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# THE EFFECT OF TAX AMNESTIES PROGRAMS ON TAX COLLECTION AND ECONOMIC PERFORMANCE: A GLOBAL MACRO ECONOMIC ANALYSIS

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## ABSTRACT

Taxes are a major source of government income. Still a major part of economy exists undocumented. Tax amnesty programs are considered a short term tool to overcome tax compliance for long run benefits as well as short term recovery of revenue. This study is examined the effect of tax amnesties programs on tax revenue percentage to GDP and on macro-economic performance with the interaction of tax to GDP. Panel data of 28 years from 1990 to 2017 were collected from 24 countries and run a different test to support our results. These countries data were taken on an annual basis, where single or multiple tax amnesties launched in different years. GDP per capita, FDI per GDP, and the unemployment rate were taken as Macroeconomic variables, and the influence of tax revenue percentage to GDP in presence and absence of tax amnesty on these macroeconomic variables were tested. Results showed that the tax amnesty scheme affect GDP per capita, and FDI but not through an increase in taxes but some other reason. Successful Tax amnesty may benefit reduce the unemployment rate and improve tax to GDP in long-run with increased tax compliance is still workable. We suggest that tax authorities undertake tax reforms from successful experiences of tax amnesties in different countries for economic prosperity and better results.

**Contribution/ Originality:** This study contributes to the existing literature tax amnesty scheme influence on the major macroeconomic performance. This study uses a new estimation methodology of Panel Generalized Method of Moments for regression and Pearson correlation with 2 tailed test of significance for comparison of factors and returns. This study originates new formula Tax Reforms to macroeconomic indicators where estimators are inefficient in the presence of heteroskedasticity.

## 1. INTRODUCTION

### *1.1. Background of the Study*

The macroeconomic indicators and its growth are essential for the economic prosperity of a country. The taxation system plays a vital role in economic development. The debt burden, debt service payments, currency devaluation, twin deficit, wealth distribution and economic stability are critical areas of a country's economy govern by fiscal policy and taxation system.

Tax compliance is necessary to perceive the benefits of a documented economy to control money laundering, devaluation of the currency, foreign asset repatriation, taxing the foreign income of a resident. Tax Amnesty schemes introduced in various developed and developing countries in the rescue of the taxation system. To address the issue of tax avoidance, numerous nations have executed tax amnesty programs throughout the years (Agbonika, 2015). Recently in Pakistan tax amnesty scheme was introduced in 2018. The scheme was controversial in political and public discussions. In Pakistan new government was formed in July 2018 and had a slogan against Tax Amnesty scheme. By the time this paper is being finalized the new government is preparing to launch a new Tax Amnesty scheme. We have studied previous literature on this topic but found silent on cross-sectional tax amnesty countries macroeconomic indicators influenced by tax amnesty schemes. There is no research publication is available in Pakistan on a tax amnesty program. We have initiated to open the door on this topic and find whether the issue of tax amnesty is being highlighted for political scoring or safeguarding privileged peoples or inhuman non-constitutional or beneficial in the best interest of the economy of a country.

An amnesty typically allows individuals or firms to pay previously unpaid taxes without being subject to some or all of the financial and criminal penalties that the discovery of tax evasion normally brings (Alm and Rath, 2003). Tax amnesty is a short time opportunity to a non-filer, possesses Un-disclosed (foreign and local) assets and income, to obtain filer status by paying certain percentage calculated on undisclosed items on actual or assessed valuation waiving interest, penalties and criminal proceedings applicable on previously un-disclosed or unpaid taxes (Aspa *et al*., 2016). The main purposes of amnesties included bringing non-filer on tax net, revenue generation, future tax compliance and repatriation of foreign assets (Alstadsaeter *et al*., 2017).

Tax amnesty in olden times generally presented in Egypt by Ptolemy V Epiphanes around 200 BC. The history was expressed on the stone named Rosetta which clarified the approval about the preisthood for the tax amnesty program (Mikesell and Ross, 2012).

Tax amnesties offered in a few countries around the world. The 25 countries in the world implemented tax amnesties are Indonesia, Malaysia, Thiland, Argentina, Australia, Austria, Belgium, Colombia, Finland, France, Germany, India, Ireland, Italy, Mexico, Netherlands, New Zealand, Portugal, Russia, South Africa, Spain, Switzerland, Turkey, United Kingdom, and United States (Aspa *et al*., 2016). We have gathered the required data from other sources[1] and from different articles. Accordingly selected 24 countries excluded India and Malaysia included Canada. The reason was data in availability from World Bank sources[2] for excluding countries.

The Amnesty Scheme 2018 has demonstrated the 91 percent assessment dodgers, who use the scheme for declaring undisclosed foreign assets were registered with the Federal Board of Revenue PkRevenue.com (Ali, 2019). The analysis report reveals that 6195 people availed the scheme to repatriate foreign assets, out of which 5625 are already tax return filers and registered with Federal Board of Revenue (Pakistan), only 570 filers were introduced to the tax system for the first time in the tax amnesty 2016 scheme. The assets were declared worth Rs.1060 billion earned from an undisclosed source and tax revenue collected Rs.47 billion. Thus the average tax rate on the declaration of undisclosed assets is 4.43 percent. Only 6.42 billion worth foreign assets were repatriated under the scheme. It is observed that undeclared undisclosed properties and bank accounts are still left over largely undisclosed, PkRevenue.com (Ali, 2019).

### *1.2. Problem Statement*

Tax amnesty is considered a short-run solution on the cost of the long-run problem. In the short-run tax revenue collection improve, expansion of the tax net, the economy is documented, foreign assets and income are repatriated. While compromising the long-run where tax payers trend turn down in anticipation of new tax

[1] https://en.wikipedia.org/wiki/Tax_amnesty

[2] Data from database: World Development Indicators Last Updated: 03/21/2019 https://databank.worldbank.org/data/Macroeconomic-Indicators/id/9035c89

amnesty program. This will bring an inverse effect on macroeconomic indicators discussed in the current papers. Tax amnesties in terms of economic indicators covered rarely in previous literates, some papers covers some aspects of economic indicators (Pratama, 2018); (Said, 2017). But that is also in the context of certain countries not cross-sectional for the majority of countries launched tax amnesty programs. Some other investigated in majority about the tax revenue yield and tax compliance, as studied in different papers (Villalba, 2017); (Alstadsaeter *et al.*, 2017); (Purnomolastu, 2017); (Agbonika, 2015); (Alm and Rath, 2003); (Bozdoğan and Şimşek, 2018); (Parle and Hirlinger, 1986); (Bayer *et al.*, 2015); (Mikesell and Ross, 2012); (Mahestyanti *et al.*, 2018); (Nar, 2015). Previously studies were conducted examining macroeconomic indicators with respect of tax amnesty (Luitel and Tosun, 2014) but in the case of a particular country. We have studied on cross-sectional data of tax amnesty countries to examine pre and post effect of the program on to the economic indicators. Previous literatures are fairly silent to address long-run issues related with the tax amnesty program. We take the opportunity by this research is to measure macroeconomic indicators response to tax amnesty program. This study is particularly important because tax amnesty has been significantly increased in many countries. The basic reason behind exchange of information with OECD starting already and governments are willing full to open window of opportunity for taxpayers to disclose assets and income undeclared previously and have no money trail. The tax authorities and government will have a reference to use in preparing legitimate policy to reframe amnesty law in the best interest of the country.

### *1.3. Gap Analysis*

Tax amnesties primary concerns were investigated in previous studies in majority for tax revenue yield and tax compliance, as studied in different papers (Villalba, 2017); (Alstadsaeter *et al.*, 2017); (Purnomolastu, 2017); (Agbonika, 2015); (Alm and Rath, 2003); (Bozdoğan and Şimşek, 2018); (Parle and Hirlinger, 1986); (Bayer *et al.*, 2015); (Luitel and Tosun, 2014); (Mikesell and Ross, 2012); (Mahestyanti *et al.*, 2018); (Nar, 2015).

For instant (Rahayu and Sari, 2018) found that abnormal return, trade volumes and market capitalization get influenced by tax amnesty law announcement on Pefindo25 Index of Indonesian stock exchange. This study failed to cover major macroeconomic indicator across countries. Purnomolastu (2017) conducted a comparative study was over tax amnesty programs, however, the research conducted only in two countries India and Indonesia and left a great number of other countries where amnesty programs were undertaken, also their effect on macroeconomic factors was still left unexplored. Luitel and Tosun (2014) Gave examples of tax amnesty countries but the discussion was limited to tax amnesty frequencies and characteristics of United States. Pratama (2018) Conducted an exploratory research on Indonesian public listed company's participation in the tax amnesty program, but there is no discussions on macroeconomic factors in the research. Ibrahim *et al.* (2017) Also conducted study on nine Asian countries that introduced tax amnesty programs. The study scope was however limited to systematic review of literature on tax amnesty.

Tax amnesties in terms of economic indicators covered rarely in previous literates, some papers covers some aspects of economic indicators (Pratama, 2018); (Said, 2017). But that is also in the context of certain countries not cross-sectional for majority of countries launched tax amnesty programs. The current paper is developed on the basis of finding of gap that no literature found on cross country tax amnesty analysis and its impact on major macroeconomic indicators as most of the studies were carried out in perspective of a single country.

