ARTICLE DETAILS	ABSTRACT
History: Accepted: 30 May 2024 Available Online: 30 June 2024 *Keywords:* *Economic Growth, Corruption, White Collar Crime* **JEL Codes:** O40; D24; D73	**Objective:** This study served as an effort to evaluate the relationship between economic growth, corruption and deterrence against white collar crime along with traditional factor inputs like labor and capital especially in context of Pakistan. **Research Gap:** Countries always tend to formulate economic policies that will contribute to high economic growth rates. Apart from economic factors there are certain for economic growth there are non-economic factors which had played a significant role in achieving high living standards amongst which deterrence against white collar crimes is our focus. Very few studies had been conducted that determine the impact of this factor on economic growth in Pakistan. **Design/Methodology/Approach:** To determine how corruption and the prevention of white-collar crime affect Pakistan's economic development Neo-Classical Growth Model has been applied. Using secondary data over a 20-year period, from 2001 to 2020, the log-linear model regression has been utilized to assess the association between economic growth and corruption and deterrence related to white collar crime in Pakistan. **The Main Findings:** The estimates suggest that traditional input variables, such as Labor and capital, positively impact GDP growth. However, the apparent insignificance of capital stock might result from a lack of necessary skills in the labor force. To address this, labor force skills should be enhanced through technical and vocational training. A favorable position in the Corruption Perception Index, along with deterrence factors like the fear of being caught also positively contribute to GDP growth. Convicting corrupt individuals increases the fear of consequences, discouraging future involvement in corruption. As a country embraces transparency, it fosters higher economic growth. **Theoretical / Practical Implications of the Findings:** This paper concludes that deterrence i.e. fear of being caught for having committed organized crime restrains corrupt elements from involvement in white collar crimes and contributes in economic growth. The paper further concludes that skilled and educated labor force also contributes in economic growth through efficient utilization of capital stock. **Originality/Value:** This study not only models the effects of labor and capital but also endeavors to integrate the influence of accountability on overall economic growth.

1. Introduction

Generally, the growth of an economy is referred to as an increase in production of goods and services in a country over a particular period of one year compared with the previous year. To adjust the price increase effect Gross Domestic Product is measured in real terms. There are certain economic and social factors

which positively contribute to the economic growth of a country whereas there are also some factors which cause to slow down its pace. Among other economic and social factors conviction in white collar crime also affects economic growth of an economy through deterrence.

Conviction is a formal declaration of a Jury's verdict or a Judge's decision in a court of law regarding someone proved guilty of a criminal offence". Cambridge Dictionary also defines it as "the fact of officially being found to be guilty of a particular crime, or the act of officially finding someone guilty". As per Collins English Dictionary deterrence is defined as "the prevention of something, especially war or crime, by having something such as weapons or punishment to use as a threat".

The term "White Collar Crime" was coined by Edwin Sutherland in his speech delivered to the American Sociological Society, in 1939. He stated that this term may be defined as "a crime committed by a person of respectability and high social status in the course of his occupation" (Zagaris, 2010).

Christos, et al (2018) defines corruption as a political, economic, cultural and moral problem and it is considered as a universal phenomenon that exists in all developed and developing countries, in public and private sectors, as well as in non-profit and charity organizations.

Corruption has its consequences in terms of higher cost of doing business, misallocation of resources, embezzlement of public fund, substandard social services delivery etc. All these factors act as a barrier to economic growth by creating hurdles for doing business and misuse of development funds. However, the deterrence against white collar crime acts vice versa by creating transparency in development expenditure of a country and fair distribution of resources among all segments of society.

This paper is an effort to find the relationship of economic growth with corruption and deterrence against white collar crime along with traditional factor inputs like Labor and Capital with special reference to Pakistan.

In Pakistan, as per "Section 9 of National Accountability Ordinance (NAO) 1999 corruption and corrupt practices are defined as follows".

