

# **A study on compilation and improvement of indices for legislative budgetary institutions – With focus on comparative analysis of current institutions in 60 countries**

by  
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*Legislative budget institutions are established and operated in different forms according to the various political and social experiences and financial circumstances of each country. Note, however, that research studies on the causes thereof are not only few in number but also focus mostly on the fact that legislative budget institutions are determined according to the “form of government”. In this light, this study establishes the comparison and analysis of the legislative budget institution of each country.*

*The implication of this study is as follows. Firstly, this study approaches the Legislature’s capacity from a comprehensive and three-dimensional point of view in order to compile sub-indices of each legislative budgetary institution index. In other words, this study is to approach the financial authority vested to the Legislature and the Legislature’s capacity to exercise such authority from a comprehensive point of view in measuring such indices.*

*Secondly, the accuracy of indices in this study has been improved by deriving relative weighting for sub-indices of each legislative budgetary institution index through AHP questionnaire surveys and analyses. In other words, AHP analysis can ensure the practicality and accuracy of measurement of indices and present a scheme to compile more universal and relevant indices.*

*It is, however, necessary to consider sub-indices such as elements of legal system and related agencies. Also this study has a limitation in that it fails to fully explain the actual conditions of operation of institutions in the unique political, social, and economic settings of each country.*

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## 1. Introduction

A budgetary system, which can be defined as a “framework for the operation of a budget”, regulates the legislature and the executive, both of which are major participants in the budget process, and the legislature and the executive respectively endeavor to establish a budgetary system more favourable to the interests and positions of each side. Such budgetary system functions as an essential mechanism<sup>1</sup> that not only determines the role of each participant and the timing for participation of each participant but also ultimately defines the nature and substance of a budget (Kim, 2012: 247). Furthermore, a budgetary system is important as a device that helps to maintain transparency, democracy, and financial soundness as well as the efficient and performance-oriented operation of a government budget.

In particular, a legislative budgetary system can be defined as a kind of “institution” or “norm” that specifies the method by which the legislature can exercise its official powers in each budget process to ensure the democratic compilation of a government budget from the view point of fiscal democracy<sup>2</sup> and the transparent and efficient implementation of a government budget. Each country has a legislative budgetary institution in a different form, which has been established and operated depending upon diverse political and social experiences and financial conditions, and even legislative budgetary institutions in a similar form are not uniform in terms of specific and practical contents and the methods of operation. Such diversity in legislative budgetary institutions result from diversity in the types and nature of problems that each county must solve, diversity in the internal and external environments that exist in each country, and diversity in an environment for institutionalisation, which each country confronts in the course of establishing the institution (Kang, 2007: 1).

If a universal and valid analytical framework that can measure legislative budgetary institutions can be produced by eliciting and constructing common attributes and elements of such diverse legislative budgetary institutions that have been formed and operated in many countries, the framework will enable us to measure legislative budgetary institutions objectively and to represent the results thereof numerically and thus it will have a significance in that the relative level of the legislative budgetary institution in each country can be compared and analysed.

Preceding studies for measuring legislative budgetary institutions (Von Hagen, 1992; Alesina et al., 1999; Gleich, 2003, Wehner, 2006), however, had limits in that the indices of legislative budgetary institutions could not reflect the legislature’s attributes in the budget process adequately since they were focussed on a specific region or greater weight was placed on the structural aspect of the budget process. Hence, it is necessary to compile the representative indices of legislative budgetary institutions, taking into account the Legislature’s powers, capacity, etc. not only in the structural aspect of the legislature, but also in the budget process.

This study has the following objectives, as discussed above: Firstly, it aims at compiling indices for legislative budgetary institutions by presenting and measuring new elements

with which legislative budgetary institutions can be measured. In other words, the intention is to subdivide the scale of sub-indices and supplement the meaning of each index in order to present standards as a tool with which the legislative institution/institutions of respective countries can be compared and analysed; secondly, it aims at presenting the differences and implications of indices for legislative budgetary institutions before and after allocating weight to each index for different legislative budgetary institutions. In other words, the intention is to present a scheme for improving indices for legislative budgetary institutions by eliciting and reflecting the relative importance between sub-indices of each index by reflecting the difference in weight, because the weight of elements of a Legislative Budget Institution might differ from one another.

## 2. Literature review

The key functions of the legislature are mainly classified into representation, lawmaking, and oversight of the government (Stapenhurst, 2008: 1-2). Such functions may also be applicable to a government budget as they are, because the legislature reflects citizens' opinions in a budget in the course of scrutiny of a budget bill, enacts and amends relevant legislation, settles accounts, and conducts audits to ensure that the budget has been efficiently implemented. The legislature's functions of representation, lawmaking, and oversight in connection with budgeting are manifested and performed in the budget process in four stages, that is, the compilation, scrutinisation, implementation, and settlement and audit of a budget bill, generally, although there are implicit differences in such functions in each country. From this point of view, a legislative budgetary institution can be understood and conceptualised as a budget circulation process. In other words, various legislative budgetary institutions in which political, economic, social, and cultural characteristics of each country are combined, have been formed through the circulation process of budgets in stages as the governance system of each country, which is derived from the mutually dynamic relationship between the executive and the legislature and between civil society and public officials.

Studies on the compilation and measurement of indices for legislative budgetary institutions like this study are analytic tools for determining the relationship between a budget institution and budget performance and are classified into studies on the measurement of legal budget institutions (Von Hagen, 1992; Alesina et al., 1999; Gleich, 2003) and studies focussed on the compilation and measurement of indices for legislative budgetary institutions and comparisons of legal budget institutions in respective countries under the relationship between the legislature and the executive (Wehner, 2006; Kim and Mun, 2012).<sup>3</sup>

First of all, Von Hagen (1992) intended to look into the impact that a legal budget institution had on budget performance through a study that fell under the first category, being the first study concerning the measurement and compilation of legal budgetary institutions. For this purpose, Von Hagen divided the budget process into the stages of compilation, scrutinisation, approval, and implementation of a budget bill and compiled indices for legislative budgetary institutions by measuring institutional elements at each stage and classifying indices for legislative budgetary institutions into "Structural Indices" and "Medium-term Fiscal Constraint Indices". In a similar context, Alesina et al. (1999) divided into a budget institution the stages of compilation, approval, and implementation of a budget in order to look into the impact that a budget institution had on the performance of a budget and compiled indices by presenting ten subordinate elements<sup>4</sup> for

the type of a budget institution. Gleich (2003) also compiled indices in order to measure institutional characteristics necessary for strengthening co-ordination and co-operation in the budget process. For this purpose, Gleich measured Budget Institution Indices with sub-indices in each stage by dividing the budget process into three stages, namely compilation, approval, and implementation.

Subsequently, Wehner (2006) pointed out in a study that fell under the second category that it was hard to test the effects of each sub-index since the Index of the Legislature's Budgetary Authority by Lienert (2005)<sup>5</sup> aggregated sub-indices and converted them into a single index and thus compiled the Index of Legislative Budget Institutions by dividing the indices constituting the Index of Legislative Budget Institutions into Financial Authority and Organisational Capacity and by subdividing and combining respective indices. In a similar context, Kim and Mun (2012) measured the index by applying the method presented by Wehner (2006) for the compilation of indices for legislative budgetary institutions, but expanding the scope of analysis in order to compensate for the limits of Wehner's study (2006) that failed to secure sufficient cases of countries under a presidential system. Kim and Mun conducted a comparative analysis of financial authority and organisational capacity in each country as an effort to further develop Wehner's study (2006) and confirmed as a result of the analysis that legislative budgetary institutions did not represent any statistically meaningful difference depending upon the government form but a meaningful outcome appeared depending upon the form of Government when financial authority and organisational capacity became subject to control in an OECD member country. The preceding studies discussed so far can be summarised as follows in Table 1.