### *1.4. Research Objective*

This research paper is collected 24 countries data from 1990 to 2018 to find the impact of tax amnesties program to the country's economy. The current paper covers tax percentage influence on GDP per capita and GDP per capita growth as well as tax percentage to GDP influence on corporate taxes and foreign direct investment. The main objective of this study is to determine there is relationship in slowing down or uprising of the economy if tax amnesty program is announced or there is no relationship at all. This is because repatriation of foreign assets and

documentation of the economy places major impact on revenue generation capability of the country. On the other hand discourage money laundering, illicit trade activities and terrorism funding to militant political and religious wings.

### *1.5. Significance*

There is ambiguity in different countries in favor of the tax amnesty programs. The system of non-documented economy still exists at large in various countries. Tax amnesties are considered illegal, unlawful, in-humanistic, unjustified with genuine taxpayers, benefitted to tax evaders and money launderers, etc. Generally tax amnesty concept is drawn as a legal way to whitening black money. The success of tax amnesties are measured in terms of tax revenue yield and/or tax compliances and repatriation of undisclosed foreign assets. The tax evasion and tax avoidance is not only with developing countries but also in developed countries. In oil producing countries major source of revenue generated from oil export, therefore such countries running simple tax systems. The countries having major source of government revenue collected from taxation, such countries have several complexities in taxation system. One of the reasons behind non compliance of tax system and tax evasion is the complexity in tax system. Tax authorities are continuously struggling on automation and integration of tax system and at the same time creating simplicity and ease of doing business. Tax amnesties are considered alternate solution to tax evaders and encourage taxpayers joining taxes legal frame work (Tofan, 2017). This research will determine if tax amnesty is the way out towards improvement in economy then macroeconomic show positive trend cross countries.

### *1.6. Research Question*

1. Tax amnesty is not in the best interest of the economy?
2. Tax amnesty improves revenue contribution to gross domestic product?
3. Tax amnesty improves gross domestic product per capita?
4. Tax amnesty improves unemployment rates?
5. Tax amnesty improves foreign direct investment?

### *1.7. Outline of the Study*

We review in all previous papers and find gap that tax is the major source of revenue for developed and developing countries. The tax compliance countries also have adopted tax amnesty programs in recent past years for many different reasons. For example repatriation of foreign assets and bank accounts. We design our own model for tax revenue contribution to gross domestic product of each country experienced tax amnesty program and its influence on the country macroeconomic indicators. We collect data on macroeconomic indicators of 24 countries of tax amnesty program from data bank of World Bank. We rely on the World Bank data because other data sources also referred World Bank data source[3] in support of authenticity of data. We obtain data for 24 countries on Tax to GDP, GDP, GDP per capita, GDP per capita growth, FDI per GDP and Unemployment Rate. We make Tax to GDP as Independent variable and rest of all four except GDP as dependent variables. We take 28 years from 1990 to 2017 data of all 24 countries and run different test to support our results. The years each individual country experienced tax amnesty we take that year(s) as dummy variable "1" and the years no amnesty as dummy variable "0". We run tests and find result for correlation and regression analysis. On the basis of test result we interpret and conclude our research.

### *1.8. Layout of the Paper*

The layout of the research is comprises six sections as follows.

[3]https://databank.worldbank.org/data/Macroeconomic-Indicators/id/9035c89

***Section I***: introduction of tax amnesty purpose of the study on the basis of gap analysis, paper objectives and significant. ***Sections II***: literature review subsequently summarize studies on tax amnesties in different perspectives on the previous papers. ***Section III***: discussed tax amnesties program periods in many countries. ***Section IV:*** Conceptual definition on each macroeconomic indicators in relation with tax amnesty and design theoretical model for current paper in relation to tax amnesty ***Section V:*** Data and Historical analysis of economic indicators and its performance over the time in presence and absence of tax amnesty on the basis of averages obtained from 24 countries. Descriptive statistic and Correlation and regression applying "Panel GMM first difference" and results analysis of four Models finding how tax amnesty and tax revenue behave individually or combines over microeconomic indicators. Finally discussion and concludes on the basis of research.

## 2. LITERATURE REVIEW

Sokolovskyi (2018) examined the macroeconomic indicators in relation with taxation of OECD countries. The research concluded that macroeconomic indicators cross OECD member countries influenced on government taxation policy. The negative relationship found in between selected indicators GDP, FDI to GDP, and Per capita GDP with governments taxation policies; Ibrahim *et al.* (2017) done a systematic literature review of previous study found that high frequency in Tax Amnesty would negatively affect Tax payers' behavior predicting future such schemes for best tax rates. Indonesia was highest among 9 Asian countries collected Tax from limited frequency Tax Amnesty Schemes; Aspa *et al.* (2016) discussed pros and cons with preceding Tax Amnesties in Philippine. There were long experience in Philippine launched 36 different tax amnesty schemes and regulations, which continued from 1971-2008 under different political regimes. Overall significant Tax revenues were collected except last 10 tax amnesty during Marcos regime; Villalba (2017) examined long term tax collection effect of tax amnesties on the basis of data obtained from Tucuman province Argentina.

The study concluded innocuousness to lower the government's revenues in a long-run. Instead benefits required increase in tax revenues in short-run just to avoid major tax reforms in the tax system; Said (2017) critically examined tax amnesty policy of Indonesia. It concluded that the program caused low tax to GDP ratio and poor tax compliance. It favors tax evasions and potentials for money laundering. The study suggested no more tax amnesty program in the best interest of the country; Alstadsaeter *et al.* (2017) Estimated the amount of tax evasion in developed countries after random audit of large offshore HSBC (Swiss leaks) and Mossack Fonseca (Panama Papers). It found that tax evasion increase with increase in wealth. Tax amnesties gives support to tax evaders to avoid official taxes compliance; Purnomolastu (2017) undertook a comparative study of two developing countries India and Indonesia in perspective of Tax amnesty implementation. This study compared background of Tax Amnesty policy, its purpose of implementation and tax revenues yields; Huda and Hernoko (2017) Discussed the implementation of three times tax amnesties in Indonesia 1964, 1984 and 2016,also compared the successful implementation tax amnesties in South Africa, India and Italy.

The study recommended revision of tax regulations, improve tax bureaucracy and introduce tax payers data base information system; Agbonika (2015) examined the success and failure of tax amnesty to overcome tax evasion in many countries. The research finds out if the tax amnesty is applicable in the case of Nigeria. The research foresee many tax evaders will come into compliance if tax amnesty granted by Nigeria; Alm and Rath (2003) studied designed features, cost and benefits and experiences of several tax amnesties programs around the world. Amnesty tax revenue is generally small, participants may increase on certain changes in tax systems and if tax amnesty is one-time opportunity; Bozdoğan and Şimşek (2018) focused on the revenue collection from tax amnesty program in Turkey. The study concluded that the tax amnesties place negative impact on tax revenues; Parle and Hirlinger (1986) surveyed from states fiscal agencies across 13 amnesty states of United States. The scheme seems to be politically acceptable, but generate small amount of tax revenue, most important it improves tax payers compliance; Bayer *et al.* (2015) determined the interaction in between tax payers and a government.

That how a government can make additional revenue without compromising re-election possibilities after introducing tax amnesties; Bose and Jetter (2012) contributed to determine empirical relationship in between trade liberalization and tax amnesties. It suggested that success of amnesties is subject to major reforms in a country's economic conditions. Economic reforms are essential factors to consider in determining the best time to introduce tax amnesties. Luitel and Tosun (2014) explored revenue versus fiscal stress against repeated tax amnesties on the annual data across 50 states of United States. The study suggests that fiscal stress is more significant than revenue yields in terms of introducing amnesties; Mikesell and Ross (2012) revealed shift of basic purpose of tax amnesties over the period of 30 years from improvement in tax compliance to tax revenue generation. Most of the Tax Amnesty programs were featured to increase revenue recoveries and have conflict with improvement in tax compliance; Haro (2018) determined the impact of trust, commitment and communication on taxpayer's satisfaction in the tax amnesty schemes. It found that there is no impact of trust on taxpayer's satisfaction while other two variables may influence taxpayer's satisfaction; Mahestyanti *et al.* (2018) covered impact of factors including wealth, tariff periods, tax penalties and audit chances towards tax compliance with respect to 2016 amnesty program launched in Indonesia. The results suggest that low compliance with high wealth and reporting on lower rates while high compliance with greater tax penalties and higher chances of audit; Nar (2015) found the impact of psychological approaches on tax amnesty.

