

# Swiss Influence in Bargaining Coalitions like the EU or G10 in the WTO

(Discussion Paper)

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Abstract: Small countries in the World Trade Organization (WTO) try to influence the decision process through bargaining coalitions. One natural bargaining coalition for Switzerland would be the European Union (EU), despite the fact that Switzerland is not a member of the EU. Today Switzerland is a member and coordinator of the G10 group within the WTO. How big could Switzerland's influence be on the common position of the EU concerning trade policy relevant aspects? And how does this compare to the status quo? This paper performs an *a priori* power analysis of Switzerland as a potential member of the EU in trade related policy aspects relevant in the WTO context and tries to compare the voting power with a similar analysis of the status quo.

Keywords: Bargaining Coalition, WTO, Voting power, Trade Policy, EU-Membership

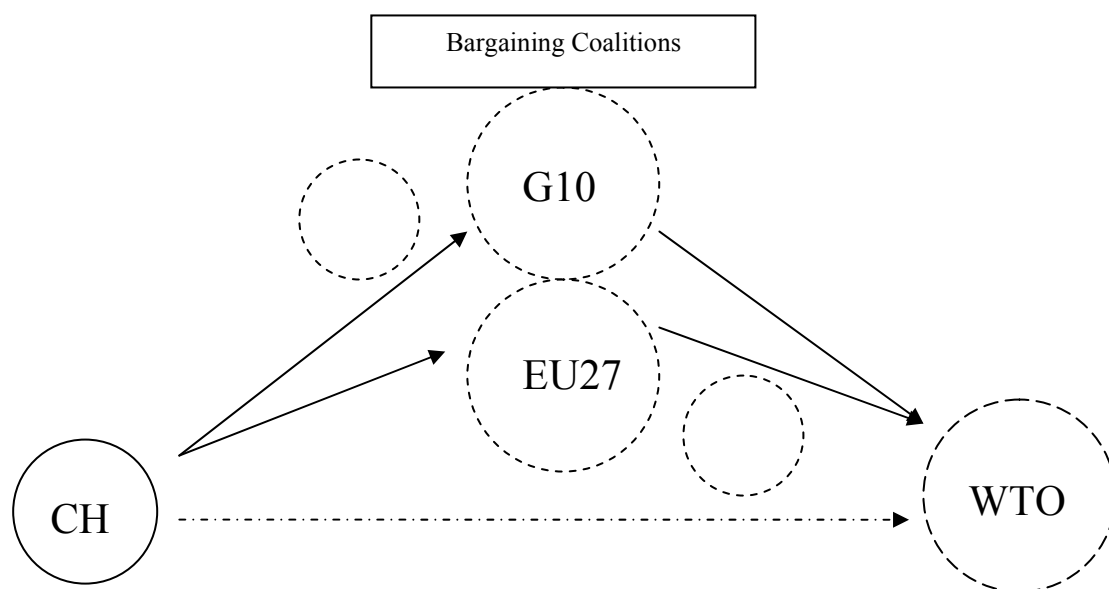
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## 1. Introduction

Switzerland is a member of the World Trade Organization (WTO) but not the European Union (EU). As the WTO is the most important institution in setting the rules for the world trading system it is important for any country involved in the global trading system to have influence in the decision process of the WTO. Basically there are two possible channels to gain influence in the WTO, either the single country is powerful enough to assert oneself or the country joins a bargaining coalition as an instrument to pursue its political and economic interests via the common position of the bargaining group.

Figure 1, Choosing a Bargaining Coalition within the WTO



Source: own diagram.

There is an ‘old’ debate in Switzerland whether or not the country should (finally) join the European Union (EU). Usually the discussion turns up before and after the Swiss are having a vote on an issue concerning the bilateral agreements the country has with the EU. One of the main arguments in favour of a (fast) accession to the EU<sup>1</sup> is that Switzerland has more impact in “world politics” as a member of the EU than as single country alone. The argument is often repeated in situations when the Swiss top politicians are confronted with

<sup>1</sup> For reference of the timing aspect of joining the EU or not see SPIRIG and WEDER (2008).

external political pressure. This scenario is most common in the policy area of international tax competition or the related regulations of the banking secrecy. However if the basic structure of the argument is correct it should also apply in the area of trade policy. Is it true that Switzerland has more influence in the WTO as a member of the EU? How big could Switzerland's influence be in the area of trade policy within the EU? And what are the costs of giving up its own trade policy?

In the WTO the EU speaks with "one voice". Members of the EU have to influence the common position of the EU. To see how the Swiss influence in the WTO will be affected by an accession to the EU the first step has to be an analysis of potential Swiss influence, measured in voting power, in the EU trade policy.

This paper offers a first quantitative analysis of *a priori* Swiss power in EU trade policy issues. As a method I'll use a *a priori* power indices analysis in two steps. First as a general power analysis with the widely used Normalized Banzhaf Index (NBI). The NBI is used to analyse the power of a single member in the Council of Ministers (CM) on a given decision rule. The CM is used because the council is the main legislator in the EU and is known to be the bottle neck institution for making decisions<sup>2</sup>. In a second and more important step the Modified Banzhaf Index (MBI) which accounts for members' preferences is calculated for different policy issues. This index based on the median voter principle gives a more differentiated picture how powerful a single member state can be in a certain policy area, in contrast to the general overall power index like the NBI.

This result is then compared to the status quo where Switzerland is a member and coordinator of the G10 bargaining coalition in most trade talks within the WTO.

The rest of the paper is organized as follows. Chapter 2 offers a quantitative voting power analysis for Switzerland in the case of joining the EU in general and also in the special case of trade policy aspects. Chapter 3 develops a weighted voting proposal for the G10 bargaining coalition and performs the same quantitative voting power analysis within the G10. Chapter 4 elaborates on the different trade offs that occur in choosing a bargaining coalition in the WTO context. Chapter 5 summarizes and gives some preliminary conclusions.

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<sup>2</sup> See e.g. TABELLINI (2003), THOMSON and HÖSLI (2006).

## 2. Swiss Power as a member of the EU

The normalized Banzhaf Index (NBI)<sup>3</sup> shows the power of a member in a coalition to turn an otherwise winning coalition into a losing coalition under a given decision rule. To estimate the power of Switzerland in the EU the  $NBI^{CH}$  is calculated for Switzerland in the European Council since the Treaty of Rome in 1957<sup>4</sup>. This will give a first impression of the Swiss power in the European Community (EC) or EU respectively.

### 2.1. Trade policy making in the EU

Article 113 in the Treaty of Rome (1957) provides the legal basis for trade policy making in the EU. Several treaty reforms later the article was renumbered in 133. The paper is focused on the decisions in the Council of Ministers (CM) because it is the bottleneck institution in the EU decision process. Trade in goods and so called passive services is a sole competence of the EU. The EC is taking initiative in trade policy issues and is exploring possible issues for agreements. The EC then makes a proposal to the CM which then can give a mandate or not for the issue at hand. The CM can also make its own proposals amending the EC proposal. The negotiation process is then managed by the EC. The negotiations result is presented to the CM for signing. After that ratification takes place.

It is important that the CM does indirectly take influence in the negotiation process through the 133-committee. This special committee named after the number of the “trade policy” article in the treaties, has an important role in assisting the Commission in.

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<sup>3</sup> For a basic introduction to power indices see FELSENTHAL and MACHOVER (1998). For the usefulness of the power indices see GARRETT and TSEBELIS (1999) and HOLLER and WIDGREN (1999). An empirical study for the relevance of power indices see e.g. KAUPPI and WIDGREN (2004). Calculations of NBI with IOP 2.0 Software (see BRÄUNINGER and KÖNIG 2005).