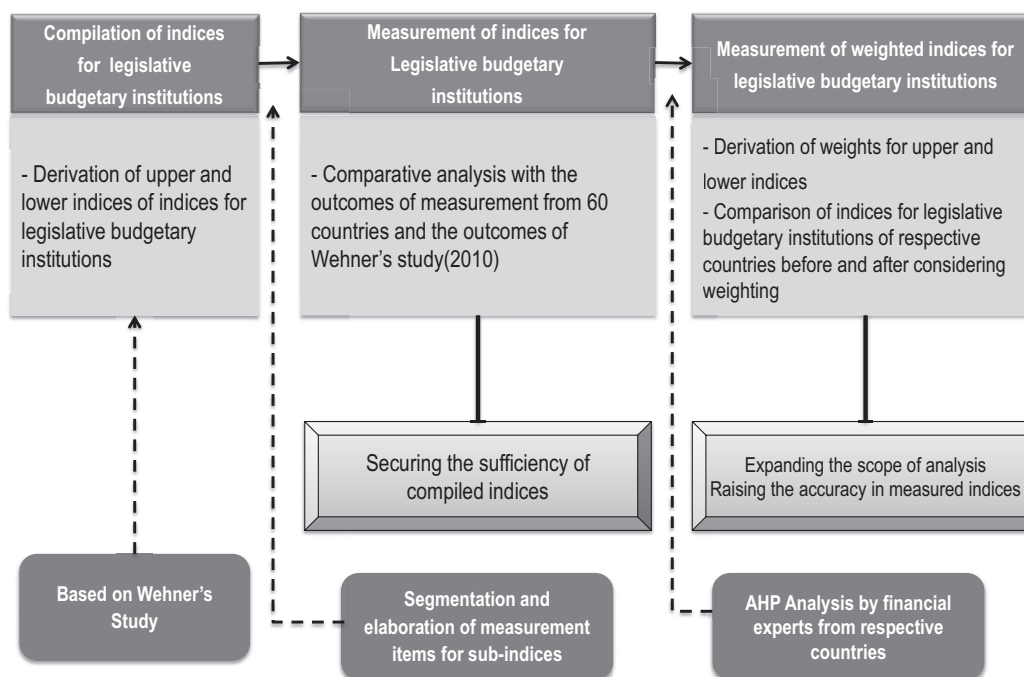
Table 1. **Studies on compilation of indices for legislative budget institutions**

| Type of study   | Study                             | Scope of measurement                                      | Method for compilation and measurement of indices  |
|---|-----------------------------------|---|--|
| Studies with focus on determining the relationship between budgetary institution and budget performance | Von Hagen (1992)                  | 13 EU countries   | Indices at each budgeting stage were classified into SIs and OCs for measurement.  |
|   | Alesina et al. (1999)             | 20 Latin American and Caribbean countries                 | Measurement was made based on ten subordinate elements forming an index.   |
|   | Gleich (2003)                     | 12 member countries of the Economic Commission for Europe | The mechanism of vertical and horizontal decision-making in forming an institution at three budgetary stages was converted into indices.   |
| Studies with focus on compilation and measurement of indices for legislative budgetary institutions     | Wehner (2006)                     | 36 countries  | Indices were divided into the categories of financial authority and organisational capacity, and each category consisted of three elements. the methods introduced by Von Hagen (1999) and Alesina et al. (1996) were applied to aggregation of indices. |
|   | Chunsoon Kim and Jieun Mun (2012) | 48 countries  | Wehner (2006) and the methodology for compilation of indices were utilised, but each subordinate element was further segmented and the method for the compilation and measurement of indices were improved.  |

Source: Author.

### 3. Study design

This study has been conducted in three phases (see Figure 1). The first phase intends to secure the fidelity of indices by deriving elements constituting an index, based on Wehner' study (2006), in order to compile indices for legislative budgetary institutions and

Figure 1. **Flow of study**

Source: Author.

by subsequently modifying and supplementing measurement items of sub-indices to make a comprehensive judgment on the attributes, structures, and functions of legislative institutions. At the next phase, indices for legislative budgetary institutions in 60 countries were measured, increasing the number of countries to be analysed and the scope of analysis in order to overcome the limits of preceding studies, in which the number of countries measured was extremely small or in which the scope of analysis was limited to countries in a specific region, and then implications were drawn by comparing the outcomes thereof with the outcomes of Wehner's study (2010). Finally, the weight for each sub-index was calculated by applying the Analytic Hierarchy Process (AHP), and indices before and after being weighted the process were compared and analysed. Preceding studies adopted a simple method for the aggregation of sub-indices, but the intention of this study to raise the accuracy in the measurement of indices and secure the validity of indices by deriving the weight for each index based on opinions sought from financial experts in many countries.

### **3.1. Methods for compilation and measurement of indices for legislative budgetary institutions**

The compilation of indices for legislative budgetary institutions is a kind of criteria and the most important analytic tool for the comparison and evaluation of legislative budgetary institutions in respective countries. In this study, indices are divided mainly into financial authority and organisational capacity without compiling indices for each budget process, as in Wehner's model (2006), and then three representative sub-indices are allocated to each category to measure indices. Among the countries so measured, 60 representative countries are selected for analysis from all regions (Europe, Asia, America, and Africa) and with diverse forms of government, as well as OECD member and non-member countries.

Questionnaire surveys conducted by the OECD and the World Bank on budget institutions in 97 countries in 2007 and 2008 in order to measure compiled indices of legislative budgetary institutions were utilised for this study, but eight questions used in the study and analysis on 90 countries subject to the questionnaire surveys on legislative budgetary institutions were segmented, modified, and supplemented to measure indices of legislative budgetary institutions. While Wehner's study (2010) was based on the surveys conducted by the OECD in 2003 and 2007 on budget institutions and the outcomes of online surveys, the first measurement in this study was made based on the outcomes of the surveys conducted by the OECD in 2007 and 2008 on budget institutions. Furthermore, an attempt was made to supplement the inadequate part through questionnaire surveys and in-depth interviews with public officials in charge of finance in the countries that gave inappropriate answers by utilising identical questions, and another attempt was made to secure the validity and up-to-datedness of indices for legislative budgetary institutions by collecting expert opinions by e-mail and surveys conducted by the embassies in such countries to conduct the second measurement. Respective sub-indices so measured are presented as complex indices,<sup>6</sup> and the form of a complex index can be expressed by the following formula (Choi and Mun, 2006: 28-29).

$$CI = \sum_{i=1}^n w_i X_i$$

CI here refers to a complex index;  $X_i$  a regularized sub-index

### **3.2. Determining weighting for indices for legislative budget institutions**

The Analytic Hierarchy Process (AHP) is one of the methods for determining the relative importance of alternatives and was designed by Saaty (1990) in 1970s. AHP is a methodology for determining the order of priority of alternatives or giving weight to alternatives through pair-wise comparison and has been utilised as a means for decision-making for various purposes, from making a simple personal decision to making a more complicated decision in banking, finance, economics, politics, sports, etc. (Stein and Ahmad, 2008:395; Saaty and Vargas, 1991). AHP is a method for determining weight for an evaluated element by organising, structuring, and systemising a decision-maker's judgments and experiences, especially when deciding on an issue to which it is hard to approach quantitatively, and can be defined as a technique for making a decision, designed to fit mathematical models at the decision-making stage.

The AHP technique to be applied in this study for determining the weighing for indices for legislative budgetary institutions undergoes the process of establishing a hierarchy related to decision-making, conducting a pair-wise comparison<sup>7</sup> of elements at different levels, estimating weighting (relative importance) of elements compared pair-wise, and deriving composite weight by aggregating weighting for evaluated elements at each level.<sup>8</sup> The data necessary for the AHP analysis in this study has been collected through online surveys (questionnaire surveys via web-sites and by e-mail) due to the nature of samples, which are overseas experts, and the data about experts in some countries has been collected directly by the author.

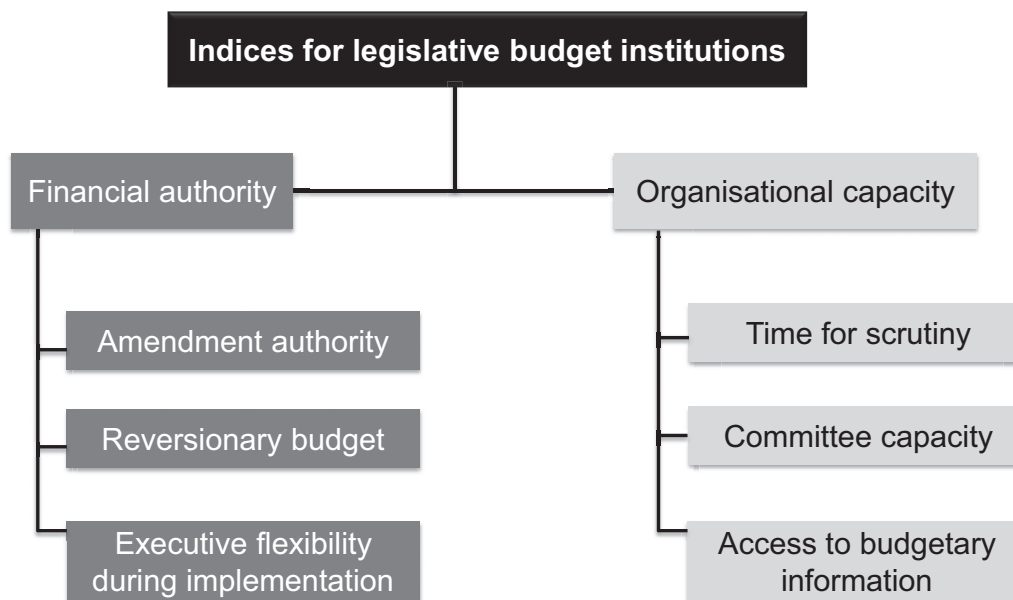
## **4. Outcomes of analysis**

### **4.1. Outcomes of compilation of indices for legislative budget institutions**

The compilation of indices for legislative budgetary institutions in this study is based on the same methodology used by Wehner (2006) to compile indices. Hence,

the indices for legislative budgetary institutions in this study are comprised of two upper indices for financial authority and organisational capacity and six sub-indices for each upper index (see Figure 2).

