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CONTENTS OF THE VOLUME

- i. Copyright Notice
- ii. Editorial Board Members
- iii. Chief Author and Dean
- iv. Table of Contents
- v. From the Chief Editor's Desk
- vi. Research and Review Papers
- 1. Intra-industry Trade and Labour Market Adjustment in France. *1-6*
- 2. SHGS and its Marketing Problems. *7-11*
- 3. Governance, Deterrence, and National Homicide Rate. *13-26*
- 4. "Bias-Based Policing: Voices from Within". *27-36*
- 5. Internal Integration of the Transition Economy: Evidence from Ukraine. *37-43*
- vii. Auxiliary Memberships
- viii. Process of Submission of Research Paper
- ix. Preferred Author Guidelines
- x. Index



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Intra-industry Trade and Labour Market Adjustment in France

By Hatem Derbel, Neila Dammak & Ali Chkir

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Abstract - According to the “smooth adjustment hypothesis”, the labor market adjustment costs entailed by trade liberalization are lower if trade expansion is intra industry rather inter industry in nature. In this paper, we study the link between trade and labor-market changes in France over the period 1986-2011. The empirical survey, uses a panel data models with fixed effects, it shows a negative correlation between changes of employment and marginal intra-industry trade. These results confirm the smooth adjustment hypothesis. The mesure of marginal IIT is then found to be more appropriate for the analysis of adjustment issues than the traditional static IIT index.

Keywords : *Intra-industry trade, adjustment costs.*

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Intra-industry Trade and Labour Market Adjustment in France

Hatem Derbel ^α, Neila Dammak ^σ & Ali Chkir ^ρ

Abstract - According to the "smooth adjustment hypothesis", the labor market adjustment costs entailed by trade liberalization are lower if trade expansion is intra industry rather inter industry in nature. In this paper, we study the link between trade and labor-market changes in France over the period 1986-2011. The empirical survey, uses a panel data models with fixed effects, it shows a negative correlation between changes of employment and marginal intra-industry trade. These results confirm the smooth adjustment hypothesis. The mesure of marginal IIT is then found to be more appropriate for the analysis of adjustment issues than the traditional static IIT index.

Keywords : Intra-industry trade, adjustment costs.

I. INTRODUCTION

In recent decades, intra industry trade (IIT), the simultaneous import and export of very similar goods, has been a pervasive and steadily growing empirical phenomenon. A range of theoretical models have been developed to explain its existence. These models associate IIT with welfare gains from trade that arise through the exploitation of scale economies, an increase in product variety and the intensification of competitive pressures (see Helpman and Krugman, 1985). In addition to these gains, it is also widely believed that trade expansion of the intra-industry type entails relatively smooth resource reallocation and hence low transitional adjustment costs, this proposition that has become known as the "smooth adjustment hypothesis" (SAH).

The relationship between IIT and adjustment has been a close one from the very earliest work on IIT. However, the existing literature in this relationship between IIT and adjustment has some serious limitations. First, researchers have so far used the conventional Grubel Lloyd (GL) index in analysing trade patterns. However, Hamilton and Kniest (1991) have argued that such a static measure of IIT is not inherently related to changes in trade and specialization, and suggested the use of alternative measures of marginal IT (MIIT). Therefore GL indices are complemented with a measure of MIIT¹. Second, some evidence in support of

the SAH was recently found, the results of these studies were not fully conclusive. Third, the smooth adjustment hypothesis, both in the GL and in the MIIT version, have rarely been subjected to explicit tests in France.

In this paper, we estimate directly the relationship between IIT and adjustment indicators. Specifically, we suggest that too little emphasis has been given to what is in effect the manifestation of adjustment pressures, the labour market. The concept of labour market adjustment revolves primarily around job gains and losses and the subsequent need for workers to relocate and/or retrain.

The paper is organized as follows. Section 2 presents the static and dynamic measurement of intra-industry. Section 3 outlines the theoretical background of the relationship between intra-industry trade and labor market adjustment. Section 4 presents the results of empirical researches. The estimation results are presented in Section 5. Section 6 concludes.

II. MEASURING INTRA INDUSTRY TRADE

IIT has traditionally been measured by the Grubel-Lloyd (GL) index:

$$GL_{it} = IIT_{it} = 1 - \frac{|X_{it} - M_{it}|}{(X_{it} + M_{it})}$$

where M stands for imports in a particular industry i, X represents corresponding exports, and t is the reference year. The value of this index ranges between 0 and 1, inclusive. The former value indicates that all trade is of the inter-industry type, the latter that all trade is IIT. It has become standard practice not to adjust the index for overall trade imbalance, since an unbalanced trade account can well be compatible with overall balance of payments equilibrium.

The GL index is a static measure, in the sense that it captures IIT for one particular year. However, adjustment is a dynamic phenomenon. By suggesting the concept of marginal IIT (MIIT), Hamilton and Kniest (1991) have opened a dimension to the empirical study of IIT which acknowledged this problem and endeavoured to define IIT in a sense that is compatible with the smooth-adjustment hypothesis. They argued that the observation of a high proportion of IIT in one particular time period does not justify a priori any

¹ See Greenaway and Milner (1986) for literature survey.

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prediction of the likely pattern of change in trade flows. Even an observed increase in static IIT levels between two periods ($GL_t - GL_{t-1} > 0$) could "hide" a very uneven change in trade flows, concomitant with inter rather than intra-industry adjustment. MIIT, however, denotes parallel increases or decreases of imports and exports in an industry. Matched changes of sectoral trade volumes are expected to have a neutral effect on employment. For example, if industry i imports expand, domestic jobs may be threatened in that industry, but if industry i exports expand by a comparable amount, this may offset lost market share in the domestic market and yield a zero net change in the industry's domestic employment. Brühlhart (1994) has suggested the following index to measure MIIT²:

$$A_{it} = MIIT_{it} = 1 - \frac{|\Delta X_{it} - \Delta M_{it}|}{|\Delta X_{it}| + |\Delta M_{it}|}$$

Where Δ stands for the difference between years t and $t-n$. This index, like the GL coefficient, varies between 0 and 1, where 0 indicates marginal trade in the particular industry to be completely of the inter-industry type, and 1 represents marginal trade to be entirely of the intra-industry type. The index A shares most of the statistical properties of the GL index.

III. INTRA-INDUSTRY TRADE AND ADJUSTMENT: THEORETICAL BACKGROUND

The relationship between IIT and adjustment has been a close one from the very earliest work on IIT. Recent developments in intra-industry trade (IIT) literature focus on the relationships between IIT and adjustment costs associated with changes in trade pattern. The effects of trade liberalisation depend on whether trade is of an inter-industry or intra-industry nature. Whereas the former is associated with a reallocation of resources between industries, the latter suggests a reallocation within industries.

The hypothesis SAH, first made by Balassa (1966) and further developed by Greenaway and Milner (1986) and Brühlhart and Elliott (2002), consider that intra-industry trade entails lower adjustment costs than inter-industry trade expansion. In fact, IIT will be associated with relatively low labour-market problem, since, with intra-industry adjustment, workers move within industries rather than between them.

On the theoretical side, several models have been developed. They generally indicate that this trade appears to be favorable for structural adjustment. If intra-industry trade resulting strategies "reciprocal dumping" for example, as in the oligopoly model of Brander-Krugman (1983), the same firm's share of the national market decline, but in return gets an increase its sales abroad. The development of foreign trade in this context does not factor reallocation.

In addition, as part of a trade model based on monopolistic competition model of Dixit-Stiglitz (1977), intra-industry, which is the product differentiation and consumer preferences for diversity, requires no more reallocation of factors that the creation of inter-industry trade and that can generate positive effects on earnings. The opening of trade can benefit all staff who enjoy the benefits of greater diversity of goods offered. If the combined model type elements Hecksher-Ohlin and elements of monopolistic competition, the negative effects of Stolper-Samuelson type may be dominated by the positive effects of product diversity.

In the model of Krugman (1982), the number of differentiated products and therefore the number of firms does not vary with trade openness. This simplifies the adjustment problems. However, the conditions facilitating the adjustment can not be met. For this reason Lancaster (1982) stresses that the way to model monopolistic competition has a significant impact on the conclusions regarding the effects of trade opening. The wording in the Dixit-Stiglitz (1977) shows that adjustment costs are low while the one proposed by Lancaster (1980) shows that the effects of trade liberalization are much more "disturbing" for the economy concerned. The Lancaster model assumes that firms will have to leave the industry with differentiated products, others will expand their production by exploiting stronger economies of scale. Overall, adjustment problems, such as labor movements intra-industry could create structural unemployment, are stronger in the Lancaster version than in version Dixit-Stiglitz-Krugman.

Thus, the theory of international trade under imperfect competition generally finds that adjustment costs are almost nonexistent in the case of strategies of "reciprocal dumping" in oligopoly, low in the case of monopolistic competition in the Dixit-Stiglitz-Krugman somewhat stronger in the case of monopolistic competition in Lancaster. Alternatively, if the intra-industry trade in horizontally differentiated variety makes gains while avoiding significant adjustment costs for countries, intra-industry vertical differentiation may result in adjustment costs outweigh intra-industry trade in horizontally differentiated. Thus, there is no equivalent for countries to specialize in products for low-end or high end in the same branch. In practice, since it is very difficult to distinguish previous cases in which one finds oneself, the new international trade theory retains only the general idea that, whatever the origin of intra-industry, the development of this trade will pose fewer problems in practice adjustment that the growth of international trade flows branches.

The rationale behind this hypothesis can be concisely summed up as follows. According to the Hecksher-Ohlin Model, in response to the new good's

² Hamilton and Kniest (1991), Greenaway et al. (1994) and Menon and Dixon (1997) have proposed alternative measures

relative prices, free trade induce countries to a deeper specialisation on the industries where they possess comparative advantage, that is, inter-industry specialisation. But if the relative factor endowments of countries are very similar and industries consist on a range of differentiated varieties with scale economies on its production, similarity on consumer's tastes will create an exchange of different varieties of the same products or intra-industry trade. So, in that case countries are going to experience intra-industry specialisation. In any case, the adaptation to the new situation requires de-relocation of a part of the production factors. Given that the workers and managerial skills are more similar within industries than between different industries, such a re-location will be easy if it happens within the same industry. That argument is the basis for the smooth adjustment hypothesis (SAH).

IV. EMPIRICAL RESEARCHES ON IIT AND ADJUSTMENT

The first studies that used econometric methods suited to test the SAH include Brülhart and Elliott (1998), Sarris et al. (1999) and Tharakan and Calfat (1999). Most former studies used as a labour market adjustment costs variable either the change in Industry level employment changes (ΔL_j). This variable has been seen as an inverse proxy for adjustment costs. The higher/lower this variable the lower/higher the adjustment costs, based on the assumption that the lower the employment loss implied by trade the lower the adjustment costs. As Brülhart and Elliott (1998) argue, net sector employment change is a measure of net employment performance rather than adjustment costs.

Measures of employment performance should not necessarily be expected to be systematically related to type of trade expansion. In this case, no clear relation can be predicted between MIIT_j and ΔL_j . Therefore,

$$DEMPL_{it} = \beta_0 + \beta_1 DPROD_{it} + \beta_2 DCONS_{it} + \beta_3 TREX_{it} + \beta_4 IIT_{it} + \varepsilon_{it}$$

$$DEMPL_{it} = \beta_0 + \beta_1 DPROD_{it} + \beta_2 DCONS_{it} + \beta_3 TREX_{it} + \beta_4 IIT_{it} + TREX * IIT_{it} + \varepsilon_{it}$$

with $\varepsilon_{it} = \gamma_i + \eta_{it}$; $\eta_{it} \sim iid(0, \sigma^2)$ and γ_i correlated with regressors, where i denotes industries and t denotes years.

DEMPL, the dependent variable, is the absolute value of employment change between t and t-n, which we use as a proxy for the costs of adjustment in the labour market.

Underlying this proxy is the assumption that the total resource cost involved in moving labour across sectors is proportional to the size of net payroll changes, and that this proportion is similar across industries and over time. The explanatory model is specified as follows.

higher levels of MIIT are expected to be associated with lower levels of variation in total employment of each sector, while in industries where the inter-industry component of trade expansion is dominant (industries with lower MIIT indexes) the net change in total employment can be either positive (in industries with net export expansion) or negative (in industries with net import expansion) and so either larger or smaller than in industries where the intra-industry component of trade expansion is dominant. To overcome this problem Brülhart (1999) suggests the use of an alternative measure: the absolute value of total employment changes ($|\Delta L_j|$). According to the frequently invoked Smooth Adjustment Hypothesis (SAH), the factor-market adjustment pressure induced by increased trade exposure is negatively related to the share of IIT in the expanded trade flow. Although some evidence in support of the SAH was recently found (Brulhart and Elliot (2000); Brulhart and Thorpe (2001); Brulhart et al. (2004), Brulhart, Elliott and Lindley (2006), Cabral and Silva (2006) ...), the results of these studies were not fully conclusive. In fact, others studies find that this type of trade causes more problems of adjustment in employment than inter-industry trade (Hamilton and Kniest (1991); Brulhart and Elliott (1998); Brulhart and Thorpe (2000); Erlat and Erlat (2003); Ferto and Soos (2008) ...).

V. EMPIRICAL MODEL AND DATA

a) The Model

We study the link between IIT and adjustment in France. A data set, with matched disaggregated industry and trade data based on the ISIC code (Rev. 4) for France over the period 1986-2011, has been compiled. All data were obtained through the International Economic Data Bank (IEDB). The following basic equation has been estimated:

DPROD stands for the absolute value of the change in labour productivity (output per worker) between year's t and t-n. A priori, this variable is expected to relate positively to DEMPL. The second regressor, DCONS, is the absolute value of the change in apparent consumption, and is also expected to relate positively with DEMPL.

TREX represents trade exposure, calculated as the ratio of imports plus exports over output. One could expect TREX also to correlate positively with our

dependent variable, given that greater trade exposure will increase inter-industry specialization pressures and Schumpeterian processes through intensified competition. The crucial priors concern the IIT variable. According to the smooth-adjustment hypothesis, this should relate negatively to the level of inter-industry job changes, as measured by DEMPL. The literature on MIIT suggests that this relationship should be particularly pronounced when IIT is understood in the sense of a measure such as the A index rather than in the sense of the GL index. Both of these indices are investigated for comparison.

Given that unknown industry-specific effects undoubtedly play a role in the context of our model, a model that uses panel data has been chosen. A fixed-effects estimator was chosen, since the data set covers the entire manufacturing sector. All variables are in constant prices, and, with the exception of IIT measures, in natural logarithms.

b) Results

We estimate a panel model with fixed effects for the case of France over the period between 1986-2011. Table 3 reports the results carried out on yearly intervals:

Tableau 3 : Résultats de l'estimation

	GL index		Aidex	
	No interaction	Interaction term	No interaction	Interaction Term
DLPROD	0.008 (0.03)	0.003 (0.04)	0.09 (0.06)	0.10 (1.376)
DLCONS	0.260 (2.17)	0.25 (0.03)	0.1070 (0.052)	0.1144 (0.001)
LTREX	-0.19 (-0.02)	-0.7 (-0.07)	-0.21 (-0.08)	-0.23 (-0.04)
GL	0.58 (1.87)	0.6 (2.46)		
LTREX*GL		0.295 (3.21)		
A			-0.10 (0.01)	-0.15 (0.05)
LTREX*A				-0.291 (0.09)

The figures in parentheses are t ratios.

The results shows that:

- I. The signs of the coefficients DLPROD and DLCONS are consistent with our expectations. We obtained a positive effects of consumption and productivity on employment in all specifications.
- II. The estimated coefficients of the TRADE variable are significant for all cases and they have expected signs.
- III. Concerning the GL indices, we obtained a positive and statistically insignificant in the model without interaction. This effect is always negative and statistically insignificant in the model with interaction. This confirms that the GL index can not be a good indicator of intra-industry trade.
- IV. The coefficients on the A index are significant with expected sign. We obtained a negative effect in all specifications. This shows firstly that the hypothesis SAH is verified. On the other hand, the best index to study the impact of intra-industry trade on employment is the index A.