<sup>4</sup> The NBI is based on ‘a priori ignorance’. Every random coalition has the same probability to be formed.  $G$  describes a simple weighted voting game.  $\eta_A$  is a function of the ‘Banzhaf score’ for player  $A$ . The Banzhaf score is the number of outgoings where player  $A$  is crucial for forming a winning coalition. Therefore  $\eta_A(G)$  is the Banzhaf score of player  $A$  in  $G$ . The normalized Banzhaf Index  $\beta_A(G)$  now shows the relation of the Banzhaf score of player  $A$  to all possible winning coalitions of all players  $A$  to  $X$ . The NBI for player  $A$  is defined as

$$\beta_A(G) \equiv \frac{\eta_A(G)}{\sum_{X \in N} \eta_X(G)} \quad (1)$$

$\beta_A(G)$  shows the normalized Banzhaf index NBI ( $\sum_{X \in N} \beta_X = 1$ ). The Banzhaf index

$$\beta'_A(G) \equiv \frac{\eta_A(G)}{2^{n-1}}, \text{ where } n = |N| \text{ shows the number of players in } W \quad (2)$$

committee members tend to be former high civil servants of the member countries. As those members are in close contact with the ministers in charge of their countries they represent something like the long arm of the CM in the negotiation process. Therefore one can assume that the power distribution is similar to the weighted voting system in the CM. Even though the 133-committee has only advisory competences the Commission usually follows their advice, knowing that in the end the CM will have the final vote over the agreements.

## 2.2. $NBI^{CH}$ for Switzerland

To calculate the power of Switzerland *if it was a member* of the EU one has to make several assumptions. The hurdle for a Qualified Majority (QM) with Swiss membership is set in a way that the percentage of votes needed for a QM in the European Council remained roughly constant.

In 1957 the hurdle for a QM in the council was 12 out of 17 votes. The big members like Germany, France and Italy had 4 votes each. The smaller members Belgium and Netherlands had 2 votes and Luxembourg only one. The percentage for a QM was therefore 70.6% of the votes in the council. With Swiss membership the hurdle is set at 14 votes out of 19 with Switzerland weighted with 2 votes. Table 1 (Annex, p. 18) shows the  $NBI^{CH}$  for all the different situations in the development of the EU. The assumptions for the calculations are the following: In the EU-9 the accordant figures are (44/62, 5), in the EU-10 (47/67, 5)<sup>5</sup>, in the EU-12 (57/80, 5), in the EU-15 (65/91, 5) and in the EU-25 (239/331, 10).

The hurdle for a QM that are applied in the council in today's EU27 is threefold. The criteria for a QM are: 255 votes out of 345, a single majority of members and the winning coalition should represent at least 62% of the EU population. With Swiss membership the hurdle is set at 262 votes out of 355. Switzerland is weighted with 10 votes (same as Austria and Sweden).

Insert Table 1

Table 1 reveals also the impact Swiss membership would have had on the other members in certain points of time. We see that only Luxembourg would have benefited in an increase in

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<sup>5</sup> With 47 instead of 48 votes for a QM it looks better because the  $NBI^{CH}$  is then constantly sinking instead of increasing again in the EU12 with Switzerland. Although with 48 out of 67 the ratio would be nearer the factual ratio of the EU12 rules for a QM.

its NBI from Swiss membership if Switzerland had joined in 1973. The effect would have been the same like the factual entrance of Greece in 1981.

The decrease in power of Switzerland, as for any other member, reflects the enlargement of the EU. As the club grows the single members lose in power to influence a decision. In relative terms the smaller countries lost more power than the big countries. Nevertheless relative to their population smaller countries are still disproportionately represented.

This very basic calculations shows in a general setting the potential influence of Switzerland as a EU Member. Out of 100 random issues the Swiss voice will be 3 times decisive. This result maybe seen as a mathematical artefact. However it gives a quantitative estimate of what the power of a small member in the EU looks like. Many would probably argue that this general result needs to be qualified as the influence may vary with the issue at stake. The power of a single member may vary in different policy areas.

For instance Switzerland it is said to have had some bridge building competences under the Uruguay trade bargaining round and therefore had disproportional influence in the bargaining process. One would think that a country which holds some kind of median position is designated to find such possibilities to increase its influence. A country that can balance the interests of the other member states is most probably credible enough the find an adequate compromise. One methodical way to deal with this issue is to allow preference orders in the power indices that are based on connected coalition. The power indices based on those connected coalitions is called modified Banzhaf Index (MBI)<sup>6</sup>. Connected coalitions means *only* adjacent members can form a coalition.

### *2.3. Swiss Power in EU Trade Policy*

To get a more differentiated picture of the Swiss impact on trade policy as a member of the EU we take a look at the Modified Banzhaf Index (MBI). These calculations take the countries preferences concerning trade policy related aspects into account. The basic principle relies on the median voter principle. A country with a median position in the EU bargaining process is disproportional influential. Note however that the size of the member state and therefore its weight of votes still matters a lot.

This feature of the MBI is very much in line with the basic motivation for choosing a coalition in the first place. The motivation for joining a coalition is the increase in

bargaining power. The costs of joining a coalition is that the common position may deviate from national preferences. Therefore “...bargaining coalitions should be based on a common milieu of participant’s interests. In the same vein, the closer a country’s economic structure and policy stance are to the coalition ‘average’, the more likely preferences will coincide with common interest.” (CONSTANTINI ET AL. 2007, p. 868). The MBI reflects exactly this feature of a coalition that the median country becomes disproportional powerful. The MBI basically shows the power of a member in a coalition to turn a otherwise winning coalition into a losing coalition by leaving it under a given decision rule and the restriction of connected coalitions<sup>7</sup>.

The EU speaks with “one voice” for all its 27 members in the World Trade Organization (WTO). The finding of a common position is nonetheless a process of balancing the interests of all members which gets not easier with an increasing number of member states.

Preferences of countries or their representatives respectively can not be directly observed. However in line with CONSTANTINI ET AL. (2007) this paper assumes “...that national ‘true’ preferences for the final negotiation outcome are shaped by a set of (observable) structural features.” (CONSTANTINI ET AL. 2007, p. 869).

‘Good’ structural features that represent preferences in trade related aspects are needed. In a very basic analysis indicators like the size of the population, size of GDP or the size of trade in goods and services as share of GDP come to mind. However there are other more sophisticated indicators which may serve as the basis for trade policy preferences. Furthermore MAYDA and RODRIK (2005) identify several indicators which determine the preferences concerning trade policy on an individual level. Given that individuals are also voters such indicators may depict another interesting possibility to string the coalition

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<sup>6</sup> See e.g. HÖSLI (2002).

<sup>7</sup> The Modified Banzhaf Index (MBI) is very much related to the NBI above. Let  $G$  be the policy game. But now only adjacent members are allowed to build winning coalitions (connected coalitions). The possible number of winning coalitions is therefore drastically reduced. If  $\lambda_i$  is the number player  $i$  is pivotal to the fate of a connected winning coalition then the MBI of player  $A$  can be defined as

$$\gamma_A(G) \equiv \frac{\lambda_A(G)}{\sum_{X \in N} \lambda_X(G)} \quad (3)$$

$\lambda_A(G)$  can be named as the “pivotal score” in the numerator and the denominator again shows the sum of all pivotal scores of the players involved.

members in a preference order. However for a first step basic structural economic and political indicators are taken into account.

If we rank the EU member states including Switzerland according to real GDP p.c. we get the following MBI table.

Table 2, MBI according to real GDP p.c.