If tax amnesties are launched together with strict regulations for tax inspection, tax audit and sanctions against illegal sources of income then the tax compliance can be increased to greater extent after the amnesty programs; Rahayu and Sari (2018) found empirical proof on the existence of cumulative abnormal return, cumulative abnormal trading volume, and cumulative abnormal market capitalization during the periods of Tax Amnesty. The research data included Pefindo25 Index of Indonesian Stock Exchange. The results signify existence of all three factors during the announcement of Tax Amnesty Act; Nyoman and Sujana (2018) identified and described the provisions in the tax amnesty with sanctions on tax evaders. The study suggests other strategies instead of imprisoning taxpayer on non compliance after remission of tax and implementation of tax amnesty, such as increasing tax rates on violation; Waluyo (2017) covered the effect of tax amnesty administration on taxpayers' compliance. The tax amnesty, electronic billing and electronic filing system are taken independent variables while taxpayers' compliance is taken dependent variable.

The results of the study shows significant impact of electronic billing and electronic filing variables on taxpayers' compliance but there is no impact of tax amnesty on tax compliance; Rosdiana and Putranti (2018) found policy gap, ambiguity to convince people; conceptual gap, to handle controversial resistance against tax amnesty; and implementation gap create uncertainty, inconvenience and complexity in administration of tax amnesty; Dissanayake *et al.* (2017) discussed the pros and cons on tax amnesties in the case of Sri Lanka. The results of tax compliance will be much better if the tax amnesty was executed perfectly; Sari and Nuswantara (2017) examined service quality as moderating variable to test the impact of tax amnesty on taxpayer compliance.

The result indicates that the service quality cannot be moderate in between the two variables. The last day's surge of taxpayers feels inconvenience with the quality of service getting tax amnesty benefit; Pratama (2018) indicated a significant influence of Tax Avoidance, Ownership Structures and Corporate Governance participating decision in Tax Amnesty scheme on Indonesia; Junpath *et al.* (2016) examined attitude of taxpayers towards tax amnesties and tax compliance in South Africa. It reveals that the multiple amnesties not benefit raising tax revenue but it provide tax evaders to avoid taxation in wait of future tax amnesties; Tofan (2017) found a negative influence of Tax amnesty as it acted as an alternate solution to tax evaders.

## 3. TAX AMNESTIES IN COUNTRIES

Tax amnesty is widely used in different nations as discussed in previous section of this paper. In the following Table 1 we describe 24 selected countries tax amnesties for our research purpose with respect to the period, scope and outcomes.

***Argentina:*** Six different Tax amnesties announced in 1995 (Purnomolastu, 2017) and 2012 and last till 2014 as per (OECD, 2015) and lastly in 2016 which last till 2018.

***Australia:*** Three different Tax amnesties announced in 2007 and 2009 (Tofan, 2017) and in 2014 as per (OECD, 2015).

***Austria:*** Three different Tax amnesties announced in 1993 as mentioned in Purnomolastu (2017) amnesty announced in 2012-2013 as per (OECD, 2015).

***Belgium:*** Two different Tax amnesty announced in to legalize undisclosed assets 2004 (Wikipedia) (Tofan, 2017) in 2013 as per (OECD, 2015).

***Canada:*** Two different Tax amnesty announced in 2002 and 2007 (Tofan, 2017)

***Columbia:*** One Tax amnesty announced in 2014 to repay pensioners and implemented in 2015-2017[4]

***Finland:*** Finnish government drafts a bill on Tax amnesty to examine (OECD, 2015)

***France:*** One Tax amnesty announced in 2014 French residents declared foreign bank account previously undisclosed[5].

***Germany:*** One Tax amnesty announced in 2004 German tax amnesty against tax evasion (Wikipedia)

***Greece:*** One Tax amnesty announced in 2010 for paying 55% of outstanding debts (Tofan, 2017) and Agbonika (2015).

***Indonesia:*** Three different Tax amnesty announced in 2008 and 2016-2017 for repatriation of foreign assets (Wikipedia)

***Ireland:*** One Tax amnesty announced amnesty program in 1993 (Huda and Hernoko, 2017)

***Italy:*** Three different Tax amnesty announced in2001, which was extended to 2003 and 2009 for undeclared foreign funds (Tofan, 2017) and Agbonika (2015).

***Mexico:*** One Tax amnesty announced in 2013[6] (Luitel and Tosun, 2014)

***Netherland:*** Five different Tax amnesty announced in 2009, 2010, 2013, 2014, 2015 (OECD, 2015).

***New Zealand:*** One Tax amnesty announced in 1988 (Huda and Hernoko, 2017) which is taken as 1990 for testing influence in our work.

***Portugal:*** Two different tax amnesty announced in 2005, 2010 (Tofan, 2017) (Wikipedia) (OECD, 2015).

***Russia Federation:*** One tax amnesty announced in 2007 against tax evasion (Wikipedia)

***South Africa:*** One tax amnesty announced in 2003 (Wikipedia), in 2010 and 2011 limited program (OECD, 2015).

***Spain:*** One tax amnesty announced in 2012 (Wikipedia) and (OECD, 2015) against tax evasion and undeclared assets repatriation.

***Switzerland:*** One tax amnesty announced in 2010[7] for undeclared assets.

***Turkey:*** Four different tax amnesties announced in 2010[8], and 2011, 2016, 2017[9]

***United Kingdom:*** One tax amnesty announced in 2009 (OECD, 2015).

***United States:*** Three different tax amnesties announced in 2009, 2012, 2014 (OECD, 2015).

[4]https://citywireamericas.com/news/colombians-declare-7bn-in-tax-amnesty/a1074851

[5]https://www.step.org/french-offshore-amnesty-struggles-attract-takers

[6]https://www.ey.com/gl/en/services/tax/international-tax/alert--more-details-on-mexican-tax-amnesty-program

[7]https://www.swissinfo.ch/eng/foreign-assets_tax-amnesty-ends-for-undeclared-eu-assets/44438330

[8]https://www.researchgate.net/publication/294893019_Tax_Amnesties_and_2010_Tax_Amnesty_Evaluation_in_Turkey

[9]https://www.pwc.com.tr/en/hizmetlerimiz/vergi/bultenler/tax-amnesty.html

**Table-1.** Tax Amnesties for the period of 1990 to 2018 in 24 selected countries. The program details are obtained from different sources. [10][11][12][13]

| S. No. | Name of Country | Year of tax amnesty | Data Sources |
|---|---|---|---|
| 1. | Argentina | 1995, 2012-2014, 2016-2017 (6) | (Purnomolastu, 2017), (OECD, 2015) |
| 2. | Australia | 2007, 2009, 2014 (3) | (Tofan, 2017), (OECD, 2015) |
| 3. | Austria | 1993, 2012-2013 (3) | (Purnomolastu, 2017), (OECD, 2015) |
| 4. | Belgium | 2004, 2013 (2) | (Wikipedia), (Tofan, 2017), (OECD, 2015) |
| 5. | Canada | 2002, 2007 (2) | (Tofan, 2017) |
| 6. | Colombia | 2015-2017 (2) | footnote [14] |
| 7. | Finland | 2014 (1) | (OECD, 2015) |
| 8. | France | 2013 (1) | footnote[15] |
| 9. | Germany | 2004(1) | (Wikipedia) |
| 10. | Greece | 2010 (1) | (Tofan, 2017), (Agbonika, 2015) |
| 11. | Indonesia | 2008, 2017 (2) | (Wikipedia) |
| 12. | Ireland | 1993 (1) | (Huda and Hernoko, 2017) |
| 13. | Italy | 2001, 2003, 2009 (3) | (Tofan, 2017), (Agbonika, 2015) |
| 14. | Mexico | 2013 (1) | (Luitel and Tosun, 2014) |
| 15. | Netherland | 2009, 2010, 2013, 2014, 2015 (5) | (OECD, 2015) |
| 16. | New Zealand | 1988, 1990 (2) | (Huda and Hernoko, 2017) |
| 17. | Portugal | 2005, 2010 (2) | (Tofan, 2017), (Wikipedia), (OECD, 2015) |
| 18. | Russia Federation | 2007 (1) | (Wikipedia) |
| 19. | South Africa | 2003 (1) | (Wikipedia), (OECD, 2015) |
| 20. | Spain | 2012 (1) | (Wikipedia), (OECD, 2015) |
| 21. | Switzerland | 2010 (1) | footnote[16] |
| 22. | Turkey | 2010, 2011, 2016, 2017 (4) | footnote[17] and footnote[18] |
| 23. | United Kingdom | 2009 (1) | (OECD, 2015) |
| 24. | United States | 2009, 2012, 2014 (3) | (OECD, 2015) |

**Source:** Authors adapted from different sources.

## 4. CONCEPTUAL FRAMEWORK

Tax-To-GDP Ratio is considered nation's annual tax collection relative to country's gross domestic product (GDP). Policymakers and analysts considered Tax-to GDP a consistent in relation with economic activities. If economy grows the tax revenue collection should also increase[19]. GDP is considered major economic indicator which define country's economic health[20]. It consists of annualized total value produced and procures domestically generated goods and services by individuals, businesses and the government. GDP per capita or Per capita GDP is calculated dividing annual GDP of a country by its average population in a year. GDP per capita growth is considered increase in the population or GDP measure[21]. Countries rely on FDI as key source to measure economy of a country[22]. Unemployment is the measure of economy health[23]. Thus major microeconomic indicators are Tax

[10] https://www.thenews.com.pk/print/301081-nawaz-promised-tax-amnesty-scheme-in-2017