VI. CONCLUSION

The aim of this paper is to study the relationship between intra-industry trade and the movement of employment, taking the latter as an indicator of the adjustment costs of the labor market. The assumption that the intra-industry trade entails less adjustment cost of employment than the inter-industry trade has been accepted by economists. However, the diversity of empirical results raised the question of the choice of the index measuring intra industry trade. The empirical study, using a panel fixed effect, showed that the hypothesis SAH is verified in the case of France. The mesure of marginal IIT is found to be more appropriate for the analysis of adjustment issues than the traditional static IIT index.

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SHGS and its Marketing Problems

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Abstract - This paper is focused on the Problems of Self Help Groups. Women constitute nearly half of the rural population in India and play a vital role in Rural Economy. It is necessary for programmes specially targeted for a woman has been emphasized. As a result of the poverty alleviation scheme, such Integrated Rural Development Programme (IRDP), Training of Rural Youth for Self-employment (TRYSEM) and Development of Women and Children in Rural Areas (DWCRA) have been initiated. Self Help Groups are voluntary associations for the poor who come together to improve their socio-economic conditions. For that they start the various business transactions. While doing their business Self Help Groups are facing many problems like, to find the marketing potential, poor product packaging, Lack of materials, machines and equipments, getting the loan from bank, repayment of the loan, continuity, lack of awareness and Marketing their products etc., This study analyse the marketing problems faced by the self help groups of Coimbatore district.

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V. Krishnaveni^α & Dr. R. Haridas^ο

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I. INTRODUCTION

In our country, usually the poor people in time of their emergency run to the door of the Landlords and money lenders to fulfill their credit needs and this comes usually at a very high interest. In India, it is too difficult to find a financial institution to meet such requirements. To meet the emergency need the Self Help Groups (SHG) evolved. Members of the SHGs started savings as the prime work and this savings of the members opened the way for different income generating activities. Government wants to help these groups during initial period of the business to overcome the teething problems and provides support and training ultimately to function independently as a successful business venture. During their business Self Help Groups are facing many problems like, to find the marketing potential, poor product packaging, Lack of materials, machines and equipments, getting the loan from bank, repayment of the loan, continuity, lack of awareness and Marketing their products etc.,

II. MEANING AND DEFINITION

SHG is the small group formed by the women members (normally 12 to 20 members) residing in a particular locality, possessing the core skill capability of producing a product individually or in groups and have

started business venture of their own with the support of the Government agencies. **NABARD defines** SHG "as a homogeneous group rural poor voluntarily formed to save whatever amount they can conveniently funds of the group to be lent to the members for meeting productive and emergent credit needs."

III. PURPOSES

In order to achieve the independent movement of Rural people, with reference to improve their socio-economic status, the self help groups have been formed. The main purposes for starting Self Help groups are,

- To develop the poor women
- To raise the level of social consciousness of members.
- To work for social and economic empowerment and
- To bring about gender equality in the society.
- To fulfill their commitments without depending other and
- To develop the self – confidence and awareness in the society.

a) Scope of the Study

This study is made from the point of view of the women SHGs regarding the performance of women self help groups, by collecting the information's regarding their income, expenditure, problems and How to solve such a situation.

b) Objectives of the Study

The following are the objectives of the study:

- To Study the origin and development of Self - Help Groups in Coimbatore.
- To Study the Performances of Self - Help Groups in Coimbatore.
- To Find the Marketing Problems faced by Self - Help Groups in Coimbatore.

IV. RESEARCH METHODOLOGY

a) Research Design

It is an empirical study (Descriptive approach) based on survey method. The data have been collected both from primary and secondary sources. Primary data were collected from the Animators of SHGs in Coimbatore through the Interview Schedule.

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Secondary data were collected from the reports maintained by the SHG's published reports, journals, magazines and websites.

Sample Size

600 respondents were selected for this study.

b) Marketing Problems of Self Help Groups

The following are the marketing problems of Women Self Help Groups in Coimbatore district:

- Limited financial strength hence limited borrowing capacity
- Lack professionalism because the members are less qualified

- Marketing of production poses a major challenge for the SHGs
- Consumers reluctance to buy the products when the products produced by the MNCs are available in the market
- Lack of machines and equipment to meet market capacity.
- Lack of awareness and Marketing their products
- Difficulty in Physical Distribution.
- Less promotional Activity for SHGs products, etc

Table 1

Age	Number of Respondents	Percentage
Up to 30	174	29.00
31 to 45	282	47.00
Above 45	144	24.00
Total	600	100.00

Inference

The above table shows that, out of 600 respondents 282 were coming under the age of 31 to

45 years and 174 were coming under the age up to 30 years and 144 respondents were coming under the age of above 45 years.

Table 2

Place of Residence	Number of Respondents	Percentage
Rural	222	37.00
Semi-urban	186	31.00
Urban	192	32.00
Total	600	100.00

Inference

The above table shows that, out of 600 respondents 37 percent respondents were coming

from Rural and 32 percent respondents from Urban and 31 percent respondents were coming from semi-urban.

Table 3

Educational Qualification	Number of Respondents	Percentage
Illiterate	126	21.00
Schooling	300	50.00
Under Graduation / Diploma	168	28.00
Post Graduation	6	1.00
Total	600	100.00

Inference

It is depicted that table number 3, out of 600 respondents 300 respondents were Schooling level and 6 respondents were under the Post graduation level.

Table 4

Family Income	Number of Respondents	Percentage
Up to Rs. 10000	50	8.30
Rs. 10001 to Rs. 20000	407	67.80
Above Rs. 20000	143	23.80
Total	600	100.00

Inference

It is interpreted that, out of 600 respondents were earning up to Rs. 10,000. 23.8 percent of respondents were earning from Rs. 10,001 to Rs. 20,000: and 8.3 percent of respondents respondents were earning above Rs. 20,000.

Table 5

Nature of Activities Involved	Number of Respondents	Percentage
Hand Craft	259	43.20
Catering Services	136	22.70
Weaving & Tailoring	102	17.00
Others	103	17.20
Total	600	100.00

Inference

It is observed that out of 600 respondents, respondents were doing weaving and Tailoring. 136 respondents were involved in catering services and 103 respondents were doing the handcraft and 102 respondents were involved in others category.

H_0 : Age is not associated with level of problem

Table 6

Age	Level of Problem			Total
	Low	Moderate	High	
Up to 30	18 (10.30%)	120 (69.00%)	36 (20.70%)	174 (100.00%)
31 to 45	22 (7.80%)	212 (75.20%)	48 (17.00%)	282 (100.00%)
Above 45	25 (17.40%)	89 (61.80%)	30 (20.80%)	144 (100.00%)
Total	65	421	114	600

Df: 4

Calculated χ^2 Value: 11.672

Table Value: Five per cent level: 9.488

One per cent level: 13.277

The percentage of respondents with high level of problem is found high among respondents, who are above the age of 45 years. The percentage of respondents with low level of problem is found also high among respondents, who are above the age of 45 years. Comparing the percentage it is inferred that respondents, who are above the age of 45 years are with high level of problem. As the calculated Chi-square value is greater than the table value at five per cent level, there exists significant association between age and level of problem. Hence, the null hypothesis is rejected.

H_0 : Family Income is not associated with level of problem

Table 7

Family Income	Level of Problem			Total
	Low	Moderate	High	
Up to Rs. 10000	12 (24.00%)	38 (76.00%)	0 (0.00%)	50 (100.00%)
Rs. 10001 to Rs. 20000	34 (8.40%)	285 (70.00%)	88 (21.60%)	407 (100.00%)
Above Rs. 20000	19 (13.30%)	98 (68.50%)	26 (18.20%)	143 (100.00%)
Total	65	421	114	600

Df: 4

Calculated χ^2 Value: 22.426

Table Value: Five per cent level: 9.488

One per cent level: 13.277

The percentage of respondents with high level of problem is found high among respondents, who are having income between Rs. 10001 to Rs. 20000. The percentage of respondents with low level of problem is found also high among respondents, who are having

the income Up to Rs. 10,000. As the calculated Chi-square value is greater than the table value at one per cent level, there exists significant association between family income and level of problem. Hence, the null hypothesis is rejected.

H_0 : Type of business is associated with level of problem

Table 8

Type of Business	Level of Problem			Total
	Low	Moderate	High	
Hand Craft	24 (9.30%)	187 (72.20%)	48 (18.50%)	259 (100.00%)
Catering Services	12 (8.80%)	97 (71.30%)	27 (19.90%)	136 (100.00%)
Weaving & Tailoring	15 (14.70%)	73 (71.60%)	14 (13.70%)	102 (100.00%)
Others	14 (13.60%)	64 (62.10%)	25 (24.30%)	103 (100.00%)
Total	65	421	114	600

Df: 6

Calculated χ^2 Value: 7.466

Table Value: Five per cent level: 12.592

One per cent level: 16.812

The percentage of respondents with high level of problem is found high among respondents, who are doing the business in others category. The percentage of respondents with low level of problem is found high among respondents, who are doing the business in Weaving and Tailoring. As the calculated Chi-square value is less than the table value at five per cent level, there does not exist any significant association between type of business and level of problem. Hence, the null hypothesis is accepted. (Others Category business consists of various business like Rice business, Milk business, Vegetable store, Grocery shop, Fishery shop, Petty shop, Coconut business, Medical shop, Samiyana, Maavu business, Timber work, etc.,)

V. FINDINGS

- It is observed that, out of 600 respondents 282 were under the age of 31 to 45 years and 174 were under the age up to 30 years and 144 respondents were coming under the age of above 45 years.

- Out of 600 respondents 37 percent respondents were coming from Rural and 32 percent respondents from Urban and 31 percent respondents were coming from semi-urban.
- It is depicted that 300 respondents were Schooling level and 6 respondents were under the Post graduation level.
- It is interpreted that, out of 600 respondents 67.8 percent of respondents were earning from Rs. 10,001 to Rs. 20,000 and 8.3 percent of respondents were earning up to Rs. 10,000. 8.3 percent of respondents were earning above Rs. 20,000.
- Out of 600 respondents, 259 respondents were doing the handcraft and 102 respondents were doing weaving and Tailoring. 136 respondents were involved in catering services and 103 respondents were involved in others category.
- The Chi-square test reveals that the percentage of respondents with high level of problem is found high

among respondents, who are above the age of 45 years. The percentage of respondents with low level of problem is found also high among respondents, who are above the age of 45 years.

- The Chi-square test depicts that the percentage of respondents with high level of problem is found high among respondents, who are having income between Rs. 10001 to Rs. 20000. The percentage of respondents with low level of problem is found also high among respondents, who are having the income Up to Rs. 10,000.
- The percentage of respondents with high level of problem is found high among respondents, who are doing the business in others category. The percentage of respondents with low level of problem is found high among respondents, who are doing the business in Weaving and Tailoring.

VI. SUGGESTIONS

From the above study we can suggest that, who are above the age of forty five years are facing high level of marketing problem. As the chi square test represents that family income is not associated with level of problem and the type of business is associated with the level of problem and the age is not associated with the level of problem.

VII. CONCLUSION

Thus, we can conclude that all Self Help Groups must select the right products, qualified persons for proper management, proper training for prompt production, Governments Assistance for facing the marketing problems. It is quite necessary to train them effectively for getting awareness in the marketing potential area.

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Governance, Deterrence, and National Homicide Rate

By Dr. Barr Younker, Dr. Don Soo Chon & Dr. Theresa Pelfrey

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Abstract - By extending the deterrence theory to national level, the current study tested the hypothesis that ineffective government is largely responsible for higher homicide rate in a nation. The homicide data required for the test were collected from the World Health Organization and the information on governance from the World Bank's World Governance Indicators for 122 nations. The results from the regression models supported the deterrence theory. An ineffective and dysfunctional government was one of the primary sources for a nation's high homicide rate. Also, other control variables, such as relative poverty and ethnic heterogeneity, were positively related to the homicide rate in a nation.

Keywords : *homicide; deterrence theory; governance; cross-national study; macro-level analysis.*

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Dr. Barr Younker^α, Dr. Don Soo Chon^σ & Dr. Theresa Pelfrey^ρ

Abstract - By extending the deterrence theory to national level, the current study tested the hypothesis that ineffective government is largely responsible for higher homicide rate in a nation. The homicide data required for the test were collected from the World Health Organization and the information on governance from the World Bank's World Governance Indicators for 122 nations. The results from the regression models supported the deterrence theory. An ineffective and dysfunctional government was one of the primary sources for a nation's high homicide rate. Also, other control variables, such as relative poverty and ethnic heterogeneity, were positively related to the homicide rate in a nation.

Keywords : homicide; deterrence theory; governance; cross-national study; macro-level analysis.

I. THEORETICAL BACKGROUND

a) Governance and National Homicide Rates

“Governance” must be briefly defined before a further discussion on it. Kaufmann, Kraay, and Mastruzzi (2004, p. 253) defined “governance” broadly as “The traditions and institutions by which authority in a country is exercised. This includes the process by which governments are selected and replaced, the capacity of the government to formulate and implement sound policies, and the respect of citizens and the state for the institutions that govern economic and social interactions among them.”

The overall performance of a government may affect the crime rate in many ways. A recent study by Nivette and Eisner (2012), based on the analysis of 65 nations, reported that legitimacy in a nation is related to reduced level of homicide. Nivette and Eisner (2012) advocated that criminologists, who used cross-national data sets, have not fully utilized the concept of legitimation in their studies, although it is a well discussed concept. Nivette and Eisner pointed out three important elements of legitimacy of government: legality, justification, and consent.

Legality is a government's compliance to laws, while justification is related to a government's willingness to follow norms and beliefs in a society. On the other hand, consent refers to citizens' agreement to governing authority in a nation. In short, Nivette and Eisner's work suggested the importance of a government's role and democratization of a government for reducing the level of violence in a society (see also Stamatel, 2009; Sung, 2006).

Coming back to Kaufmann et al.'s definition of governance, one can point out three important factors of governance which may be associated with national homicide. First, an effective criminal justice system may be conducive to a lower violence rate because it leads to certainty, swiftness, and severity of punishment (Archer, Gartner, and Beittel, 1983; Cole and Gramajo, 2009). When a country has an effective court system, for instance, the citizens may tend to resolve their interpersonal conflicts in courtrooms, instead of using physical force (LaFree, 2005). These arguments are consistent with deterrence theory because the effectiveness of government creates more alternative and legitimate choices of action, which, in turn, lead to lower violence rate. Contrary, a citizen is more likely to rely on self-helps or extralegal methods to solve interpersonal conflicts, when he or she believes that their government and criminal justice system is ineffective for handling crime and violence. The self-help act may be conducive to creating more violence (LaFree, 2005; Nivette and Eisner, 2012).

Second, Cook (1980) contended that an effective government may create a good “legal environment” by providing due process and preserving constitutional rights of the accused, which, in turn, contribute to low crime rates. Conversely, a government with scant regard for human rights and political freedom of its citizens creates an environment of violence among citizens (Neumayer, 2003). Additionally, a citizen may feel less obligated to observe laws when the government displays a weak morality or legitimacy (LaFree, 1998).

In a similar manner, only fair administration of a criminal justice system produces *reintegrative shaming*, which deters criminal acts (Braithwaite, 1989). Sherman (1993) cautioned that unfair and arbitrary administration of justice can lead to “defiant” reaction by the punished because an individual obeys the law only when he or she believes that the law is applied fairly. Thus, procedural justice is very critical, and so are the certainty and severity of punishment (see also Nagin, 1998). Karstedt (2006) suggested that a government can control crime and social disorder when its institutions apply laws in a fair manner to its citizens. Azfar and Gurgur (2005) offer other explanation for the relation between an effective government and low violence rates. They considered that the people in nations with effective governments are more likely to

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trust police and report crimes. In other words, the people are likely to cooperate with the police and other criminal justice agencies when they believe their governments are effective. Thus, an effective government may contribute to better prevention and deterrence of crimes.