EU 27 incl. CH

Country	NBI	GDP p.c., PPP, 2005 Eurostat	Notes in the Council	Player	Pivotal	MBI	Difference to NBI
Bulgaria	3.00%	33.7000	10	<b>1</b>	1	0.40%	-2.60%
Romania	4.14%	34.2000	14	<b>2</b>	1	0.40%	-3.74%
Lativa	1.22%	48.6000	4	<b>3</b>	1	0.40%	-0.82%
Poland	7.18%	49.7000	27	<b>4</b>	8	3.24%	-3.94%
Lithuania	2.12%	52.1000	7	<b>5</b>	4	1.62%	-0.50%
Slovak Republic	2.12%	57.1000	7	<b>6</b>	4	1.62%	-0.50%
Estonia	1.22%	59.8000	4	<b>7</b>	3	1.21%	-0.01%
Hungary	3.58%	62.6000	12	<b>8</b>	7	2.83%	-0.75%
Malta	0.91%	71.7000	3	<b>9</b>	2	0.81%	-0.10%
Portugal	3.58%	71.7000	12	<b>10</b>	11	4.45%	0.87%
Czech Republic	3.58%	73.6000	12	<b>11</b>	11	4.45%	0.87%
Slovenia	1.22%	81.9000	4	<b>12</b>	4	1.62%	0.40%
Greece	3.58%	84.0000	12	<b>13</b>	11	4.45%	0.87%
Cyprus	1.22%	88.9000	4	<b>14</b>	4	1.62%	0.40%
Spain	7.18%	97.6000	27	<b>15</b>	23	9.31%	2.13%
Italy	7.53%	100.0000	29	<b>16</b>	25	10.12%	2.59%
France	7.53%	108.4000	29	<b>17</b>	25	10.12%	2.59%
Germany	7.53%	110.0000	29	<b>18</b>	25	10.12%	2.59%
Finland	2.12%	110.5000	7	<b>19</b>	8	3.24%	1.12%
Sweden	3.00%	114.7000	10	<b>20</b>	10	4.05%	1.05%
United Kingdom	7.53%	117.6000	29	<b>21</b>	24	9.72%	2.19%
Belgium	3.58%	118.0000	12	<b>22</b>	8	3.24%	-0.34%
Denmark	2.12%	121.8000	7	<b>23</b>	5	2.02%	-0.10%
Austria	3.00%	122.9000	10	<b>24</b>	7	2.83%	-0.17%
Netherland	3.86%	125.5000	13	<b>25</b>	7	2.83%	-1.03%
Switzerland	3.00%	127.4000	10	<b>26</b>	5	2.02%	-0.98%
Ireland	2.12%	138.8000	7	<b>27</b>	3	1.21%	-0.91%
Luxembourg	1.22%	251.0000	4	<b>28</b>	0	0.00%	-1.22%
median		93.2500		355	247	100%	0.0%

WC 53

Source: Own calculations.

The table shows in column three the order criteria and in column six the ‘pivotal score’. This then directly leads to the calculation of the MBI in column seven. We see Switzerland with



its relatively high real GDP p.c. is ranked on the edge of the chart and losing 0.98% of its 'general' power reflected in the NBI. Switzerland is 5 times decisive out of 53 possible winning coalitions (WC in the table) and its share on the sum of 247 pivotal scores is therefore 2.02%. This tells us that in decisions on issues where the height of real GDP p.c. will influence the countries position a lot Switzerland is in a rather bad position and its voting power is rather small. Of course this is quite a rough measure and the link to WTO negotiations may be not so obvious. However one can easily imagine that rich countries have rather different positions in trade policy related issues than rather poor countries.

Further structural features are analysed that may give a more direct interpretation of the calculated results. The ratio of Trade-to-GDP for instance is the chosen parameter for the ranking in Table 3 (Annex p. 19). We see Switzerland here in a rather good position near the median and gaining relative power. MBI according to this ratio is 4.17%. a country with a rather high Trade/GDP ratio are more dependent on trade.

One criterion to predict a rather broad preference in trade policy of the member countries in this foregoing bargaining process is the degree of 'openness' (Table 4, p. 20). A broad spectrum of factors to determine the degree of openness of a country is taken in WEDER (2007). This analysis includes not only trade in goods and services but also considers international exchange of labour and capital. We see that Switzerland is positioned rather at the edge of the ranking which makes it lose relative in power. Keep in mind that the power of Switzerland is small anyways. Switzerland is only 2 times relevant out of the 36 possible winning coalitions. Traditionally Switzerland has followed a quite liberal trade policy with exception of the agricultural sector. Even though this may due to its smallness to some degree there are still quite remarkable differences observable. Other 'small' countries like Portugal, Finland or Lithuania are much more 'closed' economies than Switzerland.

Another broad indicator which may be used as a rough predictor for the preferences concerning the trade policy in its broadest spectrum is the new globalization index (Table 5, p. 21) calculated by the KOF at the Federal Institute of Technology. The MBI calculation according to the globalization index shows Switzerland not really in a middle position and losing relative power. The idea here is that a more global oriented economy is more in favour of multilateral and freer trade.

Trade policy today is very much related to agricultural policy. The Common Agricultural Policy (CAP) is the biggest budgetary item in the EU. Every year roughly 50 billion euro is flowing in this sector. Obviously having a strong position in the preference

order in the CAP can be quite important. Here again the GDP p.c. may play a role too as the richer countries have to pay more into the budget than the poorer ones. However there are other agricultural policy related aspects one may consider in trade policy positions.

Agricultural exports as a share of total exports (Table 7, p. 23) may be one first indicator to analyse. The preference chart shows Switzerland at a corner position with a very low share. One can imagine that the lower the share of agriculture on total exports the more protectionist is the policy of the country. The ranking order of the agricultural import share on total imports (Table 8, p. 24) shows quite a similar chart. Switzerland is on the edge of both charts and is relatively losing power.

Considering lobbying activities the share of employment in the agricultural sector (Table 9, p.25) of total employment may give a first indication for the political importance of the sector. The variation is huge from 1.2% to 32.1% within the EU. Switzerland is interestingly positioned near the median and is gaining relative power (+1.27%).

The gross value added of the agricultural sector (Table 6, p.22) in market prices in relation to the GDP in market prices gives some indication for the economic importance of the sector. Here Switzerland is also gaining relative in power (+2.13%)

### **3. Swiss Power in the G10**

The so called G10 is a bargaining coalition within the WTO. Its members are typically importers of agricultural goods. It was founded in the time before the WTO negotiations in Cancun in 2003. Since Bulgaria has joined the EU the G10 actually accounts only for nine members, namely Iceland, Israel, Japan, dem. Republic of Korea, Liechtenstein, Mauritius, Norway, Switzerland and Taiwan (Chinese Taipei). So it basically consists of the EFTA states and some other developed countries that are not already included in another big bargaining coalition. Switzerland is currently coordinating the G10. It is important to note that Switzerland does not always negotiate with the G10 but also with other coalitions if other issues than agricultural questions are at stake. So unlike the EU-members the G10-members have the possibility to exit the G10 in the negotiations of a certain trade issue if their interests are better represented in another coalition.

To the knowledge of the author there is no official decision rule for the G10. The paper therefore creates a weighted voting system based on the trade size of the member countries and sets the decision hurdle up to 70% of the votes (Table 10, p. 26). Trade size for weighting the votes is taken because it seems natural that the size of trade is a crucial

factor when it comes to trade negotiations in the WTO. The 70% hurdle is chosen because in the CM of the EU the hurdle is quite similar and because the official decision rules within the WTO require majorities between two third and 80% of the members.

Of course this is debatable. However it seems quite probable that if 70% of votes in a coalition are in favour of a certain trade rule the minority complies to the common position of the bargaining coalition.

Under such a decision rule the  $NBI_{70}$  for Switzerland is 11.5% in the G10 (Table 17, p 30). Compared to the 3% in the EU this is nearly four times the power. In 100 random issues brought to this decision committee Switzerland would be eleven times decisive to jump the hurdle of the qualified majority. There is a certain imbalance in the G10 as Japan is quite overwhelming powerful. This has some implications for the further analysis.

The MBI for Switzerland is now calculated within the G10 bargaining coalition. Mostly the same indicators as above in the EU case are used (Table 11-15, p.26-28). The basic analysis (Table, Annex p) of those different trade relevant indicators shows that despite Switzerland's bigger power in the G10 it also loses quite dramatically if the position within the preference order is not favourable. If Switzerland is positioned near edge of the chart it loses the whole power and has a MBI of zero percent.

Hence the lower number of members has the advantage of more power in general (see NBI) but it is also easier to drop into a corner position where you lose all your power to influence the common position, which is dominated from the biggest members and/or the median members.

#### **4. Trade Offs in choosing the bargaining coalition**

There are several trade offs in choosing a certain bargaining coalition. Different parameters determining the trade offs are shortly discussed.

##### *Voting Power*

The analysis above showed the possibility that within a smaller bargaining coalition a single member may have more power. In the EU as 28<sup>th</sup> member Switzerland's a priori power measured with the NBI was around 3%. Within the G10 the same number was 11.5%. However if you have little power you also have little to lose. If we look at the MBI analysis it shows that the deviation up or down from the NBI within the EU are rather small. Within the smaller coalition of the G10 the deviations are quite bigger.

Nonetheless Switzerland is one of the four big players within the G10. It can be imagined that the big players, especially Japan, have 'quasi-veto' power. As Switzerland is coordinating the G10 coalition there is also the possibility of some agenda setting power within this coalition. This may be compared to the temporary presidency the EU.