[11] https://www.oecd.org/ctp/exchange-of-tax-information/Voluntary-Disclosure-Programmes-2015.pdf

[12] http://jworldtimes.com/jwt2015/magazine-archives/jwtmag2018/may2018/another-tax-amnesty/

[13] https://en.wikipedia.org/wiki/Tax_amnesty

[14] https://citywireamericas.com/news/colombians-declare-7bn-in-tax-amnesty/a1074851

[15] https://www.step.org/french-offshore-amnesty-struggles-attract-takers

[16] https://www.swissinfo.ch/eng/foreign-assets_tax-amnesty-ends-for-undeclared-eu-assets/44438330

[17] https://www.researchgate.net/publication/294893019_Tax_Amnesties_and_2010_Tax_Amnesty_Evaluation_in_Turkey

[18] https://www.pwc.com.tr/en/hizmetlerimiz/vergi/bultenler/tax-amnesty.html

[19] https://www.investopedia.com/terms/t/tax-to-gdp-ratio.asp

[20] https://www.investopedia.com/university/releases/gdp.asp

[21] https://www.investopedia.com/terms/p/per-capita-gdp.asp

[22] https://www.tutor2u.net/economics/reference/foreign-direct-investment-in-the-global-economy

[23] https://www.investopedia.com/terms/u/unemployment.asp

to GDP, GDP per capita, GDP per capita growth, FDI per GDP and Unemployment. Countries Generally Tax policy of government is based on macroeconomic indicators (Sokolovskyi, 2018) GDP per are considered best tool to measure country economic power. GDP per capita is a macroeconomic indicator for economy's wealth. FDI per GDP is an important macroeconomic indicator to measures investment in the economy. The Unemployment Rate is another major tool to measure economy strength.

### *4.1. Dependent Variables*

In this paper data[24] obtain for 28 years (1990-2017) from 24 selected tax amnesty countries for **GDP per Capita** see Table 2. Tax amnesty produces tax revenue contribution to GDP per Capita which is important macroeconomic indicators. If Tax amnesty contributes to economy then post amnesty shows rising trend in GDP per Capita otherwise diminishing trend. We also include other important macroeconomic indicators data[25] obtained for 28 years (1990-2017) from 24 selected tax amnesty countries for **FDI per GDP** see Table 2 and **Unemployment Rate** see Table 2. Tax amnesty produces economic activities where idle assets freely perform value addition to the economy.

If Tax amnesty contributes to economy then post amnesty shows rising trend in FDI pergdp as investment opportunities attractive and investor confidence increase due to relax tax regulation in the economy. Likewise employment opportunities will increase and unemployment rate will show diminish trend.

### *4.2. Independent Variable*

The Independent variable in this paper is **Tax % to GDP** see Table 2 contribution. Taxes are major source of revenue for countries except oil producing countries totally dependent on oil trade revenues. If tax contributes to GDP increase in post amnesty period then tax amnesty would be influencing macroeconomic indicators.

**Table-2.** Macroeconomic Indicators theoretical concepts with references.

| Indicator Name | Definition | Source |
|---|---|---|
| Tax revenue (% of GDP) | Tax revenue refers to compulsory transfers to the central government for public purposes. Certain compulsory transfers such as fines, penalties, and most social security contributions are excluded. Refunds and corrections of erroneously collected tax revenue are treated as negative revenue. | International Monetary Fund, Government Finance Statistics Yearbook and data files, and World Bank and OECD GDP estimates. |
| Foreign direct investment, net inflows (% of GDP) | Foreign direct investment are the net inflows of investment to acquire a lasting management interest (10 percent or more of voting stock) in an enterprise operating in an economy other than that of the investor. It is the sum of equity capital, reinvestment of earnings, other long-term capital, and short-term capital as shown in the balance of payments. This series shows net inflows (new investment inflows less disinvestment) in the reporting economy from foreign investors, and is divided by GDP. | International Monetary Fund, International Financial Statistics and Balance of Payments databases, World Bank, International Debt Statistics, and World Bank and OECD GDP estimates. |
| GDP per capita (current US$) | GDP per capita is gross domestic product divided by midyear population. GDP is the sum of gross value added by all resident producers in the economy plus any product taxes and minus any subsidies not included in the value of the products. It is calculated without making deductions for depreciation of fabricated assets or for depletion and degradation of natural resources. Data are in current U.S. dollars. | World Bank national accounts data, and OECD National Accounts data files. |
| Unemployment, total (% of total labor force) (national estimate) | Unemployment refers to the share of the labor force that is without work but available for and seeking employment. Definitions of labor force and unemployment differ by country. | International Labour Organization, ILOSTAT database. Data retrieved in November 2018. |

**Source:** author's adapted from various sources.

[24] Data from database: World Development Indicators Last Updated: 03/21/2019

[25] https://databank.worldbank.org/data/Macroeconomic-Indicators/id/9035c89

### *4.3. Theoretical Model*

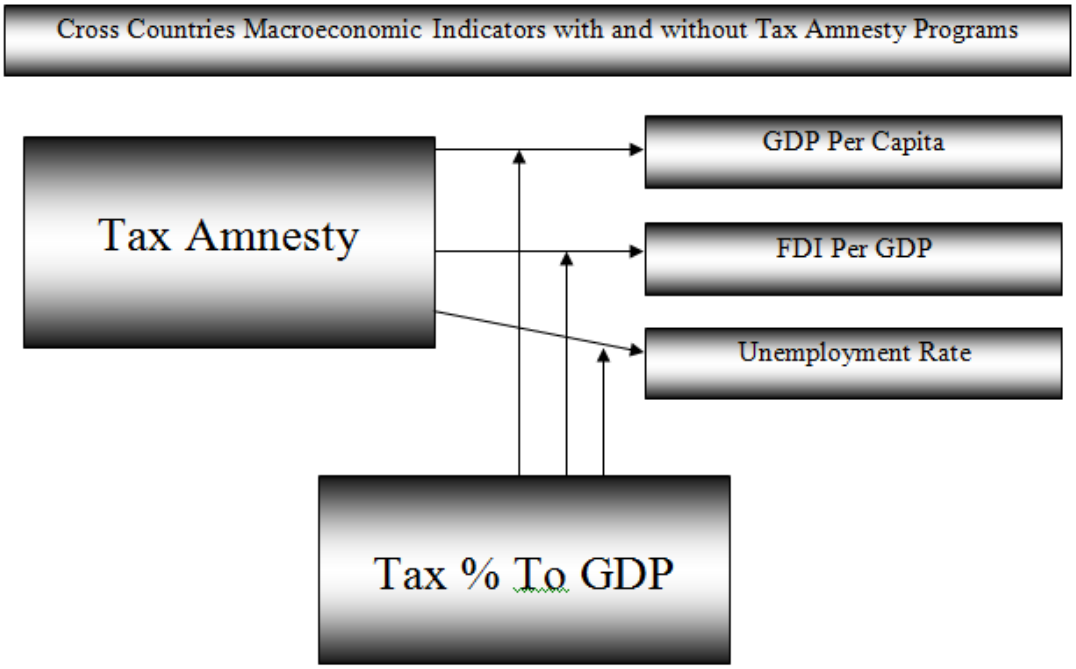


**Figure-1.** Model for Tax Amnesty effect on Tax collection and economic performance.
**Source:** author's design model.

Figure 1 shows effect of tax amnesties programs on tax revenue percentage to GDP and on macro-economic performance with interaction of tax to GDP. Macro-economic indicators are GPD per Capita, FDI per GDP and Unemployment Rate. The model is tested how the macro-economic indicators behave in the presence and absence of tax amnesty program.

To accomplish this target the following hypothesis is tested with other macroeconomic variables:
**H1:** Significant influence cross countries tax amnesty schemes on tax revenue percentage to GDP
**H2:** Significant influence cross countries tax revenue percentage of GDP on GDP per capita
**H3:** Significant influence cross countries tax revenue percentage of GDP on unemployment rates
**H4:** Significant influence cross countries tax revenue percentage of GDP on foreign direct investment

## 5. DATA AND HISTORICAL ANALYSIS

### *5.1. Data Source*

The variables are selected in the study in annual time series data form, comprises the variables of Tax Revenue (% of GDP) [TAXTOGDP], GDP per capita (current US$) [GDPPC], Foreign direct investment, net inflows (% of GDP) [FDIPERGDP], and Unemployment, total (% of total labor force) (national estimate) [UNEMPRATE], all data obtained from database: World Development Indicators[26] from the internet sources. Data is expressed as US dollar. The data covers the period from 1990 to 2017.

