

# Welfare mindedness in Trade Policy Decision Making Process: A Qualitative and Quantitative Analysis from Developing Nations

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## Abstract

The proposition of free trade has been one of the most important tenets of economists for the past two centuries. They have been of the view that free trade will be in benefit of nations in most of the cases. But “new trade theory” and “infant industry argument” does not support this principle of trade. Therefore now economists are trying to seek out not only economic rather political determinants of protection in nations. So this study has basically tried to see how government maximizes welfare of the society in designing trade policies specifically in developing countries. Moreover the whole developing region has been divided regime wise, domestic institutional wise and income wise. Both quantitative and qualitative analysis has been performed. Grossman Helpman model has been employed for estimating these welfare estimates. Time span of the study is from 1995-2010. And GTAP7 has been used for extracting data for intermediate inputs. Welfare mindedness has been calculated with lobby and without lobby formation in an economy. Results are very much close to the present world scenario that more rich and democratic nations are more welfare concerned than poor and autocratic nations. More over parliamentary democracies proved more welfare oriented than presidential democracies.

## 1: Introduction

Most of the time it has been observed that trade policies are quite different from being optimal policy. Many a times trade policies have been considered as an instrument of redistribution of incomes to favored groups. Majority voting model and different lobbying models have tried to explain these notions. But still different aspects need to be focused like why such policy shift is bias towards import-competing lobbies? One of the reasons explained by Grossman and Helpman(1994) is this, the decision taken for efficient redistributive policy intensify the process of lobby making by special interest groups for getting maximum benefit from such policies which leads to considerable waste of resources. Welfare mindedness is actually the rate at which the governments trade off between welfare of masses and different pressure groups for distortionary trade policies. Many times such lobbies tie themselves with the govt. for diverting the resource allocation towards inefficient use<sup>1</sup>.

The proposition of free trade has been one of the most important tenets of economists for the past two centuries. They have been of the view that free trade will be in benefit of nations in most of the cases. But “new trade theory<sup>2</sup>” and “infant industry argument” does not support this principle of trade. Therefore now economists are trying to seek out not only economic rather political determinants of protection in nations. Factors like level of employment in the industry, import penetration rates, concentration of industries (Rodrick 1994) have been used by many authors to know the determinants regarding imposition of tariff in reality but no clear results have been found.<sup>3</sup> Moreover few economists suggest that political economic models related to trade policy should focus on these important elements like; structure of levels of protection, instruments of protection, changes in the structure of levels of protection overtime and changes in the overall level of protection overtime (Krueger 1994). Recently more emphasis by political economists has been given upon the first element regarding the protection policy (Hillman 1989, Rodrick 1994). Second issue is also important that why few nations choose one instrument for protecting their own industry while it demands other nation not to use the same one just to get more benefits by using its influence.<sup>4</sup> Not much work has been done in this regard but still Hillman (1990) and Feenstra and Lewis (1991) can be viewed in this regard. Many of the times it has been assumed that the structure of level of

<sup>1</sup> See Mitra(2005), “The Political Economy of Trade Policy: Theory and Applications to Latin America”

<sup>2</sup> New Trade Theory proposed that intervention in trade like import duties, export taxes, import subsidy and export subsidy, can be used to enhance the economic welfare of the nations on the basis of scales of production. And new entrants in industries can have more economic profits or rents as compared to the late comers.

<sup>3</sup> See Krueger 1993 for the failure of the US protection structure with any of the political economic model.

<sup>4</sup> For example in past we have seen US negotiating voluntary export restraints with Japan on many products rather than itself imposing import quotas which creates a price difference between two nations.

protection is time invariant. But in reality it has also been observed that if an industry gets successful in achieving a level of protection then it can easily raise or increase it overtime and it becomes all political matter. Finally regarding the determinants of level of protection, many research has been conducted on the basis of many propositions but still gaps are here which are needed to be filled.

Different approaches for political economy of trade policy:

1. Tariff Formation Approach\_\_\_\_Findlay and Wellsiz(1982)
2. Political Support Function Approach: An extension of former approach \_\_\_\_\_ Rodrick(1995)
3. The Median Voter Approach \_\_\_\_\_ Mayer (1994)
4. The Campaign Contribution Approach: An extension of H-O model\_\_\_\_\_ Magee, Brock and Young(1989)
5. The Political Contribution Approach \_\_\_\_\_ Grossman & Helpman (1994).

**Tariff Formation Approach: Findlay and Wellsiz(1982):** This approach helps us to determine tariff endogenously using general equilibrium model. It sheds light on how interest groups effect in tariff determination process. This model assumes political institutions as given. Despite all such there is something important was missing that is it failed to explain the policy maker's objective function explicitly.

**Political Support Function Approach: Rodrick(1995):** This approach is basically an extension of the former one. In this model a policy maker explicitly maximizes his welfare function. And he incorporates in his function the gains from protection and losses to the population. This model recommends that positive tariff rate is an optimal policy. Another advantage of this model is thais that it can easily be applied in an open economy. This theory rejects that interests groups can have any role in policy making.

**The Median Voter Approach: Mayer (1994):** This model incorporates the political and economic forces into the determination of protection policy. This model accepts the influence of interest groups in trade policy making decisions through majority voting. According to Mayer, every political decision is the result of the interaction of few players in an economy; self-interest voters, lobbying groups, politicians, and preferences of policy makers related to trade. The model also proposes that optimal tariff rate is associated with the factor endowment level with an individual. Moreover this approach decides that in the situation of diversification in the economic interests of voters for endowments of factor (labour and capital), tariff policy will be decided through majority voting system. And equilibrium tariff rate will be that one which will remain unchanged with any pressure from majority of voters. And this model concludes that optimal tariff rate depends upon the relationship between individual's capital-labor and society' endowment. No doubt this is an advancement in the theories of political economy models of trade policy determination but still critics<sup>5</sup> have raised objections behind its rationale. They have regarded this theory as a theory of majoritarian politics not of interest groups politics.

**The Campaign Contribution Approach: Magee, Brock and Young(1989):** This is an extension of H-O model by including two lobbies and two political parties along with two factors, and two goods in the determination process of trade policy. And this model explicitly explain the role political parties in decision making process. Magee et all and Grossman-Helpman have contributed in this regard. The difference between these two approaches is quite obvious. In first approach lobbies through political campaign influence the chances of election of a particular party while in the second approach lobbies through political campaign of a certain candidate tries to influence the trade policy of ruling party in government. Moreover all players (lobbies, political parties and voters) maximize their welfare. One political party is assumed to be pro-protection and the other pro-trade. Moreover it is also being assumed by authors that capital-intensive sector is pro-trade and demands for export subsidies because this will increase the return to capital as proposed by Stopler-Sameulson Theorem. While labor-intensive sector lobbies for import tariffs and is said to be pro-protection.