However the voting power within the coalition is only half way up in two stage decision process. After finding a common position within the coalition this position has to be proposed in the negotiations in the WTO. It becomes apparent that now a big coalition is an advantage. A big trade negotiation party like the EU has much offer in the sense of market access and so on. The EU is the biggest trading bloc in the WTO and accordingly is her power. Even though the WTO is officially deciding in 'consensus' some 'shadow voting' goes on before in the bargaining process. The power of the different bargaining coalitions (EU, G10, CAIRNS etc.) depends highly on their ability to offer access to an attractive (read: big) market. A comparison shows that the G10 taken together is a smaller market than the EU. However the difference may be smaller than expected.

Table 18, *Bargaining coalition 'size', G10 and EU27*

#### EU27

- GDP current 2006 \$ 14.5 trillion
- Merchandise exports in 2007 \$ 1.7 trillion
- Merchandise imports in 2007 \$ 1.9 trillion
- Ca. 494 Mio. People

#### G10

- GDP current 2006 \$ 6.6 trillion
- Merchandise exports in 2007 \$ 1.7 trillion
- Merchandise imports in 2007 \$ 1.5 trillion
- Ca. 195 Mio. People

Source: Data from World Trade Statistics 2008.

#### Bargaining Cost

Reaching a consensus within a bargaining coalition involves costs. Those costs tend to be higher the bigger the coalition and the more heterogeneously the members interest are. Bargaining costs in a coalition with more than twenty members in the EU should be higher than in the G10 with only nine members. The heterogeneity in the EU has sharply increased with the eastern enlargement in 2004. Income disparities have increased within the EU.

Within the G10 Japan, Democratic Rep. Korea, Norway and Switzerland seem to build a 'natural' cluster like Constantini et al. (2007, p. 874, Table 1) points out. A natural cluster has significant structural similarities.

On the other hand bargaining costs of the coalition in the WTO are lower for each member of the coalition if the coalition consists of many members.

### *Treaty making power*

The EU is a custom union with a common external tariff. Hence trade policy is one of the common policy areas that the member states have delegated to the supranational level. The authority which executes the common trade policy in the EU is the European Commission. The joining country loses its treaty making power.

How big may the treaty making power be for Switzerland? Of course that's hard to evaluate. However there is anecdotal evidence that Switzerland was playing the role of an intermediary in the negotiations of the Uruguay-round for instance. A small country like Switzerland is unsuspecting whereas a big trading bloc is always suspected to pursue some kind of geo-strategic power play. Franz Blankart, former state secretary called this once a "constructive jester's license"<sup>8</sup> for Switzerland. Note the word "constructive".

A comparison of the FTA's between the EFTA and the EU shows that on a quantitative level they are on par. On a qualitative level the FTA's of the EFTA may well fit the Swiss interests more specifically than those of the EU. Furthermore it seems that Switzerland is big enough that she can negotiate on her own with other trading partners. Switzerland was very close to complete a FTA with the US in 2006. It failed somehow in the very last minute. The EU has much more problems to find a compromise with the US as they are both heavyweight big players in the agricultural sector and due to the different preferences of the EU member states vis a vis the US. The same counts for a FTA with Japan. However Switzerland as the first European country managed to schedule a FTA with Japan in the mean time that was signed in February 2009. Also Switzerland has a FTA with South Korea which the EU has not.

Until now it didn't seem to be a big problem for Switzerland mostly together with other states of the EFTA to settle a similar agreement. Furthermore the EFTA sometimes is in the lead and negotiates regional trade agreements (RTAs) where the EU is not yet

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<sup>8</sup> "Konstruktive Narrenfreiheit". The term was put forward by Franz Blankart, former secretary of state and director of the federal office of foreign affairs in Switzerland. (Notes at a conference 2006 in the World Trade Institute, University of Berne).

negotiating or the negotiations process is slowly because of the many different voices behind the EU delegation.

### *Institutional flexibility*

In the case of not being a member of the EU you can join the group of countries that fits your interests best. So in contrast to the situation where you have the same interests and your chances to get through increase even as non member this is not the necessarily case if your interests deviate from the EU. Of course not being a member and profit from the same positions of a big trading bloc is a free riding position. But that is not an unusual phenomenon for small countries. Small countries probably are the biggest beneficiaries from institutions like the WTO. Instead of the power of size there is the rule of law that counts and that is always in favour of smaller players in the game. But not being a member of a big bloc gives you more flexibility to react in the given situation where the common position of the bargaining coalition deviates too far from your national interests.

### *A question of national sovereignty?*

Taken together those parameter are part of what is usually called sovereignty of a nation. The question of sovereignty is gaining in importance as the world gets more and more interdependent. Complex forms of coordination or international unions appear in different forms<sup>9</sup>. In the concrete case of pursuing its own trade policy in the WTO the question of Swiss EU membership is indirectly included as well.

As long as Switzerland is not a member of the EU it not bounded to EU law. Therefore Switzerland has some room for autonomous solutions in setting law and regulation. Even though it clear that Switzerland can not just legislate somehow whatever it likes because also not being a member of the EU the EU law is still the most important benchmark. With the closer relationship with the EU the Swiss legislators take over most of the EU guidelines. This practise is called 'autonomer Nachvollzug'.

Critics correctly mention the antagonism in the word itself. If you take over the rules from someone else you are not 'autonomous'. Nevertheless viewed from a passionless point of view it is only relevant if there is the room for autonomous solutions in particular areas where the EU is an active legislator. This is mainly the thing one thinks of when talking

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<sup>9</sup> For a formal derivation of the sovereignty trade off in a interdependent world see BAGWELL and STAIGER (2003).

about material sovereignty in contrast to formal sovereignty. Formally the Swiss legislators could produce their own rules in areas that are influenced by EU law e.g. trade policy. Of course this would not be a sensible strategy. Being a quasi-member of the common market it is rational for the Swiss parliament to produce rules that are EU compatible or take over rules legislated by the EU. Important are those few times where you deviate from the EU rule. That is where

It is estimated that Switzerland is taking over 80-90% of the legislation of the EU in the relevant policy areas. Whatever the exact number it becomes clear that there is little room for autonomous solutions for the small state in the geographical middle of the EU. But this is nothing new nor *a priori* a bad thing. It's mainly an expression of being a small state. In any international organization like the WTO, UNO or World Bank etc. small states have little to say regardless of being in a certain coalition or not.

## **5. Conclusion (preliminary)**

The paper offered a first step to a quantitative analysis of power for a small country like Switzerland within two different bargaining coalitions (EU or G10) in the WTO. The first results show that Switzerland has little to say in the EU, measured with the power index NBI. In about 3% of 100 randomly chosen issues it could be decisive for a winning coalition to jump the qualified majority hurdle. In contrast the general voting power within the G10 seems to be almost four times as big.

However the more differentiated power analysis including trade policy preferences shows that in both cases Switzerland seems to deviate quite often from a median position within the bargaining coalition and is therefore losing relative in power.

The paper showed further aspects of choosing a bargaining coalition in the WTO. A big coalition like the EU is more powerful within the WTO negotiations than the G10. Even though the G10 is not that much smaller there is still quite a difference.

Yet a smaller coalition offers lower bargaining costs of finding a common position due to lower heterogeneity of the member countries. The G10 offers the flexibility that its members can join other bargaining coalitions e.g. when other issues are to decide. The G10 is mostly concerned with agricultural policy questions, which however are at the core of WTO negotiations. The EU does not offer such a flexibility. Once a country has joined the EU it is captured in this coalition concerning any trade policy related aspects. As a member

country you lose the treaty making power in international trade agreements you could otherwise negotiate on your own.

The paper can not yet clearly offer a superior strategy. But it becomes apparent that the question in which context a small country can pursue its own interest in trade policy at an international level is quite complex and peppered with many trade offs that have to be analysed accurately.

In any case the power and possibilities to pursue its own national interests on an international level are very limited for a small country like Switzerland. This trivial proposition stands in contrast to many political statements that try to feed the illusion that EU membership would make the Swiss position much stronger in any international context.