"9 (a) A holder of a public office, or any other person, is said to commit or to have committed the offence of corruption and corrupt practices-

 i.   if he accepts or obtains from any person or offers any gratification directly or indirectly, other than legal remuneration, as a motive or reward such as is specified in section 161 of the Pakistan Penal Code (Act XLV of 1860) for doing or for-bearing to do any official act, or for showing or for-bearing to show, in the exercise of his official functions, favour or disfavour to any person, or for rendering or attempting to render any service or disservice to any person; or
 ii. if he accepts or obtains or offers any valuable thing without consideration, or for a consideration which he knows to be inadequate, from any person whom he knows to have been, or likely to be, concerned in any proceeding or business transacted or about to be transacted by him, or having any connection with his official functions or from any person whom he knows to be interested in or related to the person so concerned; or
 iii. if he dishonestly or fraudulently misappropriates or otherwise converts for his own use, or for the use of any other person, any property entrusted to him, or under his control, or willfully allows any other person so to do; or
 iv. if he by corrupt, dishonest, or illegal means, obtains or seeks to obtain for himself, or for his spouse or dependents or any other person, any property, valuable thing, or pecuniary advantage; or
 v.   if he or any of his dependents or Benamidar through corrupt and dishonest means owns, possesses, or acquires right or title in assets substantially disproportionate to his known sources of income which he can not reasonably account for.

vi. if he intentionally misuses his authority by dis-regarding law so as to gain any monetary benefit or favour for himself or any other person related to him or on his behalf.

vii. if he commits an offence of willful default, or

viii. if he commits the offence of cheating as defined in section 415 of the Pakistan Penal Code, 1860 (Act XLV of 1860), and thereby dishonestly induces members of the public at large to deliver any property including money or valuable security to any person:

Provided that nothing shall be an offence under clause (ix) unless it is established that there was an intention of cheating at the time on initiation of a transaction.

ix. if he commits the offence of criminal breach of trust as defined in section 405 of the Pakistan Penal Code, 1860 (Act XLV of 1860) with regard to any property including money or valuable security entrusted to him by members of the public at large;

x. if he, in his capacity as a banker, merchant, factor, broker, attorney or agent, commits criminal breach of trust as provided in section 409 of the Pakistan Penal Code, 1860 (Act XLV of 1860) in respect of property entrusted to him or over which he has dominion; and

xi. if he aids, assists, abets, attempts or acts in conspiracy with a person or a holder of public office accused of an offence as provided in clauses (i) to (xi)."

1.1. Theoretical Framework

It is widely recognized fact that corruption acts as a barrier to doing business especially in under develop countries. Controlling the corruption can foster economic growth by creating ease in doing business which results in reduced cost of doing business. Deterrence against white collar crime prevents the corruption and establishes transparency in development and non-development expenditures which further contributes in GDP growth. To establish the impact of these two factors on economic growth we begin with an augmented Solow Model. Robert Solow's model provides the basic framework for most subsequent research on the growth.

Endogenous growth theory begins with the fact that the developed countries have ten times higher standard of living as compared to the less developed countries. Endogenous growth theorists thus have been focusing on the characteristics of rich countries that not only make their people rich but also seem automatically to equip immigrants from poor to rich countries.

1.1.2. The Model

In the Solow model saving, population growth and technological progress have been taken as exogenous variables. One specific production function widely used by neoclassical growth theory is the Cob-Douglas production function.

$$Yt = AK_t^{\alpha} L_t^{\beta} \tag{1}$$

If the production function possess constant returns to scale than the sum of the parameters must be equal to unity, i.e. $\alpha + \beta = 1$, which implies that $\beta = 1-\alpha$, so we can rewrite the equation.

$$Y_t = AK_t^{\alpha} L_t^{1-\alpha} \tag{2}$$

In the above equation Y denotes the real GDP, K indicates the capital stock and L is the labor force, t is the time period and A is the technology parameter which indicates the potential of a country to transform inputs into outputs.

1.1.3. Augmented Solow Model

In 1980s and 1990s some Economists tried to expand the Solow model to include explanations of productivity change within the model. This is called the endogenous growth theory which has two principal strands, (i) the new growth theorists have focused on the impact of human capital on economic growth, (ii)

the theory emphasizes the importance of technological innovation by private firms as a source of productivity growth. The augmented Solow model takes the following form.

$$Y_t = A K_t^\alpha L_t^\beta C_t^\gamma D^{1-\alpha-\beta-\gamma}$$

$$(3)$$

1.2 Research Question

Deterrence against white collar crime affects economic growth or otherwise. Objectives of the study are to analyze the impact of corruption and deterrence regarding white collar crime on Pakistan's economic growth and to suggest suitable policy measures in the light of findings of this study.

2. Literature Review

Corruption regarding white collar crimes not only cause social unrest, but it has economic consequences too. Haag (1982) argued that the deterrence effect can justify the threats attending prohibitions of criminal law, however without threat being punished will be untrue. Prohibition of the law burdens those who are desirous in violating it.