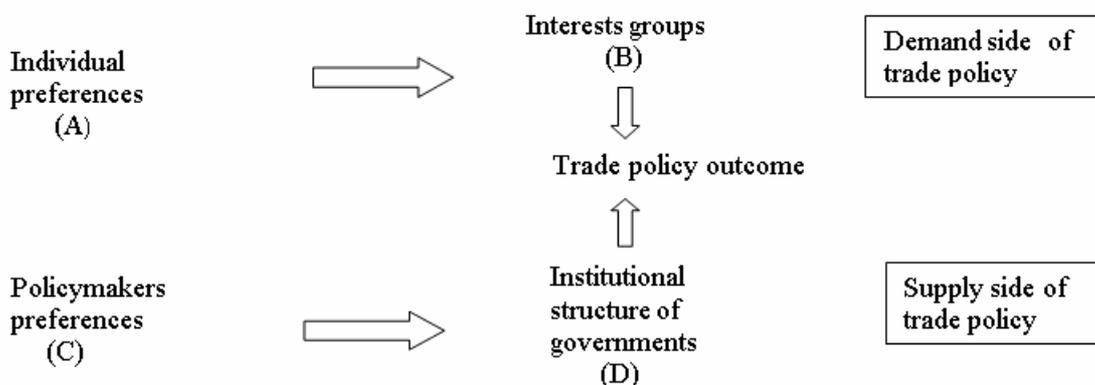
**The Political Contribution Approach: Grossman & Helpman (1994):** This model considers a small open economy and does not allow for competition among political parties. It assumes only the role of a single political party which is in rule and faces many lobbies interests. Each lobby represents a single industry's interest. The main purpose of government is to maximize weighted sum of aggregate social welfare and contributions made by lobbies for their particular interests.

#### **Theoretical Framework:**

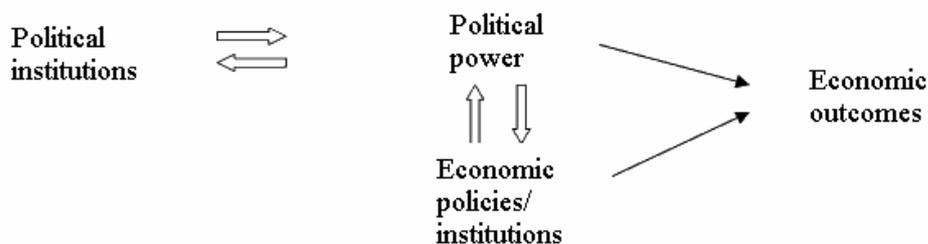
In principle, there must be four elements in the political economy model of trade policy which are as follow<sup>6</sup>:

<sup>5</sup> See Reizman and Wilson(1995)

<sup>6</sup> Rodrick, "Political Economy Of Trade Policy"



So from this framework it is cleared that an economic outcome is the result of consensus between lobbies which are also known as special interest groups and political institutions working in an economy. In other words it can be interpreted as follows<sup>7</sup>:



After reviewing all this now we develop a theoretical framework for our research work. As it has been discussed above that the purpose of this study is to see that how trade policy decisions are formulated in developing countries. Which players forces the politicians to take decisions, whether small but strong domestic lobbies or majority of voters. Moreover how institutions differ from democratic political regime to non-democratic regimes and through which mechanism these help in decision making processes. Whenever we talk of a policy making process, there are mainly three actors who play their role in modifying policies according to their interests. i.e. Interest groups, Political parties and Bureaucrats (policy makers). The system works in this way: interest groups provide electoral support to political parties and these parties provide political support to bureaucracy. Here bureaucracy refers to specialized organization composed of highly trained professionals<sup>8</sup>. After this political parties extract benefits from these bureaucrats in the form of low regulations and special favors for domestic lobbies which help these parties to get reelected. So in this way special interests are protected by making legislation and institutions for personal motives not taking into account the common majority interests.

Polk (2002) summarized all different approaches used to incorporate the effects of interest groups. He talked about common agency approach and then about signaling model. He tried to show how such lobbying affects the political decision making process. He analyzed that common agency models take politics as a market and folding the individual preferences, politicians deviate from the objective of maximization of social welfare. In this model politicians use campaign contributions as a payment for buying policies. While the other channel of interest groups take politicians self-interested. And in this model, effect of lobbying has also been taken positive in a way that politicians have asymmetric information but lobbyist being fully informed about the preferences of individuals help these politicians to make right policy decisions. So in this way lobbying can be regarded as welfare-enhancing here but welfare-reducing in the former case where contributions are used to deviate politicians from the right decision making.

Van Winden (2002) tried to analyze interest group activities and their influence on politicians and their policy outcomes. He observed that interest groups affect policies in two ways. Directly and indirectly. Directly in a way to influence the behavior of policymakers and indirectly through affecting voters. Moreover he tried to separate the influence of interest groups through different means like lobbying, pressures, structural coercion, and representations of interest groups among policymakers through social ties. And also threw light on several channels of this influence. For example, they may approach to bureaucrats<sup>9</sup>, legislators<sup>10</sup> and political

<sup>7</sup> Acemoglu (2011)

<sup>8</sup> Jhonson . M. P, "A Glossary Of Political Economy Terms"

<sup>9</sup> see e.g. Spiller (1990), Laffont and Tirole (1991), and Banks and Weingast (1992).

<sup>10</sup> See Austen-Smith (1993), Dharmapala (1999a, b)

candidates.<sup>11</sup> Many studies also tried to see the impact of interaction between legislator and bureaucrats when both can be influenced by interest groups through contributions. Some authors<sup>12</sup> consider that the interest groups make it their “targets” to influence the interaction between state and local governments.

Merlo and Felli(2000) found that lobbying always matter. Which means that lobbying always affects the decision making process in democracies. Moreover they also concluded that policy outcome is robust even to the changes in the electoral rule. They also endogenized lobby activities in their model. Similarly Reuben(2002) also discussed the importance of such pressure groups and concluded that interest groups are now an important characteristic of any political system. because such groups make payment to policymakers for shaping policies in their interests.

## 2.Literature Review

“Perhaps no other area of economics displays such a gap between what policy makers practice and what economists preach as does international trade.” — Dani Rodrik (1995).

Lots of literature is available for, how trade policy preferences are made in an economy. Rodrick has pointed out that there must be four elements in the framework of trade policy formulation and individual preferences lead the policy maker to make some decision. But to know what actually individual preferences are, is difficult to estimate. Some are of the view that factor specificity determines the individual policy preference. While some are relating it directly to the institution building. Here is a brief review of past literature which will be helpful in reaching some conclusion that what is actually needed in deciding a good policy for an economy. There are different determinants of trade policy. Different economic models incorporate either factor endowment or product characteristics for trade policy preferences. Whenever people want to take any decision about trade policy they keep in mind the distributional aspects in terms of incomes from certain decisions. Here in this study not only typical thinking has been adopted for reaching at optimal trade policy rather institutional aspect has been tried to take into consideration using Grossman Helpman model. That’s why this literature review helps in knowing so far done works regarding this specific political economy model.

**Bhagwati(1982)** proposed the idea of Efficient Tariff which the government has to impose for providing protection to labour in import-competing industries. Govt. has to take this step to reduce the amount of lobbying. The other way to satisfy labourers are to provide them subsidies or to bribe them but due to budget constraints it becomes difficult for governments to adopt this way. So the compensation through the generation of revenues from protection becomes more feasible.

**Helpman(1995)** presented for the first time the relationship between international politics and internal politics role in the formation of trade policies. He explained all the different approaches of trade policy formation from tariff formation function to the influence driven contributions. But along with he discussed a new concept of the formation of free trade areas in trade policy and tried to find its effect on the overall welfare of an economy. Helpman showed his concern about this new version due to the reason that trade policy in one nation is effected by the political environment of the other. International political arena play a vital role with the help of diplomacy to effect tariff rates and restrict the entry of many other nations to enter into their markets. He also emphasized the that such a framework is needed that incorporates role of institutions in the formation process of trade matters.