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## Annex

Table 1 , NBI calculations in the European Council 1957-2007, Inclusive Swiss simulated Membership

### Votes in the European Council 1957 - 2007

	1957			1973			1981			1986			1995			2004			2007			
	votes	NBI	NBI <sup>CH</sup>	votes	NBI	NBI <sup>CH</sup>	votes	NBI	NBI <sup>CH</sup>	votes	NBI	NBI <sup>CH</sup>	votes	NBI	NBI <sup>CH</sup>	votes	NBI	NBI <sup>CH</sup>	votes	NBI	NBI <sup>CH</sup>	
Germany	4	23.8	22.2	10	16.7	15.8	10	15.8	14.6	10	12.9	12.2	10	11.2	10.7	29	8.6	8.3	29	7.80	7.53	
France	4	23.8	22.2	10	16.7	15.8	10	15.8	14.6	10	12.9	12.2	10	11.2	10.7	29	8.6	8.3	29	7.80	7.53	
<b>1957</b> Italy	4	23.8	22.2	10	16.7	15.8	10	15.8	14.6	10	12.9	12.2	10	11.2	10.7	29	8.6	8.3	29	7.80	7.53	
Netherlands	2	14.3	11.1	5	9.1	8.2	5	8.2	7.5	5	6.6	6.3	5	5.9	5.7	13	4.2	4.1	13	4.00	3.86	
Belgium	2	14.3	11.1	5	9.1	8.2	5	8.2	7.5	5	6.6	6.3	5	5.9	5.7	12	3.9	3.8	12	3.70	3.58	
Luxembourg	1	0	0	2	1.6	4.1	2	4.1	2.9	2	1.8	3	2	2.3	2.4	4	1.3	1.3	4	1.25	1.22	
<b>Switzerland</b>	<b>2</b>	<b>11.1</b>		<b>4</b>	<b>8.2</b>		<b>4</b>	<b>6.8</b>		<b>4</b>	<b>6.2</b>		<b>4</b>	<b>4.5</b>		<b>10</b>	<b>3.2</b>		<b>10</b>	<b>3.00</b>		
Great Britain				10	16.7	15.8	10	15.8	14.6	10	12.9	12.2	10	11.2	10.7	29	8.6	8.3	29	7.80	7.53	
<b>1973</b> Ireland				3	6.6	4.1	3	4.1	4.8	3	4.5	3.5	3	3.6	3.4	7	2.3	2.2	7	2.20	2.12	
Denmark				3	6.6	4.1	3	4.1	4.8	3	4.5	3.5	3	3.6	3.4	7	2.3	2.2	7	2.20	2.12	
<b>1981</b> Greece							5	8.2	7.5	5	6.6	6.3	5	5.9	5.7	12	3.9	3.8	12	3.70	3.58	
<b>1986</b> Spain										8	10.9	9.8	8	9.2	8.8	27	8.1	7.9	27	7.40	7.18	
Portugal										5	6.6	6.3	5	5.9	5.7	12	3.9	3.8	12	3.70	3.58	
Sweden													4	4.8	4.5	10	3.3	3.2	10	3.10	3.00	
<b>1995</b> Austria													4	4.8	4.5	10	3.3	3.2	10	3.10	3.00	
Finland													3	3.6	3.4	7	2.3	2.2	7	2.20	2.12	
Poland																27	8.1	7.9	27	7.40	7.18	
Tszech Republic																12	3.9	3.8	12	3.70	3.58	
Hungary																12	3.9	3.8	12	3.70	3.58	
Slovak Republic																7	2.3	2.2	7	2.20	2.12	
<b>2004</b> Lithuania																7	2.3	2.2	7	2.20	2.12	
Latvia																4	1.3	1.3	4	1.25	1.22	
Slovenia																4	1.3	1.3	4	1.25	1.22	
Estonia																4	1.3	1.3	4	1.25	1.22	
Cyprus																4	1.3	1.3	4	1.25	1.22	
Malta																3	1.0	1	3	1.00	0.91	
<b>2007</b> Romania																				14	4.30	4.14
Bulgaria																				10	3.10	3.00
Sum of weigthted votes		17	19		58	62		63	67		76	80		87	91		321	331		345	355	
QMV		12	14		41	44		45	47		54	57		62	65		232	239		255	262	
% for QMV		70.6%	73.7%		70.7%	71.0%		71.4%	70.1%		71.1%	71.3%		71.3%	71.4%		72.3%	72.2%		73.9%	73.8%	
Passage Probability		21.9%	15.6%		14.7%	13.7%		13.7%	11.1%		9.8%	9.40%		7.8%	6.80%		3.6%	3.30%		2.02%	1.86%	

Source: Own calculations with IOP 2.0

Table 3, MBI according to Trade % of GDP

EU 27 incl. CH

Country	NBI	Trade % of GDP, 1999*	Votes in the Council	Player	Pivotal	MBI	Difference to NBI
Italy	7.53%	47.1	29	<b>1</b>	4	2.78%	-4.75%
France	7.53%	50.2	29	<b>2</b>	7	4.86%	-2.67%
Greece	3.58%	52.8	12	<b>3</b>	4	2.78%	-0.80%
Poland	7.18%	54.2	27	<b>4</b>	15	10.42%	3.24%
United Kingdom	7.53%	54.6	29	<b>5</b>	16	11.11%	3.58%
Spain	7.18%	55.2	27	<b>6</b>	15	10.42%	3.24%
Germany	7.53%	57.9	29	<b>7</b>	16	11.11%	3.58%
Romania	4.14%	60.9	14	<b>8</b>	6	4.17%	0.03%
Portugal	3.58%	66.0	12	<b>9</b>	6	4.17%	0.59%
Finland	2.12%	66.6	7	<b>10</b>	5	3.47%	1.35%
Denmark	2.12%	76.5	7	<b>11</b>	5	3.47%	1.35%
Switzerland	3.00%	77.7	10	<b>12</b>	6	4.17%	1.17%
Sweden	3.00%	78.8	10	<b>13</b>	6	4.17%	1.17%
Austria	3.00%	83.6	10	<b>14</b>	6	4.17%	1.17%
Lithuania	2.12%	88.3	7	<b>15</b>	5	3.47%	1.35%
Cyprus	1.22%	89.4	4	<b>16</b>	2	1.39%	0.17%
Lativa	1.22%	90.8	4	<b>17</b>	1	0.69%	-0.53%
Bulgaria	3.00%	94.9	10	<b>18</b>	4	2.78%	-0.22%
Slovenia	1.22%	101.9	4	<b>19</b>	1	0.69%	-0.53%
Czech Republic	3.58%	112.1	12	<b>20</b>	4	2.78%	-0.80%
Netherland	3.86%	119.5	13	<b>21</b>	3	2.08%	-1.78%
Slovak Republic	2.12%	127.1	7	<b>22</b>	2	1.39%	-0.73%
Hungary	3.58%	131.4	12	<b>23</b>	3	2.08%	-1.50%
Belgium	3.58%	146.3	12	<b>24</b>	2	1.39%	-2.19%
Estonia	1.22%	149.1	4	<b>25</b>	0	0.00%	-1.22%
Ireland	2.12%	164.0	7	<b>26</b>	0	0.00%	-2.12%
Malta	0.91%	187.0	3	<b>27</b>	0	0.00%	-0.91%
Luxembourg	1.22%	249.3	4	<b>28</b>	0	0.00%	-1.22%

85.9735 355 144 100% 0.0%

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\* Data From World Development Indicators

Source: Own calculation.