Figure 2. **Elements of indices for legislative budget institutions**



Source: Author.

In order to secure a template with which indices for legislative budgetary institutions can derive a framework to enable the comparison of legislative budgetary institutions between respective countries or the meaning as aggregate indices, the scale of sub-indices is further subdivided, modified, and supplemented. The details of sub-indices at each upper level and the methods for measurement<sup>9</sup> are presented in Table 2.

## **4.2. Outcomes of measurement of indices for legislative budget institutions**

### **4.2.1. Analysis of respondents**

This study utilised the questionnaire surveys conducted by the OECD and the World Bank in 2007 and 2008 on 97 countries in order to compile indices for legislative budgetary institutions. Sixty countries in whose case the reliability of responses, mainly to eight questions used for study and analysis were included in the scope of study, out of the 97 countries on which the questionnaire surveys were conducted. These 60 countries include 33 OECD member countries and 27 non-member countries as well as countries from each Continent (see Table 3).

### **4.2.2. Measurement of indices for legislative budgetary institutions and comparison with Wehner's study (2010)**

The outcomes from the measurement of indices for legislative budgetary institutions for 60 countries are presented in the values before the weighting in Table 4 are applied (a, v, f, t, c, r, BI). As described above, the indices for legislative budgetary institutions in this study are classified into upper categories, financial authority and organisational capacity,

Table 2. **Composition of indices for legislative budget institutions and methods for measurement**

| Upper level             | Lower level (Sub-indices)                                | Concept   | Questions in the surveys by OECD on budget institutions | Questions and distribution of points   |
|-------------------------|--|---|---|--|
| Financial authority     | Amendment authority                                      | The degree of the Legislature's authority to amend a budget bill presented by the Executive.  | 40  | If possible only to approve or reject a budget bill as a whole = 0 <sup>1</sup><br>If possible to make a meaningful reduction or modification to an existing budget = 2.5<br>If possible to increase the amount on condition of securing revenue = 5<br>If possible to make an adjustment of projects without changing the scale of total expenditure = 7.5<br>If the Legislature may revise a budget bill freely = 10 |
|                         | Reversionary budget                                      | Whether, and to what extent the Executive may compile and implement a temporary budget, if the Legislature decline a budget bill.   | 43  | If the government's budget bill takes effect = 0<br>If the government's budget bill takes effect during a certain period = 2.5<br>If the budget for the preceding year takes effect during a certain period = 5<br>If the Legislature shall determine a certain period by voting = 7.5<br>If impossible to make disbursements = 10   |
|                         | Executive flexibility during implementation <sup>2</sup> | Whether, and to what extent the Executive can have flexibility <sup>3</sup> during the period of implementation after the Legislature approves a budget.  | 53, 54, 61  | If possible for the government to reallocate/vire a budget in its discretion without the Legislature's approval = 0 <sup>4</sup> /If impossible = 3.3<br>If a budget has reserve funds for emergencies = 0/If impossible = 3.3<br>If possible to refuse to implement a budget = 0/If impossible = 3.3  |
| Organisational capacity | Time for Scrutiny <sup>5</sup>                           | How properly the Legislature can partially control its agenda.  | 39  | Submitted after a budget is approved = 0 <sup>6</sup><br>Submitted two months earlier = 2<br>Submitted four months earlier = 4<br>Submitted six months earlier = 6<br>Submitted eight months earlier = 8<br>More months earlier = 10   |
|                         | Committee capacity                                       | Whether the organisation of the committee can assist the Legislature in effectively influence the process of determining a policy or to what extent the structure of the committee can intervene in the budget process. | 33  | The Legislature has a single budget committee for budgeting, in addition to a standing committee, and the standing committee jointly intervenes in budgeting = 10<br>A standing committee participates in the budget committee = 7.5<br>The budget committee along handles budgets = 5<br>A standing committee determines a budget without a budget committee = 2.5<br>Other cases = 0 <sup>7</sup>                    |
|                         | Access to budgetary information <sup>8</sup>             | To what extent the Legislature can access to budgetary information in order to exercise its power to oversee the budget.  | 34  | [Number of personnel Whether affiliated] <sup>9</sup><br><Number of personnel><br>No specialized organisation = 0<br>20 people or less = 2.5<br>21 to 40 people = 5<br>41 to 60 people = 7.5<br>61 people or more = 10<br><Whether affiliated><br>If affiliated to the Legislature = 100% <sup>10</sup><br>If not affiliated to the Legislature = 50%  |



Table 2. **Composition of indices for legislative budget institutions and methods for measurement** (cont.)

## Notes:

1. Zero (0) points are awarded where the institution is the most disadvantageous to the Legislature, while ten points is the highest. Where a survey on budget institutions shows no answer or an inadequate answer with regard to sub-indices consisting of an index for legislative budgetary institutions, web-sites of the Legislature of each country and literature regarding budget institutions (treatises and reports) as well as points in Wehner (2006; 2010) have been also consulted.
2. Wehner (2010) measured whether a government may reallocate/vire a budget in its discretion without the Legislature's consent, whether a budget includes reserve funds for emergencies, whether a government may refuse to implement a budget, etc. It differs from this study in that it included and aggregated the item of refusal to implement a budget, rather than carry-over of the budget.
3. The flexibility during implementation is related to carry-over or reallocation/virement of a budget or reserve funds and means the extent of the discretionary power in implementation, such as the Executive's transfer of budget funds between budgetary items during a period of implementation. The Executive in some countries used to introduce even new expenditure items without the Legislature's approval (Carey & Shugart, 1998; Wehner, 2006).
4. In this study, three variables are put together, and full points for the Executive's control over implementation are ten points. However, the surveys on budget institutions (2007; 2008), contrary to the survey in 2003, subdivided the item of carry-over into operation budget, investment budget, and transfers and measures the average values of the answers for the three sub-items.
5. The reason the time for scrutiny is included in organisational capacity is that this study follows the resource dependency theory. In other words, it is deemed that the control of key resources due to scarcity of resources is directly related to an organisation's power as well. For it can be said that how quickly the Legislature can obtain a budget bill from the Executive and secure the resource 'time' enough for thorough scrutiny is the key resource for enhancing the Legislature's organisational capacity.
6. In Wehner (2006) and Chunsoon Kim & Jieun Mun (2012), zero (0) points were awarded up to two months, 3.3 points to up to four months, 6.7 points to six months, and 10 points to six months or more, but the method for measurement in such preceding studies is adjusted in this study as it is deemed reasonable to divide the time for scrutiny into more time-frames because in some countries a budget bill was presented even after a budget had been passed.
7. Wehner (2010) awards the highest ten points for committee capacity if the Legislature has all three committees; budget committee, standing committee, and audit committee.
8. The Executive's autocracy of budgetary information is the conventional limit that the Legislature faces (Wildavsky and Caiden, 2001: 78), but members of the Legislature can access to a budget more easily and can simplify a complicated budget bill for analysis, if they have an independent supportive organisation for budgeting. Moreover, they can oversee the Executive's budgetary information effectively, raise the sense of responsibility, and enhance transparency (Wehner, 2010: 50; Anderson, 2008).
9. Wehner (2010: 50) focussed on the Legislature's capacity for independent analysis because the survey in 2003 on budget institutions could not provide information about the quality of budgetary information provided by the Executive. It was not easy even for this study to obtain data of each country regarding measurement of the level of disclosure of budgetary information of 60 countries, and so an independent fiscal institution was chosen as a proxy variable as Wehner (2006) did, but not only whether the Legislature had an independent fiscal institution was merely measured but also the role, functions, and personnel of each independent fiscal institution were quantified to improve the method for measurement.
10. For example, 5 points 50% = 2.5 points are awarded to Belgium since 26 people works in an independent institution not affiliated to the Legislature.

Source: Author's calculations.

Table 3. Countries subject to Analysis

| Region            | OECD countries (33)  | Non-OECD countries (27)   |
|-------------------|--|---|
| Europe (31)       | Greece, Netherlands, Norway, Denmark, Germany, Luxemburg, Belgium, Sweden, Switzerland, Spain, Slovakia, U.K., Slovenia, Iceland, Ireland, Austria, Israel, Czech Republic, Turkey, France, Italy, Portugal, Poland, Finland, Hungary (25) | Latvia, Russia, Romania, Bulgaria, Serbia, Albania (6)                        |
| North America (2) | United States, Canada (2)  |   |
| Asia (9)          | Japan, Republic of Korea (2)   | Indonesia, Tajikistan, Cambodia, Taiwan, Thailand, Philippines, Hong Kong (7) |
| Oceania (3)       | New Zealand, Australia (2)   | Fiji (1)  |
| Latin America (8) | Mexico, Chile (2)  | Venezuela, Brazil, Argentina, Uruguay, Panama, Peru (6)                       |
| Africa (7)        |  | Ghana, South Africa, Malawi, Morocco, Swaziland, Uganda, Kenya (7)            |

Source: Author.

and are measured with three sub-indices in each category.<sup>10</sup> The greater the values of measured indices for legislative budgetary institutions, the greater the legislature’s power over the executive, whereas the smaller such values, the lesser the Legislature’s power.