Finally, an effective government can contribute to minimization of corruption. Shelley (2003) argued that, after the collapse of the former Soviet Union, organized criminal groups started bribing government officials to protect their illicit businesses, such as money laundering, human trafficking, drug and weapon smuggling, and contract killings. On the other hand, Wu (2008) reported widespread bribery in other developing Asian countries, in the realms of the court system and licensing agencies. Ineffective legal systems in those Asian countries impede prevention of corruption by public officials. Thus, it is highly possible that a more effective government can lower the corruption level. Stated differently, widespread corruption is a sign of ineffective government, low accountability, and a weakened rule of law (Marquette, 2001). In short, a high level of corruption impedes efficient law enforcement simply because the law cannot be enforced by bribing.

Despite the importance of governance in understanding crime, including homicide, only a few studies tested the link between governance and national homicide rate (e.g., Azfar, 2005; Cole and Gramajo, 2009; Fearon, 2011). Those studies were based on the hypothesis that an effective government can control crimes better. However, this line of reasoning is not totally new. James Q. Wilson and Barbara Boland (1976) introduced the "police efficiency" variable, obtained by an expert survey, which reflects the perception of law enforcement effectiveness.

They considered it an important predictor of low robbery rates in 26 cities of the United States. Recently, a few cross-national studies took advantage of World Governance Indicators (WGI) developed by the World Bank (Kaufmann, Kraay, and Mastruzzi, 2004). For example, Fearon (2011) reports that governance indicators are significantly and negatively related to national homicide rates. Cole and Gramajo (2009), who also studied the impact of governance on national homicide rate, found a statistically significant impact of WGI on national homicide rates. The contribution of Cole and Gramajo (2009) is important because they attempted to establish a link between governance and national homicide rate. However, the study had its limitations. First, they failed to discuss the theoretical background in detail. Cole and Gramajo (2009) made only a very brief mention of deterrence theory, and then stated that an effective government may be in a better position to control crime through its criminal justice system.

Therefore, it is necessary to review and discuss deterrence theory in greater detail. Second, Cole and

Gramajo (2009) did not address the possible causality issue between the rule of law (RL), one of the six world governance indicators (WGI), and national homicide rate.

RL measures citizens' perception of the effectiveness of criminal justice system in their nations. However, they may perceive its effectiveness only when the homicide rates in their nations are low. In other words, homicide rate may be a cause, and citizens' perception of RL may be its outcome (Fearon, 2011). Thus, there is an urgent need to try to address that issue. At the same time, however, it may be beneficial to include the rule of law in the measure of the WGI because it may reflect people's perceptions of governments' ability to enforce laws. In other words, theoretically, the rule of law may be an important measure of deterrence. Therefore, the current study calculates the average of WGI *without* the RL and then compares its regression results with those calculated *with* the RL. The comparison enables examination of the impact of including the RL in the regression outcomes. Finally, Cole and Gramajo have not tested a possible interaction effect between governance and economic development because they may influence each other. Thus, the current study introduced the interaction term between economic development and governance. A more detailed discussion on this issue will be followed later.

b) *Review of Deterrence Theory*

Deterrence theory is based on the original works of European philosophers, such as Cesare Beccaria (1738~1794) and Jeremy Bentham (1748~1832) in the 18th and 19th centuries.

Bentham (1789) introduced the concept of utilitarianism that a human being acts to maximize pleasure and minimize pain. The concept suggests that a human being calculates the rewards and risks of committing a crime and also those of an alternative and legitimate action of choice before he or she actually commits a crime. On the other hand, Beccaria ([1764] 1963) argued that punishment must be certain, swift, and severe (in proportion to the seriousness of crime) to have its deterrence effect. This line of thinking, based on Bentham and Beccaria's works, is known as classical school of criminology.

This classical school did not gain resurgence until Gary Becker's (1968) seminal research (Mandes, 2004; Nagin, 1998). In his study of crime, Becker employed econometric approach to the classical criminology principle of Beccaria ([1764] 1963) and Bentham (1789). Based on the assumption of a rational human being who calculates benefits and costs of an action, Becker considered that criminal behavior is not an exception (see also Tittle, Botchkovar, and Antonaccio, 2011). He emphasized that certainty and severity are important for deterrence of criminal behavior

because they increase the risk of committing crimes. He considered that a person is likely to commit a crime when the expected gains of a criminal act are greater than those of an alternative and legitimate action. Becker's research has great impact on the study of crime because he applied econometrics to the study of criminal behavior. Consequently, his work is considered more sophisticated than that of the classical school of criminology. After Becker's work, many other economists and criminologists employed deterrence perspective in their research. One of the reasons for the popularity of the deterrence theory is that the theory is straightforward and simple. The crime rate will be reduced when the punishment for the crime is certain and severe.

Previous studies on deterrence concentrated on formal sanctions by criminal justice agencies, such as police, court, and correctional institutions (e.g., Levitt, 1996; Sampson and Cohen, 1988). Also, those studies used a few indicators of deterrence, such as the number of law enforcement officers (Levitt, 1997; Marvell and Moody, 1996), arrest or clearance rate (Loftin and McDowall, 1982; Tittle and Rowe, 1974), law enforcement expenditure (Jacob and Rich, 1980-81), law enforcement tactics or aggressiveness of law enforcement (Sampson and Cohen, 1988; Wilson and Boland, 1978), prison population (Levitt, 1996, 1997; Marvell and Moody, 1997; Mocan and Gittings, 2003; Shepherd, 2001; Zimmerman, 2009), and death penalty (Cloninger and Marchesini, 2001; Dezhbakhsh, Rubin, and Shepherd, 2003; Ehrlich, 1975; Mocan and Gittings, 2003; Shepherd, 2005; Zimmerman, 2009). In other words, many previous works hypothesized that factors, such as a larger number of police officers, higher arrest rates, and aggressive law enforcement tactics, reduce crime rates because those factors enhance certainty of arrest. On the other hand, factors such as the size of prison population, death penalty, and execution were used to represent severity of punishment.

Previous studies, however, were plagued by inconsistent findings and methodological weaknesses (Jacob and Rich, 1980-81). Some researchers even reported that the effect of deterrence variables on crime rates had been aggravating, rather than reducing (e.g., Jacobs and Rich, 1980-81; Wood, 2007). Many existing studies considered that a larger police force increases the crime rate. Fifteen of twenty-one studies, reviewed by Marvell and Moody (1996), reported a significant and positive relationship between the number of police officers and the crime rate. The inconsistent findings may be due to a possible simultaneous causality between deterrence indicators and crime rates. For instance, a government may increase the number of police officers because the crime rate is high. It suggests the possibility that crime rates influence the number of police officers (Bar-Gill and Harel, 2001). Similarly, crime rates may influence the size of prison

population because a higher crime rate may lead to a larger number of arrestees, which, in turn, increases prison population.

To overcome a possible simultaneous causality between deterrence variables and crime rate, some of the previous researchers employed statistical techniques (e.g., Wilson and Boland, 1978), the common technique being the two-stage least-squares regression analyses by introducing an instrumental variable (Marvell and Moody, 1996). The instrumental variable should not be affected by key independent variables, and at the same time, it should not directly influence crime rate (Azfar, 2005). However, in social science, it is difficult to find such variable (Marvell and Moody, 1996). For the purpose of explanation, deterrence theorists used demographic variables as instrumental variables. However, in many cases, those demographic variables directly affect crime rates. In this regard, the progress of deterrence research has reached a stalemate.

The criticism on deterrence theory should not lead to the conclusion that government, especially the criminal justice system, has nothing to do with crime rate. History demonstrates that vacuum in law enforcement creates social disorder and violence. This is borne out by LA riots in 1992 and the social disorder that prevailed in New Orleans area after it was hit by hurricane Katrina in 2005. In those two cities, many cases of lootings and sexual assaults were reported with the weakening of the law enforcement. Consequently, federal government had to send national guards and other federal law enforcement agencies to those two cities.

Additionally, inconsistency in the findings of previous research on deterrence may imply that the deterrence effects of law enforcement and punishment are not well reflected by existing variables, such as the number of police officers, law enforcement expenditure, arrest rates, prison population, and death penalty. Cook (1980, *p.* 213) considered that the function of the criminal justice system is very important to understanding the crime phenomenon, as well as the so-called "root causes" of crime. Thus, as discussed previously, effectiveness of government may be a critical factor to homicide rates.

c) Other Contributing Factors to Homicide Rate

There are several competing factors which may contribute to homicide. First, one may argue that governance in a country can be influenced by the nation's economic development level. In other words, economically developed country may be better able to have higher level of governance because of its economic resources. Also, effective government can contribute to economic development. Thus, one may expect an interaction effect between governance and economic development in a nation. The current study

created the interaction term and introduced it regression models along with World Governance Indicators (WGI).

Second, many precedent studies reported, fairly consistently, a positive association between income inequality and homicide rate, which many workers sought to explain by employing a critical economic theory. The lower social class people, frustrated by relative economic deprivation, display anger toward others, which results in violence (e.g., Braithwaite and Braithwaite, 1980; Chamlin and Cochran, 2006; Kick and LaFree, 1985; Lee and Bankston, 1999; Messner, 1989; Neapolitan, 1994, 2003; Pratt and Godsey, 2003; Wilkinson and Pickett, 2005).

Third, one of the important elements of social disorganization theory is ethnic heterogeneity (Shaw and McKay, 1942). Some studies in the United States used the percentage of black members as an indicator of population heterogeneity. Blau and Blau (1982) found a significant and positive link between the proportion of the black population and homicide rates. By employing the population heterogeneity indices developed by Alesina and others (2003) in a cross-national study, Chon (2012) demonstrated that ethnic heterogeneity aggravates the homicide rate in a nation. The control of racially heterogeneous communities on their residents' behavior is ineffective because social networking and communication among different ethnic groups are weak. Additionally, the level of trust among the members of different ethnic groups may be rather low (Blau and Blau, 1982; Hansmann and Quigley, 1982; Miethe and McDowall, 1993).

Finally, many existing explorations on homicide refer to age structure because young age groups are more likely to commit homicides than older age groups (Chon, 2012; Hillbrand, 2001; O'Brien and Stockyard, 2006; Vollum and Titterington, 2001). For example, Pampel and Williamson (2001) report that the peak age group for committing murders is 25-34 years. In terms of gender, male subjects are considered generally more violent than female subjects and more likely to kill. Therefore, the effect of age and sex distribution in a nation needs to be controlled. One technique of controlling is to include the size (percentage) of a certain age group and sex of a nation in multiple regression analysis.

II. METHOD

a) *Dependent Variable*

The data on homicide rates came from the World Health Organization's (WHO) Global Burden of Disease (GBD) project (World Health Organization, 2006), which will be explained later. Interpol also provides homicide rate data, but the source of its data is problematic. Some Interpol member nations do not discriminate between "attempted murder" and "murder" and, therefore, count them together in arriving at the

total number of murders. As a result, the data from those nations give an exaggerated number of total murders. The homicide statistics of the WHO are therefore more reliable than those of the Interpol.

The WHO's homicide information requires further elaboration on its content. The GBD is a large database of WHO, which covers 190 nations in the world and provides information on the causes of death (www.who.int/healthinfo/global_burden_disease/estimates_country/en/index.html). The GBD presents the homicide rate per 100,000 persons in a country. The WHO homicide statistics came from government's vital statistics (LaFree and Drass, 2002). Homicide is defined as death by injury from violence by others (World Health Organization, 2008). Many previous crossnational studies employed the average homicide rate over multiple years as a remedy for unusual fluctuation of homicide rate (e.g., Archer and Gartner, 1984; Avison and Loring, 1986; Braithwaite and Braithwaite, 1980; Chon, 2002; Krahn, Hartnagel, and Gatrell, 1986; Lee and Bankston, 1999; McDonald, 1976; Messner, 1989; Neapolitan, 1994). The WHO's first series of GBD was collected in 2002 and published in 2004; its second series was collected in 2004 and published in 2008. Thus, the current examination also used the average homicide rate of the WHO's 2002 and 2004 data.

b) *Independent Variables*

World governance indicators (WGI). The WGI project comprises six aspects of governance: voice and accountability (VA), political stability and absence of violence (PV), government effectiveness (GE), regulatory quality (RQ), rule of law (RL), and control of corruption (CC). The project for 2002 includes data from 186 countries for political stability and from 199 countries for VA. It provides one of the largest cross-country datasets on measuring governance (Kaufmann, Kraay, and Mastruzzi, 2004). Kaufmann, Kraay, and Mastruzzi (2004, 2008) briefly described the six dimensions of governance as follows. First, voice and accountability (VA) indicates the degree of citizens' participation in the election of their government officials. It also is a measure of freedom of speech, mass media, and assembly.

Thus, VA reflects civil liberty and political freedom of citizens. Second, political stability/absence of violence (PV) is related to the vulnerability of a government to be overthrown by unlawful and violent means. The absence of violence in this context refers primarily to collective violence such as a civil riot or a military coup, rather than individual or interpersonal violence. Government instability adversely affects the continuity of government policy. Third, government effectiveness (GE) is a measure of citizens' perceptions of the quality of public services and governmental policy making and implementation. It also is a measure of the competence and independence of the civil service.

Thus, GE depends on the government's ability to implement sound policies and deliver public services. Fourth, regulatory quality (RQ) is government's capability to regulate businesses to optimize private sectors. For example, RQ includes controlling monopoly and illegal bank practices.

Fifth, rule of law (RL) relates to a citizen's confidence in a government's ability to enforce the law in the areas of contracts, protection of both individual and company's properties, and quality of police and courts. It also is related to the degree of government's ability to apply laws in a fair and predictable manner. Finally, control of corruption (CC) reflects the extent to which public power is used for private gain. It includes small- and large-scale corruption in both business areas and political fields.

The underlying data of the WGI came from polls from experts and surveys of various sources: individuals, firms, commercial risk-rating agencies, nongovernmental organizations, multilateral aid agencies, and other public sector organizations. The WGI data for 2002 came from 25 sources of 18 organizations (Kaufmann, Kraay, and Mastruzzi, 2004). The data sources include, but are not limited to, Freedom House's political rights and civil liberty index (<http://www.freedomhouse.org>). Some researchers employ the Freedom House and Transparency International statistics as measures of the political civil liberty of a nation (e.g., Greenberg and West, 2008; Sung, 2004, 2006). Freedom House lists all the nations that provide the highest to the lowest level of personal freedom. However, the WGI of the World Bank are more comprehensive than the data of either the Freedom House or Transparency International's sources because the WGI includes many more sources of information and other aspects of governance (see Appendix A for a complete list of data source for the WGI).

Kaufmann, Kraay, and Mastruzzi (2004) combined related indicators from multiple sources into aggregate governance indicators for each of six dimensions of governance. To address the differences in country coverage by various sources, they aggregated the data from individual sources so that the data cover a large number of countries. As a result, a researcher is able to compare governance indicators for a large number of countries. They used a complex unobserved-components methodology (UMC) to calculate aggregated governance indicators.

"The model expresses the observed data in each cluster as a linear function of the unobserved common component of governance, plus a disturbance term capturing perception errors or sampling variation in each indicator. Thus the unobserved score of country j on indicator k , $y(j, k)$, is assumed to be a linear function of unobserved governance, g , and a disturbance term, $y(j, k)$: $y(j, k) = \alpha(k) + \beta(k) \cdot [g(j) + y(j, k)]$, where $\alpha(k)$ and

$\beta(k)$ are known parameters that map unobserved governance $g(j)$ into the observed data $y(j, k)$ (p. 258)."