**Golberg and Maggi (1999)** are the pioneers in employing Grossman Helpman(1994) model for testing empirically the decision making process of trade policy. They found that govt. put high weights on social welfare of the society than to the campaign contributions while setting the trade policies. They proved it through their results that this weightage is 50-70% higher for social welfare maximization as compared to the political contributions of worth \$1 spending by the govt.

**Mitra(1999)** also added his contribution in the literature of lobby formation within the framework of political economy of trade policy. He highlighted a notion that more unequal distribution of assets leads to large numbers of lobbies in an economy. This study also incorporates the role of endogenous lobbies in to the model presented by Grossman Helpman. Moreover author also explains the nature of industry whether organized or not by looking at its capital stock and elasticity of demand for its product. Industries that are having high capital stock and inelastic demand are said to be organized and vice versa.

**Bandyopadhyay (2000)** also proved the same notion using the application of Grossman Helpman model that govt. puts thousand times high weights for the maximization of social welfare as compared to campaign contributions. He used non tariff barriers data for US fo the year 1983.

**Scheve and Slaughter(2001)** proved that low skilled labour demands more protection than highly skilled labour in case of United States and but people engaged in those industries which are related to trade sector, are not

<sup>11</sup> See Hillman and Ursprung (1988), Hillman (1989)

<sup>12</sup> Hoyt and Toma (1989)

showing strong support for trade barriers. Moreover the author also found that factor incomes and asset ownership also help to shape the policy preferences. But the main result of their findings showed that individual preferences are more related to the factor type endowment rather than the industry of their employment.

**Eicher and Osang (2002)** using a dataset of 106 industries of US tried to make the comparison of two endogenous models of trade policy determination. One is political support function model(Hillman) and the other is influence driven function(Grossman-Helpman). They found that the latter model outperforms the first one in explaining the role of lobbies in shaping up the policies in economies. they employed instrumental variable approach using Tobit model. For political support function model, they tried to find the elasticity of substitutions for profits of lobbies and the social welfare and none of both showed any significant values of estimates. But even then it can be generalized that from the results that this model places high weights for social welfare.while on the other hand dataset confirms strogly and significantly prove the predictions for influence driven approach give by Grossman-Helpman. And proved that import penetration has a strong positive effect on the tariff barriers and negative effect on non-tariff barriers for organized industries. Here they used a threshold approach regarding the contributions level for regarding an industry as an organized one. Overall their findings confirmed the superiority of influence driven models on political support models in explaining the role of lobbies in determining the policy outcome and confirmed the earlier findings that govt. aims to be welfare maximizing in policy making.

**Kaempfer, Tower and Willet(2002)** using non-technical approach and reviewing some theoretical and past empirical analysis concluded his analysis that protectionism is the outcome of self-serving special interests in the society. It can be regarded as a costly product of a negative sum political game rather than the product of the govt. which aims at the maximizing welfare of the society bringing into focus on the tradeoff in between equity or efficiency.

**Dutt and Mitra(2002)** found that political ideology of the govt. in power also affect the trade policy decision. They used Heckscher-Ohlin framework for measuring this relationship and observed that left wing party support more protectionist policies in capital nations and suggest more pro trade policy in labor abundant nations. And they also described that such behavior is strongly being observed in case of democracies than in dictatorships.

**Milner and Kabuta(2004)** tried to relate the nature of political system to the choice of trade policy. i.e. either more free trade or protected one. Using five different proxies for trade policies as dependent variable, an econometric analysis for large number of developing nations had been applied. They found that more democratic nations tend to have less trade barriers. Using the datset from 1970-99, they observed that in labour abundant nations, political leaders demand low trade barriers as the degree of democracy increases.

**Frye and Mansfield (2003)** have tried to examine the institutional variations on trade policy with special reference to the post-communist world. They used a panel data of 25 nations from 1990-98 and observed that democracies are having more inclination towards liberal trade policies while on the other hand non-democratic nation favour protectionism. Moreover they also found that in both types of regimes when power is being dispersed from protectionist elites, it creates a poltical space for interest groups in making such economic policy making process and who give much favour to liberal trade policy. Supporting the findings of other studies for different regions, they suggested that domestic political actors and institutions play an important role in opening up trade policies. And when political fregmentation was observed in communist nations, then such dispersion of power lead to more open commercial policies which were not based on the vested interests on few elites as it was before.

**Cadot, De Melo & Olarreaga(2004)** also made the use of the model presented by Grossman and Helpman to show that how tariff patterns are determined in rich and poor countries. He also pointed out a very important phenomenon that equilibrium level of protection is not just effected by the lobbies which are benefitted by this rate of protection but also from the counter lobbies effect which are negatively effected by this rate of protection. He used the extension of the basic model to show all this. Moreover he found that rate of protection is high in poor countries for revenue constraints. And poor countries protect more to the agriculture sector while the rich do opposite. Overall in his study he tried to find that a good policy may not be the result of politicians objective functions rather may be due to the removal of conflicts in different interest groups in a society.

**Afontsev(2004)** during his project for Russia for the policy of unification of tariff found that citizen welfare were given higher weight in government priority than contributions of lobbies. It means that in formulating trade policy the lobbies do not have leding role in Russia. The author also made the use of extended Grossman Helpman model to find the effects of a trade policy on different players in the economy: producers and importers. From the results of standard and extended model, it was observed that the coefficients attached to the political economy priorities are almost same. However to increase the budget revenue and welfare of citizens were having relatively higher weights as compared to lobbies welfare. For identifying between organized and unorganized industries, threshold criterion was used .i.e. number of firms in industry does not exceed a certain level.

**Belfrage(2004)** also tested extended Grossman Helpman model used by Goldberg and Maggi(1999) for a number of OECD countries and regions and observed that special interests in the context of trade policy decisions vary positively with the change in protection rates of the industries. Their findings are in line with the predictions of the model. Moreover this study also incorporated the effect of terms of trade into the model and found that such concerns are having more importance for larger nation in the sample while the downstream interest effect has not been observed for any nation.

**McCalman(2004)** using the model of protection for sale given by Grossman Helpman for Australian economy tried to prove the structural parameters causing trade liberalization in that nation. And he observed that alongwith the weights assigned by govt. to different welfare aspects, size of the voting lobbies also matters for such transitional change in trade policies. Which means that the protection of any industry is related to its voting strength. Moreover this study also showed that about 40 times weights are higher for social welfare than on political contributions. Two stage least square model had been used because of the endogeneity problem in both variables i.e. inverse penetration ratio and tariff on intermediate inputs in determining the trade policy and trade volumes.

**Mobarak & Purbasari (2005)** found that personal relations with politicians can be helpful in influencing the policy outcomes from governments, which in other words means that if lobbies and pressure groups are connected with some political parties then their chances to win policy are brighter as compared to other sectors in the economy. They also employed Grossman-Helpman model of protection for sale on the data of Indonesian economy. Moreover this study used not only tariff barriers data rather non-tariff measures have also been used. And it is being observed using data for 20,000 manufacturing firms that politicians are more willing to use import licenses to facilitate than other trade measures. And politicians try to focus on individual level protection not on the whole industry wise.