Table 4, MBI calculations according to Openness

EU 27 incl. CH

Country	NBI	Openness**	Votes in the Council Player		Pivotal	MBI	Difference to NBI
Luxembourg	1.22%	1.0000	4	<b>1</b>	0	0.00%	-1.22%
Ireland	2.12%	4.3000	7	<b>2</b>	0	0.00%	-2.12%
Belgium	3.58%	6.3000	12	<b>3</b>	1	0.82%	-2.76%
Cyprus	1.22%	7.7000	4	<b>4</b>	0	0.00%	-1.22%
Netherlands	3.86%	8.7000	13	<b>5</b>	1	0.82%	-3.04%
Switzerland	3.00%	9.7000	10	<b>6</b>	2	1.64%	-1.36%
Austria	3.00%	10.3000	10	<b>7</b>	3	2.46%	-0.54%
Sweden	3.00%	13.3000	10	<b>8</b>	3	2.46%	-0.54%
Czech Republic	3.58%	14.7000	12	<b>9</b>	4	3.28%	-0.30%
* Malta	0.91%	14.9000	3	<b>10</b>	1	0.82%	-0.09%
* Greece	3.58%	14.9000	12	<b>11</b>	6	4.92%	1.34%
* France	7.53%	14.9000	29	<b>12</b>	14	11.48%	3.95%
Denmark	2.12%	15.3000	7	<b>13</b>	2	1.64%	-0.48%
Hungary	3.58%	15.7000	12	<b>14</b>	6	4.92%	1.34%
Lithuania	1.22%	18.0000	4	<b>15</b>	1	0.82%	-0.40%
Spain	7.18%	18.7000	27	<b>16</b>	14	11.48%	4.30%
United Kingdom	7.53%	18.7000	29	<b>17</b>	14	11.48%	3.95%
* Bulgaria	3.00%	19.1000	10	<b>18</b>	4	3.28%	0.28%
* Romania	4.14%	19.1000	14	<b>19</b>	7	5.74%	1.60%
* Estonia	1.22%	19.1000	4	<b>20</b>	1	0.82%	-0.40%
Slovenia	1.22%	19.3000	4	<b>21</b>	1	0.82%	-0.40%
Slovak Republic	2.12%	20.0000	7	<b>22</b>	2	1.64%	-0.48%
Lithuania	2.12%	20.3000	7	<b>23</b>	2	1.64%	-0.48%
Germany	7.53%	20.7000	29	<b>24</b>	14	11.48%	3.95%
Poland	7.18%	25.7000	27	<b>25</b>	11	9.02%	1.84%
Finland	2.12%	26.0000	7	<b>26</b>	1	0.82%	-1.30%
Italy	7.53%	27.0000	29	<b>27</b>	5	4.10%	-3.43%
Portugal	3.58%	27.7000	12	<b>28</b>	2	1.64%	-1.94%

median 16.8500 355 122 100% 0.0%

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\* avg

French w/out Malta, Greece, France 14.90

Socialist w/out Bulgaria, Romania, Estonia 19.10

Those averages are calculated on the basis of legal origins of the member countries. The reason is that Botero et al. (2004) showed that legal origin is the best predictor for the regulative style of a country.

\*\* According to Weder (2007), table 6.3, p. 114-115

Source: Own calculations

Table 5, MBI calculations according to the globalization index from KOF 2008

EU 27 incl. CH

Country	NBI	Globalization Index*	Votes in the Council	Player	Pivotal	MBI	Difference to NBI
Lativa	1.22%	63.24	4	<b>1</b>	1	0.40%	-0.82%
Lithuania	2.12%	63.90	7	<b>2</b>	1	0.40%	-1.72%
Bulgaria	3.00%	64.35	10	<b>3</b>	1	0.40%	-2.60%
Romania	4.14%	65.31	14	<b>4</b>	2	0.79%	-3.35%
Cyprus	1.22%	65.93	4	<b>5</b>	1	0.40%	-0.82%
Malta	0.91%	66.96	3	<b>6</b>	1	0.40%	-0.51%
Slovenia	1.22%	70.26	4	<b>7</b>	2	0.79%	-0.43%
Estonia	1.22%	72.18	4	<b>8</b>	2	0.79%	-0.43%
Luxembourg	1.22%	72.88	4	<b>9</b>	3	1.19%	-0.03%
Greece	3.58%	73.43	12	<b>10</b>	10	3.95%	0.37%
Slovak Republic	2.12%	75.82	7	<b>11</b>	6	2.37%	0.25%
Poland	7.18%	78.42	27	<b>12</b>	24	9.49%	2.31%
Italy	7.53%	79.44	29	<b>13</b>	27	10.67%	3.14%
Ireland	2.12%	79.82	7	<b>14</b>	6	2.37%	0.25%
Portugal	3.58%	81.57	12	<b>15</b>	12	4.74%	1.16%
Hungary	3.58%	82.52	12	<b>16</b>	12	4.74%	1.16%
Spain	7.18%	82.73	27	<b>17</b>	24	9.49%	2.31%
Germany	7.53%	83.01	29	<b>18</b>	27	10.67%	3.14%
Finland	2.12%	84.65	7	<b>19</b>	6	2.37%	0.25%
France	7.53%	85.38	29	<b>20</b>	27	10.67%	3.14%
Czech Republic	3.58%	85.51	12	<b>21</b>	12	4.74%	1.16%
United Kingdom	7.53%	86.67	29	<b>22</b>	26	10.28%	2.75%
Netherland	3.86%	88.40	13	<b>23</b>	11	4.35%	0.49%
Denmark	2.12%	88.42	7	<b>24</b>	3	1.19%	-0.93%
Switzerland	3.00%	88.60	10	<b>25</b>	3	1.19%	-1.81%
Sweden	3.00%	90.02	10	<b>26</b>	2	0.79%	-2.21%
Austria	3.00%	91.38	10	<b>27</b>	1	0.40%	-2.60%
Belgium	3.58%	92.09	12	<b>28</b>	0	0.00%	-3.58%

80.6950 355 253 100% 0.0%

WC 65

\*Taken from KOF 2008, Globalization index

Source: Own calculations.

Table 6, MBI calculations according to the ratio of agricultural gross value added to GDP

EU 27 incl. CH

Country	NBI	Agricultural Gross added value/GDP*	Votes in the Council	Player	Pivotal	MBI	Difference to NBI
Luxembourg	1.22%	0.35%	4	1	0	0.00%	-1.22%
Sweden	3.00%	0.38%	10	2	1	0.85%	-2.15%
United Kingdom	7.53%	0.42%	29	3	5	4.27%	-3.26%
Germany	7.53%	0.57%	29	4	8	6.84%	-0.69%
Belgium	3.58%	0.75%	12	5	5	4.27%	0.69%
Finland	2.12%	0.86%	7	6	0	0.00%	-2.12%
Switzerland	3.00%	0.89%	10	7	6	5.13%	2.13%
Czech Republic	3.58%	0.94%	12	8	7	5.98%	2.40%
Austria	3.00%	0.97%	10	9	6	5.13%	2.13%
Slovak Republic	2.12%	1.18%	7	10	1	0.85%	-1.27%
Denmark	2.12%	1.21%	7	11	1	0.85%	-1.27%
Malta	0.91%	1.24%	3	12	1	0.85%	-0.06%
Ireland	2.12%	1.34%	7	13	1	0.85%	-1.27%
France	7.53%	1.65%	29	14	12	10.26%	2.73%
Netherland	3.86%	1.69%	13	15	7	5.98%	2.12%
Portugal	3.58%	1.72%	12	16	7	5.98%	2.40%
Slovenia	1.22%	1.76%	4	17	1	0.85%	-0.37%
Italy	7.53%	1.85%	29	18	12	10.26%	2.73%
Estonia	1.22%	1.88%	4	19	1	0.85%	-0.37%
Lativa	1.22%	2.13%	4	20	1	0.85%	-0.37%
Cyprus	1.22%	2.42%	4	21	1	0.85%	-0.37%
Poland	7.18%	2.50%	27	22	12	10.26%	3.08%
Hungary	3.58%	2.68%	12	23	5	4.27%	0.69%
Spain	7.18%	2.75%	27	24	7	5.98%	-1.20%
Lithuania	2.12%	2.93%	7	25	1	0.85%	-1.27%
Greece	3.58%	4.65%	12	26	3	2.56%	-1.02%
Bulgaria	3.00%	7.06%	10	27	3	2.56%	-0.44%
Romania	4.14%	7.95%	14	28	2	1.71%	-2.43%
median		1.67%	355		117	100%	0.0%

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\* GDP to market prices 2005  
Eurostat

Gross value added with producer prices minus intermediate inputs.