Kaufmann, Kraay, and Mastruzzi's (2004) procedure for estimating the governance indicator is based on the assumption that the correlation between sources suggests that they are both measuring the same underlying unobserved governance dimension. To address sampling variability, however, Kaufmann, Kraay, and Mastruzzi rescaled the aggregate indicators, obtained through UCM procedure, by subtracting the sample mean (from across countries) from each country, and dividing by the standard deviation across countries. Now all indicators virtually lie between -2.5 and 2.5, the standard normal units, which normally distributed with a mean of zero and a standard deviation of one. Higher scores indicate better governance. The rescaling of original sources makes it comparable across different data sources. Additionally, to create aggregated indicators, a weight was given to each original source. If two data sources are highly correlated to each other, greater weight is given to them (see Kaufmann, Kraay, and Mastruzzi 2004, 2007, 2008, 2011 for detailed procedures of estimating governance indicators).

One important advantage of using the World Bank's WGI is that they show the margin of error for each indicator (Kaufmann, Kraay, and Mastruzzi, 2008). At the same time, Kaufmann, Kraay, and Mastruzzi (2004) attempted to reduce the margin of error by adding new data sources, as a result of which the standard error decreased. For example, the standard errors for 2002 data range from 0.19 to 0.27, and those for 1996 data were from 0.26 to 0.39. Another advantage of using the WGI is that many pairwise country comparisons are statistically significant and practically meaningful. Sixty-five percent of all cross-country pairwise comparisons are statistically significant at 90% significance level. At the same time, the incremental changes in WGI data over the years have been small and stable for many countries.

The WGI measures the perception of an individual, and Kaufmann, Kraay, and Mastruzzi (2008) justify the measure. First, perception is very important because it affects one's behavior. For example, one is not likely to rely on a judicial system when he or she perceives that the court system is inefficient. Second, in many cases, collecting objective- and fact-based data is not a viable option, especially when measuring the levels of corruption or the confidence that property rights are protected. Third, objective- and fact-based measures capture the *de jure* notion of laws "on the book," which differs from the *de facto* reality "on the ground." Additionally, the objective measures are subject to their own margins of error. Fourth, all kinds of measures of governance rely on judgment to some degree. Thus, the distinction between subjective and objective data is not necessarily accurate. Finally, one

may doubt the expert perceptions included in the WGI because experts may be influenced by ideological differences or the recent economic condition of a nation. However, Kaufmann, Kraay, and Mastruzzi (2008) empirically tested it and determined that the assumed biases did not exist.

Other variables. The current study incorporates several other important variables, such as the interaction term between governance and GDP per capita, the Gini-coefficient of income inequality (GINI), ethnic heterogeneity (ETHNIC), the percentage of the age group of 20-34 years in the total population (AGE 20-34), and the percentage of female subjects (FEMALE%).

Some of those variables deserve further explanation. First, the GDP per capita represents the level of economic development of a nation. The GDP per capita in US dollars reflects purchasing power (Butchart and Engstrom, 2002). To calculate the interaction term, WGI was multiplied by GDP per capita. However, WGI and GDP were all centered by subtracting a mean of each variable from their original values to address a possible collinearity between the interaction term and its original variable (see Aiken and West, 1991). Second, the Ginicoefficient of income inequality is a popular measure of relative poverty (Messner, Raffalovich, and Shrock, 2002), which represents overall income inequality in a country. Theoretically, it varies from 0% (a perfect *equal* equality) to 100% (a perfect *unequal* income distribution across population). Third, Alesina and others (2003) proposed the following formula to estimate ethnic heterogeneity:

$$1 j FRACT = 1 - \sum_{i=1}^n s_{ij}^2 \quad \text{where } s_{ij} \text{ is the share of group } i \text{ (} i = 1 \dots N \text{) in country } j .$$

The formula shows the probability that two randomly selected individuals belong to two different ethnic groups. The value in theory ranges from zero, always the same group, to 1, always different groups. The data source for ethnic heterogeneity came from Alesina and others' (2003) research article. On the other hand, the data on age group (20-34) and gender distribution were obtained from the United Nations' *Demographic Yearbook* (2003-2005). All other independent variables were taken from the United Nations' Development Program's *Human Development Reports* (The United Nations, 2004).

III. RESULTS

a) Descriptive Statistics

The descriptive statistics in Table 1 suggest that homicide rates vary significantly from one nation to another. Japan registers the lowest homicide rate of 0.55, and South Africa the highest rate of 55.55 per 100,000 national population. The data indicate that studying the national variation of homicide rates is

important for understanding violence. One common problem faced in the study of homicide is non-normal distribution of homicide data. The current study again confirms it. Previous researchers advised log transformation of homicide rates (Gartner, 1990; Messner, 1989). Accordingly, the present study also used log-transformed homicide data for regression analyses.

Cole and Gramajo (2009) used an average score of six WGIs which were discussed previously. To create a composite scale, however, the current study created a factor score out of those indicators, and introduced it as a new variable. Factor loadings for all six indicators are 0.87 or higher, while those for five indicators without rule of law are 0.88 or higher. Therefore, using average score, instead of six individual indicators, was considered legitimate.

(Table 1 about here)

b) Multiple Regression Models

Table 2 shows the outcomes of ordinary least-squares (OLS) regression analyses. First, one must discuss about the diagnosis of the collinearity issue prior to explaining the impact of governance indicators on the homicide rate. No collinearity issue has been detected. VIF values for all variables were 1.8 or smaller. The regression model 1 showed the impact of the interaction term between GDP and WGI, with all six indicators included. The interaction term has a significant and negative association with homicide rate. Other variables such as income inequality (GINI) and ethnic heterogeneity had a significant and positive relationship with homicide. However, young age group distribution and gender failed to display any significant association with homicide. The regression model 2 added WGI into model 1. Now, the interaction term between WGI and GDP was no longer significant. Instead, WGI was significantly and negatively linked to homicide rate. However, other variables' significance levels have not been much changed, and they were not much influenced by the introduction of WGI in model 2.

Regression model 3 demonstrated the impact of the interaction term between GDP and WGIWL, five WGI indicators without Rule of Law. Again, the interaction term had a significant and negative association with homicide. Two other variables, GINI and Ethnic, were significantly and positively connected to homicide. However, age and gender distribution had no significant relationship with homicide. Now, the regression model 4 added WGIWL into model 3. The interaction term lost significance. However, WGIWL was significantly and negatively associated with homicide ($p \leq 0.001$). All other four variables maintained the same level of significances. The introduction of world governance indicators (WGI) improved model fit from 0.54 from in model 1 and 3 to 0.65 in model 2 and 4.

(Table 2 about here)

IV. DISCUSSION AND CONCLUSIONS

Deterrence research has been subject to criticism on methodological grounds such as simultaneous causality. Also, previous deterrence research utilized relatively fewer variables.

However, the criticism of the deterrence theory should not lead to the conclusion that the government, especially the criminal justice system, has no repercussion on violence, including homicide rate. Cook (1980, p. 213) considered that the function of criminal justice system is very important to understanding the crime phenomenon, as well as the so-called "root causes" of crime. Thus, the effectiveness of government may be a critical factor for homicide rates. Based on the deterrence theory, which emphasizes the function of government and criminal justice system, the present study tested the relationship between governance and national homicide rate.

Whether the rule of law, one of six dimensions of governance indicator, was included or not, the present regression analyses indicated that governance is independently related to homicide rate rather than its interaction with economic development. The governance is significantly and inversely related to national homicide rate.

The rule of law applied by the criminal justice system is important for the deterrence of violence. However, the deterrence by an effective government may not be confined to the administration of the criminal justice system. One must understand the broader aspect of governance's relationship to the deterrence of violence. Governance may affect the violence rate in a nation in several ways. An effective government may lead to "legal environment" by producing impartial administration of justice, while protecting constitutional rights of the accused (Cook, 1980). An individual is likely to rely on the court system rather than violence when a nation has an efficient criminal justice system (LaFree, 2005). Conversely, the government, which does not honor the constitutional rights of a citizen, may create an environment for violence (Neumayer, 2003). In other words, as proposed by deterrence theorists, an effective government provides more alternative and legitimate choices of actions.

Another possibility is that a fair administration of criminal justice system produces *reintegrative shaming*, which, in turn, deters violence (Braithwaite, 1989). Sherman (1993) emphasized that unfair and arbitrary administration of justice produces "defiant" reaction by a perpetrator, instead of deterrence. One tends to follow the law only when he or she perceives that the law is applied without discrimination. Thus, the way law is enforced by a criminal justice agency, especially procedural justice, is important for criminal deterrence,

as well as certainty and severity of punishment (see also Nagin, 1998). At the same time, the citizens in a nation with good quality governance are more willing to cooperate with law enforcement agencies because they have confidence in their law enforcement agencies (Azfar and Gurgur, 2005).

Control of corruption, one of the WGI, may lead to the reduction of violence. As discussed previously, corruption among government employees weakens the enforcement of laws simply because the laws are not enforced for personal gain. Shelley (2003) pointed out that, since the collapse of the former Soviet Union, the high level of violence in Russia was due to high incidence of corruption among public sectors and the inappropriate connection between government employees and organized criminals.

The regression results for ethnic heterogeneity index also deserve a brief explanation. Three underlying causes of social disorganization, as proposed by Shaw and McKay (1942), are poverty, ethnic diversity, and residential mobility. Thus, one of the important variables in this study was ethnic heterogeneity. The more ethnically heterogeneous a society is, the higher its homicide rate. As social disorganization theorists posited, an ethnically and culturally diverse society faces an obstacle in enforcing common values and norms among its members. Unlike ethnic heterogeneity, the distribution of gender and younger age group did not show any significant relationship with homicide rate. However, the finding is not surprising because many other studies also failed to find a significant relationship between young age group size and homicide rates (Gartner, 1990; Lee, Maume, and Ousey, 2003; Reid, Weiss, Adelman, and Jaret, 2005; Rosenfeld, Messner, and Baumer, 2001).

Limitations of the current study should be recognized. First, the current study has tested only an *indirect* relationship between governance and homicide rate. In other words, the current work used governance as a latent variable for deterrence. Thus, based on the discussion above, future researchers should investigate the specific mechanisms of ineffective governance's relationship to a high level of violence within a country. In other others, there is an urgent need to find an intervening variable(s) between governance and homicide rate.

Second, the current study employed deterrence theory to explain the link between governance and national homicide rate. However, different criminological theories share some common elements. It is possible to explain the link between governance and national homicide rate by employing other criminological theories. For example, strain theory can be used to explain the link between them. An effective government may be better able to provide legitimate means for obtaining goals. On the other hand, if ineffective government fails to provide legitimate means for

obtaining goals, people are likely to adopt violence or homicide. This reasoning is partially supported by a significant correlation between the WGI and the Gini-index of income inequality ($r = -0.36$, $p \leq .01$). The WGI is negatively associated with the Gini-index of income inequality. Therefore, this interpretation may be possible; an ineffective government may lead to an increase in income inequality. Many developing countries in Africa, Latin America, and Southeast Asia are subject to high level unequal distribution of wealth. People may perceive the system is unfair and legitimate means for obtaining goals is blocked when they experience a high level of income inequality. As a result, people are more likely to adopt violent behaviors. Another candidate theory for explaining the relationship between governance and homicide rate is control theory. Ineffective government would deteriorate social bonds and the ability of society to control itself, thereby "freeing" people to commit violence. In short, since governance is a relatively new variable in the literature, it leaves the discussion open for other theoretical interpretations.

In spite of the limitations, the current research suggests that a dysfunctional and ineffective government limits a nation's ability to control social disorder and violence. Thus, the government's capability to control its citizens' violent acts is critical to a country. Furthermore, the regression models of this study explain approximately 65% of the variation in the homicide rate. The introduction of governance indicators improves the fit of regression models. The results of this study suggest that future deterrence studies should make full utilization of the data available on governance indicators. Also, future study may test the relationship between governance and violence by employing a different unit of analysis or governments, such as a city and a state within a nation.

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Table 1 : Descriptive Statistics

	N	Min.	Max.	Mean	SD
WGI	122	-1.58	2.05	0.0060	1.00
WGIWL	122	-1.62	2.06	0.0056	1.00
GDP	122	580.00	61190.00	9454.75	10761.22
GINI	122	24.70	74.30	40.47	9.79
AGE(20-34)	122	18.57	28.01	23.17	2.23
FEMALE%	122	42.70	58.40	50.88	1.80
ETHNIC	122	0.00	0.93	0.42	0.24
HOMICIDE	122	0.55	55.55	10.30	10.09

Note. WGI= an average World Governance Indicators (factor score); WGIWL= World Governance Indicators without rule of law (factor score); GDP = GDP per capita; GINI = Gini-coefficient of income inequality; AGE(20- 34)= percentage of the age group between 20 and 34 among a total population; FEMALE% = percentage of females among a total population; ETHNIC = ethnic heterogeneity; HOMICIDE= homicide rate per 100,000 population.

Table 2 : OLS Regression Estimates: Homicide Rate (log transformed)

Variables	1	2	3	4
Constant	-2.984 (2.746)	-3.348 (2.392)	-2.949 (2.749)	-3.436 (2.418)
WGI * GDP	-2.2E-05*** (0.001) [-0.283]	-7.0E-05 (0.001) [-0.088]	—	—
WGI	—	-0.501*** (0.081) [-0.438]	—	—
WGIWL *GDP	—	—	-2.3E-05*** (0.001) [-0.283]	-8.2E-06 (0.001) [-0.101]
WGIWL	—	—	—	-0.482*** (0.081) [0.421]
GINI	0.049*** (0.008) [0.417]	0.045*** (0.007) [0.383]	0.049*** (0.008) [0.416]	0.045*** (0.007) [0.386]
AGE (20-34)	-0.014 (0.041) [-0.028]	-0.035 (0.035) [-0.068]	-0.014 (0.041) [-0.027]	-0.036 (0.036) [-0.070]
FEMALE%	0.052 (0.043) [0.082]	0.074 (0.038) [0.117]	0.052 (0.043) [0.081]	0.076 (0.038) [0.119]
Ethnic	1.573*** (0.301) [0.337]	0.999*** (0.278) [0.214]	1.579*** (0.301) [0.339]	1.014*** (0.281) [0.217]
Adj. R ²	0.549	0.658	0.549	0.652

Note.

1. unstandardized regression coefficients, standard errors in parentheses, and standardized regression coefficients in brackets; N=122.
2. WGI= an average World Governance Indicators; WGIWL= World Governance Indicators without rule of law; GDP = GDP per capita; GINI = Gini-coefficient of income inequality; AGE(20-34)= percentage of the age group between 20 and 34 among a total population; FEMALE% = percentage of females among a total population; ETHNIC = ethnic heterogeneity; HOMICIDE= homicide rate per 100,000 population.
3. * $p \leq .05$, ** $p \leq .01$, *** $p \leq .001$

Appendix A : Data Sources of 2002 World Governance Indicators

Source	Publication	Type	Number of countries
Afrobarometer	Afrobarometer Survey	survey	12
Business Environment Risk Intelligence	Business Risk Service	poll	50
Business Environment Risk Intelligence	Qualitative Risk Measure	poll	115
Columbia University	State Capacity Project	poll	98
Economist Intelligence Unit	Country Risk Service	poll	115
European Bank for Reconstruction and Redevelopment	Transition Report	poll	26
Freedom House	Nations in Transition	poll	27
Freedom House	Freedom in the World	poll	192
Gallup International	Gallup Millennium Survey	survey	60
Gallup International	50th Anniversary Survey	survey	44
Gallup International	Voice of the People Survey	survey	46
Heritage Foundation/ Wallstreet Journal	Economic Freedom Index	poll	161
Institute for Management and Development	World Competitiveness Yearbook	survey	49
Latinobarometro	Latinobarometro Surveys	survey	17
Political Risk Services	International Country Risk Guide	poll	140
Price Waterhouse Coopers	Opacity Index	survey	35
Reporters Without Borders	Reporters Without Borders	poll	138
Global Insight's DRI McGraw-Hill	Country Risk Review	poll	111
State Department/ Amnesty International	Human Rights Report	poll	159
World Bank	Business Environment and Enterprise Performance Survey	survey	18
World Bank	World Business Environment Survey	survey	81
World Bank	Country Policy and Institutional Assessment	poll	136
World Economic Forum	Global Competiveness Report	survey	75
World Economic Forum	Africa Competiveness Report	survey	23
World Markets Research Center	World Markets Online	poll	186

Note : recreated from Kaufmann, Kraay, and Mastruzzi (2004, *p.* 256)

Appendix B : Summery Statistics on Governance Indicators

	Voice/ Account-ab ility	Political stability	Government effectiveness	Regulatory quality	Rule of law	Control of corruption	Overall
Number of Countries	199	186	195	195	195	195	194
Median number of sources per country	7	6	6	6	8	7	7
Proportion of countries with only one data source	0.10	0.11	0.10	0.10	0.10	0.10	0.10
Average standard error	0.21	0.27	0.22	0.22	0.19	0.21	0.22

Note. Source : Kaufmann, Kraay, and Mastruzzi (2004, p. 262).