[26]https://databank.worldbank.org/data/Macroeconomic-Indicators/id/9035c89

### *5.2. Data*

**Table-3.** Histocial Values Averages of Macroeconomic Indicators with and without Tax Amnesty event.

| Country | In the years of tax amnesty (Applicable) | | | | In the years of Non Applicability of tax amnesty | | | |
|---|---|---|---|---|---|---|---|---|
| | taxtogdp | gdppc | fdi | unemprate | taxtogdp | gdppc | fdi | unemprate |
| Argentina | 11.5457 | 12102.95 | 1.69 | 12.8041 | 10.1307 | 7284.09 | 2.37 | 12.3143 |
| Australia | 22.7544 | 48647.61 | 4.21 | 5.3387 | 22.4258 | 33752.83 | 2.65 | 6.8407 |
| Austria | 23.7596 | 41121.98 | 0.66 | 5.1681 | 24.7967 | 35691.03 | 2.69 | 5.3208 |
| Belgium | 25.8082 | 41086.18 | 3.26 | 7.8943 | 25.4248 | 33429.26 | 11.09 | 7.832 |
| Canada | 13.3973 | 34356.17 | 5.73 | 6.8505 | 13.2242 | 33391.07 | 2.53 | 7.908 |
| Colombia | 13.8201 | 6102.61 | 4.45 | 8.6211 | 13.2042 | 3708.87 | 2.99 | 12.1983 |
| Finland | 20.7744 | 49914.62 | 6.33 | 8.663 | 21.8302 | 34962.47 | 3.03 | 9.8864 |
| France | 23.2333 | 42592.95 | 1.12 | 9.9206 | 21.5406 | 31587.91 | 1.98 | 9.8621 |
| Germany | 10.3891 | 34165.93 | -0.73 | 5.3505 | 11.2121 | 34314.75 | 1.85 | 5.3505 |
| Greece | 20.214 | 26917.76 | 0.18 | 12.7131 | 21.0528 | 17877.22 | 0.83 | 13.4074 |
| Indonesia | 13.3745 | 3003.7 | 1.97 | 5.6967 | 13.4433 | 1694.28 | 1.12 | 5.3661 |
| Ireland | 25.8096 | 14674.61 | 2.14 | 15.587 | 24.4126 | 40034.04 | 14.95 | 9.522 |
| Italy | 22.0635 | 28254.96 | 1.09 | 8.7365 | 23.2995 | 28121.71 | 0.81 | 9.7506 |
| Mexico | 10.2946 | 10400.56 | 3.73 | 4.9139 | 10.0939 | 7130.12 | 2.39 | 3.9666 |
| Netherlands | 20.9148 | 50143.37 | 20.03 | 5.8788 | 21.7826 | 34795.9 | 17.9 | 4.9086 |
| New Zealand | 28.3839 | 13670.2 | 3.81 | 7.982 | 28.3839 | 25768.07 | 1.86 | 6.2283 |
| Portugal | 20.0862 | 20661.8 | 2.9 | 9.1758 | 20.6111 | 15982.23 | 3.32 | 8.1235 |
| Russian Federation | 16.5513 | 9101.25 | 4.3 | 6.002 | 13.3752 | 6373.34 | 1.74 | 7.7874 |
| South Africa | 23.0375 | 3678.1 | 0.45 | 32.4557 | 24.5119 | 4720.02 | 1.25 | 26.7957 |
| Spain | 12.2383 | 28563.86 | 1.86 | 24.7872 | 14.9566 | 22204.6 | 2.8 | 21.3603 |
| Switzerland | 9.7192 | 74605.72 | 3.03 | 4.8067 | 9.103 | 56948.16 | 4.18 | 4.6503 |
| Turkey | 18.5868 | 10855.53 | 1.49 | 10.2884 | 16.0607 | 6073.77 | 1.14 | 8.8357 |
| United Kingdom | 24.2284 | 38262.18 | 0.61 | 7.5373 | 24.98 | 33559.9 | 3.88 | 6.456 |
| United States | 9.5831 | 51049.75 | 1.37 | 7.8304 | 10.8012 | 39651.96 | 1.6 | 5.7739 |

*5.2.1. Analysis*

Table 3 the data is large of 24 countries and each country macroeconomic variables historical values were obtained from databank.worldbank.org for event history analysis comprises 28 years (1990-2017). We have taken averages to display in the paper. The averages are calculated for TA years and no TA years. We show graphs with comments how the averages of each economic indicators influence by TA regulations and perform under the period where there is no TA regulations. The test was conducted on actual data values available for each year of each country in panel form. Panel 1 comprises tax% to gdp (IV) with gdppc (DV) and with gdppcgth (DV) and each value define with dummy variable "1" for TA year and "0" for TA year. Panel 2 comprises tax% to gdp (IV) with fdipergdp (DV) and with unemprate (DV) and each value define with dummy variable "1" for TA year and "0" for TA year.

**GDP per Capita with and without Tax Amnesty Figure 1**

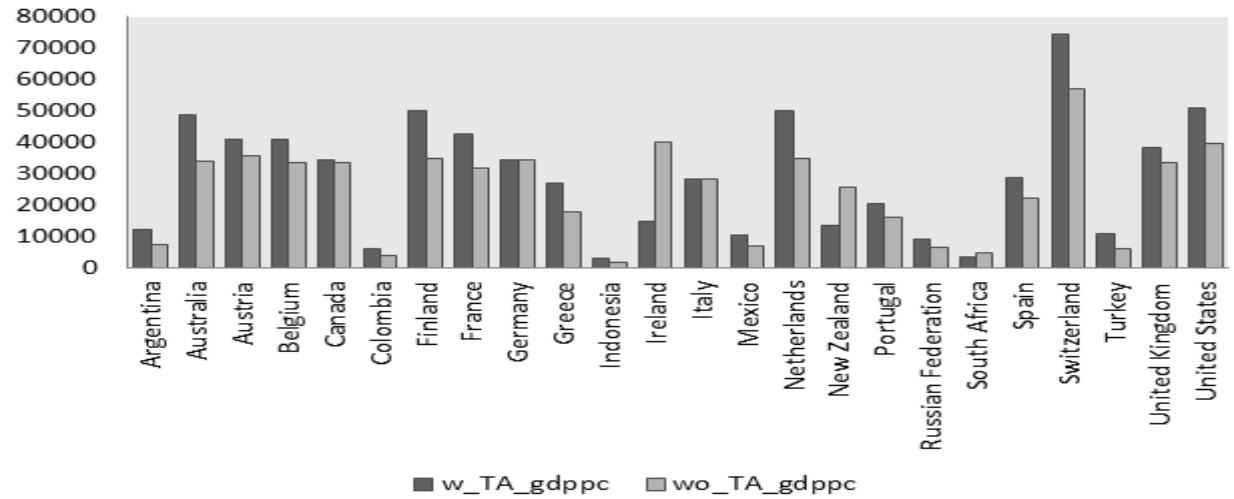


**Figure-1.** The country wise with and without Tax Amnesty averages for GDP per Capita shows positive trend towards Tax Amnesty. GDP per Capita in 20 countries is greater in Tax Amnesty years as compare to non Tax Amnesty years.
**Source:** author's calculations on data from Table 3.

**FDI per GDP with and without Tax Amnesty Figure 2**

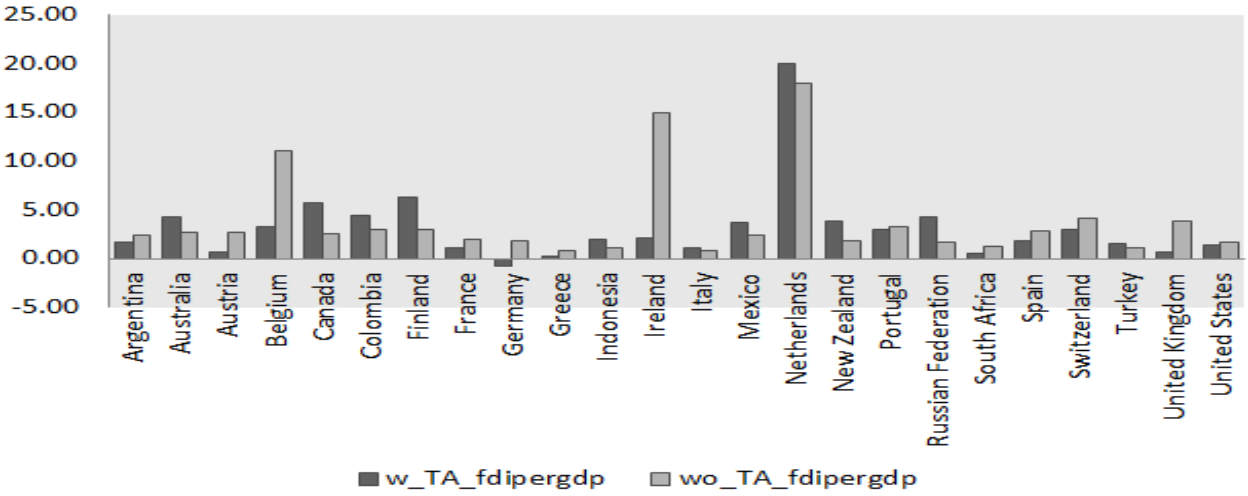


**Figure-2.** The country wise with and without Tax Amnesty averages for FDI per GDP shows negative trend towards Tax Amnesty. FDI per GDP in 12 countries is greater in non-Tax Amnesty years as compare to Tax Amnesty years. Which is just opposite to Graph 1 trend of FDI per GDP? This does not mean that Tax Amnesty is not set good trend for FDI per GDP. But Tax Amnesty year higher trend is shown in 11 countries, which means we can be the positive trend towards Tax Amnesty, as the improvement in FDI may reflect in the year after Tax Amnesty when investors attract towards relax tax regulation.
**Source:** author's calculations on data from Table 3.