Seligson (2002) and Anderson and Tverdova (2003) analyzed that people's attitudes towards political system and leaders are well depicted in their perceptions about corruption. This further acts as a determinant of investment decisions, political participation and other behaviors.

Katie, at el. (2016) concluded that severe and increased punishments may prove as improvement in deterrence and avoid repetition of white-collar crime. Lučić, et al (2016) showed that change in corruption levels may defer change in GDP for six to ten years and vice versa. The economic policy makers may use this information as an important signpost.

Blackburn et al (2017) argued that organized crime alone raises the cost of business activity and also creates an unfavorable environment for business. Gründler et al. (2019) concluded that corruption and economic growth have an inverse relation. They concluded that reversed CPI increased by one standard deviation decreases GDP by 17 percent. While, Podobnik et al. (2008) and Shao et al. (2007) evaluated there is a positive link between CPI and economic growth and less corrupt countries grow faster. Shao et al. (2007) used another corruption indicator developed by the World Bank and checked the strength of their results which proved an inverse relation of corruption and economic growth. Both the results showed the same consequences supporting proof of negative relation of corruption and economic growth.

Dutta et al (2009) showed a positive relation of conviction with crime rate. It shows that there are inherent system flaws in criminal detection and correction. The Penal system be reformed to rectify the behavioral pattern of criminals through education and technical and vocational training to bring them to mainstream. Liviu-Stelian and Razak (2017) studied the short-run impact of deterrence and analyzed that short run, deterrence of punishment affects the economy and growth positively.

Alfada (2019) estimated that when interaction between corruption and public investment expenditure is included there is strong destructive effect of corruption. The World Bank identifies that corruption acts as a barrier for socio economic development (Dreher et al. 2007).

Christos, et al (2018) concluded that for European countries except Non-European countries including Turkey, the change in corruption and per capita income move in the same direction. Geremy (2008)figured out that awareness and the enforcement of law of anti-corruption laws educate people about the corruption and its possible consequences. The use of media, especially news, proved to be an effective tool in creating awareness among the public. Moreover, Jurg and Eric (2007) analyzed that implementation of heavy fines, rigorous imprisonment and moral education may hinder offences through deterrence.

Francis (2014) stated that as soon as the Cold War was over, international organizations started to work for development and emphasized the countries to fight against corruption which will strengthen the institutions and states.

Andreas (2019) tested that in all kinds of fraud a high significant deterrent effect was exercised and in case of white collar crimes conviction appears to deter the offenders in short term. Therefore, Henning (2015) argued that while dealing with white collar crimes Judges should be aware of little deterrent impact of conviction.

Campbell-Austin Stephanie (2020) talked about the dilemma while dealing with white collar crimes and analyzed that thinks it difficult to figure out that how conviction or prison deter white collar criminals. Samina (2022) concluded that the strict punishment against white collar crimes and deterrence makes implementation of laws proper. Furthermore, Stephanie (2023) was on the view that prosecution of persons involved in white collar crimes helped to preserve the integrity of financial markets and protect the victims. The punishments including imprisonment and fines served as deterrence against white collar crime in coming years.

3. Methodology and Data Sources

3.1. Data Source and Construction of Variables
The data set consists of the data for the period from 2001-2020 covering 20 years, allowing us to estimate the growth performance of Pakistan. The GDP is taken as a dependent variable and the employed labor force, capital stock, corruption and deterrence against white collar crime are taken as independent variables. The data has been taken from different Economic Surveys of Pakistan as well as Transparency International Reports and the website of the National Accountability Bureau (NAB).

The GDP has been taken on constant prices to capture the effect of the independent variables on it in real terms and to avoid the inflationary effect. Capital stock has been estimated through Gross fixed capital formation and taking depreciation four percent. The process for calculating the capital stock (k) is as under;

$$K_t = I_t + (1-\delta)K_{t-1} \tag{4}$$

$$K_{t-1} = \frac{I_t}{g+\delta} \tag{5}$$

$$g = \frac{(Y_t - Y_{t-1})}{Y_{t-1}} * 100 \tag{6}$$

The employed labor force data has been taken from Pakistan Economic Survey. Enrolment at Primary level has been used to see the impact of education on economic growth.