Appendix C : Zero-Order Correlation Matrixes

	WGI	WGIWL	GDP	GINI	AGE	FEMALE%	ETHNIC
WGI	1.00						
WGIWL	.999**	1.00					
GDP	.858**	.852**	1.00				
GINI	-.360**	-.352**	-.421**	1.00			
AGE(20-34)	-.402**	-.404**	-.453**	.343**	1.00		
FEMALE%	.075	.088	.006	-.069	-.350**	1.00	
ETHNIC	-.401**	-.400**	-.413**	.291**	.123	.085	1.00
HOMICIDE	-.676**	-.663**	-.685**	.603**	.268**	.103	.521**

Note. 1. WGI= an average World Governance Indicators; WGIWL= World Governance Indicators without rule of law; GDP = GDP per capita; GINI = Gini-coefficient of income inequality; AGE(20-34)= percentage of the age group between 20 and 34 among a total population; FEMALE% = percentage of females among a total population; ETHNIC = ethnic heterogeneity; HOMICIDE= homicide rate per 100,000 population.

2. ** ≤ 0.01 level.



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“Bias-Based Policing: Voices from Within”

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Abstract - The popularity of the terms racial profiling and bias-based policing over the past few decades has provoked a great interest and curiosity among researchers and practitioners. Initially, studies are conducted from subaltern perspective by analyzing disparity in traffic stops; recently scholars twisted towards police perspective and started striving to understand bias in broader aspects of police-public interactions. In our study on 411 police officers, 30% admitted the prevalence of bias in their department, 40 % acknowledged the prevalence in the greater state of Alabama and further analysis revealed a scarlet differences among black and white officers and officers holding non-management and management positions.

Keywords : *biased policing, police perspective, subaltern perspective, racial profiling.*

GJHSS-E Classification : *FOR Code: 940403*



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"Bias-Based Policing: Voices from Within"

Ralph Ioimo^α, Theresa Pelfrey^σ, Prit Kaur^ρ, Don Chon^ω, Furman Smith^γ, Barr Younker[§] & Lisa Zanglin^κ

Abstract - The popularity of the terms racial profiling and bias-based policing over the past few decades has provoked a great interest and curiosity among researchers and practitioners. Initially, studies are conducted from subaltern perspective by analyzing disparity in traffic stops; recently scholars twisted towards police perspective and started striving to understand bias in broader aspects of police-public interactions. In our study on 411 police officers, 30% admitted the prevalence of bias in their department, 40 % acknowledged the prevalence in the greater state of Alabama and further analysis revealed a scarlet differences among black and white officers and officers holding non-management and management positions.

Keywords : *biased policing, police perspective, subaltern perspective, racial profiling.*

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I. INTRODUCTION

The Constitution of the United States, which is idealized throughout the world, aspires to promote equality, justice, and protection of human rights. Nothing appears to be more serious than learning that some of our fellow citizens feel they have been unfairly and inhumanly treated by people having a color of law on their bodies, in this country itself. Unfortunately, approximately 32 million Americans say they have experienced some form of bias in police treatment in their lifetime. These experiences are commonly shared by members of minority communities, and are assumed to be associated with traffic stops. In reality, these incidents are not limited to traffic stops and have been occurring in public spaces such as airports, on city streets and in shopping areas, etc. Many a times, minorities have also reported similar experiences in their homes and even the privacy of "temporary homes," hotel rooms, work-spaces, college/university residence halls and campus spaces, etc. Most of these cases, because of the sensitivity involved in the issues and the negative impacts of such events on the police-public relations and fabric of social structure, become highly publicized (Harris, 1997, 1999, 2002; Martin, 1999).

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Thus, the issue of bias-based policing captures the attention and becomes a cause of greater curiosity to researchers and practitioners.

The terms racial profiling and 'bias-based' policing are often confused in the public perceptions as well as used interchangeably in scholarly writings. Consequently, most of the scholars looked at and defined the term bias-based policing as per their research suitability. In our research, we found the most close and appropriate definition of bias-based policing for our research is used by Iloimo (2007). The definition is: 'practices by individual officers, supervisors, managerial practices, and department programs, both intentional and non-intentional, that incorporate prejudicial judgments based on sex, race, ethnicity, gender, sexual orientation, economic status, religious beliefs, or age that are inappropriately applied.' Although, current research is an extensive project, but in this article research limiting focus on in determining the extent officers are aware of the occurrence of bias-based policing practices in their own departments, in other department, and the extent to which bias-based policing is really an issue.

II. LITERATURE REVIEW

As mentioned previously, biased-based policing is an important issue that plagues the criminal justice system of the United States. It involves a number of aspects which must be taken in account to construct an informative view on the effects of such actions. Researchers have reviewed and studied an abundance of articles, data and works to explain the various elements related to this unethical practice.

All these studied can be clubbed into the two main categories:

- I. Studies conducted from citizens perspective and
- II. Studies conducted from police perspective

a) *Studies conducted from citizens perspectives*

Most of the studies on bias-based policing are written from citizen perspectives and at times related to highly published events. These studies can be further grouped as:

i. *Bias-based policing in vehicle stops*

Research concerning bias-based policing has primarily focused on the "Driving while Black phenomenon". Driving while Black refers to the effects of racial identity on law enforcement officers, making and conducting traffic stops, more on black drivers than white drivers (Harris, 1997, 1999, 2002; Martin, 1999). Taking this concern to the next level, scholars found that data related to traffic stops clearly proves disparity in stops even though this data information is based on underreporting.

According to Lundman (2010), police data on Driving while Black is not valid because it underestimates the frequency with which police stop drivers of color. Additionally, Lundman and Kaufman (2003) found that black drivers are less likely to report that police made legitimate stops or acted appropriately during traffic stops, resulting in disproportionate reporting of stops in which they believe police acted inappropriately. The study also finds that the size of place, time of day, and the race of the officer appeared to mediate the effect of Driving while Black, although black drivers still have lower odds of reporting that police act properly at a traffic stop, irrespective of the time of day. Tomaskovic-Davey, Wright, Czaja, and Miller (2006) found White and African-American drivers who were cited for speeding both underreport stops, but African-Americans underreport at a much higher rate. Therefore, survey data tends to underreport the impact of the Driving While Black phenomena.

ii. *Disparity in Searches*

Moon and Corely (2009) conclude that African-American male drivers are also more likely than Caucasian-American male drivers to be searched. However, according to Moon and Corely, they are less likely to receive a legal sanction resulting in a monetary fine and more likely to serve a jail sentence.

Although most studies focus on African-Americans as the minority group, Moon and Corely also find that Asian-American drivers are less likely to be searched, but more likely to receive legal sanctions than Caucasian-American drivers. In a study by Debnam and Beck (2011), Black drivers perceived a greater likelihood of being stopped for driving under the influence (DUI), not wearing a seatbelt, and also for speeding. However, after controlling for demographic factors, they were not more likely to receive a ticket or citation. While the impact of race is inconclusive, the study indicates the factors of time, officer type, and type of traffic violation also influences enforcement actions.

iii. *Disparity in traffic stops for drug searches*

The belief that minorities commit more drug offenses, while factually untrue, established a basis for racial profiling and biased policing (Coker, 2003). Profiling Blacks and Hispanics has resulted in finding contraband more frequently among individuals from those groups (Coker, 2003). This resulted in more minority drivers being stopped and subsequently searched (Coker, 2003; Harris, 1999; Harris, 2002). Harris (1999) reports that while Blacks constitute only 13% of the country's drug users, they represent 37% of those arrested, 55% of the individuals convicted, and 74% of drug offenders sentenced to prison.

The Supreme Court, beginning with *United State v. Arvizu*, 534 U.S. 266 (2002) has consistently held that the Fourth Amendment does not prohibit investigatory stops if the totality of the circumstances

suggests a reasonable suspicion of criminal activity, and examination of the plausibility of each of the officer's reasons is not required. Some critics complain this standard of review invites racial profiling and an invitation to stop a vehicle for any reason (Harris, 1997). Others deny racial profiling is neither encouraged nor allowed in a reasonable suspicion analysis (Pelic, 2003). Traffic violations are common places, and many researchers believe that these too common occurrences have become a pretext for the opportunity to observe drivers and passengers for signs of drug use or possession (Harris, 2002;

Lundman & Kaufman, 2003; Meeks, 2000). As a result, minorities often leave stops with the impression that there was not legitimate reason for the stop, and that they were stopped because of their race or color (Lundman and Kaufman, 2003).

iv. *Disparity in implementing policy of 'zero tolerance' towards crime*

Community Oriented Policing supports proactive policing which encourages officers to engage in minor incidents of interest to the community, and which are normally considered outside the scope of policing (Ioimo, 2007). Davis (2001) argues police agency cultures that focus primarily on crime reduction are more likely to experience bias-based policing and increases in officer misconduct. The result is the attitude that crime must be reduced by any means necessary, and often results in targeting individuals based on race, biases, and stereotypes (Davis, 2001b). Davis (2001b) warns that concepts such as "War on Drugs, War on Crime, Scorched Earth, and Zero Tolerance" have contributed to a culture of community intolerance- a "we versus them" mentality - which contributes to poor community relations.

David Harris (1999) blames the "War on Drugs" for rampant abuses of power. However, Thomsen (2010) argues that using racial profiling reduces the effectiveness of profiling, because it increases costs and reinforces and prolongs unjustified police practices. These adverse police practices may cost more money because they could result in legal action and settlements. While the literature has not explained the justification for racial-biased policing, it does state it is not cost effective to engage in the practice.

Also, limited resources require funds allocated for corrective action plans that will assist in eliminating biased policing.

Gold (2003) cautions that researchers must carefully distinguish situations in which police are using race from situations in which they are finding race. Stopping a vehicle because the driver is Black or Hispanic is very different from stopping a person who meets the description of a suspect who happens to be Black or Hispanic (Ioimo, 2007). Police-stop statistics must exclude stops involving a search for a racially

identified perpetrator (Gold, 2003; Walker, 2001). Moreover, when police activity is increased in response to community concerns regarding local drug pushers or local speeders and the community is economically disadvantaged and more heavily populated with visible minorities, the statistics will be skewed towards more police-minority interactions (Gold, 2003; Ioimo et al., 2007). Ioimo et al. (2007) observed in the Virginia study that the areas of highest demand for police service tended to be in minority communities. Higher demand for services in a minority community logically could be expected to result in a higher number of minority stops—more traffic stops, field interviews, and arrests (Ioimo et al., 2007).

A TELEMASP Bulletin (TELEMASP, 2007) author emphasizes that police should deploy officers to locations where they are needed by citizens. This will result in more traffic stops in these areas of high service demand (Ioimo et al., 2007). Moreover, ignoring crime rates and demands for service in favor of absolutely proportionate deployment across a jurisdiction could result in racial discrimination (TELEMASP, 2007).

b) *Police Perspective*

Lundman and Kaufman (2003) recommend that to understand the bias-based policing, it is important to have a triangulated data collection which includes police reported data, citizen self-reports, and trained observers. His stand-point was followed and used by many scholars in their studies afterwards, some of these are Singleton & Straits, 1999 and Weitzer, 1999. Not only this, many researchers argue that methodologically unsound research can lead to misrepresentations, which further divide police and the communities they serve (Ioimo et al., 2003; Gold, 2003). Thus a new phase in the bias-based policing started, and many studies including Brown and Frank, 2004; Ioimo, Becton, Meadows, Tears & Charles, 2007; Ioimo, Becton, Meadows, Tears, & Charles, M., 2011; Sun & Payne, 2004 are conducted to assess bias-based policing practices from the police officer's perspective. In these studies various demographics such as race, gender, education, rank and seniority allows for a greater perspective into the variables that factor into the acknowledgement of bias-based police actions.

First group of scholars believe that cultural diversity training is helpful in identifying the historical and contemporary plight of minorities and sensitizes officers to their own covert and overt prejudices and discriminatory acts, however some of the researchers argue that the focus on individual attitudes and behaviors ignores the underlying societal and occupational structural issues that produce racial profiling (Meehan & Ponder, 2002). Even the most racially sensitive officers engage in acts perceived as racial profiling (Meehan & Ponder, 2002). While it is unclear that prejudicial attitudes or intentions motivated

officer behavior (Ioimo et al. 2007), it is clear that curtailment of racial profiling requires top management commitment (Corderoni, 2002).

Barnum and Perfetti (2010) employed a statistical estimator to identify race-sensitive choices by police officers during traffic stops. The results suggested the models effectively detect disproportionality in both a police organization and an individual officer's traffic stop activity. Although there is a significant amount of research reinforcing evidence of racial disparities during traffic stops, the question of whether race inappropriately influences traffic stop patterns is inconclusive.

Additionally, by Correll, Park, Judd, Charles, Wittenbrink, Salder, & Keese (2007) explores the impact of a police officer's ethnicity on his or her decision to use deadly force. The authors suggest that training may not affect the speed with which stereotype-incongruent targets are processed, but that it does affect the ultimate decision (particularly the placement of the decision criterion). In a latter study, Ma and Correll (2011) found the average responses to African-American and Caucasian-American officers and whether the target prototypically influenced the decision to shoot beyond the extent of race was minimal. Further, above and beyond race, in studying the impact of target photo typicality on a police participant's decision to shoot, Ma and Correll (2011) found that increased target photo typicality results in increased racial bias.

A study by Ioimo, Becton, Meadows, Tears, and Charles (2011) broadens the traditional scope beyond traffic stops and discovers that many officers believe racially-biased policing problems exist within their departments. Moreover, the study finds significant differences in perceptions between white and colored officers in both urban and rural police departments.

It can be inferred from the literature review that: (i). people of minority communities face differential treatment at stop-signs, variation in sanctions in their intentional or unintentional violations of law, and variation in benefits under community policing oriented practices, (ii) there is paucity of studies conducted from the police perspective to make recommendations for change in the law enforcement.

Thus, more quality research is necessary from police perspective to understand and to know the extent of the bias-based policing. Therefore, a detailed study was conducted in one of the four major cities in the state of Alabama. The study results are extensive, but through this article information will be shared relevant to these questions: (i) to what extent are officers aware of bias-based policing practices occurring in their department, (ii) to what extent officers are aware of bias-based policing practices occurring in other police department in the state of Alabama and (iii) Is the department's management aware of bias-based policing in their department. In assessing and answering

these questions, the following hypotheses were explored:

- *Hypothesis 1:* Officers are aware of bias-based policing practices occurring in their jurisdiction.
- *Hypothesis 2:* Officers are aware of biased-based policing practices occurring in other Alabama jurisdictions.
- *Hypothesis 3:* Management is aware that bias-based policing practices are occurring in their department.