**Michalek and Hagemer (2006)** used Grossman-Helpman (G-H) framework of Protection for sale for analyzing the role of lobbies in designing trade policy of Poland. They found that such lobbies try to affect the decision making ability of Polish government through the provision of contributions in political process. Advanced econometric technique.i.e. Instrumental variable (IV) approach, has been applied for controlling endogeneity of trade policy. The data employed confirmed the predictions of this model and showed that organized sectors have the advantage of influencing the decisions of governments in their favours. Various proxies have been used for observing whether sectors are organized or not. Moreover the variable used for trade policy MFN tariff rate proved a much better proxy than preferential tariff levels.

**Blonigen(2008)** found recently evidence for the trade policy preferences of people. The author tried to fill the gap in the models of political economy of trade policy which is related to their individual preferences for a particular policy action.

He found that uninformed people do not know on the basis of facts that which policy should be favored. Because information acquisition is costly. And these uninformed are those who have less income and education. So author highlighted in his study that in the political economy models, economists should also incorporate such factors which shows the preferences of people in the determination of trade policy. Moreover he also found that life cycle change also affects the policy decisions. For example after retirement people don't get much informed about the situations of present issues because information getting process becomes complex for them and therefore decisions will not be based on accurate estimates.

**Gwande, Krishna and Olarreaga(2008)** studied the formulation of trade policy in the context of govt. welfare mindedness of the govt. by using Grossman Helpman model. They studied the govt. behavior variation for fifty nations they used the structural approach for finding the impact of political, economic and institutional variables on the decision making process of trade policy. They observed that the govts in which political institutions have more check and balances prove to be more welfare minded. Moreover they found that more informed voters and high degree of urbanization also cause to put more weight on the social welfare. They also suggested that this welfare mindedness is the major cause of trade liberalization.

**Tang (2009)** also used extended version of Grossman Helpman model of protection for sale for examining the effect of political ideology of countries in determining trade policies. His study showed that left wing government are pro- labour almost every where and that's why demand high rates of protection in labour-intensive industries and vice versa. He incorporated factor intensity variable alongwith ideology variable and then observed how left wing and right wing govts. effect the protection decision in labour intensive and capital intensive industries. Dummy variable was being generated for ideology using dataset DPI and factor intensities have been calculated for US industries and on the assumption of constant returns to scale, these have been used even for all nations in the study. The author has employed non- tariff barriers as dependent variable in Grossman Helpman model.

**Gwande and Magee(2010)** Tried to incorporate the effect of free riding problem in Grossman Helpman model.and found some different results as compared to earlier studies. They used largest firm's share of industry

output for capturing the effect of this new variable. They found that by introducing this variable, the weights on social welfare reduces and increases for campaign contributions. Moreover they showed that with free riding the protection rates will be lower even when policy makers value both social welfare and political contributions. Under free riding, there appears the problem of absence of perfect cooperation among firms. Due to this reason industry's contributions reduces comparing to the perfectly organized environment. The authors concluded that this phenomenon cause the protection rates of developed nations very low despite the quite active role of their politicians.

**Gawande, Krishna, Olarreaga (2011)** showed that many political, economic and institutional factors help governments in taking decision making for the welfare maximization of people. They concluded that due to redistributive effects of trade policy, it can be regarded as a best tool to evaluate the government welfare concerns. They made use of Grossman Helpman model for measuring the welfare maximizing behavior of fifty nations and found that if political institutions are having more check and balances in the economy then governments will be welfare minded. Similarly if voters in a economy are more informed then governments put more weights for social welfare. While on the other side if voters are showing their concerns towards a specific ideology of a political party and media is also influencing their opinions then the objective of social welfare maximization will not be achieved and governments will not be proved welfare minded.

**Hicks, Milner & Tingley (2014)** have also tried to analyze the role of political parties and their special interests in shaping up of the trade policies in developing nations. They discussed the case of Costa Ricans for observing their behaviour towards an international trade agreement CAFTA. They suggested that in developing theories related to trade policies, a special focus should be made on top-down political factors which includes political actors elites in the society along with many other economic variables. Bottom-up factors which are related to redistributive effects of trade policies seem to have very little importance.

### 3. Model:

In this section, theory has been developed that how governments show their welfare concerns for their citizens relative to private benefits. For this purpose Grossman Helpman (1994) model has been used. This model provides strong theoretical basis for understanding the behavior of governments in assigning weights to either welfare of the societies or to the political contributions of special interest groups. This is basically political economy model which helps in knowing how decision making process of governments is affected by political actors and economic players in an economy. These political actors are political parties and interest groups and economic players are policy makers who make the policies supported by organized lobbies in the society. For example an organized lobby will always demand high rate of protection and will try to get political support. So that such lobbies may convince policy makers through bureaucracy for making policies in their favour. First empirical test of this model was made by Goldberg and Maggi (1999) for US economy. The data verified all the assumptions of the model because US is the only nation in which the data related to expenses on political contributions is easily available which helps the authors in knowing which sector is organized and non-organised. The sectors with more political contribution represents organized lobbies and vice versa. The model is as follows:

Consider a small open economy. There are  $n+1$  tradable sectors. Identical preferences are being assumed for all individuals. Their preferences are represented by this utility function:

$$U = z_0 + \sum u_i(z_i) \quad (1)$$

In equation (1),  $z_0$  is a numeraire good and has been produced using labour alone and under constant returns to scale. Wage rate is being assumed  $w=1$  under perfect competition. Moreover price of this good has been normalized to one. And  $z_i$  is non-numeraire good.  $i = 1 \dots n$ , whose production function is given by:

$$x_i = f_i(K_i, L_i)$$

here  $K_i$  is sector specific input used in the production of this good,  $L_i$  shows units of labor employed in the production of this non-numeraire good. And again production process is assumed to be constant returns to scale subject to diminishing returns against each factor of production.

Consumer surplus is given by:

$$S(p_i) = u(d(p_i)) - p_i d(p_i)$$

and aggregate form is

$$S(p) = \sum (u(d(p_i)) - p_i d(p_i))$$

Here  $d(p_i)$  is the demand function for good  $i$ .

The indirect utility function for individual  $k$  will be as follows:

$$v^k = y^k + \sum s_i^k(p_i)$$

$y^k$  is the income of the individual.

Moreover numeraire good has been assumed to be produced under constant returns to scale and with labour factor of production. Wages are fixed at one. The remaining  $n$  goods are produced using labour and sector specific inputs under constant returns to scale of technology. The supply of sector specific input is limited and

that's why rents are earned for these. Returns of each specific factor  $i$  are determined by the prices of good  $i$  and denoted by  $\psi(p_i)$ .

Supply function for good  $i$  will be written as follows:

$$Y_i(p_i) = \psi'(p_i)$$

So from above discussion it can be observed that the owner of specific factor input has chances to increase its rents through the price of the good in which that input has been used. Therefore it can be concluded that such owners of specific inputs may try to influence government policy decisions in a way to raise the prices of goods in which these are being used. For this purpose, governments make the use of different qualitative and quantitative measures of protection which help the domestic producers or producers of import competing industries to save them from foreign competition through increasing their domestic prices. Tariff is one of those measures and an important tool of trade policy. The world price of each good is assumed to be given. therefore the domestic price after providing protection to domestic is given as:  $p_i = p_0 + t_i^s$ , where  $p_0$  is world price and  $t_i^s$  is specific import tariff by the government create a gap between the two prices. i.e. world price and domestic price. It is also being assumed that the revenue generated through tariff will be distributed equally in society.