**Unemployment Rate with and without Tax Amnesty Figure 3**

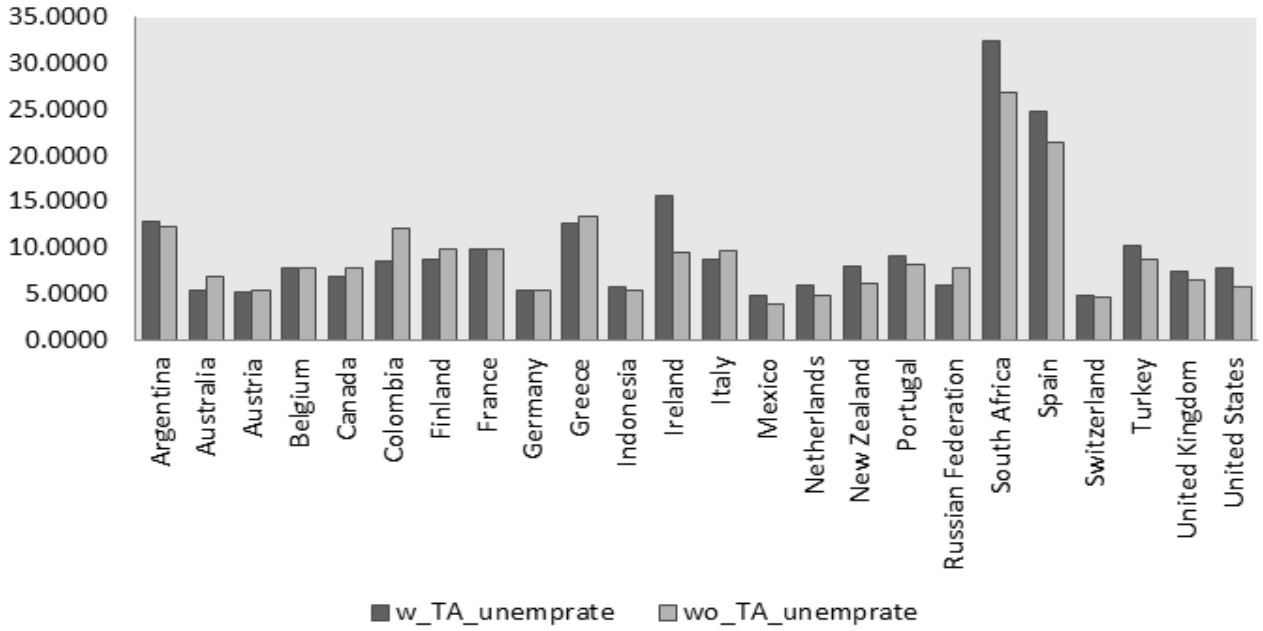


**Figure-3.** The country wise with and without Tax Amnesty averages for Unemployment Rate shows positive trend towards Tax Amnesty. Unemployment in 14 countries is lower in non Tax Amnesty years as compare to Tax Amnesty years. This means after tax amnesty introduced the next year unemployment rate started reducing in 14 countries.
**Source:** author's calculations on data from Table 3.

**Tax Revenue percentage to GDP with and without Tax Amnesty Figure 4**

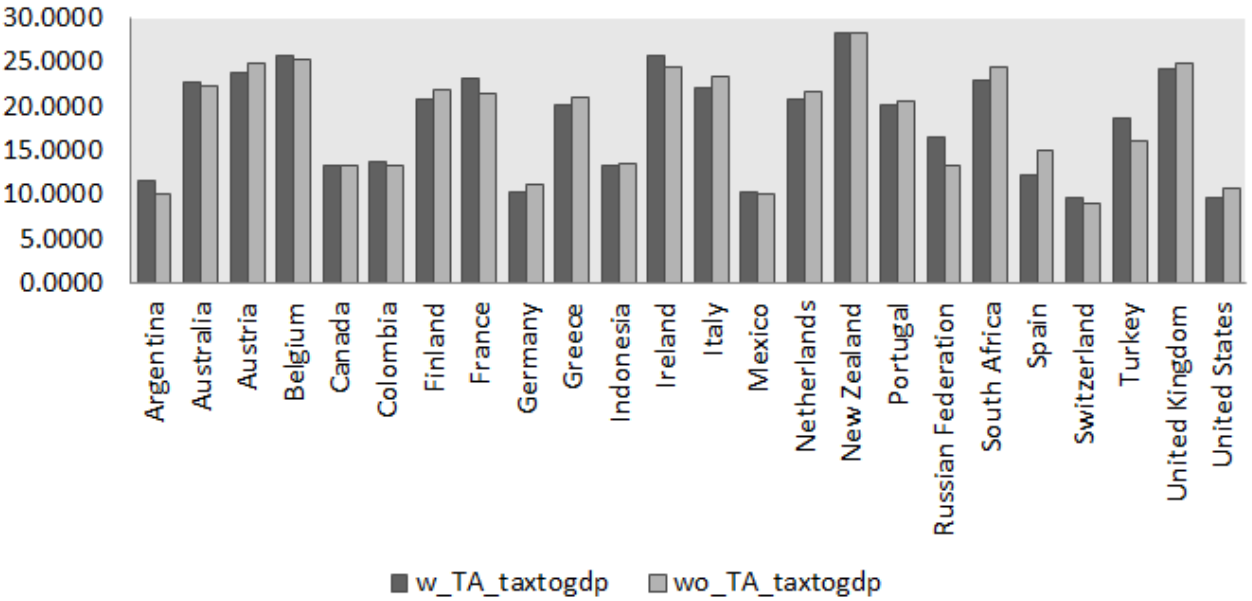


**Figure-4.** The country wise with and without Tax Amnesty averages for Tax Revenue t% to GDP shows positive trend towards Tax Amnesty. Tax Revenue contribution to GDP in 13 countries is higher in Tax Amnesty years as compare to non Tax Amnesty years. This means Tax Revenue collected additional tax collection in the year and repatriation of foreign assets. Tax evasions reduced and tax compliance improved.
**Source:** author's calculations on data from Table 3.

### *5.3. Methodology*

#### *5.3.1. Data Collection and Instrument*

We used secondary data for sample period of 28 years for this study i.e. 1990-2017. Since the data units and time must be similar therefore, depending on the availability of data we could have selected as longest as possible sample period, thus avoided small sample bias. Data on all the variables have been collected from

databank.worldbank.org, various web sources to define amnesty years in countries (link in footnotes), oecd.org (Voluntary-Disclosure-Programmes-2015, en.Wikipedia.org, news paper articles, and previous tax amnesty literatures.

## 6. RESULTS ANALYSIS

### *6.1. Descriptive Statistics*

**Table-4.** Results of descriptive statistics.

| Descriptive Statistics | DUMMY1 | TAXTOGDP | GDPPC | FDIPERGDP | UNEMPRATE |
|---|---|---|---|---|---|
| Mean | 0.074405 | 18.36960 | 24972.04 | 3.773266 | 9.210580 |
| Median | 0.000000 | 19.74170 | 23042.04 | 1.984950 | 7.685000 |
| Maximum | 1.000000 | 31.96580 | 88415.63 | 87.44260 | 33.47000 |
| Minimum | 0.000000 | 4.838500 | 463.9700 | -8.0138 | 2.120000 |
| Std. Dev. | 0.262624 | 6.132311 | 17661.52 | 7.261026 | 5.755457 |
| Skewness | 3.243514 | -0.0886 | 0.656663 | 5.863656 | 1.840689 |
| Kurtosis | 11.52039 | 1.697837 | 3.069868 | 53.49139 | 6.088690 |
| Jarque-Bera | 3210.999 | 48.35672 | 48.43185 | 75233.50 | 646.5914 |
| Probability | 0.000000 | 0.000000 | 0.000000 | 0.000000 | 0.000000 |
| Sum | 50.00000 | 12344.37 | 16781211 | 2535.635 | 6189.510 |
| Sum Sq. Dev. | 46.27976 | 25233.12 | 2.09E+11 | 35376.80 | 22227.07 |
| Observations | 672 | 672 | 672 | 672 | 672 |

**Source:** Auther's Test run Calculations.

***Mean*** see Table 4***:*** Result of descriptive statistics shows mean of independent variable tax amnesty is 0.07 of selected 24 tax amnesty countries during the period of 27 years (1990-2017), which is close to Argentina 7 tax amnesties. Another independent variable mean Tax to GDP is 18.37%, which is close to Turkey Tax to GPD 16.42%. The mean of dependent variables GDP per capita is $24972.04 which is close to Spain GDP per capita $22431.71. Similarly mean of another dependent variable FDI per GDP is 3.77% which is close to United Kingdom FDI per GDP 3.77%. And mean of another dependent variable unemployment rate is 9.21%, which is close to Turkey unemployment rate 9.04%.