III. RESEARCH METHODOLOGY

This article focuses on the police views of the bias-based policing as learned from the larger research project of one of the major cities in the state of Alabama. The total number of sworn officers in the city police department was five hundred and thirty-five (535). The total number of available officers surveyed by using a convenient sampling technique was four hundred and five (N=411), which was 77% of the sworn officer complement. All sub-department organizational elements, to include Narcotics and Special Operations, Traffic Division, Patrol Division, Administration, Detective Division, Recruitment and Training, Community Policing, and Accident Investigations were contacted by the researchers at various times in order to administer the survey with the least operational impact to the department.

Prior to conducting each survey session, respondents were briefed that their participation in the survey was strictly voluntary and their anonymity was assured. In particular, all participants were told the researchers would safeguard the completed surveys, and they should not put any names or other marks on the survey that could identify them as the respondents. Also, the surveys were distributed and collected by the researchers to further safeguard the data and identities of the participants. Further, the respondents were briefed regarding the uses of the survey and told the academic product of the survey would be used by the department's command staff to review bias-based police training in the department and by the researchers for academic purposes, including publication in academic and practitioner journals.

The Questionnaire included instructions on completing the survey. Forty-three questions included in the research instrument were pretested using 50 participants. The research staff, in a meeting with officers and command personnel, reviewed the completed surveys. This meeting was conducted in order to discuss issues of survey content, question presentation, difficulties in completing the survey, survey instructions, method of distribution and collection of completed surveys, and various other survey process issues that could better facilitate collection of the data. Following this pilot test, the surveys were conducted.

Findings

Police Department Composition

The following table depicts the composition of the sample of the study:

Figure 1 about here

The following are the hypotheses, specific questions and findings related to each question:

Hypothesis 1: In an effort to test Hypothesis 1, the researchers presented the following questions with the following results:

1. *Does your department **unofficially** support bias-based policing practices?*

The following graphs indicate officers' responses, in regard to Hypothesis 1:

Figure 1.1. about here

As the above graph shows, while 44% of the respondents reported that they did not know if their departments unofficially supported such practices, 42% of respondents reported that their departments did not and 14% reported that their departments did support bias-based policing practices. Responses to this question differed by race with 8% of Caucasian-American respondents and 22% of African-American respondents responding affirmatively. The differences between Caucasian and African-American respondents were significant ($p < .001$).

In addition, officers differed considerably from management in response to this question. Nearly 14.6% of officers answered yes to this question compared to 8.3% for mid and senior level management, respectively. While this was not statistically significant, it is of concern that nearly 60% of the officers and nearly 45% of the administration answered either "yes" or "unknown" to this questions (15% of the officers and 8% of the management answered "yes").

2. *Do you believe that your police department **officially** supports bias-based policing practice?*

Figure 1.2 about here

When asked the aforementioned question, 15% of responding officers answered "yes", 31% answered "no", and 54% indicated that they did not know. Of those responding to the question, 10.7% of Caucasian-American officers and 20.9% of African-American officers believed their police department officially supports bias-based policing. Significant differences between Caucasian and African-American officers were noted ($p < .001$). There was no statistical significance between the officer level and that of management in response to this question.

3. *Do you believe that bias-based policing is presently practiced by any officer(s) in your department?*

Figure 1.3 about here

In response to this question, 29% percent answered "yes", 30% answered "no", and 41% answered "unknown" to the question. In further analysis, 25% of Caucasian-American officers, and 33.5% of African-American officers answered affirmatively, and 38.3% of the Caucasian-American officers and 44.9% of the African-American officers responded as "unknown". The findings show that Caucasian-American officers are more likely to say "no" than African-American officers ($p < .001$). There was no statistical significance between the officer level and that of management in response to this question.

Hypotheses 2 and 3: In an effort to test these hypotheses and to determine if officers and management are aware of bias-based policing practices occurring in other Alabama jurisdictions, the researchers presented the following questions with the answers below:

4. *Do you believe that bias-based policing is practiced by individual police officers in other Alabama police departments?*

The following graphs indicated officers' responses, in regard to Hypotheses 2 and 3:

Figure 2.1 about here

In response to this question, 34.5% answered "yes", 9% answered "no", and 56.6% indicated that they did not know. Officers responded differently by race with 29.5% of Caucasian-American officers and 40.9% of African-American officers responding affirmatively to the question. However, the differences were not statistically significant.

5. *Have you witnessed bias-based policing activities by other officers in your department?*

Figure 2.2 about here

When asked this question, 29.6% of the respondents indicated that they had witnessed such behavior, and 70.3% indicated that they had not. These findings suggest that bias-based policing practices are present, as perceived by officers, to some degree in the Southern City Police department. Caucasian-American officers reported witnessing bias-based policing activities less often than minority officers with 21.7% of Caucasian-American officers answering affirmatively compared to 39.7% of African-American officers. The difference between Caucasian and African-American officers was significant ($p < .001$). By rank, there was no statistical difference between officers and managers.

6. *To what extent, if any, do you believe bias-based policing is an issue for your department?*

Figure 3.1 about here

In response to this question, the responses were split, 36% of officers reported that it is "somewhat of an issue" and 11.3% reported that it is "a serious issue." Therefore, a combined total 57.3% of respondents indicated that bias-based policing was at

least somewhat of an issue for their department and 52.6% indicated that bias-based policing was not an issue for their department. By race, responses to this item differed significantly. Of those who indicated that bias-based policing was at least "somewhat of an issue" or a "serious issue" for their department, 34.9% of the Caucasian-American officers and 63.1% of the African-American officers believed bias-based policing was "somewhat of an issue" or a "serious issue" for their department. The difference between Caucasian and African-American officers indicating bias-based policing was "not an issue" and "somewhat an issue" was significant ($p < .001$). According to rank, responses to this question varied somewhat. Management is more likely to say that bias-based policing was not an issue than officers ($p < .05$).

IV. CONCLUSIONS, IMPACT AND DISSEMINATION OF THE INFORMATION

Based on the findings of the study, it can be concluded that significant differences emerged in the perceptions of black police officers, as compared to white police officers, in three areas indicative of racially biased police practices: unofficial departmental support, witnessed bias-based policing incidents, and the extent of bias-based police practices.

First, the perceptions of black police officers differ significantly from those of white police officers in the area of unofficial departmental support of racially biased policing. Second, the difference between white and black officers who reported witnessing bias-based policing is statistically significant.

However, no significant difference when comparing officers and managers was noted in the answers of the respondents.

Third, when identifying the extent to which bias-based policing is an issue for the department, 57.3% of the combined respondents indicate that bias-based policing is at least "somewhat of an issue" in the department, as compared to 52.6% who believe it is not an issue. However, the differences between white and black respondents was significant with 63.1% black officers identifying bias-based policing as at least "somewhat of an issue." Moreover, the difference between white and black officers indicating "not an issue" and "somewhat an issue" was significant. Surprisingly, the management level is less likely than officer level to identify bias-based policing as a department issue.

While perceptual differences in all three areas are troubling and suggest corrective action and further training, the more disturbing issues are those which indicate a disparity in the perceptions of officers regarding support for racially biased policing, either management or departmental. Significant challenges result from these perceptions. Additional research is

required to discern the origins of these perceptions to better enable department eradication of racially biased policing activities and perceptions.

The issue of racially biased policing continues to be a complex and divisive issue; however, identifying the differences between the various groups within the department will allow supervisors, managers, and officers to focus their training and mitigate the negative impact of racially-biased policing, both within the police department and to the community they protect and serve.

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Survey Characteristics of the Study

<u>Sample Size</u>	<u>411 Officers</u>	
<u>Race</u>	<u>White=50% Black=40% Other=10%</u>	
<u>Age</u>	<u>18-39 yrs=70%</u>	<u>40-59 yrs=20%</u>
<u>Gender</u>	<u>Male=90%</u>	<u>Female=10%</u>
<u>Education Level</u>	<u>BA/BS=20% AA=10% Some College Education=50%</u>	
<u>Rank</u>	<u>Officers=80% Misc. Ranks=20%</u>	
<u>Longevity</u>	<u>0-3 years=30% 7-10 years=20% 11-15 years=10% > 16 years=20%</u>	

Figure 1 : Survey Characteristics of the Study

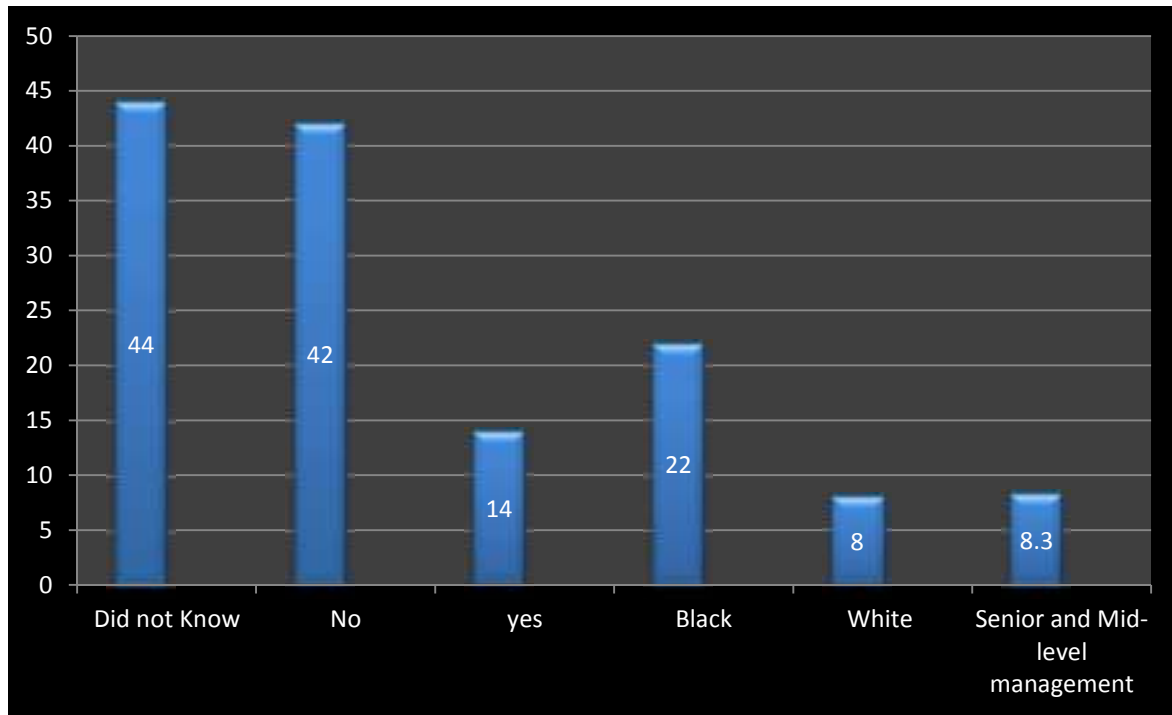


Figure 1.1 : Does your department unofficially support bias-based policing practices?

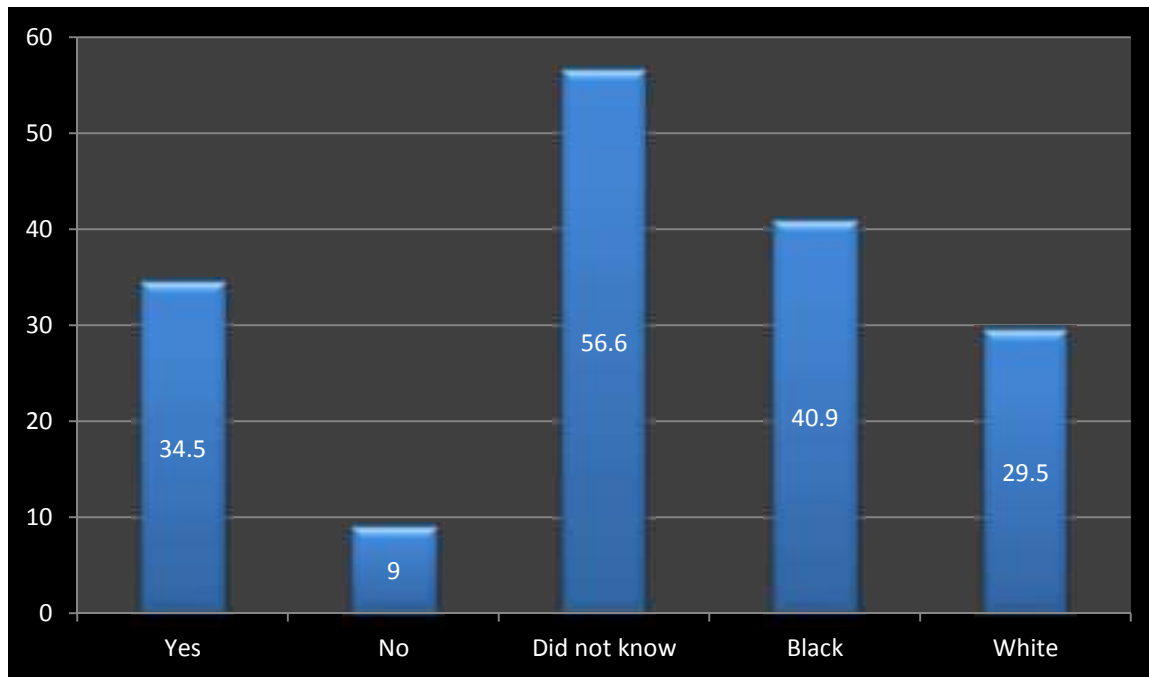


Figure 1.2 : Do you believe that your police department officially supports bias-based policing practice?

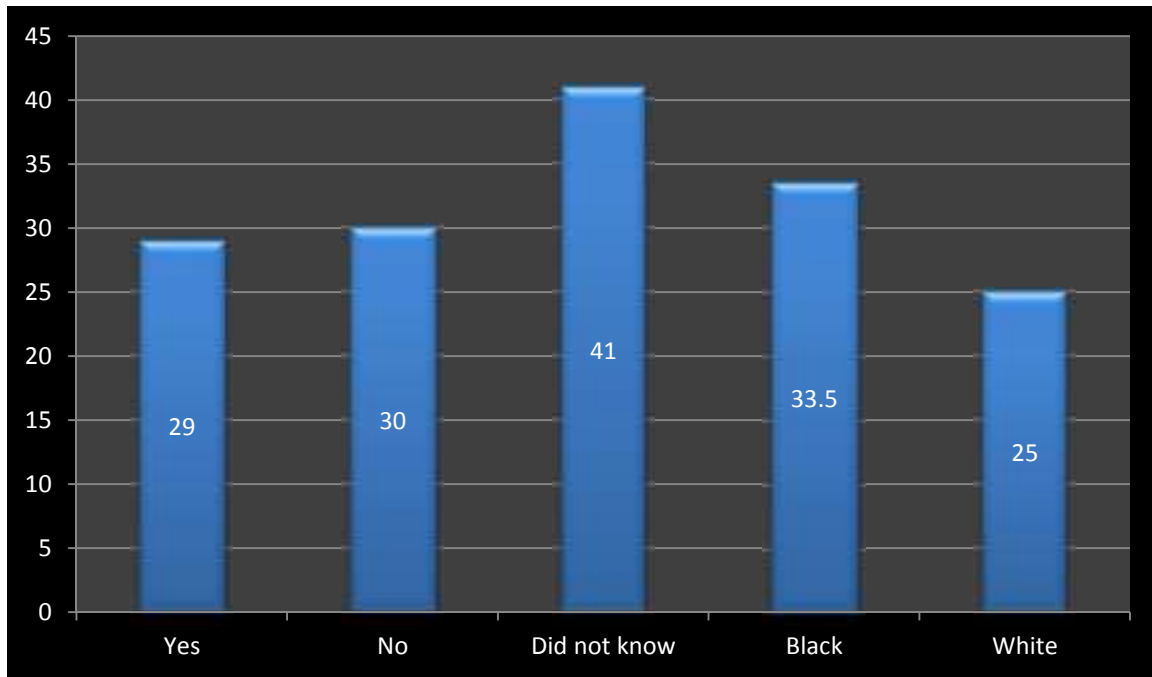


Figure 1.3 : Do you believe that bias-based policing is presently practiced by any officer(s) in your department?