Earlier the indirect utility function of a single individual  $k$  has been stated. If we sum up indirect utility functions of all individuals then we arrive at aggregate welfare of the society. So it means it can be generalized that aggregate welfare is the function of domestic prices. Similarly returns to labour, specific input factors and tariff revenue gives us aggregate income. Keeping in view all this information, now we can calculate aggregate welfare denoted by  $W$  as follows:

$$W = L + \sum \psi_i(p_i) + \sum t_i^s M_i(p_i) + \sum s_i(p_i)$$

Where  $i = 1, \dots, n$

Import function can be written as:

$$M_i = d_i - y_i$$

Now the next important question arises about the role of lobbies which can influence in determination of tariff. It is being assumed in the model that large proportion of the population of country is represented by organized lobbies. In GH(1999) model, important motive of lobbies is to maximize their rents from specific factor input. Formally the objective function can be stated as:

$$W_i = \psi_i(p_i)$$

Basically this objective function of Grossman Helpman model is the summation of two factors. Either to maximize social welfare or political contributions of special interest groups which are also called lobbies. These lobbyists use political contributions for their different self motivated interests. i.e. to finance re-election campaigns and make such expenditures which can be helpful in purchasing government favors for their personal interests. Thus the complete government objective function can be written as:

$$G = aW + C$$

$$= aW + \sum C_i$$

here  $i \in L$  (lobbies)

“ $a$ ” is the weight assigned by governments to the welfare of its citizen. Lobbies political contributions to government are represented by  $C_i$ . And these lobbies try to maximize this objective function:

$$W_i - C_i$$

Grossman Helpman(1999) determines the equilibrium tariff through “manu auction” model but here in this study equilibrium tariffs are set fixed through Nash bargaining game. This also maximize the government objective function. i.e. joint surplus of political contributions by lobbies and welfare function of the governments. Joint surplus can be written as:

$$\Phi = aW + \sum W_i$$

Now this equation is showing that all sectors are politically organized which is frequently observed in industrial/advanced/developed countries in case of manufacturing sector. As in case of political action committees (US) and industry associations (Europe), special interest groups lobby their governments through reporting their expenditures to above mentioned bodies. But in other countries of the world, as it has been observed so far that no such records of political contributions exists and that's why difficult to decide about organized and non-organised sectors. So the assumption that all sectors are organized even in developing nation can also be considered valid because that this analysis has been made at the aggregation level of 20 ISIC 2-digit industries. And this classification includes those industries which are organized in US and almost anywhere in across the world. Therefore on the basis of these two assumptions i.e Nash equilibrium game and politically organized sectors, now joint surplus function will be written as:

$$\Phi = L + \sum [a+1] \psi_i + \sum a (t_i^s M_i + s_i)$$

Differentiating above equation with respect to  $t_i^s$  which shows tariff on good  $i$  is equivalent to differentiating the same equation with respect to price of good  $i$  ( $p_i$ ) in which that specific input factor has been used. The derivative of profit function is as follows:

$$\psi'(p_i) = X_i \text{ (output of good } i)$$

and derivative of consumer surplus is :

$$s_i'(p_i) = d_i \text{ (demand for good } i)$$

so by putting these values in the first order condition of joint surplus function is :

$$[a+1]X_i + a [-d_i + t_i^s M_i'(p_i) + M_i] = 0$$

$$\text{Where } i = 1, \dots, n$$

Solving this equation for  $t$ , we get equilibrium tariff that maximizes welfare and political contributions by lobbies.

$$t_i/1+t_i = 1/a [ (X_i/M_i) / e_i ] \tag{A}$$

$$\text{where } i = 1, \dots, n$$

here

$t_i = (p_i - p_i^0) / p_i^0$  is advalorem tariff for good  $i$ .

$p_i$  = the domestic price of good  $i$  and  $p_i^0$  is the world price.

$X_i/M_i$  = the inverse import penetration ratio.

$e_i$  = the absolute import demand elasticity.

$X_i$  which shows industry output tell us about rents occurred from protection. And  $M_i$  (imports) captures the welfare losses due to protection. In Grossman Helpman model, major determinants of trade policy are elasticity and import penetration ratio. If goods are having lower demand elasticity, higher will be the tariff rate or level of protection. And higher tariff rate leads to smaller imports. In this way producers buy protection for their benefits. The above equation can be written as:

$$(t_i/1+t_i) \cdot e_i \cdot (M_i/X_i) = 1/a \tag{B}$$

$$\text{Where } i = 1, \dots, n$$

Stochastic version has been used in this study for estimating parameter “a”. So the econometric model used in the study is:

$$(t_{it}/1+t_{it}) \cdot e_i \cdot (M_{it}/X_{it}) = \alpha_0 + \varepsilon_{it} \tag{C}$$

$$\text{Where } i = 1, \dots, n$$

If the role of intermediate inputs has been incorporated in the same model than the equation ( C ) will be changed into the following expression<sup>13</sup>:

$$(t_{it}/1+t_{it}) \cdot e_i \cdot (M_{it}/X_{it} - \sum_{j=1}^n \varphi_{ij} y_j) = \beta_0 + \varepsilon_{it} \tag{D}$$

Here  $\varphi_{ij} y_j$  term has been extracted from Input-Output tables which shows the part of intermediate input into final product.

Error term has been assumed to be identically independent and normally distributed for all countries with homoscedastic variance  $\sigma^2$ . In the original version of GH model, there appears the problem of endogeneity to tariff related to imports, output and elasticity of demand but after assuming that all sectors are politically organized, this problem has been overcome by taking inverse import penetration ratio and elasticity to the left side of the equation. In the final equation,  $\alpha_0$  shows welfare mindedness of governments in each nation. So we can write it as:

$$\alpha_0 = \beta_0 = 1/a$$

Now this stochastic version of model has been estimated for 56 developing nations. The reason of missing other developing nations is the unavailability of data for many variables especially output data. In previous studies authors have taken a mix of both developed and developing countries<sup>14</sup> for estimating this model in the context of political economy of trade policy. This is for the first time that a large and maximum number of developing countries have been used for estimation purpose. Further these developing nations have been divided into two sub categories. i.e. Politically free nations (democratic nations) and politically not-free nations (Autocratic nations). More over welfare mindedness has also been analyzed through the political systems in these economies. whether presidential or parliamentary system promotes welfare related to trade policy. Because such decisions vary according to the change in political regimes.

#### 4: Objective of the study:

- To see whether developing governments are welfare oriented or not.
- To examine quantitatively the role of their trade policies like non-discriminately tariffs on aggregate welfare of the society.

<sup>13</sup> Full derivation is available on request from author.

<sup>14</sup> See k. Gawande (2009) & Gawande, Krishna and Olarreaga (2011)

- To observe qualitatively the role of political regimes of these nations, their different political institutions and income status in determining the welfare concerns of their governments.
- To analyze the effect of vertical integration among various sectors effect on the welfare mindedness of governments.

### 5: Hypothesis:

**H<sub>1</sub>**: Developing nations are welfare maximizing.  $\alpha_0 \neq 0$

**H<sub>2</sub>**: Democratic developing nations are concerned more to the welfare of society in making trade policy decision than autocratic developing nations.