Differences between this study and Wehner’s study (2010) in the methods for gathering data and measuring indices are as set forth in Table 4. Table 4 demonstrates differences in the measurement of four sub-indices, such as the executive’s flexibility during implementation, the time for scrutiny, committee capacity, and the access to budgetary information, in connection with the measurement of indices.

Table 4. Comparison of methods for measurement with Wehner’s Study (2010)

| Category           | Wehner (2010)   | This study  |
|--------------------|---|---|
| Collection of data | <ul style="list-style-type: none"> <li>Collected from the OECD surveys conducted in 2003 and 2007 on budget institutions and prepared by the author’s search of web-sites.</li> </ul> | <ul style="list-style-type: none"> <li>Collected from the OECD surveys in conducted 2007 and 2008 on budget institutions and preceding studies on legislative budgetary institutions of respective countries and measured data collected directly through interviews with public officials in charge of finance in respective countries, direct surveys by e-mail, and via embassies in many countries.</li> </ul>  |
| Measurement        | Executive’s flexibility during implementation   | <ul style="list-style-type: none"> <li>The item of refusal to implement a budget was included and aggregated in the OECD survey conducted in 2003 on budget institutions, rather than carry-over of the budget.</li> <li>Indices are measured separately for carry-over of a budget, reallocation/virement of the budget, and reserve funds and then aggregated.</li> <li>In cases of indices for carry-over of a budget, the indices were measured separately for operating expenses, investment budget, and transfers.</li> </ul> |
|                    | Time for scrutiny   | <ul style="list-style-type: none"> <li>Separate measures for four time-frames</li> </ul>  |
|                    | Committee capacity  | <ul style="list-style-type: none"> <li>The highest points were awarded where the legislature had all three committees; budget committee, standing committee, and audit committee, by conducting an additional survey through the legislature’s web-sites.</li> <li>Subdivided the level of the committee’s intervention in the budget process into further subcategories and converted them into variables.</li> </ul>  |
|                    | Access to budgetary information   | <ul style="list-style-type: none"> <li>Points were awarded only to a fiscal institution affiliated to the legislature.</li> <li>Certain points were also awarded to independent fiscal institutions not affiliated to the legislature, taking into consideration the fact that they somewhat assisted the legislature in its fiscal activities.</li> </ul>  |

Source: Author.

The comparison between the values of indices for legislative budgetary institutions measured and finally compiled in this study and the values measured in Wehner (2010) are as set forth in Table 5. Above all, the countries in which the indices have decreased and the Legislature's power appear to have been relatively reduced in Japan and Hungary. The budget institution indices for Japan and Hungary were reduced to a level lower than half of the outcomes of the measurement in Wehner (2010).

**Table 5. Outcomes of measurement of indices for legislative budget institutions: Comparison with Wehner's model (2010)**

| Name of Country | Financial authority |      |           |     |             |     | Organisational Capacity |     |                    |      |                       |      | Legislative Budget Institution (BI) (Rank) |          |
|-----------------|---------------------|------|-----------|-----|-------------|-----|-------------------------|-----|--------------------|------|-----------------------|------|--|----------|
|                 | Amendment authority |      | Reversion |     | Flexibility |     | Time for scrutiny       |     | Committee capacity |      | Access to information |      | Wehner                                     | Kim      |
|                 | Wehner              | Kim  | Wehner    | Kim | Wehner      | Kim | Wehner                  | Kim | Wehner             | Kim  | Wehner                | Kim  |  |          |
| Japan           | 2.5                 | 2.5  | 10.0      | 2.5 | 6.7         | 5.5 | 3.3                     | 2.0 | 6.7                | 5.0  | 5.0                   | 0.0  | 56.9(7)                                    | 29.2(25) |
| Hungary         | 10.0                | 7.5  | 10.0      | 2.5 | 6.7         | 1.1 | 3.3                     | 4.0 | 10.0               | 10.0 | 0.0                   | 0.0  | 66.7(2)                                    | 41.8(18) |
| Canada          | 2.5                 | 2.5  | 3.3       | 2.5 | 0.0         | 3.3 | 0.0                     | 2.0 | 6.7                | 10.0 | 2.5                   | 2.5  | 25.0(25)                                   | 38.0(20) |
| Greece          | 0.0                 | 7.5  | 6.7       | 5.0 | 0.0         | 3.3 | 0.0                     | 2.0 | 5.0                | 5.0  | 0.0                   | 0.0  | 19.4(28)                                   | 38.0(20) |
| Iceland         | 10.0                | 10.0 | 0.0       | 5.0 | 6.7         | 6.7 | 3.3                     | 4.0 | 3.3                | 5.0  | 0.0                   | 0.0  | 38.9(16)                                   | 51.2(11) |
| Ireland         | 0.0                 | 0.0  | 0.0       | 5.0 | 3.3         | 6.7 | 0.0                     | 2.0 | 6.7                | 2.5  | 0.0                   | 0.0  | 16.7(30)                                   | 27.0(26) |
| Italia          | 10.0                | 10.0 | 0.0       | 5.0 | 3.3         | 2.2 | 3.3                     | 4.0 | 3.3                | 5.0  | 0.0                   | 0.0  | 33.3(22)                                   | 43.7(16) |
| Korea           | 2.5                 | 2.5  | 6.7       | 5.0 | 3.3         | 0.0 | 3.3                     | 4.0 | 3.3                | 10.0 | 7.5                   | 10.0 | 44.4(14)                                   | 52.5(9)  |

Source: Author.

In the case of Japan, Wehner (2010) deemed that a fiscal institution affiliated to the Legislature existed, but it was hard, in this study, to recognise the existence of a fiscal institution affiliated to the legislature. The existence of a fiscal institution affiliated to the legislature was recognised for the purpose of this study only when an organisation exclusively dedicated to assistance to the legislature in scrutiny of budgets existed. In Japan, however, a unit in the Research and Legislative Reference Bureau of the National Diet Library merely provided budget-related information as part of its various services, and thus, it was hard to recognise it as an independent fiscal institution. Therefore, Japan's indices as a whole appeared to fall. Moreover, Wehner (2010) concluded that it was impossible to make expenditure without the legislature's approval and awarded ten points for the reversionary budget, but 2.5 points are awarded for Japan's reversionary budget institution in this study because the government's budget bill is effective for a certain period under Japan's reversionary budget institution, according to the outcomes of the OECD survey conducted in 2008 on budget institutions and this study. In the case of Hungary, the points for amendment authority are reduced because it is possible to amend a bill without altering the total amount of the budget. Moreover, Wehner (2010) awarded ten points for reversionary budget, but only 2.5 points are awarded for reversionary budget in this study, because it is found that the government's reversionary budget bill in Hungary is effective only for a limited period, according to the outcomes of the OECD survey conducted in 2008 on budget institutions and this study.

On the contrary, such indices have increased in Greece, Iceland, Ireland, Canada, and Italy, and the legislature's power in these countries appear to have risen. The points for amendment authority in Greece are raised from zero (0) to 7.5 points. In the past, the legislature had no authority to amend a bill, unless it rejected a bill as a whole by accept-or-reject vote on the budget bill. The legislature was granted the authority to amend a

budget bill by the amendment to the Constitution in 2008. Consequently, the legislature's budgeting power is strengthened and may present an amendment bill to amend any content of a budget bill, as long as such amendment bill does not alter the total amount of the budget bill that has been compiled and presented by the government on revenue and expenditure. Therefore, the legislature in Greece is presumed to have greater authority to amend a budget bill within the extent of the budget bill presented by the government. Although there is no big difference among Iceland, Ireland, and Italy in other elements, five points are awarded for reversionary budget in aforesaid countries, as confirmed by the outcomes of the surveys conducted for this study and the outcomes of the OECD surveys, whereas Wehner (2010) awarded zero (0) points for reversionary budget. In the case of Korea, the points allocated to the executive's flexibility during implementation, committee capacity, and independent fiscal institutions shows a slight increase.