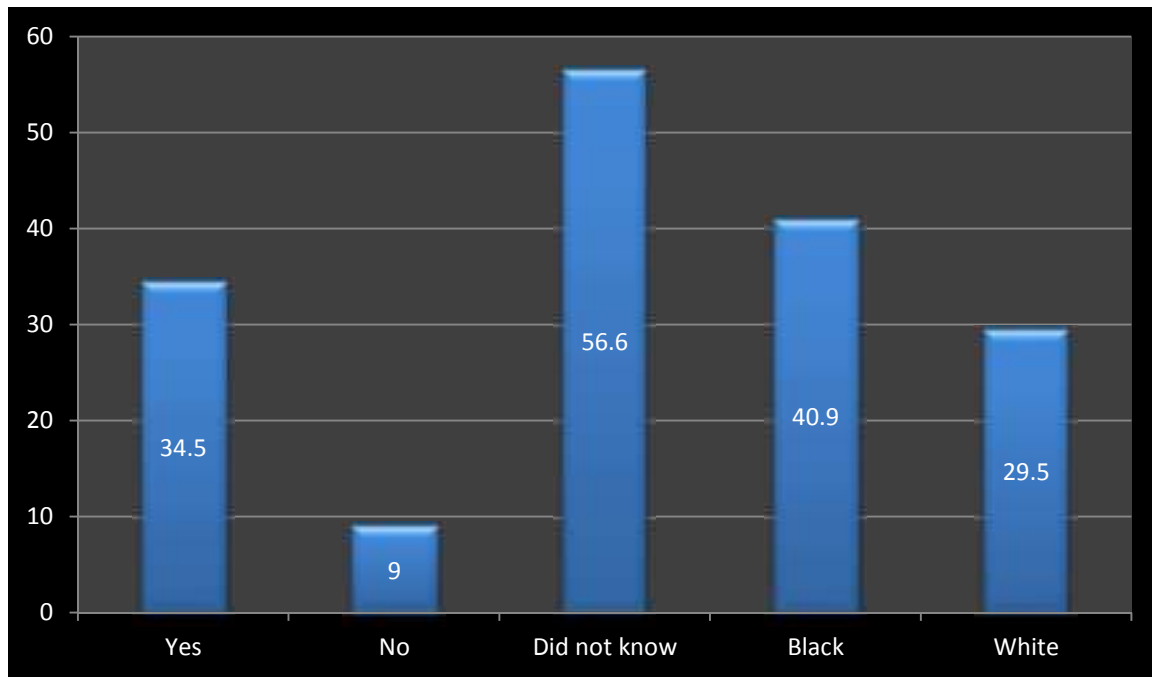


Figure 2.1 : Do you believe that bias-based policing is practiced by individual officers in other Alabama police departments?

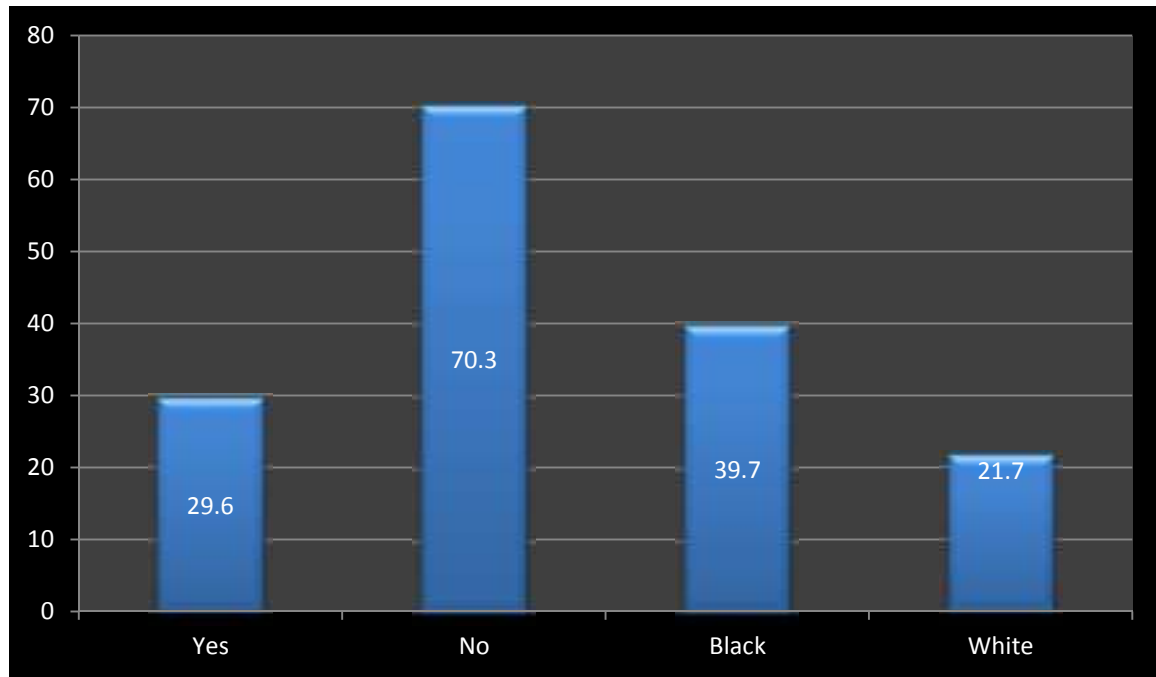


Figure 2.2 : Have you witnessed bias-based policing activities by other officers in your department?

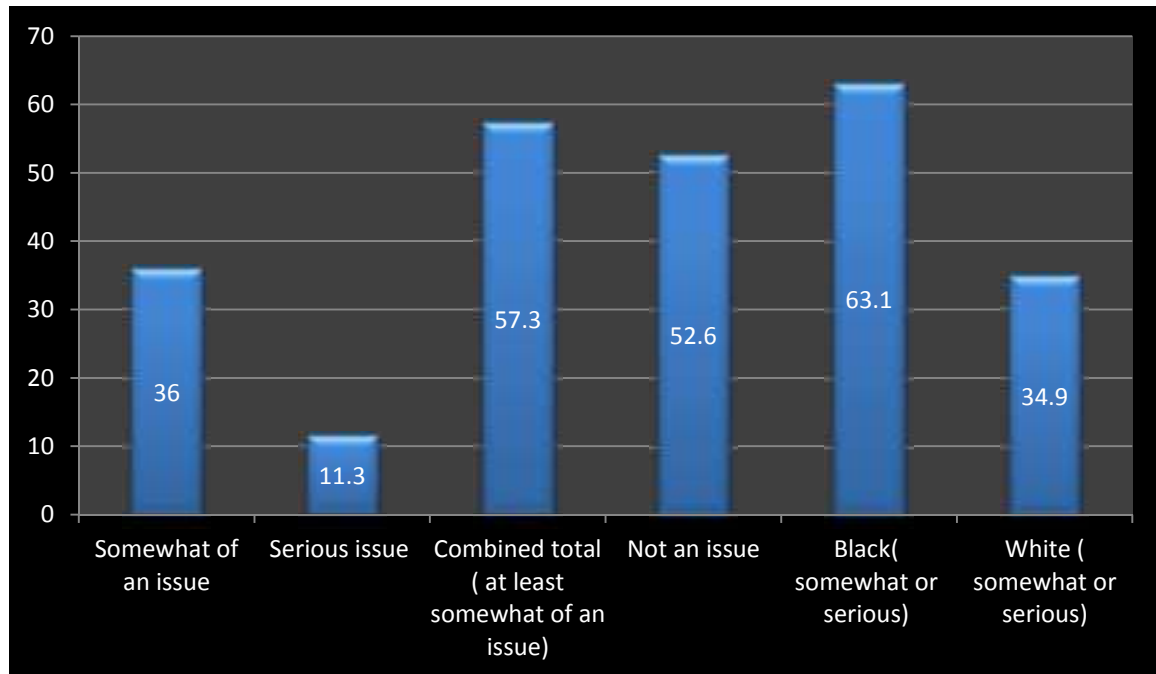


Figure 3.1 : To what extent, if any, do you believe bias-based policing is an issue for your department?



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Internal Integration of the Transition Economy: Evidence from Ukraine

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Abstract - Based on the methodology suggested by Bowen, Munandar, and Viaene (2010; 2011) I examine the quantitative measurement of internal economic integration. For this purpose the link between the region's share in total output and production factors was estimated, the pattern of distribution of these shares among the regions of Ukraine was assessed. Calculations demonstrated an increasing tendency to deepen the internal integration of the Ukrainian economy, although 2009-2010 were characterized by a reduction in intra-regional economic integration.

Keywords : *output distribution, production factor distribution, interregional economic integration.*

GJHSS-E Classification : *FOR Code: 349999p*



Strictly as per the compliance and regulations of:



Internal Integration of the Transition Economy: Evidence from Ukraine

Ihor Yaskal

Abstract - Based on the methodology suggested by Bowen, Munandar, and Viaene (2010; 2011) I examine the quantitative measurement of internal economic integration. For this purpose the link between the region's share in total output and production factors was estimated, the pattern of distribution of these shares among the regions of Ukraine was assessed. Calculations demonstrated an increasing tendency to deepen the internal integration of the Ukrainian economy, although 2009-2010 were characterized by a reduction in intra-regional economic integration.

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1. INTRODUCTION

Globalization processes have a direct impact on the nature of economic relations, transforming the competition, making production factors, information and financial links more affordable. Therefore, location (i.e. regions, the regional environment) is the epicentre of origin of competitiveness. The region concentrates the natural resources, scientific and industrial potential, creates a competitive advantage and provides economic relations with other regions of the country. The presence integration links between regional segments of national economy creates a foundation for economic growth of the country, since it is based on the use of the specific characteristics of each region, the implementation of its competitive advantages.

The current development of economy dictates new priorities of Ukraine. In the process of deepening market reforms are more important becomes the issue of strengthening cooperation between Ukrainian regions as the main factor of sustainable economic growth in Ukraine, because only the integration development regions of the country can provide the efficiency advantages of the territorial division of labor, of natural resources, scientific and industrial potential of the regions and thus promote economic development of Ukraine as a whole.

In the study of integration as a modern tendency of regional development the question of its quantitative and qualitative measurements inevitably raises. In other words, the urgency is the formation of methodological and methodical basis for the assessment of regional integration processes.

This problem has to some extent covered in the scientific literature. Studies on regional convergence within or across countries have already been completed for a broad range of regions (Barro and Sala-i-Martin, 1995). Ghosh (2008) examines long-run growth performance and regional divergence in per capita income across 15 major Indian states during the pre- and post-reform periods. Frey and Wieslhuber (2011) did empirical analysis of the growth process on the regional level using annual gross regional product (GRP) data for the period 1998-2008 for the 16 Kazakh regions and shown that there were no evidence for regional convergence in Kazakhstan.

Storonyanska (2008; 2009) made some calculation using models of convergence on a number of parameters, and obtained important conclusions from factor analysis. Yevdokymenko and Yaskal (2008) used approach to the assessment of intra-regional economic integration based on indicators of trade in the region. Method of detecting approximate directions of interregional production and resource integration in industry and manufacturing industry using Euclidean distance, fuzzy clustering and gravity model was proposed by Yevdokymenko and Yaskal (2011; 2012). There were attempts to evaluate the effectiveness of the integration between regions (Plekhanova, 2008).

Bowen, Munandar, and Viaene (2011) assess the level of economic integration between the U.S. states and EU members, and in (Bowen, Munandar, and Viaene, 2010) – based on Regional Trade Agreements. Noteworthy, this approach is used for estimating the level of integration within the country (e.g. USA), and between countries within a particular group (e.g. EU, NAFTA, etc). I have utilised the methodology suggested by Bowen, Munandar, and Viaene (2010; 2011) to examine the quantitative measurement of internal economic integration in Ukraine.

Bowen, Munandar, and Viaene consider the distribution of output and factors of production among members of an integrated economic space (IES), within which goods and factors of production (resources) are mobile and policies are harmonized. They derive three theoretical propositions: 1) each member's share of total area output will equal its share of the total area stock of each productive factor; 2) the distribution of output and factor shares across IEA members will conform to a rank-share distribution that exhibits Zipf's law. Zipf's law specifies a particular relationship among member shares, namely, that the share of, for example, output of

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the largest member is twice that of the second largest member, three times that of the third largest member, etc.; and 3) given Zipf's law, the long-run distribution of output and factors across area members is unique and depends only on the number of IEA members (Bowen, Munandar, and Viaene, 2011). Thus, under the IES we will understand the national economy of Ukraine (set of regional economies), and by members of the IES – Ukrainian regions. Theoretical background for the distribution of output and factors of production among regions – equal-share relationship and rank-share distributions and Zipf's law – characterized and described in details in (Bowen, Munandar, and Viaene, 2010; 2011).

II. DATA AND EMPIRICAL APPROACH

a) Data

The basis was taken data structure for which statistical information published by the State Statistics Service of Ukraine, i.e. the Autonomous Republic of Crimea, 24 administrative regions (oblast), cities of Kyiv and Sevastopol. Thus, the number of observations is 27. We start from assumption that the long-term distribution of shares among the regions of the integrated economic space exhibits Zipf's law. This means that the theoretical share value of each region could be calculated on the basis of a number of members. In our case it is 27, so theoretical shares values for the regions of Ukraine will be: 0,2569; 0,1284; 0,0856; 0,0642; 0,0514; 0,0428; 0,0367; 0,0321; 0,0285; 0,0257; 0,0234; 0,0214; 0,0198; 0,0183; 0,0171; 0,0161; 0,0151; 0,0143; 0,0135; 0,0128; 0,0122; 0,0117; 0,0112; 0,0107; 0,0103; 0,0099; 0,0095. To calculate the actual share values of regions in total IES I used the following statistical information. For each of the regions output was measured by gross regional product (GRP), which is calculated by State Statistics Service of Ukraine. Suppose, that ratio between fixed and working capital remained constant during the period. Therefore, under the factor "capital" I mean fixed assets. Difficulty in assets evaluating is that national statistics suggests two types of value: the actual and residual. In our calculations I have used the residual value for two reasons. First, the actual cost varies not only by input and/or output of fixed assets, but also the revaluation (indexation). This means that this parameter can be changed without physical changes that would affect the result. Second, the residual value shows a higher statistical relationship with GRP than actual (the correlation coefficient is 0.96 and 0.89 respectively). Factor "labor" for each region measured by the number of employed working-age population. Study period covers the years 2000-2010.

Table 1 describes the distribution of output shares and their ranking for Ukrainian regions. Table 1 shows the sharp increase of the capital position, the city of Kyiv, which was the clear leader of ranking during the

analyzed period. The dominance of the capital – a trend that is peculiar not only for Ukraine but also for other post-Soviet countries. This is explained by the fact that Kyiv is the largest city in the country and its industrial, scientific and cultural center. It attracts central offices of large companies location in Kyiv. Another reason is that most companies registered in Kiev have subsidiaries in the regions, and report and pay taxes at the place of registration, i.e. in the capital.

The second feature is that the role of some old industrial regions has gradually reduced. For example, Donetsk region for 2000-2010 years, lost the first place in the rankings, with the dropped its share of total output. Especially significant was the decline during 2005-2010 – by 1.29. The same can be said about Zaporizhzhya region which has lost four positions in the rankings and decreased its share to 1.53 over the period. Other industrial regions, Dnipropetrovsk and Kharkiv, kept their places in the rankings, and their share in total output even increased: at 1.19 and 0.04 respectively.

Overall, in 2000-2005 years 7 regions improved their position in the ranking, 13 – did not change, and 7 – reduced. During the years 2005-2010 6 regions improved position, 12 – did not change and 9 – reduced. This was due to increased concentration of economic activity in Kiev. It means that capital's production share increasing for 2000-2010 was due to reduction of 22 region's shares. However, the speed of this "capital" concentration slowed down: during 2000-2005 only 4 regions has increased their share of total output and in 2005-2010 – 11 regions has improved the output share.