**H<sub>3</sub>**: Vertical integration/linkages effects negatively the aggregate welfare of the society.  $\beta_0 < 0$

**H<sub>4</sub>**: Nations having lower tariff rate are having high estimates of welfare.

### 6: Variables and Data Sources:

Variables used in this study are:

1. Tariff
2. Industry output
3. Elasticity
4. Input-Output data

For each nation data has been collected across 20 ISIC 2digit industries. For the first time this 2 digit classification has been employed in literature. The reason of less number of industries is the non availability of dataset either for industrial output or tariff. Time span used in this study is 1995-2010.

- **Tariff Data:** Non-discriminatory(MFN) tariff rate have been used for each nation. Data has been extracted from United nation's database TRAINS.
- **Industry Output:** Output data has been taken from the UNIDO's INDSTAT using two-digit classification and revision 3. International Standard Industrial Classification (ISIC) level of aggregation of output has been used. The purpose of using this classification is this, it is quite extensive in explaining the nature of association between industrial organizations and political setups in different industries and countries. Basically the record of political contributions in a nation tells about either industry is organized. Except U.S, no other nation has such records so to avoid this problem those industries have been chosen which are being run through government support. So in this case all such industries will be considered as politically organized because these are following government rules and regulations.
- **Elasticity:** Import demand elasticities have been estimated for each nation at the six-digit HS level using a revenue function approach by Kee et al. (2008). Those nation for which sufficient data is not available for estimating elasticities, for such nations the industry averages of the elasticity estimates of all other nations have been used<sup>15</sup>.
- **Input-Output (I-O) data:** GTAP 7 has been used in this empirical work. It is covering 57 sectors and 113 regions overall. But the number of sectoral coverage is not same for all nations. Many nations have been included for this first time in this dataset. That is also one of the reasons that the number of sectors chosen in this study are confined to 20. Reference year of this database is 2004.

### 7: Sample Development:

All developing countries according to the definition of World Bank have been selected. These were 126 total in number. But only those nations have been included into the analysis for which trade related data and political data was available. All these nations have been converted into two panels.

- i) Free Nations.
- ii) Not-Free Nations.

This categorization has been made on the basis of available source "The Freedom in the World Survey". This survey has been conducted since 1972. It is comprised of two important categories. A) Political Rights, b) Civil Liberties. Here Political right means how much people are free to join political parties, compete for public office, having the right to vote freely for potential candidates who have in real sense influential in making public policies. While on the other hand civil liberty means here freedom of expression, prevalence of rule of law, personal autonomy and economic freedom without any interference from state. The standards used by this survey are based on the United Nation's Universal Declaration of Human Rights. This survey takes into account every aspect of an economy whether governmental or non- governmental which can affect economic freedom. So it tries to measure freedom in its real sense through practices not only practiced by laws. Rating process of this survey includes both analytical reports and numerical ratings. The survey is containing 25 questions. 10 question measuring political rights and 15 civil liberties. The topics of these questions include independence of

<sup>15</sup> Same practice has been done in recent study by Gawande, Krishna and olarreaga(2011)

media, religious freedom, corruption, the rights of the political parties to function, independence of the judicial system and women's right. All countries are assigned numerical values from scale 1-7. 1 shows highest level of freedom and 7 shows the lowest level. Moreover both these indicators of freedom are being averaged to see the status of a nation whether Free, Partially Free, or Not-Free. Countries rating between 1- 2.5 are Free, nations with rating 3-5 are partially free and those having scores between 5.5-7 are not-Free. But in this study the category of Partially Free nation has been merged in Free and Not-Free nations in such a way that scores of both freedoms have been averaged and a nation having score less than equal to 7 will come under Free nation heading and the nations having score greater than 7 are being ranked as Not- Free. More over this status has been observed individually in each year since 1995. And a country which has observed in a large number of times any of these two status since 1995-2010 then nation will be awarded that status for overall ranking. In notation we can write the rule followed in this study to make panel of world developing nations as follows:

$$\frac{\Sigma(\text{PR}+\text{CL})}{2} \leq 3.5$$

**Democratic Nation**

$$\frac{\Sigma(\text{PR}+\text{CL})}{2} > 3.5$$

**Autocratic Nation**

So in this way category of partially free nations has been merged in two broad categories i.e. Free or Not free nations. Moreover Free nations have been considered as democratic nations where everyone has maximum political and civil liberty and vice versa.

Similarly the distinction among nations on the basis their institutions whether parliamentary or presidential has been made using Database of Political Institutions 2012(DPI). As the time span of the study is from 1995-2010, so taking this time limit as a threshold for deciding whether a nation has been parliamentary or presidential. For the maximum number of years a nation has been in any category, it has been its status. For example, if for maximum number of years a nation has been having a parliamentary system during a specified time limit, then it will be considered as a nation having parliamentary system and vice versa.

Moreover the status of being poor and rich nation has also been decided taking into consideration World Bank data source. Per capita income has been used to decide this status. But the nations with high income and upper middle income has been awarded the status of rich and nations with low income and lower middle income has been considered as poor nations.

### **8: Methodology:**

Empirical results given above are based on the cross sectional ordinary least estimation of equation (C) and (D). The data has been pooled for each nation across industries and over time period. Following Gawande, Krishna and Olarreaga(2011), data has been stacked across 56 developing nations and parameter  $\alpha$  has been determined as a co-efficient on the dummies<sup>16</sup> for nations used in study. This equation gives directly country-specific parameter  $\alpha$  which measures the welfare mindedness of nations' government in the sample. These estimates of parameter  $\alpha$  can also be obtained as the simple averages of the expression on left hand side. The estimation of both equations gives very reliable and unbiased results w.r.t endogeneity as compared to earlier existing literature because in this equation on the right hand side, only constant term is there. Problem of endogeneity occurs when  $X_i/M_i$  ratio remains on the right hand side because to some extent tariff rates or trade policies are endogenous to imports and output.

Moreover Grossman Helpman (1996) model has assumed that parameter  $\alpha$  is constant across industries but not across countries. Due to this reason, industry or time fixed effects is not in line with already built theory. This in turn try to highlight this fact that in applying panel models, within and between(it implies taking the average of each industry across time) estimates should give the same magnitudes of point estimates as derived from pooled OLS estimation in balanced panel. Moreover the panel fixed effect model actually measures the overall averages of industry effects across time which corresponds to the left hand side calculation of equation (C) and (D). As the panel used in this study is unbalanced that's why a little discrepancy remains between these two point estimates obtained either fixed effect model or pooled OLS. Table given below gives the results of OLS and then the resulting estimates of state's welfare concern.

<sup>16</sup> See "Interpreting the Intercept in the Fixed Effects Model", Stata Journal.