### 4.3. Outcomes of measurement of indices for legislative budget institution with weighting

#### 4.3.1. Analysis of respondents

In order to inquire about the relative importance of the elements forming a legislative budgetary institution, an AHP questionnaire survey was conducted targeting experts specialising in legislative budgetary institutions in each country.<sup>11</sup> In a survey conducted for experts in the relevant area, the success or failure of the study<sup>12</sup> may depend upon the selection of questions (Kang and Lee 2000). Therefore, the National Assembly Budget Office's pool of overseas financial experts<sup>13</sup> was utilised as a population, and 44 experts were selected from among them, taking into account their nationalities and the institutions to which they belong. As a result of the selection, it was found that 26 people, from among 44 experts, belong to the legislature and make up 59.1% of the entire group, forming a group greater than the non-legislature group (40.9%).<sup>14</sup>

The period of the questionnaire survey was five months (February through June 2012), and 22 questionnaires were collected from 18 countries. The rate of collection from respondents who belonged to the legislature was 53.8%, greater by 7.6 percentage points than the rate of collection of respondents who belonged to the executive (46.2%).

Table 6. AHP distribution and collection of questionnaires

| Group            | Number of questionnaires distributed (rate) | Number of questionnaires collected (rate) |
|------------------|---|---|
| Legislature      | 26 (59.1%)                                  | 14 (53.8%)                                |
| Non-Legislature* | 18 (40.9%)                                  | 8 (46.2%)                                 |
| Total            | 44  | 22  |

\* Non-Legislature includes the Executive, international organisations, professors, etc.

Source: Author.

Out of 22 respondents, legislature respondents were 14 people (63.6%), forming the greatest group, while 8 respondents did not belong to the legislature, 4 people out of whom were public officials of the executive, in charge of finance, 2 professors and another 2 people belonged to an international organisation, respectively.

As described above, the reason more people from the legislature responded to the questionnaire survey was that approximately 60% of the survey population was comprised of personnel of the legislature. Looking into respondents' work experience, it was found that 9 people, 40.9% of the entire group, had worked for at least 11 years in the same agency

or organisation, respondents who had worked for at least 6 years were 15 people, 68.2% of the entire group, but no respondent had worked for less than one year to ensure sufficient expertise to answer the AHP questionnaire.

In the meantime, a consistency analysis with consistency indices (CI)<sup>15</sup> was conducted prior to the AHP analysis in order to verify whether there was a difference in recognition between legislative respondents and those from the executive, because the legislative respondents were more than those from the executive, among 22 respondents, and questions with a consistency index (CI) of 0.1 or less at each level were selected for the analysis. Questions with a consistency index of higher than 0.1, even at one level were excluded from the final analysis in order to raise the accuracy of questionnaires (Park, Ji Hee et al., 2009). The number of samples used to analyse each level and each sub-index was varied because it was necessary to maintain consistency at each level.

The number of samples at each level actually used in the AHP analysis are as follows:

**Table 7. Number of Samples at each Level for AHP Analysis**

| Questionnaires |           | CR < 0.1 |           |           |
|----------------|-----------|----------|-----------|-----------|
| Distributed    | Collected | Level 1  | Level 2-1 | Level 2-2 |
| 44             | 22        | 21       | 8         | 11        |

Note: Level 1 was questions about indices of financial authority and organisational capacity, Level 2-1 was questions about sub-indices of financial authority, and Level 2-2 was questions about indices of organisational capacity.

Source: Author.

Furthermore, the one-way analysis of variance was carried out to ascertain whether there was a difference in the recognition of importance of elements of an index depending upon which organisation an evaluator belonged (to the Legislative or to a non-Legislative agency).<sup>16</sup> As a result of the analysis, no difference was found in the weighting to answers to the priority of indices depending upon the difference in the organisation to which a respondent belonged.

#### **4.3.2. Determination of Weighting for Indices for Legislative Budget Institutions**

As a result of the determination of weights for the upper level, the weighting for financial authority (0.565) was higher than that for organisational capacity (0.435), which indicates that overseas experts attached more importance to financial authority. Such result was confirmed by the outcomes of the measurement of indices for legislative budgetary institutions, and differences increased after weighting was applied. Before weighting, the average index of financial authority (FA) was 23.3 points, while the average index of organisational capacity (OC) was merely 17.6 points. After weighting, however, the average index of financial authority (FA) was 27.2 points, greater by 12.4 points than 14.8 points, which was the average index of organisational capacity (OCw). With such outcomes, we can infer that the Legislature in each country pay relatively more attention to, and actually make more efforts for, the increase of financial authority, rather than organisational capacity.

As regards to items at the lower level, the indices were in the order of index for the authority to amend a bill (0.258), among indices for financial authority; the index for access to information (0.200), among indices for organisational capacity; and the index for committee capacity (0.172), which shows that the priority was given to the authority to amend a budget in raising the level of financial authority. And then, the relative priority was given to the executive's flexibility during implementation of a budget and reversary

budget respectively in the listed order, and the deviations among these sub-indices were great, which confirms that the level of the authority to amend a bill is strongly preferred. Among items for organisational capacity, the index for access to information was the highest (0.460), which can be interpreted as that the legislature recognises that the existence of a fiscal institution that is able to conduct analyses and provide information with expertise has a great impact on the compilation of a legislative budgetary institution. Whereas the index for the authority to amend a bill, among those for financial authority, was twice greater than other sub-indices, the difference between the weighting for access to information (0.460), which took the first place in organisational capacity, and the weighting for committee capacity (0.395), which took the second place, was insignificant. Instead, the weighting for the time for budget scrutiny was 0.146, showing a significantly smaller value than the two greater elements. Particularly noteworthy is that financial experts' recognition that the access to information among the items of organisational capacity was the most important element differed from the outcomes of the construction of indices for legislative budgetary institutions. In other words, on the contrary to the financial experts' recognition that the existence of a fiscal institution is an important element that determines the legislature's organisational capacity, the analysis shows that the Legislative in most countries has not made much effort to improve the access to information. Only 13 had an independent fiscal institution in their legislature, out of 60 countries subject to measurement of indices for legislative budgetary institutions, and the index of access to information in the remaining 47 countries was zero (0). As a result, the analysis shows that the index for committee capacity, which was allocated the second highest weighting after access to information, among the items of the legislature's organisational capacity, has the greatest impact, among the sub-indices for the items of organisational capacity, in the outcomes of the compilation of indices for legislative budgetary institutions. Nevertheless, it is noteworthy that it is undesirable to conclude that financial experts' recognition that access to information is the most important index, among the items of organisational capacity, when taking into consideration the fact that the legislature in many countries, except the United States, began only recently to pay more attention, and endeavor, to independent fiscal institutions.

As regards composite weighting, the highest weighting was allocated to authority to amend a bill, and access to information, committee capacity, and the executive's flexibility during implementation were allocated higher weighting, respectively in the listed order. The weighting for time for budget scrutiny was the lowest, among those for six elements.

#### **4.4. Outcomes of compilation and measurement of indices for legislative budgetary institutions with weighting**

When the weighting derived through the AHP analytical process are applied to the indices for legislative budgetary institutions compiled in this study, a formula for indices for legislative budgetary institutions as adjusted below<sup>17</sup> can be computed:

$$a\omega = a \times \omega \times n$$

...

$$r\omega = r \times \omega \times n$$

$$BI_{\omega} = (a\omega + \dots + r\omega) \times 10 \times 1/n$$

$\omega$ : Weighting derived from the outcomes of AHP analysis

n: Number of indices

Table 8. **Outcomes of determination of weighting for sub-indices of legislative budget institutions**

| Step 1      |                         |          | Step 2  |           |          |       | Composite Weighting |          |
|-------------|-------------------------|----------|---|-----------|----------|-------|---------------------|----------|
| Upper level | Weighting               | Priority | Lower level                                   | Weighting | Priority | CR    | Weighting           | Priority |
| AIJ         | Financial authority     | 1        | Amendment authority                           | 0.457     | 1        | 0.02  | 0.258               | 1        |
|             |                         |          | Reversion                                     | 0.243     | 3        |       | 0.137               | 5        |
|             |                         |          | Executive's flexibility during implementation | 0.301     | 2        |       | 0.170               | 4        |
|             | Organisational capacity | 2        | Time for scrutiny                             | 0.146     | 3        | 0.01  | 0.063               | 6        |
|             |                         |          | Committee capacity                            | 0.395     | 2        |       | 0.172               | 3        |
|             |                         |          | Access to information                         | 0.460     | 1        |       | 0.200               | 2        |
| AIP         | Financial authority     | 1        | Amendment authority                           | 0.463     | 1        | 0.088 | 0.256               | 1        |
|             |                         |          | Reversion                                     | 0.238     | 3        |       | 0.131               | 5        |
|             |                         |          | Executive's flexibility during implementation | 0.300     | 2        |       | 0.166               | 4        |
|             | Organisational capacity | 2        | Time for scrutiny                             | 0.157     | 3        | 0.058 | 0.070               | 6        |
|             |                         |          | Committee capacity                            | 0.399     | 2        |       | 0.178               | 3        |
|             |                         |          | Access to information                         | 0.444     | 1        |       | 0.199               | 2        |

Note: CR for AIP model is the arithmetic mean of the consistency indices of individual questions of AIP model.

Source: Author's calculations.