Table 1 : Distribution and rank of Ukrainian region output shares during 2000-2010 years

Region*	Share Rank (1 = largest share)						Share Value**				
	2000	2005	2010	Change***			2000	2005	2010	Change****	
				2000-2005	2005-2010	2000-2010				2000-2005	2005-2010
Donetsk	1	2	2	-1	0	-1	12,52	13,2	11,91	0,68	-1,29
City of Kyiv	2	1	1	1	0	1	11,39	17,5	18,16	6,11	0,66
Dnipropetrovsk	3	3	3	0	0	0	9,54	9,34	10,73	-0,2	1,39
Kharkiv	4	4	4	0	0	0	5,99	5,8	6,03	-0,19	0,23
Zaporizhzhya	5	6	9	-1	-3	-4	5,48	4,52	3,95	-0,96	-0,57
Odesa	6	5	5	1	0	1	5,12	4,7	4,98	-0,42	0,28
Luhansk	7	7	6	0	1	1	4,64	4,47	4,21	-0,17	-0,26
Kyiv	8	10	7	-2	3	1	4,29	3,48	4,15	-0,81	0,67
Lviv	9	9	10	0	-1	-1	4,24	3,89	3,85	-0,35	-0,04
Poltava	10	8	8	2	0	2	4,14	4,1	4,09	-0,04	-0,01
Autonomous Republic of Crimea	11	11	11	0	0	0	2,96	2,91	3	-0,05	0,09
Vinnitsya	12	12	13	0	-1	-1	2,76	2,31	2,18	-0,45	-0,13
Sumy	13	16	17	-3	-1	-4	2,53	1,82	1,69	-0,71	-0,13
Mykolayiv	14	14	12	0	2	2	2,4	2,16	2,22	-0,24	0,06
Cherkasy	15	15	14	0	1	1	2,3	2,04	2,06	-0,26	0,02
Ivano-Frankivsk	16	13	15	3	-2	1	2,26	2,18	1,89	-0,08	-0,29
Chernihiv	17	18	19	-1	-1	-2	2,23	1,73	1,57	-0,5	-0,16
Khmelnitskiy	18	17	18	1	-1	0	2,14	1,8	1,67	-0,34	-0,13
Zhytomyr	19	19	16	0	3	3	2,05	1,68	1,73	-0,37	0,05
Rivne	20	20	20	0	0	0	1,82	1,65	1,47	-0,17	-0,18
Kherson	21	24	21	-3	3	0	1,7	1,47	1,45	-0,23	-0,02
Volyn	22	23	24	-1	-1	-2	1,59	1,48	1,33	-0,11	-0,15
Zakarpattia	23	22	23	1	-1	0	1,56	1,52	1,41	-0,04	-0,11
Kirovohrad	23	21	21	2	0	2	1,56	1,56	1,45	0	-0,11
Terнопil	25	25	25	0	0	0	1,34	1,16	1,18	-0,18	0,02
Chernivtsi	26	26	26	0	0	0	0,95	0,96	0,91	0,01	-0,05
City of Sevastopol	27	27	27	0	0	0	0,47	0,64	0,72	0,17	0,08

* Sorted by rank in 2000

** Share values in percent

*** A positive change indicates a higher rank in end year relative to start year

**** A positive value indicates a higher share value in end year relative to start year

An interesting question in Ukraine is how processes of inter-regional economic integration are interrelated with concentrations of business activity. I consider the concentration of economic activity the primary with respect to integration, because a kind of business activity is formed initially, and then there is a need to collaborate (not always) with someone. Increasing the concentration of economic activity in the capital over time intensifies regional labor division and, consequently, there is a need to cooperate with other entities. Hence, I assume that the increase in the concentration of economic activity would have to strengthen inter-regional economic integration within the

country. Further calculations partially confirm this assumption.

b) Empirical Approach

To check the potential empirical validity of the equal-share relationship, we can check the "weak" form of this relationship, namely whether that there will be conformity between (pair-wise) rankings of the output and factor shares across regions of Ukraine. Table 2 contains the confirmation of this assumption by calculating Spearman rank correlation coefficient for pair-wise rankings of the shares for each region for the period 2000-2010.

Table 2 : Spearman rank correlations for years 2000-2010*

Year	Output-Fixed assets	Output-Human capital	Fixed assets-Human capital
2000	0,979	0,934	0,923
2001	0,971	0,957	0,951
2002	0,969	0,960	0,933
2003	0,978	0,940	0,920
2004	0,977	0,937	0,919
2005	0,964	0,933	0,915
2006	0,972	0,928	0,919
2007	0,957	0,929	0,908
2008	0,940	0,939	0,910
2009	0,947	0,927	0,913
2010	0,949	0,934	0,910

* Correlation coefficients are significant from null-hypothesis at the level 0,01

Rank correlation with human capital are generally lower and is demonstrating weaker confirmation the relationship of equal shares. This may indicate both of the smaller "contribution" of human capital in GRP of Ukrainian regions compared to the "contribution" of capital (which partly confirms the conclusion made in (Yaskal, 2011), and a poorly functioning labor market. In addition, a lower correlation with the share of human capital caused by lower (compared to capital) mobility of this factor.

Despite the volatility, these results confirm the "weak" form of the equal shares relationship. This fact may indicate that the equalization of marginal returns between regions is not perfect. Although speaking about obtained result, we most likely will talk about excessive centralization than the coordination policy areas. It is known that regional governments and local authorities in Ukraine do not have sufficient financial resources, which is a necessary precondition of its regional policy.

c) Measures of internal economic integration

Next, we try to assess the level of economic integration between Ukrainian regions. The question is

to choose a parameter that demonstrated to the distance between the distribution of the actual and theoretical specific weights. In probability theory, Kullback-Leibler divergence (KLD) is used to measure the difference between two probability distributions (Bowen et al., 2010; Kullback and Leibler, 1951). By analogy, KLD can be applied in our context to measure the distance between actual and theoretical share distributions. KLD is defined as:

$$KLD(\bar{S} : S_t) = \frac{1}{3} \sum_{j=Y,K,L} \left(\sum_{m=1}^M \bar{S}_{mj} \ln \left(\frac{\bar{S}_{mj}}{S_{mjt}} \right) \right) \quad (1)$$

where S_{mjt} – observed proportion at the time t ; $\bar{S}_{mj}$ – independent of time the theoretical part. Values of KLD range between zero and infinity. It is equal to zero (which is interpreted as the full integration) when the proportions are pair-wise equal, i.e. $\bar{S}_{mj} = S_{mjt}$ as of

the date t and for all m and j . Otherwise, detected deviations indicate how far the group of investigated regions is from complete integration. According to Bowen et al. (2010) formalization (1) has one drawback: "...it is not symmetric, in the sense that a deviation between an actual and theoretical share can be negative

or positive. This means that a zero value of KLD could arise either because the distance between the shares is zero, or because the shares are equidistant around a common mean."

For this reason Bowen et al. prefer symmetrical version Kulbaka-Leibler divergence (SKLD):

$$SKLD(\bar{S} : S_t) = \frac{1}{3} \sum_{j=Y,K,L} \left(\sum_{m=1}^M (\bar{S}_{mj} - S_{mjt}) \ln \left(\frac{\bar{S}_{mj}}{S_{mjt}} \right) \right) \quad (2)$$

SKLD values is usually higher for the respective KLD, since all deviations between actual and theoretical shares in the index SKLD are positive Bowen et al. (2010).

Table 3 presents the calculated indicators (1) and (2) for Ukrainian regions for the period 2000-2010.

Since the parameters (1) and (2) showing the extent of divergence, we consider appropriate to calculate the inverse indicators to obtain of integration level, the inverse of the KLD and SKLD marked as I-KLD and I-SKLD respectively.

Table 3 : Kullback-Leibler indicators for 2000-2010

Years	Kullback-Leibler divergence		Indicator of integration*	
	KLD	SKLD	I-KLD	I-SKLD
2000	0,1068	0,2070	9,3652	4,8304
2001	0,0898	0,1746	11,1355	5,7287
2002	0,0924	0,1784	10,8270	5,6040
2003	0,0851	0,1661	11,7447	6,0188
2004	0,0763	0,1527	13,1145	6,5487
2005	0,0741	0,1498	13,4929	6,6775
2006	0,0707	0,1401	14,1480	7,1397
2007	0,0645	0,1268	15,5028	7,8879
2008	0,0610	0,1222	16,4057	8,1800
2009	0,0612	0,1181	16,3404	8,4667
2010	0,0636	0,1212	15,7229	8,2497

* Inverse of (symmetric) Kullback-Leibler divergence

To better study the dynamics of integration for the period in Fig. 1 the value I-KLD and I-SKLD represented graphically.

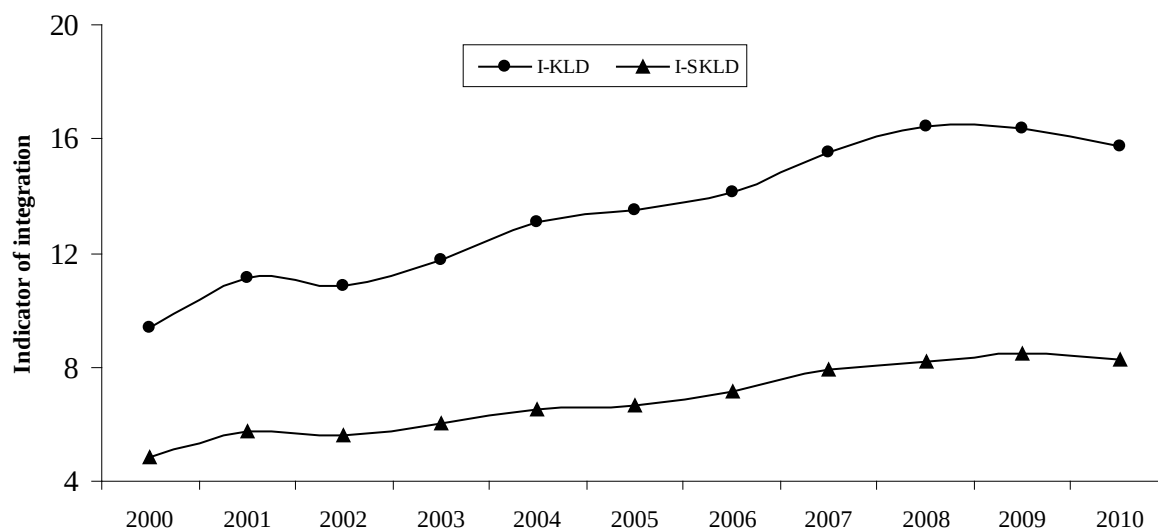


Fig. 1 : Dynamics of intra-regional integration in Ukraine during 2000-2010

From Table. 3 and Fig. 1 evident that the level of economic integration between regions in Ukraine is gradually increasing since 2000, despite some changes in the direction of reduction. Decreasing of I-SKLD value in 2010 can be explained by the negative impact of the financial crisis. Deterioration of economic environment in 2009-2010 obviously has led to nonuniform changes in specific weights of output and production factors of regions in total, and thus increased the discrepancy between the theoretical and actual distribution of shares. In general, we can assume the hypothesis about the close relationship between economic development and the deepening of inter-regional economic integration (one proof of this is the high correlation between I-SKLD and GRP – 0.96), but this suggestion requires further detailed studies.

III. CONCLUSION

The study received a number of specific interactions that emerge between the economies that make up an integrated economic space. In our case, the integrated economic space is the national economy of Ukraine and units – regions. So, the level of intra-regional economic integration has been evaluated as the relationship between the regions. First, we tested the relationship of equal shares. Calculation of Spearman's rank correlation showed a significant relationship between the presence of specific weights of regions in total production and production factors. Conclusions about the dominant role of capital in Ukrainian economic growth and a relatively smaller role of human capital in it have been confirmed.

The level of intra-regional economic integration estimated using Kullback-Leibler divergence and inverse parameters. Calculations demonstrated an increasing tendency to deepen the internal integration of the Ukrainian

economy, although 2009-2010 were characterized by a reduction in intra-regional economic integration.

In addition to the quantitative measurement of intra-regional economic integration, the advantage of this approach is that it confirms the idea: increased mobility of production factors and reducing of barriers to flows between regions means strengthening the equal shares relationship. However, we recognize that differences between countries are not identical to inter-regional differences within the same country. The state has a number of characteristics that are inherent to all of its territory, in particular: the only macroeconomic area, currency zone, the absence (or their lower) barriers between regions for the movement of people, capital, goods, services and information, the relative unity of the institutional system.

Promising areas for further research can be regarded as the evaluation of sector-level economic integration between regions that would characterize as fully as possible the level of integration interaction regions of Ukraine.

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Metric SI units are supposed to generally be used excluding where they conflict with current practice or are confusing. For illustration, 1.4 l rather than $1.4 \times 10^{-3} \text{ m}^3$, or 4 mm somewhat than $4 \times 10^{-3} \text{ m}$. Chemical formula and solutions must identify the form used, e.g. anhydrous or hydrated, and the concentration must be in clearly defined units. Common species names should be followed by underlines at the first mention. For following use the generic name should be constricted to a single letter, if it is clear.

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All manuscripts submitted to Global Journals Inc. (US), ought to include:

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Key Words

A major linchpin in research work for the writing research paper is the keyword search, which one will employ to find both library and Internet resources.

One must be persistent and creative in using keywords. An effective keyword search requires a strategy and planning a list of possible keywords and phrases to try.

Search engines for most searches, use Boolean searching, which is somewhat different from Internet searches. The Boolean search uses "operators," words (and, or, not, and near) that enable you to expand or narrow your affords. Tips for research paper while preparing research paper are very helpful guideline of research paper.

Choice of key words is first tool of tips to write research paper. Research paper writing is an art. A few tips for deciding as strategically as possible about keyword search:



- One should start brainstorming lists of possible keywords before even begin searching. Think about the most important concepts related to research work. Ask, "What words would a source have to include to be truly valuable in research paper?" Then consider synonyms for the important words.
- It may take the discovery of only one relevant paper to let steer in the right keyword direction because in most databases, the keywords under which a research paper is abstracted are listed with the paper.
- One should avoid outdated words.

Keywords are the key that opens a door to research work sources. Keyword searching is an art in which researcher's skills are bound to improve with experience and time.

Numerical Methods: Numerical methods used should be clear and, where appropriate, supported by references.

Acknowledgements: Please make these as concise as possible.

References

References follow the Harvard scheme of referencing. References in the text should cite the authors' names followed by the time of their publication, unless there are three or more authors when simply the first author's name is quoted followed by et al. unpublished work has to only be cited where necessary, and only in the text. Copies of references in press in other journals have to be supplied with submitted typescripts. It is necessary that all citations and references be carefully checked before submission, as mistakes or omissions will cause delays.

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Tables: Tables should be few in number, cautiously designed, uncrowned, and include only essential data. Each must have an Arabic number, e.g. Table 4, a self-explanatory caption and be on a separate sheet. Vertical lines should not be used.

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- To the point depiction of the research
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Approach

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Result	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
Discussion	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
References	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring

INDEX

A

Apocalypse · 28, 31, 35

B

Bivariate · 1, 7, 10

C

Catastrophes · 1, 2, 3, 4, 6, 8, 1

D

Disproportionate · 22

E

Elfattah · 17, 19
Exuberance · 32, 33

F

Federation · 3

G

Grootaert · 23, 25

H

Harmonised · 11

I

Inferred · 7, 9
Introspective · 28, 30

M

Melancholy · 29, 30, 31
Mockery · 26, 35
Mediterranean · 6

N

Necessitated · 9
Nevertheless · 2, 4, 32

O

Offspring · 35

P

Pareto · 15, 17, 19, 20, 21

R

Reluctance · 26

S

Segregating · 23
Soteriologies · 33

U

Unexamined · 33
Ultramontanism · 5, 6

V

Vulnerabilities · 1

X

Xinfengjiang · 3



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