***Median*** see Table 4***:*** The middle value of the independent variable Tax to GDP see Table 4 of selected 24 tax amnesty countries during the period of 27 years (1990-2017) is 19.74, the middle value of dependent variables GDP per capita is $23042.04. Similarly middle value of another dependent variable FDI per GDP is 1.98 and Unemployment Rate is 7.69%.

***Maximum*** see Table 4***:*** Maximum Tax to GDP see Table 4 is 31.97% which is recorded in New Zealand in the year 2006 when there is no Tax Amnesty. The Maximum GDP per capita dependent variable is $88415.63 which is recorded in Switzerland after the year of Tax Amnesty. Maximum FDI per GDP is 87.44% of another dependent variable which is recorded in Netherlands in 2007 two year before tax amnesty and Maximum Unemployment Rate is 33.47% of another dependent variable which is recorded in South Africa in 2002 year before tax amnesty.

***Minimum*** see Table 4***:*** Minimum Tax to GDP is 4.83% which is recorded in Argentina in 1990 when there is no sign of Tax Amnesty nearby years. Similarly Minimum GDP per capita dependent variable is $463.97 which is recorded in Indonesia in 1998 when there is no Tax Amnesty far away years. Similarly Minimum FDI per GDP is -8.01% recorded in Belgium in 2017 when there is no sound of tax amnesty for years.

Minimum Unemployment rate is 2.12% recorded in Netherlands in 2001 far away no sound of tax amnesty. ***Standard Deviation*** see Table 4: Standard Deviation of independent variable Tax to GDP 6.13% which is nearly 33% of its mean shows that data spread is not largely deviated from its mean. Whereas Standard Deviation of dependent variables GDP per capita is $17661.52 which is nearly 70% of its mean shows that data spread is not

largely deviated from its mean. Whereas Standard Deviation of dependent variables FDI per GDP is 7.26% which is almost 200% of its mean shows that data spread is largely deviated from its mean. Similarly SD of dependent variable Unemployment Rate is 5.76% which is 60% of its mean shows that data spread is not largely deviated from its mean.

***Skewness and Kurtosis*** see Table 4*:* Skewness of independent variable Tax to GDP is in between -0.50 and 0.5 i.e. -0.088598 with Kurtosis <3 i.e. 1.697837, which makes it short tail fairly symmetrical. Skewness of dependent variable GDP per capita is in between 0.5 and 1 i.e. 0.656663 with Kurtosis >3 i.e. 3.069868, which makes it long tail positively skewed. Skewness of dependent variable FDI is greater than 1 i.e. 5.863656 with Kurtosis >3 i.e. 53.49139, which makes it very high peak very fatter tail highly skewed. Skewness of another dependent variable Unemployment Rate is greater than 1 i.e. 1.840689 with Kurtosis >3 i.e. 6.088690, which makes it higher Peak and fatter tail highly skewed.

**Table-5.** Correlations – DATA SET – PANEL.

| Variables | DUMMY1 | FDIPERGDP | GDPPC | TAXTOGDP | UNEMPRATE |
|---|---|---|---|---|---|
| **DUMMY1** | 1.000000 | | | | |
| **FDIPERGDP** | 0.013637 | 1.000000 | | | |
| **GDPPC** | 0.060549 | 0.300767 | 1.000000 | | |
| **TAXTOGDP** | -0.022336 | 0.143507 | 0.133915 | 1.000000 | |
| **UNEMPRATE** | -0.006073 | -0.113767 | -0.323010 | 0.139966 | 1.000000 |

**Source:** author's calculations.

Table 5 shows correlations between panel variables. There was no correlation of years of amnesty with any of the macro economic variables. The signs seem to be according to theory; unemployment rate is negatively associated with both FDI and GDP as expected.It is observed that there is linear correlation in between Tax to GDP and GDP per capita but is very weak positive relationship.

### *6.2. Regression Methodology*

#### *6.2.1. Methodology*

We employ Panel GMM for regression before that we also employ Pearson correlation with 2 tailed test of significance for comparison of factors and returns. According to Siddiqui and Ahmed (2013) Growth models contain endogenously determined variables. For instance, if higher investment leads to growth, then higher growth might prompt investment. Glaeser (2004) also doubted exogeniety of institutions as these subjective measures are strongly correlated and rise sharply with the level of economic development. Chong and Calderon (2000) found evidence of significant causation in both directions. This leads to a simultaneity problem in OLS13 (Knack and Keefer, 1995); (Mauro, 1995); (Acemoglu *et al.*, 2001) dealt this issue by using exogenous instruments. GMM based estimation is a technique for instrumental variable estimation and has several advantages over conventional IV estimators (2SLS).The conventional IV estimator is inefficient in the presence of heteroskedasticity. GMM makes use of the orthogonality conditions to allow for efficient estimation in the presence of heteroskedasticity of unknown form 14.This analysis applies GMM-based Arellano-Bond linear dynamic panel estimation (Holtz-Eakin *et al.*, 1988); (Arellano and Bond, 1991); (Arellano and Bover, 1995) commonly referred as a difference GMM estimator.

Arellano–Bond Estimator

- Take difference

$$(y_{it} - y_{i,t-1}) = \gamma\,(y_{i,t-1} - y_{i,t-2}) + (\mathbf{x}_{it} - \mathbf{x}_{i,t-1})\,\beta + (\varepsilon_{it} - \varepsilon_{i,t-1})$$

- Use $y_{i,t-2}$ as instrumental variable
- Perform GMM

$$\widehat{\boldsymbol{\beta}}_{\mathrm{AB}} = \left[\left(\sum_{i=1}^{N}\widetilde{\mathbf{X}}_i'\mathbf{Z}_i\right)\mathbf{W}_N\left(\sum_{i=1}^{N}\mathbf{Z}_i'\widetilde{\mathbf{X}}_i\right)\right]^{-1}\left(\sum_{i=1}^{N}\widetilde{\mathbf{X}}_i'\mathbf{Z}_i\right)\mathbf{W}_N\left(\sum_{i=1}^{N}\mathbf{Z}_i'\widetilde{\mathbf{y}}_i\right)$$

**Table-6.** Panel Generalized Method of Moments (First Differences).

| | | | Model 1 | Model 2 | Model 3 | Model 4 |
|---|---|---|---|---|---|---|
| | Dependent Variable | | TAXTOGDP | GDPPC | FDIPERGDP | UNEMPRATE |
| Independent Variables | UNEMPRATE(-1) | Coefficient | | | | 0.86711 |
| | | t-Statistic | | | | 67.70776 |
| | | Prob. | | | | 0.0000 |
| | FDIPERGDP (-1) | Coefficient | | | 0.314358 | |
| | | t-Statistic | | | 4.173381 | |
| | | Prob. | | | 0.0000 | |
| | GDPPC (-1) | Coefficient | | 0.946797 | | |
| | | t-Statistic | | 198.8869 | | |
| | | Prob. | | 0.0000 | | |
| | TAXTOGDP (-1) | Coefficient | 0.629565 | | | |
| | | t-Statistic | 28.77592 | | | |
| | | Prob. | 0.0000 | | | |
| | TAXTOGDP *DUMMY1 | Coefficient | | -117.388 | -0.20042 | -0.01544 |
| | | t-Statistic | | -2.5336 | -6.43604 | -0.28782 |
| | | Prob. | | 0.0115 | 0.0000 | 0.7736 |
| | TAXTOGDP | Coefficient | | 69.79178 | -0.26952 | -0.08174 |
| | | t-Statistic | | 3.839445 | -8.32344 | -3.13472 |
| | | Prob. | | 0.0001 | 0.0000 | 0.0018 |
| | DUMMY1 | Coefficient | -0.05383 | 1438.902 | 1.643039 | 0.565887 |
| | | t-Statistic | -0.27569 | 1.490808 | 2.606284 | 0.798878 |
| | | Prob. | 0.7829 | 0.1365 | 0.0094 | 0.4247 |
| | GDPPC | Coefficient | -2.88E-06 | | 9.47E-05 | 6.27E-07 |
| | | t-Statistic | -0.25176 | | 9.539831 | 0.051596 |
| | | Prob. | 0.8013 | | 0.0000 | 0.9589 |
| | FDI | Coefficient | -0.01033 | 111.4564 | | -0.01866 |
| | | t-Statistic | -0.38806 | 3.689438 | | -3.24092 |
| | | Prob. | 0.6981 | 0.0002 | | 0.0013 |
| | UNEMPRATE | Coefficient | 0.030249 | -330.431 | 0.069602 | |
| | | t-Statistic | 1.540171 | -9.29158 | 3.682255 | |
| | | Prob. | 0.124 | 0.0000 | 0.0003 | |
| J-statistic | | | 20.60418 | 20.69618 | 17.3479 | 18.43588 |
| Instrument rank | | | 24 | 24 | 24 | 25 |
| Instrument specification | | | @DYN (TAXTOGDP,-2) | @DYN (GDPPC,-2) | @DYN (FDIPERGDP,-2) | @DYN (UNEMPRATE,-2) |

Constant added to instrument list
White period standard errors & covariance (d.f. corrected)
White period instrument weighting matrix
Total panel (balanced) observations: 624, Countries included: 24, Years included: 26 (1992 2017)
Effects Specification: Cross-section fixed (first differences)
**Source:** author's calculations.