Major characteristics of indices for legislative budgetary institutions with weighting allocation are analysed as follows: Among the average points for each sub-index of indices for legislative budgetary institutions, the highest point, 9.0 points, were for amendment authority, and the second highest point, 6.5 points, were for committee capacity. 4.1 points were allocated to reversionary budget, while 3.3 points were allocated to the executive's flexibility during implementation. The lowest point was the average 1.1 points allocated to the index of access to information. The reason the lowest points were allocated to access to information is that the number of the countries in which the legislature had an independent fiscal institution was only 13.0, and so the rest of the countries could not be allocated points to it. The mean of the index of financial authority (FA) and of the index of organisational capacity (OCw) was 27.2 points and 14.8 points, respectively, and the gap between two indices exceeded the points allocated before weighting allocation,<sup>18</sup> while the average points for indices for legislative budgetary institutions (Blw) were 42.1 points, 1.2 points higher than 40.9 points (BI) before weighting.

Among the countries surveyed, the country whose legislative budgetary institution index was the highest was the United States of America, followed by Sweden, Denmark, Norway, Belgium, and the Netherlands respectively, and eight countries, except Bulgaria (8th place) and Brazil (10th place), among the top ten countries, were OECD countries.<sup>19</sup> From this result, it is possible to infer that the legislature in OECD countries has more authority over budgeting. In fact, the outcomes of the comparison of indices for legislative budgetary institutions of all 60 countries support the inference since the average legislative budgetary institution index (45.7 points) of 33 OECD countries was greater than the average legislative budgetary institution index (37.7 points) of 27 non-OECD countries. Such outcomes are consistent with the results of the compilation of indices for legislative budgetary institutions, which demonstrates the fact that the difference in amendment authority depending upon the form of government is greater than the difference depending upon the OECD membership.

The characteristics of the change in indices of each country before and after weighting allocation are described below.

Firstly, the country whose legislative budgetary institution index was the highest was still the United States of America (92.8 points before weighting; 94.8 points after weighting). On the contrary, Chile has the lowest legislative budgetary institution index, in which case points dropped from 19.2 points before weighting to 17.6 points after weighting.

Secondly, the countries whose points changed the greatest amount after weighting were those whose points for amendment authority were high, such as Belgium, Bulgaria, Austria, Philippines, and Fiji. The countries that showed the slightest change in their points after weighting were Japan, Australia, Venezuela, Latvia, and Korea, which had very low points for amendment authority or access to information, where the ratio of weighting was the highest, and thus it could not have favourable effects from the application of weighting.

Thirdly, the six countries ranked at the top 10% of all 60 countries were the United States, Sweden, Denmark, Mexico, Norway, and Brazil before weighting, but the order of the countries ranked at the top 10% after weighting was changed to United States, Sweden, Denmark, Norway, Belgium, and Mexico, with Brazil ranked back to the 10th place, Belgium ranked from the 7th place to the 5th place, and Netherlands rising from the 9th place to the 7th place, respectively. The analysis shows that the reason that the indices of Belgium and Netherlands increased was that both countries obtained greater weighting for the indices of amendment authority and access to information. On the contrary, six countries ranked as the bottom 10% of all 60 countries before weighting were Chile, Australia, New Zealand, United Kingdom, France, and Thailand in the listed order, but the countries ranked at the bottom 10% after weighting were Chile, Thailand, Australia, France, New Zealand, and Malawi. The legislatures of Australia, New Zealand, and Malawi had less influence even among countries under parliamentary cabinet system.

Finally, the analysis shows that the index for financial authority in all five top-ranking countries was higher than the index for organisational capacity. In the case of Mexico ranked in the 6th place, however, the index for organisational capacity was higher than the index for financial authority, and the main reason for such result was the existence of a fiscal institution in the legislature. The countries ranked in the top 25% were 15 countries, including Austria, but only in the case of Korea and Mexico, among them was the index for organisational capacity higher than the index for financial authority. Austria was ranked in the 10th place, but it increased to the 15th place after weighting, because it obtained higher points for the index of amendment authority (10 points), among indices for financial authority. The countries whose legislative budgetary institution index is relatively lower than others before weighting were Chile and the members of the British Commonwealth, such as Australia, New Zealand, and United Kingdom. After weighting, the order was partially changed to Chile, Thailand, Australia, France, and New Zealand. The United Kingdom was raised from the 57th place to the 52nd place, because the United Kingdom established and operates a new fiscal institution, called the Office for Budget Responsibility (OBR), and so weighting was allocated to the index of organisational capacity. In the case of Korea, it was ranked at the 10th place before weighting, but its ranking dropped to the 14th place after weighting. The main reason for the slight downfall of the ranking is that it obtained lower points for the index of amendment authority, although the greatest weighting was to the index. The indices for legislative budgetary institutions finally determined by ranking after applying composite weighting are as listed in Table 9.



Table 9. Ranking of indices for legislative budget institutions of each country after weighting