Source: Own calculations

Table 7, MBI according to agricultural exports as share of total exports

EU 27 incl. CH

Country	NBI	Agricultural exports as % of total exports 2007*	Votes in the Council	Player	Pivotal	MBI	Difference to NBI
Switzerland	3.00%	3.50	10	1	0	0.00%	-3.00%
Malta	0.91%	4.00	3	2	0	0.00%	-0.91%
Slovak Republic	2.12%	4.60	7	3	2	0.93%	-1.19%
Czech Republic	3.58%	5.20	12	4	2	0.93%	-2.65%
Luxembourg	1.22%	5.40	4	5	1	0.47%	-0.75%
Germany	7.53%	5.50	29	6	11	5.12%	-2.41%
Slovenia	1.22%	5.80	4	7	2	0.93%	-0.29%
Romania	4.14%	5.90	14	8	10	4.65%	0.51%
United Kingdom	7.53%	6.30	29	9	22	10.23%	2.70%
Finland	2.12%	7.10	7	10	6	2.79%	0.67%
Italy	7.53%	7.10	29	11	22	10.23%	2.70%
Hungary	3.58%	7.20	12	12	11	5.12%	1.54%
Sweden	3.00%	7.80	10	13	8	3.72%	0.72%
Austria	3.00%	8.90	10	14	8	3.72%	0.72%
Belgium	3.58%	9.50	12	15	11	5.12%	1.54%
Ireland	2.12%	10.20	7	16	6	2.79%	0.67%
Bulgaria	3.00%	10.40	10	17	8	3.72%	0.72%
Poland	7.18%	10.70	27	18	20	9.30%	2.12%
Portugal	3.58%	11.00	12	19	11	5.12%	1.54%
France	7.53%	11.80	29	20	22	10.23%	2.70%
Spain	7.18%	14.90	27	21	17	7.91%	0.73%
Estonia	1.22%	15.60	4	22	1	0.47%	-0.75%
Netherland	3.86%	15.70	13	23	7	3.26%	-0.60%
Lithuania	2.12%	19.90	7	24	3	1.40%	-0.72%
Denmark	2.12%	20.40	7	25	2	0.93%	-1.19%
Cyprus	1.22%	21.20	4	26	0	0.00%	-1.22%
Greece	3.58%	21.40	12	27	2	0.93%	-2.65%
Lativa	1.22%	29.80	4	28	0	0.00%	-1.22%

9.20E+00 355 215 100% 0.0%

WC

\* Data WTO Trade Profiles

Source: Own calculation.

Table 8, MBI according to agricultural imports as share of total imports

EU 27 incl. CH

Country	NBI	Agricultural imports as % of total imports		Votes in the Council			Pivotal	MBI	Difference to NBI
		2007*	Player	Player	Player	Player			
Hungary	3.58%	5.30	12	1	0	0.00%	-3.58%		
Slovak Republic	2.12%	6.40	7	2	0	0.00%	-2.12%		
Switzerland	3.00%	6.40	10	3	1	0.48%	-2.52%		
Czech Republic	3.58%	6.50	12	4	2	0.96%	-2.62%		
Bulgaria	3.00%	7.00	10	5	2	0.96%	-2.04%		
Romania	4.14%	7.30	14	6	5	2.40%	-1.74%		
Finland	2.12%	7.90	7	7	3	1.44%	-0.68%		
Poland	7.18%	7.90	27	8	21	10.10%	2.92%		
Austria	3.00%	8.70	10	9	7	3.37%	0.37%		
Germany	7.53%	8.90	29	10	25	12.02%	4.49%		
Luxembourg	1.22%	8.90	4	11	2	0.96%	-0.26%		
France	7.53%	9.00	29	12	25	12.02%	4.49%		
Belgium	3.58%	9.10	12	13	8	3.85%	0.27%		
Sweden	3.00%	9.10	10	14	7	3.37%	0.37%		
Slovenia	1.22%	9.70	4	15	2	0.96%	-0.26%		
Spain	7.18%	10.00	27	16	21	10.10%	2.92%		
United Kingdom	7.53%	10.20	29	17	25	12.02%	4.49%		
Ireland	2.12%	10.30	7	18	4	1.92%	-0.20%		
Italy	7.53%	10.80	29	19	25	12.02%	4.49%		
Netherland	3.86%	11.20	13	20	8	3.85%	-0.01%		
Lithuania	2.12%	11.60	7	21	4	1.92%	-0.20%		
Greece	3.58%	12.20	12	22	5	2.40%	-1.18%		
Estonia	1.22%	12.50	4	23	2	0.96%	-0.26%		
Malta	0.91%	13.10	3	24	2	0.96%	0.05%		
Cyprus	1.22%	13.60	4	25	1	0.48%	-0.74%		
Lativa	1.22%	13.70	4	26	1	0.48%	-0.74%		
Portugal	3.58%	14.00	12	27	0	0.00%	-3.58%		
Denmark	2.12%	14.40	7	28	0	0.00%	-2.12%		

9.40E+00 355 208 100% 0.0%

WC

\* Data WTO Trade Profiles

Source: Own calculation.



Table 9, MBI according to employment in % of total employment

EU 27 incl. CH

Country	NBI	Employment in agriculture in % of total employment*	Votes in the			Difference to	
			Council	Player	Pivotal	MBI	NBI
Luxembourg	1.22%	1.2	4	<b>1</b>	1	0.61%	-0.61%
United Kingdom	7.53%	1.4	29	<b>2</b>	7	4.27%	-3.26%
Belgium	3.58%	2.0	12	<b>3</b>	4	2.44%	-1.14%
Sweden	3.00%	2.0	10	<b>4</b>	6	3.66%	0.66%
Malta	0.91%	2.1	3	<b>5</b>	2	1.22%	0.31%
Germany	7.53%	2.4	29	<b>6</b>	14	8.54%	1.01%
Denmark	2.12%	2.9	7	<b>7</b>	5	3.05%	0.93%
Netherland	3.86%	3.0	13	<b>8</b>	8	4.88%	1.02%
France	7.53%	3.8	29	<b>9</b>	15	9.15%	1.62%
<b>Switzerland</b>	<b>3.00%</b>	<b>3.9</b>	<b>10</b>	<b>10</b>	<b>7</b>	<b>4.27%</b>	<b>1.27%</b>
Czech Republic	3.58%	4.0	12	<b>11</b>	7	4.27%	0.69%
Italy	7.53%	4.2	29	<b>12</b>	15	9.15%	1.62%
Slovak Republic	2.12%	4.7	7	<b>13</b>	5	3.05%	0.93%
Cyprus	1.22%	4.8	4	<b>14</b>	4	2.44%	1.22%
Finland	2.12%	4.8	7	<b>15</b>	5	3.05%	0.93%
Hungary	3.58%	5.0	12	<b>16</b>	7	4.27%	0.69%
Estonia	1.22%	5.3	4	<b>17</b>	4	2.44%	1.22%
Spain	7.18%	5.3	27	<b>18</b>	15	9.15%	1.97%
Austria	3.00%	5.5	10	<b>19</b>	7	4.27%	1.27%
Ireland	2.12%	5.9	7	<b>20</b>	5	3.05%	0.93%
Slovenia	1.22%	8.8	4	<b>21</b>	3	1.83%	0.61%
Bulgaria	3.00%	8.9	10	<b>22</b>	4	2.44%	-0.56%
Lativa	1.22%	12.1	4	<b>23</b>	2	1.22%	0.00%
Greece	3.58%	12.4	12	<b>24</b>	4	2.44%	-1.14%
Portugal	3.58%	12.5	12	<b>25</b>	3	1.83%	-1.75%
Lithuania	2.12%	14.0	7	<b>26</b>	1	0.61%	-1.51%
Poland	7.18%	17.4	27	<b>27</b>	3	1.83%	-5.35%
Romania	4.14%	32.1	14	<b>28</b>	1	0.61%	-3.53%
		4.8000	355		164	100%	0.0%

WC

\* Data From World Development Indicators

From the year 2005, except Belgium, Cyprus, Malta and Switzerland for 2004 and Portugal 2003

Source: Own calculation.

Table 10, A weighted voting proposal for G10, Trade size as first measure for weighted voting

**G10 Trade Size**

	GDP million current \$ 2007	Trade to GDP Ratio, 2005- 2007	trade size	share of total G10	trade size as weight for qmv
Iceland	19510	0.804	15686	0.004	4
Israel	161822	0.883	142889	0.039	39
Japan	4376705	0.315	1378662	0.381	381
Korea, Dem. Rep.	969795	0.857	831114	0.230	230
Liechtenstein*	4993	0.678	3385	0.001	1
Mauritius	6363	1.376	8755	0.002	2
Norway	381951	0.750	286463	0.079	79
Switzerland	415516	1.086	451250	0.125	125
Chinese Taipei	383320	1.312	502916	0.139	139
	6719975		3621121	1	1000

\* data from CIA Factsbook, GDP current 2007, Export plus Import data from 1996  
Rest WTO Trade Profile

Source: Own calculation.