### *Model 1*

The primary objective of the first model see Table 6 is to test the effect of amnesty scheme on the tax collection, as theory subjected that amnesty would lead to a higher tax collection. Surprisingly, the results depicted that tax amnesty seems to have a negative effect on tax to GDP, however insignificant. This suggested that

amnesty schemes have not given the desired results. We used two lags of dependent variables as instruments. Other control variables were also found to be insignificant.

*Model 2*

In model 2 see Table 6 the effect of tax amnesty on GDP is assessed. Here, GDPPC was the dependent variables. Result found positive but insignificant effect of tax amnesty on GDP, Tax to GDP also have a large positive and significant effect on GDPPC. However, the interactive effect between tax amnesty and tax collection is negative and significant with respect to GDPPC. This means that amnesty schemes and tax collection produced a favorable affect individually on GDP per capita along however, in presence of interaction between them, the affect is inversed. Meaning there has negative complementarities among them. FDI and unemployment have positive and negative influence on GDP as expected, both at a high level of significance. The results suggested that tax amnesty schemes affect GDP not through increase in taxes but through some other effect. As Amnesty schemes are applied with taxes, their effect on GDP reversed.

*Model 3*

In model 3 see Table 6 the effect of tax amnesty on FDI is assessed. Here, FDI was the dependent variables. Result found positive and significant effect of tax amnesty on FDI, whereas Tax to GDP had a negative and significant effect on FDI. Unemployment and GDP had a positive and significant effect on FDI, depicting higher employment and growth opportunities in the economy encourage FDI flows. However, the interactive effect between tax amnesty and tax collection is also negative and significant with respect to FDI. This means that amnesty schemes produced a favorable effect on FDI along however, in the presence of interaction between them, the affect is reversed. Meaning there has negative complementarities among them. The result suggested that tax amnesty schemes affect FDI not through increase in taxes directly, but through some other means

*Model 4*

In model 4 see Table 6 the effect of tax amnesty on unemployment is assessed. Here, FDI and tax to GDP have a negative and significant effect on Unemployment Rate. The rest seems to be insignificant. Following the previous trend, the interactive effect between tax amnesty and tax collection is positive but insignificant with respect to unemployment. This means that amnesty schemes is increasing unemployment, where tax to GDP is reducing it. The effect remained positive in presence of interaction between them, however largely insignificant. GDPPC and FDI have positive and negative influence on unemployment as expected. The results suggested that tax affect unemployment but not through tax amnesty but through some other effect. As Amnesty schemes are applied with taxes, their effect on unemployment inversed.

### *6.3. Discussion*

The Panel GMM for regression test was conducted cross sectional on 24 countries data for 28 years (1990-2017). The selected countries introduced tax amnesty scheme one time or multiple times. Total four Models were drawn from Arellano-Bond linear dynamic panel estimation. Model 1 described tax amnesty scheme is not increase tax revenue thus no additional tax revenue contribution towards GDP is concluded. This shows that tax amnesty programs alone does not benefit in revenue generation in short-run but for other purposes i.e. documenting the economy benefiting in a long-run and repatriation of foreign assets and accounts. The low Tax-to-GDP is also because the maximum percentage of revenue collection on the declaration of assets and revenue is quite low as compare to tax slabs for individual and businesses. Model 2 explain the situation where GDP per capital influenced by tax amnesty is not through large tax collection but some other reason. The reason may investors gain confidence and expansion in documentation of the economy fruitful results places on the GDP per capita after tax

amnesty program launching. The other variables also produce significant influence as FDI behave positively and unemployment rate negative. This means that investments increase and unemployment decreasing trends can be observed. Model 3 described the situation on the same trend. Model 4 described as expected that tax amnesty has no significant influenced reducing unemployment rate in the economy. The effect takes long duration and channeled through other factors. We have also compare results of our four macroeconomic indicators in the presence and absence of tax amnesty programs. The results indicate positive trend towards successful impact on economic indicators. The overall results show that if tax amnesty program is introduced by a country then the economy produces good results. In previous studies the tax amnesty was not analyze in terms of major macroeconomic indicators. The study on high frequency of tax amnesty generate low tax revenue due taxpayer wait and see for the best possible tax rates (Ibrahim *et al.*, 2017) cannot be best explain on tax amnesty.

This is because the study was conducted on the basis of 9 Asian countries and Indonesia was highest among tax revenues with limited frequencies. The current study findings are in contrast to tax revenue rather expansion of economy documentation through integrated digitalized system where taxpayer transactions can be monitored through AI auto generated discrepancies. Provide ease of doing businesses and one window operation. Another study on tax amnesty frequency for United States perspective on fiscal motives and revenue yield motive (Luitel and Tosun, 2014) finding contrast on revenue yield motives for tax amnesty and in favoring removal of fiscal stress or in other words improvement in macroeconomic indicators (per capita GDP, tax revenue to GDP and unemployment rate). This paper also determines that tax amnesty rescue major macroeconomic indicators from fiscal stress. Likewise, tax amnesty from Philippine perspective (Aspa *et al.*, 2016) contrast Indonesian low frequency of tax amnesty by 36 tax amnesties in Philippine collected significant tax revenues except 10 in Marcos regime. Another study in Argentina perspective (Villalba, 2017) which was conducted on data obtained from one province toaccept short run revenue benefits of tax amnesty but tax revenue drawback in long run. Whereas we have used data from 24 countries cross sectional and our finding are more reliable because large area covered.

Another study from Indonesia perspective that tax amnesty caused low tax to GDP (Said, 2017) is become invalid if we match the results of Graph 4 in this paper where 13 countries out of 24 tax to GDP are higher in tax amnesty years, on the basis of declaring tax amnesty favors tax evasions and potentials for money laundering is invalid. Because tax amnesty increase tax compliance and FATF[27] main objectives are combating against money laundering and presence of OECD information sharing inter government agreements tax evasions and money laundering have no more safe heavens. The study of tax amnesty in perspective of Nigeria contrast facilitating tax evasion rather tax compliance tool (Agbonika, 2015). Another study in United States perspective support tax compliance benefit of tax amnesty (Parle and Hirlinger, 1986). The study of macroeconomic indicators impact on tax revenue (Sokolovskyi, 2018) finds correlation in between GDP per capita, unemployment rate and FDI per GDP. This paper finds only influence on per capita GDP without major tax collection but combined affect on FDI per GDP and no affect on unemployment rate.

### *6.4. Conclusion*

The current paper support Tax amnesty program in the context of improvement of important macroeconomic indicators. The paper attempt to cover broader portrait drew from tax amnesty programs introduced 24 different countries economic indicators in past 28 years. Previously cross section countries research was not conducted on as global macroeconomic analysis. The main purpose of the study is to find out if the tax amnesty produce tax collection and improve economic performance either one time or repeated time on global economic perspective produce fruitful results or not. The study supports repeated tax amnesty benefited FDI combined with tax-to-GDP and affect GDP per capita individually. There is no affect either combined or individual on reducing unemployment

[27] https://www.fatf-gafi.org/about/

rate. In the long-run the situation will be improved gradually for other economic indicators if the program run on longer period and facilitate taxpayers on broader way. The paper investigates comprehensive recent articles on this topic around the globe. This help in developing the Model of the paper. Since no literature is available in cross sectional analysis on tax amnesty program on macroeconomic analysis and observed suggestion in some paper for future researcher to expand the work to cover Macro Economics in relation with tax amnesty. The current paper also provides some concepts on tax amnesty and share results of recent tax amnesty in Pakistan 2018. The concept of previous studies on tax amnesty schemes was that it is for short-run revenue yield and improves tax compliance while many gone against of this concept. This paper investigates on larger parameters to provide different perspective. One of the four hypotheses of the current paper results in favor of tax amnesty scheme with Tax-to-GDP expansion. This means FDI per GDP take effect of Tax Amnesty. All the previous studies created vogue statement on amnesty and we tried to draw clear view by covering majority of the countries used tax amnesty.

Our results show comprehensive working and countries outcome towards tax amnesty. We have studied more than 25 literatures and various publications related to the topic. There are more than 35 countries around the globe used tax amnesty program. But we covered only 24 countries due to limitation of data availability and time constraint. We found that if tax amnesty program introduced by the government then investors gain confidence as in the case of other countries which improve FDI to GDP, which gives employments opportunities in the economy. Tax revenue to GDP expands, per capita GDP improves, infrastructures development and new industries and sectors developed in the economy. This gives support to exports promotions and import substitute strategy.

The overall economic prosperity emerges. Tax avoidance and Tax evasions are not purposely but due to tax consciousness issues as well. Nation wants to pay taxes properly but there is trust deficit over government's policies and administrative barriers. Tax amnesty provides a good opportunity to taxpayer to register without fear, legalize revenues and assets. The corporate also get chance to improve their activities disclosing hidden revenues and assets to join legal framework to business activities. This also improves economic activities and corporate profits contribute largely tax revenue to GDP. This paper suggests Tax Amnesty is best solution for economy documentation and declaration of foreign assets before major tax administrative reforms.

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