| Ranking | Name of Country | Financial Authority |                |           |                |             |                | Organisation capacity |                |           |                |          |                | Budget Institution Index<br>(BI vs BI <sub>ω</sub> ) (Rank) |                 |
|---------|-----------------|---------------------|----------------|-----------|----------------|-------------|----------------|-----------------------|----------------|-----------|----------------|----------|----------------|---|-----------------|
|         |                 | Amendment authority |                | Reversion |                | Flexibility |                | Time                  |                | Committee |                | Research |                |   |                 |
|         |                 | a                   | a <sub>ω</sub> | v         | v <sub>ω</sub> | F           | f <sub>ω</sub> | t                     | t <sub>ω</sub> | c         | c <sub>ω</sub> | r        | r <sub>ω</sub> | BI  | BI <sub>ω</sub> |
| 1       | United States   | 10.0                | 15.5           | 10.0      | 8.2            | 7.7         | 7.9            | 8.0                   | 3.0            | 10.0      | 10.3           | 10.0     | 12.0           | 92.8(1)   | 94.8(1)         |
| 2       | Sweden          | 10.0                | 15.5           | 10.0      | 8.2            | 6.7         | 6.8            | 4.0                   | 1.5            | 10.0      | 10.3           | 1.3      | 1.6            | 70.1(2)   | 73.3(2)         |
| 3       | Denmark         | 10.0                | 15.5           | 5.0       | 4.1            | 10.0        | 10.2           | 4.0                   | 1.5            | 5.0       | 5.2            | 3.8      | 4.6            | 63.0(3)   | 68.4(3)         |
| 4       | Norway          | 10.0                | 15.5           | 10.0      | 8.2            | 3.3         | 3.4            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 62.2(4)   | 64.8(4)         |
| 5       | Belgium         | 10.0                | 15.5           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 10.0      | 10.3           | 2.5      | 3.0            | 54.7(7)   | 61.7(5)         |
| 6       | Mexico          | 2.5                 | 3.9            | 10.0      | 8.2            | 3.3         | 3.4            | 4.0                   | 1.5            | 10.0      | 10.3           | 7.5      | 9.0            | 62.2(4)   | 60.5(6)         |
| 7       | Netherlands     | 10.0                | 15.5           | 7.5       | 6.2            | 3.3         | 3.4            | 4.0                   | 1.5            | 2.5       | 2.6            | 5.0      | 6.0            | 53.8(8)   | 58.5(7)         |
| 8       | Bulgaria        | 10.0                | 15.5           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 10.0      | 10.3           | 0.0      | 0.0            | 50.5(14)  | 56.7(8)         |
| 9       | Switzerland     | 10.0                | 15.5           | 10.0      | 8.2            | 3.3         | 3.4            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 53.8(8)   | 56.2(9)         |
| 10      | Brazil          | 7.5                 | 11.6           | 10.0      | 8.2            | 3.3         | 3.4            | 6.0                   | 2.3            | 7.5       | 7.7            | 0.0      | 0.0            | 57.2(6)   | 55.3(10)        |
| 11      | Iceland         | 10.0                | 15.5           | 5.0       | 4.1            | 6.7         | 6.8            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 51.2(12)  | 55.2(11)        |
|         | Indonesia       | 10.0                | 15.5           | 5.0       | 4.1            | 6.7         | 6.8            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 51.2(12)  | 55.2(12)        |
| 13      | Luxembourg      | 10.0                | 15.5           | 10.0      | 8.2            | 2.2         | 2.2            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 52.0(11)  | 54.4(13)        |
| 14      | Korea           | 2.5                 | 3.9            | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                   | 1.5            | 10.0      | 10.3           | 10.0     | 12.0           | 52.5(10)  | 53.0(14)        |
| 15      | Austria         | 10.0                | 15.5           | 5.0       | 4.1            | 2.2         | 2.2            | 2.0                   | 0.8            | 7.5       | 7.7            | 0.0      | 0.0            | 44.5(19)  | 50.6(15)        |
| 16      | Venezuela       | 7.5                 | 11.6           | 5.0       | 4.1            | 6.7         | 6.8            | 6.0                   | 2.3            | 5.0       | 5.2            | 0.0      | 0.0            | 50.3(15)  | 50.0(16)        |
| 17      | Germany         | 10.0                | 15.5           | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 45.5(17)  | 49.4(17)        |
| 18      | Finland         | 10.0                | 15.5           | 2.5       | 2.1            | 4.4         | 4.5            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 43.2(24)  | 47.8(18)        |
| 19      | Uganda          | 2.5                 | 3.9            | 2.5       | 2.1            | 5.5         | 5.6            | 2.0                   | 0.8            | 10.0      | 10.3           | 5.0      | 6.0            | 45.8(16)  | 47.7(19)        |
| 20      | Cambodia        | 7.5                 | 11.6           | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 43.7(22)  | 47.5(20)        |
|         | Italy           | 10.0                | 15.5           | 5.0       | 4.1            | 2.2         | 2.2            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 43.7(22)  | 47.5(20)        |
| 22      | Czech Republic  | 7.5                 | 11.6           | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 44.2(20)  | 45.9(22)        |
| 23      | Latvia          | 5.0                 | 7.7            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 45.5(17)  | 45.1(23)        |
| 24      | Turkey          | 7.5                 | 11.6           | 7.5       | 6.2            | 0.0         | 0.0            | 4.0                   | 1.5            | 7.5       | 7.7            | 0.0      | 0.0            | 44.2(20)  | 45.0(24)        |
| 25      | Hungary         | 7.5                 | 11.6           | 2.5       | 2.1            | 1.1         | 1.1            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 41.8(25)  | 44.4(25)        |
| 26      | Portugal        | 10.0                | 15.5           | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 40.0(28)  | 43.8(26)        |
| 27      | Romania         | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 41.3(26)  | 42.9(27)        |
| 28      | Philippines     | 7.5                 | 11.6           | 5.0       | 4.1            | 4.4         | 4.5            | 0.0                   | 0.0            | 5.0       | 5.2            | 0.0      | 0.0            | 36.5(38)  | 42.3(28)        |
| 29      | Greece          | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 38.0(30)  | 41.7(29)        |
|         | Servia          | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 38.0(30)  | 41.7(29)        |
| 31      | Poland          | 7.5                 | 11.6           | 0.0       | 0.0            | 1.1         | 1.1            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 37.7(34)  | 40.9(31)        |
| 32      | Slovenia        | 7.5                 | 11.6           | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                   | 1.5            | 5.0       | 5.2            | 1.3      | 1.6            | 38.0(30)  | 39.9(32)        |
| 33      | Canada          | 2.5                 | 3.9            | 2.5       | 2.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 10.0      | 10.3           | 2.5      | 3.0            | 38.0(30)  | 38.9(33)        |
| 34      | Spain           | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 2.5       | 2.6            | 0.0      | 0.0            | 37.2(36)  | 38.6(34)        |
|         | Uruguay         | 2.5                 | 3.9            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 41.3(26)  | 38.6(34)        |
| 36      | Fiji            | 10.0                | 15.5           | 5.0       | 4.1            | 0.0         | 0.0            | 2.0                   | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 32.5(45)  | 38.2(36)        |
| 37      | Slovakia        | 10.0                | 15.5           | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 31.7(47)  | 36.9(37)        |
| 38      | Argentina       | 2.5                 | 3.9            | 5.0       | 4.1            | 6.7         | 6.8            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 38.7(29)  | 35.8(38)        |
| 39      | Kenya           | 2.5                 | 3.9            | 7.5       | 6.2            | 2.2         | 2.2            | 2.0                   | 0.8            | 5.0       | 5.2            | 2.5      | 3.0            | 36.2(39)  | 35.3(39)        |
| 40      | Hong Kong       | 5.0                 | 7.7            | 7.5       | 6.2            | 1.1         | 1.1            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 34.3(42)  | 34.9(40)        |
| 41      | Israel          | 0.0                 | 0.0            | 5.0       | 4.1            | 5.5         | 5.6            | 2.0                   | 0.8            | 10.0      | 10.3           | 0.0      | 0.0            | 37.5(35)  | 34.7(41)        |
| 42      | Albania         | 2.5                 | 3.9            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 35.3(40)  | 34.6(42)        |
|         | Swaziland       | 2.5                 | 3.9            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 35.3(40)  | 34.6(42)        |
| 44      | Morocco         | 2.5                 | 3.9            | 0.0       | 0.0            | 2.2         | 2.2            | 2.0                   | 0.8            | 10.0      | 10.3           | 2.5      | 3.0            | 32.0(46)  | 33.7(44)        |
| 45      | Russia          | 5.0                 | 7.7            | 5.0       | 4.1            | 1.1         | 1.1            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 33.5(43)  | 32.7(45)        |
| 46      | Peru            | 7.5                 | 11.6           | 0.0       | 0.0            | 1.1         | 1.1            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 29.3(49)  | 32.3(46)        |
| 47      | Tadzhikistan    | 0.0                 | 0.0            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 37.2(36)  | 32.2(47)        |
| 48      | Panama          | 2.5                 | 3.9            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 33.0(44)  | 30.0(48)        |
| 49      | Japan           | 2.5                 | 3.9            | 2.5       | 2.1            | 5.5         | 5.6            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 29.2(50)  | 29.1(49)        |
| 50      | South Africa    | 0.0                 | 0.0            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 31.2(48)  | 28.1(50)        |

Table 9. **Ranking of indices for legislative budget institutions of each country after weighting (cont.)**

| Ranking | Name of Country | Financial Authority |                |           |                |             |                | Organisation capacity |                |           |                |          |                | Budget Institution Index<br>(BI vs BI <sub>ω</sub> ) (Rank) |                 |
|---------|-----------------|---------------------|----------------|-----------|----------------|-------------|----------------|-----------------------|----------------|-----------|----------------|----------|----------------|---|-----------------|
|         |                 | Amendment authority |                | Reversion |                | Flexibility |                | Time                  |                | Committee |                | Research |                |   |                 |
|         |                 | a                   | a <sub>ω</sub> | v         | v <sub>ω</sub> | F           | f <sub>ω</sub> | t                     | t <sub>ω</sub> | c         | c <sub>ω</sub> | r        | r <sub>ω</sub> | BI  | BI <sub>ω</sub> |
| 51      | Taiwan          | 2.5                 | 3.9            | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                   | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 27.5(51)  | 26.2(51)        |
| 52      | United Kingdom  | 2.5                 | 3.9            | 5.0       | 4.1            | 1.1         | 1.1            | 0.0                   | 0.0            | 2.5       | 2.6            | 2.5      | 3.0            | 22.7(57)  | 24.5(52)        |
| 53      | Ghana           | 2.5                 | 3.9            | 7.5       | 6.2            | 1.1         | 1.1            | 2.0                   | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 26.0(53)  | 24.2(53)        |
| 54      | Ireland         | 0.0                 | 0.0            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                   | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 27.0(52)  | 23.8(54)        |
| 55      | Malawi          | 0.0                 | 0.0            | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 25.5(54)  | 22.3(55)        |
| 56      | New Zealand     | 2.5                 | 3.9            | 3.3       | 2.7            | 3.3         | 3.4            | 2.0                   | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 22.7(57)  | 22.1(56)        |
| 57      | France          | 2.5                 | 3.9            | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                   | 1.5            | 7.5       | 7.7            | 0.0      | 0.0            | 23.3(56)  | 21.9(57)        |
| 58      | Australia       | 2.5                 | 3.9            | 2.5       | 2.1            | 3.3         | 3.4            | 2.0                   | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 21.3(59)  | 21.0(58)        |
| 59      | Thailand        | 0.0                 | 0.0            | 5.0       | 4.1            | 1.1         | 1.1            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 25.2(55)  | 19.8(59)        |
| 60      | Chile           | 2.5                 | 3.9            | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                   | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 19.2(60)  | 17.6(60)        |

Source: Author's calculations.

## 5. Conclusion and implications

This study has been conducted to compile indices for measuring legislative budgetary institutions of each country in the course of critically reviewing preceding studies on theories and models of legislative budgetary institutions and making indices for legislative budgetary institutions more relevant by deriving and applying weighting to sub-indices of each index. Implications of this study can be presented as mainly focussed on differences between this study and preceding studies, including Wehner's (2006; 2010).

Above all, this study approached the legislature's capacity from a comprehensive and three-dimensional point of view in order to compile sub-indices of each legislative budgetary institution index. Preceding studies (Von Hagen, 1992; Alesina et al., 1999; Gleich, 2003) on the compilation of indices of legislative budgetary institutions failed to comprehensively explain attributes of various legislative budgetary institutions of each country by deeming budget institutions as part of the budget process and thus overly focusing the measurement of budget institutions on the structural attributes and had their limitations in that only the static aspects of budget institutions were emphasised in measuring such indices. On the contrary, the intention of this study is to approach the financial authority vested to the Legislature and the Legislature's capacity to exercise such authority from a comprehensive point of view in measuring such indices, as Wehner (2006; 2010) did. Furthermore, another intention of this study is to ensure adequacy in the process of compilation and measurement of indices by subdividing indices of the indexes presented in Wehner's study (2006) and by expanding the scope of countries subject to comparison and measurement, taking into consideration the characteristics of budget institutions. Furthermore, this study is significant in that the legislature's functional aspect has been examined by measuring the capacity of a fiscal institution or committee that recently emerged in order to enhance the legislature's financial capacity.