## 9: Results:

Table: Welfare estimates without lobby formation and with lobby formation

Country	Constant	Welfare mindedness ( $\alpha_0$ )	Constant	Welfare mindedness( $\beta_0$ )	Regime	Type of system	Status
Argentina	0.3562 (0.0371) [9.5867]	2.8071	-0.0071 0.0006 -10.3899	-140.845	Dem	Presid	Rich
Armenia	0.7193 (0.2477) [2.9031]	1.3901	0.0173 0.1855 1.0601	57.8034 <sup>^</sup>	Auto	Presid	Poor
Azerbaijan	0.6386 (0.1419) [4.4979]	1.5658	-0.4006 0.2486 -1.6112	-2.4963	Auto	Presid	Rich
Bangladesh	2.6220 (0.5461) [4.8007]	0.3813	-4.9987 3.0838 -1.6209	-0.2000	Dem	Parliament	Poor
Bolivia	5.9416 (1.7716) [3.3537]	0.1683	-1.1852 0.2188 -5.4156	-0.8437	Dem	Presid	Poor
Brazil	0.1480 (0.0344) [4.3007]	6.7536	-12.7918 2.7857 -4.5919	-0.0781	Dem	Presid	Rich
Bulgaria	0.5938 (0.1831) [3.2427]	1.6840	0.3481 0.1829 [1.9027]	2.8727	Dem	Parliament	Rich
Cameroon	0.2680 (0.0655) [4.0909]	3.7302	-0.4355 0.1495 -2.9119	-2.2962	Auto	Presid	Poor
Chile	0.9790 (0.4004) [2.4448]	1.0213	-4.8438 1.1269 -4.2981	-0.2064	Dem	Presid	Rich
China	0.1225 (0.0464) [2.6366]	8.1616	-51.2467 15.2825 -3.3532	-0.0195	Auto	Assembly- Elected President	rich
Colombia	0.2231 (0.0288) [7.7408]	4.4810	-5.5408 1.0058 -5.5085	-0.1804	Auto	Presid	Rich
Costa rica	1.2018 (0.1921) [6.2558]	0.8320	13.5458 <sup>^</sup> 14.1837 0.9550	0.0738	Dem	Presid	Rich
Ecuador	9.2565 (3.2478) [2.8500]	0.1080	5.0066 2.6636 [1.8796]	0.1809	Dem	Presid	Rich
Egypt	0.1971 (0.0575) [3.4287]	5.0719	0.1388 <sup>^</sup> 0.1186 1.1702	7.2046	Auto	Presid	Rich
Ethopia	27.9513 (21.7173) [1.2870]	0.0357 <sup>^</sup>	-0.9332 0.2842 -3.2834	-1.0715	Auto	Parliament	Poor
Guatemala	0.2317 (0.0727) [3.1850]	4.3151	-5.0374 0.8575 -5.8744	-0.1985	Auto	Presid	Poor
India	0.1205 (0.0403) [2.9832]	8.2981	-80.4642 49.7818 -1.6163	-0.0124	Dem	Parliament	Poor
Indonesia	1.6957 (0.8715) [1.9457]	0.5897	5555.568 1014.141 5.4781	0.0017	Dem	Presid	Poor
Iran	0.1119 (0.0510) [2.1934]	8.9328	0.1152 0.0448 2.5684	8.5005	Auto	Presid	Rich
Jordan	0.6444 (0.0900) [7.1543]	1.5515	-0.2145 <sup>^</sup> 0.4146 -0.5173	-4.6620 <sup>^</sup>	Auto	Presid	Rich
Kazakistan	0.1320 (0.0517)	7.5736	-1.1250 0.4545	-0.8888	Auto	Presid	Rich

	[2.5505]		-2.4749				
Kenya	0.2523 (0.0418) [6.0251]	3.9625	-0.8894 0.3110 -2.8596	-1.1243	Auto	Presid	Poor
Korea	0.1599 (0.0678) [2.3570]	6.2538	-23.8928 5.0882 -4.6957	-0.0418	Auto	Presid	Rich
Kyrgistan	0.7032 (0.1522) [4.6191]	1.4220	-0.5341 0.2267 -2.3552	-1.8723	Auto	Presid	Poor
Latvia	0.2205 (0.0614) [3.5857]	4.5350	-0.1130^ 0.1903 -0.5938	-8.8495^	Demo	Paliament	rich
Madagascar	0.3974 (0.2135) [1.8607]	2.5162	-0.6924 0.1268 -5.4597	-1.4442	Dem	Presid	Poor
Malawi	0.4115 (0.1721) [2.3902]	2.4297	-14.7962 3.0530 -4.8464	-0.0675	Dem	Presid	Poor
Malaysia	0.1284 (0.0622) [2.0633]	7.7857	-3.1650 1.6330 -1.9380	-0.3159	Dem	Parliament	Rich
Mongolia	115.5596 (105.343) [1.0969]	0.0086^	0.0137^ 0.1052 0.1303^	72.9927^	Dem	Presid	Poor
Mauritius	0.3538 (0.0418) [8.4477]	2.8262	-13.0890 3.4629 -3.7797	-0.0764	Dem	Parliament	Rich
Mexico	1.0721 (0.1406) [7.6247]	0.9327	-1141.763 203.9139 -5.5992	-0.0008	Dem	Presid	Rich
Morocco	0.3894 (0.0549) [7.0846]	2.5674	-0.9678 (0.5740) [-1.6858]	-1.0332	Auto	Presid	Poor
Nepal	0.9767 (0.3417) [2.8581]	1.0237	-121.8753 77.3559 -1.5755	-0.0082	Auto	Parliament	Poor
Oman	6.3322 (4.1884) [1.5118]	0.1579^	-3.3280 1.3924 -2.3900	-0.3004	Auto	Presid	Rich
Pakistan	0.1251 (0.0204) [6.1201]	7.9893	-3.0030 (0.8166) [-3.6772]	-0.333	Auto	Presid	Poor
Panama	0.9990 (0.3898) [2.5625]	1.001	-2.0541 (0.4251) [-4.8310]	-0.4868	Dem	Presid	Rich
Peru	1.4557 (1.2726) [1.1438]	0.6869^	-3.7790 (0.6134) [-6.1607]	-0.2646	Dem	Presid	Rich
Philipine	0.1466 (0.0305) [4.8012]	6.8195	-16.8216 (2.5720) [-6.5402]	-0.0594	Dem	Presid	Poor
Poland	0.2404 (0.0255) [9.4219]	4.1589	0.1854 (0.0171) [10.8116]	5.3937	Dem	Presid	Rich
Qatar	15.8635 (9.2671) [1.7118]	0.0630	-8.6422 4.9906 [-1.7316]	-0.1157	Auto	Presid	Rich
Romania	0.2917 (0.0437) [6.6671]	3.4276	0.2096 0.0325 6.4442	4.7709	Dem	Parliament	Rich
Russia	0.1116 (0.0518) [2.1517]	8.9564	-48.6191 11.7806 -4.1270	-0.0205	Auto	Presid	Rich
Saudi Arabia	1.3220 (0.7115) [1.8580]	0.7564	-40.8415 7.1193 -5.7366	-0.0244	Auto	Presid	Rich