Table 11, MBI according to Trade to GDP ratio, G10

**G10**

country	NBI <sub>70</sub>	Trade to GDP Ratio, 2005- 2007	weight according to trade size	player	Pivotal	Modified Banzhaf Index MBI	Difference NBI	
Japan	31.00%	0.315	381	1	4	50.0%	19.00%	
Liechtenstein*	3.20%	0.678	1	2	0	0.0%	-3.20%	
Norway	9.10%	0.750	79	3	1	12.5%	3.40%	
Iceland	3.20%	0.804	4	4	0	0.0%	-3.20%	
Korea, Dem. Rep.	22.10%	0.857	230	5	2	25.0%	2.90%	
Israel	5.00%	0.883	39	6	1	12.5%	7.50%	
Switzerland	11.50%	1.086	125	7	0	0.0%	-11.50%	
Taiwan, Chinese Tæ	11.50%	1.312	139	8	0	0.0%	-11.50%	
Mauritius	3.20%	1.376	2	9	0	0.0%	-3.20%	
						8	100%	0.20%
	median	1	1000					
	WC	4						

\* data from CIA Factsbook, GDP current 2007, Export plus Import data from 1996  
Rest WTO Trade Profile

Source: Own calculation.

Table 12, MBI according to Globalization Index, G10

G10

country	NBI <sub>70</sub>	Globalization Index KOF*	weight according to trade size	player	Pivotal	Modified Banzhaf Index MBI	Difference NBI	
Taiwan, Chinese Taipei	11.50%	59.85	139	1	2	9.5%	-1.98%	
Japan	31.00%	63.54	381	2	8	38.1%	7.10%	
Korea, Dem. Rep.	22.10%	65.87	230	3	7	33.3%	11.23%	
Mauritius	3.20%	69.26	2	4	0	0.0%	-3.20%	
Israel	5.00%	74.69	39	5	2	9.5%	4.52%	
Iceland	3.20%	76.12	4	6	0	0.0%	-3.20%	
Norway	9.10%	82.27	79	7	2	9.5%	0.42%	
Liechtenstein	3.20%	86.92	1	8	0	0.0%	-3.20%	
Switzerland	11.50%	89.87	125	9	0	0.0%	-11.50%	
		75	1000			21	100%	0.20%
	WC	8						

\*KOF globalization index 2009, Liechtenstein is the average of Switzerland, Austria and Germany. Chinese Taipei is assumed to be similar to China.

Source: Own calculation.

Table 13, MBI according to employment in agriculture in % to total employment

G10

country	NBI <sub>70</sub>	employment in agriculture*	weight according to trade size	player	Pivotal	Modified Banzhaf Index MBI	Difference NBI	
Liechtenstein	3.20%	1.7	1	1	0	0.0%	-3.20%	
Israel	5.00%	2.0	39	2	0	0.0%	-5.00%	
Norway	9.10%	3.3	79	3	5	15.2%	6.05%	
Switzerland	11.50%	3.9	125	4	5	15.2%	3.65%	
Japan	31.00%	4.4	381	5	14	42.4%	11.42%	
Taiwan, Chinese Taipei	11.50%	5.1	139	6	6	18.2%	6.68%	
Iceland	3.20%	6.6	4	7	0	0.0%	-3.20%	
Korea, Dem. Rep.	22.10%	7.2	230	8	3	9.1%	-13.01%	
Mauritius	3.20%	10.0	2	9	0	0.0%	-3.20%	
		4.4000	1000			33	100%	0.20%
	WC	14						

\*WDI 2007

Source: Own calculation.

Table 14, MBI according to agricultural exports share of total exports

G10

country	NBI <sub>70</sub>	Agricultural exports % of total exports	weight according to trade size	player	Pivotal	Modified Banzhaf Index MBI	Difference NBI
Liechtenstein*	3.20%	0.2	1	1	0	0.0%	-3.20%
Japan	31.00%	1.1	381	2	9	75.0%	44.00%
Korea, Dem. Rep.	22.10%	1.7	230	3	3	25.0%	2.90%
Taiwan, Chinese T.	11.50%	1.9	139	4	0	0.0%	-11.50%
Switzerland	11.50%	3.5	125	5	0	0.0%	-11.50%
Israel	5.00%	4.2	39	6	0	0.0%	-5.00%
Norway	9.10%	5.5	79	7	0	0.0%	-9.10%
Mauritius	3.20%	29.1	2	8	0	0.0%	-3.20%
Iceland	3.20%	43.6	4	9	0	0.0%	-3.20%
					12	100%	0.20%
	medi	4	1000				
	WC	9					

\*data from WTO Trade profiles plus Amt für Statistik für Liechtenstein

Source: Own calculation.

Table 15, MBI according to agricultural imports in % of total imports

G10

country	NBI <sub>70</sub>	Agricultural imports % of total imports	weight according to trade size	player	Pivotal	Modified Banzhaf Index MBI	Difference NBI
Liechtenstein*	3.20%	0.10	1	1	0	0.0%	-3.20%
Taiwan, Chinese T.	11.50%	4.90	139	2	2	8.3%	-3.17%
Switzerland	11.50%	6.40	125	3	2	8.3%	-3.17%
Israel	5.00%	6.70	39	4	2	8.3%	3.33%
Norway	9.10%	8.40	79	5	4	16.7%	7.57%
Iceland	3.20%	9.00	4	6	0	0.0%	-3.20%
Japan	31.00%	11.10	381	7	10	41.7%	10.67%
Korea, Dem. Rep.	22.10%	11.10	230	8	4	16.7%	-5.43%
Mauritius	3.20%	21.30	2	9	0	0.0%	-3.20%
					24	100%	0.20%
	med	8	1000				
	WC	10					

\*data from WTO Trade profiles plus Amt für Statistik für Liechtenstein

Source: Own calculation.

Table 16, NBI calculation for simulated EU membership of Switzerland

**NBI<sup>CH</sup> for the EU27 inclusive Switzerland**

primary data file: eu27ch

win set 1: [262,355]

overall threshold: 14

subgame player weight NNBZ NBZ

-----				
subgame	player	weight	NNBZ	NBZ
1	1	29	0.030002	0.075291
1	2	29	0.030002	0.075291
1	3	29	0.030002	0.075291
1	4	29	0.030002	0.075291
1	5	27	0.028624	0.071832
1	6	27	0.028624	0.071832
1	7	14	0.016488	0.041377
1	8	13	0.015378	0.038592
1	9	12	0.014254	0.035770
1	10	12	0.014254	0.035770
1	11	12	0.014254	0.035770
1	12	12	0.014254	0.035770
1	13	12	0.014254	0.035770
1	14	10	0.011970	0.030039
1	15	10	0.011970	0.030039
1	16	10	0.011970	0.030039
1	17	10	0.011970	0.030039
1	18	7	0.008452	0.021211
1	19	7	0.008452	0.021211
1	20	7	0.008452	0.021211
1	21	7	0.008452	0.021211
1	22	7	0.008452	0.021211
1	23	4	0.004861	0.012198
1	24	4	0.004861	0.012198
1	25	4	0.004861	0.012198
1	26	4	0.004861	0.012198
1	27	4	0.004861	0.012198
1	28	3	0.003645	0.009146

sum of subgame 1: 0.398481 1.000000

sum of all: 0.398481 1.000000

mean: 0.014231 0.035714

winning coalitions: 4979914

decision probability: 0.018552

Table 17, NBI calculation for a weighted voting scheme based on trade size for the G10 members

**NBI for G10**

primary data file: G10  
win set 1: [700,1000]  
overall threshold: 5

subgame	player	weight	NNBZ	NBZ
1	1	4	0.042969	0.032448
1	2	39	0.066406	0.050147
1	3	381	0.410156	0.309735
1	4	230	0.292969	0.221239
1	5	1	0.042969	0.032448
1	6	2	0.042969	0.032448
1	7	79	0.121094	0.091445
1	8	125	0.152344	<i>0.115044</i>
1	9	139	0.152344	0.115044
sum of subgame 1:			1.324219	1.000000
sum of all:			1.324219	1.000000
mean:			0.147135	0.111111

winning coalitions: 105  
decision probability: 0.205078