To capture the impact of corruption and deterrence regarding white collar crime on Pakistan's economic growth Neo-Classical Growth model has been utilized. The log-linear model regression has been used to estimate the relationship of economic growth with corruption and deterrence regarding white collar crime in Pakistan wherein, secondary data covering a time period of 20 years starting from 2001 to 2020 have been used. One specific function widely used by neoclassical growth theory is the Cobb-Douglas Production function, given as

$$Yt = AK_t^{\alpha} L_t^{\beta} \tag{7}$$

In the above equation Y is real GDP at constant prices, K is capital stock, L is employed labor force.

Augmented Neo-classical model involving four independent variables (capital, labor, corruption and

deterrence regarding white collar crime) has been constructed which takes the following form.

$$Yt = AK_t^\alpha L_t^\beta C_t^\gamma D_t^{1-\alpha-\beta-\gamma} \tag{8}$$

Here in equation (2) C is corruption level measured through Corruption Perception Index (CPI) calculated by transparency International every year and D shows the deterrence regarding white collar crime measured through convictions made in white collar crimes in National Accountability Bureau cases.

The log linear form of equation (8) is given by following equation.

$$\ln Y = \ln A + \alpha \ln K + \beta \ln L + \gamma \ln C + (1-\alpha-\beta-\gamma)\ln D + \varepsilon \tag{9}$$

Where,

$lnA = \beta_0$, $\alpha = \beta_1$, $\beta = \beta_2$, $\gamma = \beta_3$, $1-\alpha-\beta-\gamma = \beta_4$, $lnY = Y^*$, $lnK = K^*$, $lnL = L^*$, $lnC = C^*$, $lnD = D^*$, and ε = Stochastic error term. Thus simplified form of equation (9) is

$$Y^* = \beta_0 + \beta_1 K^* + \beta_2 L^* + \beta_3 C^* + \beta_4 D^* + \varepsilon \tag{10}$$

For result estimation secondary data has been used which has been obtained from Pakistan Economic Survey, Transparency International Reports and National Accountability Bureau's website which is a Federal Government Autonomous Department to deal with the menace of corruption in Pakistan.

3.2. Regression Model

The framework for analysis of this paper is built on the basic Solow mode. The model has been constructed to see the effect of corruption and deterrence against white collar crime on the economic growth. SPSS software has been used for regression analysis to have the results of the model. To have simplified results the log linear form of model has been used.

$$lnY = \beta_0 + \beta_1 lnK + \beta_2 lnL + \beta_3 lnC + \beta_4 lnD + \varepsilon \tag{11}$$

$$Y^* = \beta_0 + \beta_1 K^* + \beta_2 L^* + \beta_3 C^* + \beta_4 D^* + \varepsilon \tag{12}$$

4. Estimation results

The results have been obtained using the regression analysis. The results of the estimated regression model are shown in table 1;

Table 1: Results of the Estimated Model Dependent Variable Real GDP

Variable	Coefficient Value
Capital	0.304
Labour	1.535
Corruption Perception	0.197
Deterance	0.023
Constant	-17.195

Source: Author's Estimation

The value of R-squared is 0.975 and adjusted R-squared 0.968 which shows that 97 percent variations in dependent variable are due to independent variables. Here coefficients of the independent variables are all positive which shows that capital stock, employed labor, Corruption Perception Index and Conviction rate have positive impact on real GDP. The standard error of estimates is 0.07016 which implies that there are small variations in the dependent variable Y around its trend.

The capital stock has positive impact on the GDP but is insignificant. It might be due the lack of skilled labor force because the efficient use of capital stock depends upon the skills of operating labor force. The greater the increase in capital stock coupled with skilled labor force higher will be economic growth. Labor force as an independent variable has significant positive impact on economic growth.

5. Conclusion

The result estimates show that traditional input variables i.e. Labor and capital positively contribute to GPD growth, however, the insignificance of capital stock may be an outcome of lack of required level of skills of

labor force. Therefore, labor force should be equipped with skills through technical & vocational trainings. Better position in Corruption Perception index and deterrence i.e. fear of being caught as independent variables contribute in GPD growth positively. Therefore, conviction of corrupt elements increases the fear of being caught which keeps such elements away from involvement in the corruption and corrupt practices in future and as far as a country moves towards transparency it achieves high economic growth.

The result estimates suggest the necessity that policies to be designed to have the labor force well equipped with education and required level of skills for efficient utilization of capital stock. Further, the accountability system should be strengthened to enhance transparency and deterrence against white collar crimes.

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Disclosure statement

There is no conflict between authors to produce this research and every author(s) took effort to contribute his part.

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