Senegal	9.9671 (9.7190) [1.0255]	0.1003 <sup>^</sup>	-1.4754 0.3016 -4.8908	-0.6777	Dem	Presid	Poor
Singapore	0.0000	Infinity	0.0000	Infinity	Dem	Parliament	Rich
South Africa	0.1196 (0.0530) [2.2566]	8.3545	-3.2452 0.7357 -4.4105	-0.3081	Dem	Assembly- Elected President	Rich
Srilanka	1.2549 (1.0575) [1.1866]	0.7968 <sup>^</sup>	-3.5901 1.3903 -2.5821	-0.2785	Dem	Presid	Poor
Thailand	0.1721 (0.0722) [2.3828]	5.8078	-24.7011 (3.8450) [-6.4241]	-0.0404	Dem	Parliament	Rich
Trinidad and Tobago	0.7968 (0.7968) [3.5616]	1.2549	-0.8490 <sup>^</sup> (0.9761) [-0.8698]	-1.1778 <sup>^</sup>	Dem	Parliament	Rich
Tunesia	0.1138 (0.0476) [2.3899]	8.7847	-1.0674 0.3754 -2.8431	-0.9368	Auto	Presid	Rich
Turkey	0.1677 (0.0397) [4.2234]	5.9596	-25.2551 (4.9436) [-5.1086]	-0.0395	Dem	Parliament	Rich
Ukrain	0.1230 (0.0392) [3.1352]	8.1238	-2.5048 0.7261 -3.4496	-0.3992	Dem	Presid	Poor
Uruguay	0.4724 (0.0776) [6.0871]	2.1164	-0.5638 <sup>^</sup> 0.4462 -1.2636	-1.7736 <sup>^</sup>	Dem	Presid	Rich
Vietnam	0.6745 (0.2080) [3.2423]	1.4824	-9.4709 2.4695 -3.8351	-0.1055	Dem	Assembly- Elected President	Poor
Venezuela	0.2432 (0.0849) [2.8638]	4.1114	-10.9332 (1.3669) [-7.9985]	-0.0914	Dem	Presid	Rich
Yemen	7.1541 (4.5089) [1.5866]	0.1397 <sup>^</sup>	-1.5700 <sup>^</sup> 1.1879 -1.3216	-0.6369 <sup>^</sup>	Auto	Assembly- Elected President	Poor

() shows standard errors and [] shows t-statistics.

<sup>^</sup> shows insignificant value.

‘dem’ stands for democracy, ‘auto’ stands for autocracy, ‘presid’ stands for presidential system and ‘parliament’ stands for parliamentary system.

**Table: Overall panel Results**

Overall panels	Constant	Welfare mindedness
Whole developing nations panel	3.6758 (1.5423) [2.3833]	0.2724(significant)
Democratic developing nations	2.4836 [1.1769] (2.11)	0.4032(significant)
Autocratic nations	2.4248 <sup>^</sup> [1.7403] (1.39)	(insignificant)

() shows standard errors and [] shows t-statistics.

<sup>^</sup> shows insignificant value.

## 10: Conclusion:

The above table shows the extent how much developing nations are welfare concerned over policy formation. This is for the first time that such a broad analysis covering maximum developing nations<sup>17</sup>. Model has also been extended for downstream producers who make the use of one sector’s output as an intermediate input in their final product. Role of such downstream producers has been incorporated because of the reason that such

<sup>17</sup> Only those nations have been dropped for which data was not sufficiently available.

producers pressurize the government to reduce protection rates upon these intermediate products. This act of theirs form a lobby to influence the policy decision of the government. No doubt such lobby formation leads to lower tariff rates for some sectors but ignoring many others. So without keeping this fact in mind one should not conclude that such distortionary effect on policy by such lobbies can be helpful in raising welfare mindedness of government.

All the nations included in the panel have been divided into two categories based on regime differences i.e. democratic and autocratic nations. This is important point to be focused in the study. Because this study intends to see whether political regimes matter in decision making process or not. Moreover, division of nations has also been made on the basis of different political systems/or domestic institutions<sup>18</sup> like either nations having parliamentary system are more welfare oriented or nations with presidential system are more involved in the policy formation which is concerned with betterment of masses. Furthermore, for measuring welfare mindedness of governments, their income levels have also been taken into consideration under two broad category based on regimes. Like nations have been partitioned into two groups as well. i.e rich democracy/autocracy or poor democracy/autocracy. Estimation has been done individual country wise and broad category wise as well. As the null hypothesis states that nations are welfare oriented if parameter value is not equal to and greater than zero. And values large in magnitude shows more welfare mindedness of governments and vice versa. From the results it can be seen that for overall panel of developing countries this value of parameter is not very large showing that governments of developing countries are not taking into consideration the welfare of their citizens in designing their policies or welfare of society has not been weighted much in designing trade policies. In other words, following Grossman Helpmen theoretical structure, it means that these governments are giving more weights to the interests of political parties which gets political contributions from different lobbies in the economy.

#### **Qualitative Analysis:**

The results of study are supportive to the real world scenario both qualitatively as well. . Qualitatively in a sense that for democratic nations, values of the parameter “a” are larger and significant country wise and panel wise as well while for autocratic nations these values are small in magnitude and insignificant for many Middle East nations where it can be observed that one man rule is there mostly. And powers are concentrated in few hands and these few try to promote their own special interests. Similarly political systems in different regimes are showing the same trend which the theories prove. In many developing countries, parliamentary democracies seems to be more welfare oriented than presidential democracies<sup>19</sup>. Moreover this value is even more higher which are rich democracies. It means income levels matters a lot in taking step regarding some policy decision. While the trend for both types of autocracy is mix but mostly showing no effective contribution in raising welfare of the society. Overall for most autocratic nations, either the values are insignificant or very small. Only for those autocratic nations the value of parameter is larger which are rich nations. So in this way it can be concluded that more rich nations are more welfare minded than poor. It also means that all these factors are complementary for each other for governments. And to be democratic or autocratic is not only some very important rather the systems through which these systems are being controlled and their income levels also matters a lot.

#### **Quantitative Analysis:**

On the other hand, results are also in line with the present trends of openness or protection policies of nations. For example, nations having high tariff rates have lower value of welfare mindedness parameter. Example of these nations are Qatar, Saudi Arabia, Yemen, Ethopia, Azerbaijan, Kyrgistan and Mongolia while more open countries or countries with lower tariff rates like Singapore, Pakistan, India, Kazakistan, Malaysia, Korea, Thialand, Turkey, Ukrain<sup>20</sup> are having high values of this parameter which means that if nations are moving towards free trade policies then it means these governments are becoming more welfare concerned. Moreover again an attempt has been made to observe the effect of lobby formation in an economy. This is being done through taking into consideration the role of vertical linkages in trade. These vertical linkages actually helps in intra firm trade and promotes vertical integration. But to pressurize governments by these few industries can affect the interests of other industries badly. It can be seen from the results that welfare estimates are showing mostly negative values which means that lobby formation affects badly the designing process of policies. Moreover the effect of lobby formation is same in any case either democracy or autocracy, rich or poor and presidential or parliamentary system. Our results are supporting for few nations in a recent study<sup>21</sup>. Not much

<sup>18</sup> Alt and Gilgen(1994) found that domestic institutions also matters while deciding about trade policy and trade coalitions.

<sup>19</sup> See for detail, 'The perils of presidentialism' and 'The virtues of parliamentarism' by Jaun J. Linz(1990)

<sup>20</sup> To gain more knowledge in terms of quantitative policy effects (Tariff policy), Trade Policy Reviews issued by WTO has been used.

<sup>21</sup> See Gawande. Krishna and olarreaga(2011)

examples by various authors are present in literature for this type of analysis. And the quoted study is also a mix panel of different developed and developing nations. But this study has tied to use this Grossman Helpman model for purely developing nations and keeping in view many characteristics of this region in knowing whether these governments gives more weights to aggregate welfare of the society or patronize the welfare or special interests of politicians.

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