In the meantime, the accuracy of indices in this study has been improved by deriving relative weighting for sub-indices of each legislative budgetary institution index through AHP questionnaire surveys and analyses and by comparing them with those in preceding studies. In other words, distinctive from Wehner's studies (2006; 2010), in which sub-indices were implicated in each index in a two-dimensional and juxtapositional manner,

the relative importance that each of the selected sub-indices was measured in this study and weighting for each index was allocated to compile and measure indices. The implication of such AHP analysis can be found from the effort to ensure the practicality and accuracy of measurement of indices and to present a scheme to compile more universal and relevant indices.

Notwithstanding the significance of this study, it has the following limitations, which are expected to be rectified and supplemented by subsequent studies. Efforts have been made to improve the adequacy of elements of indices for legislative budgetary institutions, above all, it is necessary to take into account not only the legislature's authority and functions in regard to the establishment of regulations on finance, auditors' position, and the utilisation of pre-budgeting but also sub-indices with more various elements are added, such as elements of legal systems and related agencies. This study has another limitation in that it fails to fully explain the actual conditions of operation of institutions in the unique political, social, and economic settings of each country. Although the legislative budgetary institutions of each country can be expressed with quantified indices, the allocation of financial authority and practices between the executive and the legislature might exist, which cannot be completely connoted by such indices. For example, it is apparent that the executive in Uganda, Cambodia, etc. is dominant over the implementation of the budget under the presidential system, but their indices for legislative budgetary institutions were ranked at the top level. This means that legislative budgetary institutions that can guarantee the legislature's financial authority has been prepared in such countries but related institutions failed to function as intended in actual operation. If the fact that the executive takes the initiative in state management in developing countries is taken into consideration, it can be said that quantified indices cannot reflect the realities of a particular country properly. Therefore, it is necessary to continue study and research through analysis of cases to identify and explain the gap that appears between established institutions and the practical operation of such institutions.

## Notes

1. A budgetary institution affects, not only the participants' strategies and the possibility of mutual co-operations of participants, but also the extent of each participant's responsibilities for performance of a budget (Hallerberg, 2009: 19; Von Hagen, 2007: 27-29).
2. The term "democracy" here means that the participation of the legislature, the representative body of citizens, is guaranteed institutionally in the process of formulating a budget bill and that a budget bill is formulated in accordance with democratic procedures, not under executive secrecy and autocracy.
3. For more details on preceding studies, refer to Von Hagen (1992); Alesina et al. (1999); Gleich (2003); Wehner (2006) and Kim and Mun (2012).
4. The ten sub-indices are: 1) Provisions of the constitution and budgetary laws regarding fiscal deficits; 2) whether macroeconomic programmes may impose constraints on the executive during a budget compilation period; 3) the extent of the Government's discretion in determining the limits on debts; 4) whether institutions at the stage of compilation of a budget are vertical or horizontal; 5) the legislature's power to revise a budget; 6) the level of the executive's discretion in implementation, when the legislature decline a budget; 7) the executive's method for reallocation or virement for measuring the executive's discretion in implementation; 8) whether the executive may reduce the amount of a budget after the budget is passed; 9) the level of contracts on obligations between the central government and other agencies; 10) and the measurement of discretion in obligations between a local government and public corporations.
5. Lienert (2005) attempted to confirm that the clearer the level of separation of power between the legislature and the executive was, the greater the legislature's power in determining a budget

became. For this purpose, Lienert quantified the level of separation of power between the legislature and the executive and analysed political systems under which the legislature had a strong budgetary prerogative. For such analysis, 28 OECD countries were classified into five types depending upon the form of government, the legislature's budgetary prerogative in such countries was converted into indices. For more details, refer to Lienert's study (2005).

6. The term "complex index" is a concept that summarises a number of sub-indices and includes all quantitative and qualitative values measured with a series of observed facts. Furthermore, a complex index often indicates the relative spatial position or temporally changing direction of a certain sector (a certain country, region, or industry). In general, a complex index is a useful means that integrates and organises a large quantity of information about the relevant subject in a simple and clear form. Thus, a complex index is utilised as a tool for communicating opinions or making decisions on policies related to various political, economic, or social areas issues or affairs. In particular, it is a concept necessary for conducting a cross-sectional comparison of specific economic phenomena in a number of countries, regions, or industries or for analysing time-series trends in different time-frames and useful for grasping general trends, establishing goals for performance, evaluating the level of achievement, and establishing the order of priority of policies.
7. When the AHP technique is applied, outcomes are derived through pair-wise comparisons, based on an individual's subjective judgments, and thus it is crucial how resolutely consistency in the outcomes of questionnaires can be maintained, inconsistency is linked directly to the issue of reliability, and therefore the consistency index (CI) of each answer collected through questionnaire surveys in order to apply AHP has been analysed thoroughly.
8. Depending upon how to aggregate priority vectors of individual questions and finally induce the priority vector of the entire group, the aggregates are classified into Aggregate Individual Priority (AIP) and Aggregate Individual Judgment (AIJ) (Saaty, 1990; Lee, 2000). Since AIJ that maintains the reciprocal axiom is most broadly applied, the geometric mean approach is applied to this study.
9. The methods to measure variables are usually discussed at the part regarding design of a study. However, upper and lower indices of legislative budgetary institutions are compiled in this study, based on the methods presented by preceding studies for the compilation of indices, but questions for each sub-index are segmented and the contents are modified and supplemented in order to consider characteristics of legislative budgetary institution three-dimensionally, differently from preceding studies. In other words, the intention was to present it as part of outcomes of the study in that a further improved framework was presented to compile and measure indices for legislative budgetary institutions.
10. Most indices of budget institutions are aggregated in an additive form (Von Hagen, 1992; Lienert, 2005; Alt and Lassen, 2006; Hallerberg et al. 2007; Wehner, 2010). While the additive aggregation method has an advantage to simplify phenomena (Wehner, 2010), theoretically, a problem can possibly arise in the substitutability of elements which are sub-indices. In other words, the idea to compile indices by aggregating all sub-indices is based on the premise that questions have equal weighting. Moreover, it is also based on the premise that different elements of an index are fully substitutable. In order to look into the calculation of indices through linear summation, Spearman correlation test was conducted in this study. When the most extreme values were taken from outcomes of the analysis, the lowest coefficient appeared to be 0.880, and the rank correlation between indices appeared statistically meaningfully high, no matter which index was used. Therefore, it was acceptable to calculate indices through linear summation, and it was found that substitutability existed between sub-indices.
11. For empirical analysis, Expert Choice 2000, which is one of AHP analysis programmes, and Microsoft Excel 2007 were used.
12. In AHP analysis, not many respondents are needed. In certain cases, one person may make a decision or several people may make a decision collectively. It is more important, rather than the number of respondents, to consider whether respondents have expertise and whether they can actually influence decision-making (Lee, Byung Wu et al., 2011).
13. The National Assembly Budget Office's pool of overseas financial experts is a database mainly containing data about budget experts from various countries, who attended meetings of the network of Parliamentary Budget Officials (PBO) held by OECD and financial experts from international organisations and academic circles and have been updated yearly since the Budget Office was inaugurated. 44 people so selected are budget experts from many countries in the world, comprised of public officials involved in the budget process (in the Legislature and in the Executive), budget researchers (professors and doctors), staff members of international organisations (OECD, IMF), etc.

14. The reason was that Legislature experts comprised approximately 60% of the pool of overseas financial experts, which was the population. If there was a difference in the weights derived by such sampling according to the responses from the Legislature group and the non-Legislature group, however, it was possible to obtain outcomes biased as a result of selection of an excessive number of people from a specific group. Therefore, it was necessary to verify whether there was a statistically meaningful difference in the relative importance of each item forming the legislative budgetary institutions that respondents from both groups recognised.
15. Generally, if the consistency ratio does not exceed 0.1, it is classified as reasonable, if it does not exceed 0.2, as acceptable, but if it exceeds 0.2, as unacceptable (Saaty, 1990: 17-21).
16. For instance, a public official from the Executive, who used to focus on budget compilation, may attach importance to the flexibility during implementation among six sub-indices, while a public official from the Legislature, who is concerned about budget scrutiny, may give the higher priority to the authority to amend a budget.
17. In order to ascertain whether there is a meaningful difference in the ranking of indices for legislative budgetary institutions of all 60 countries after weighting allocation, Spearman coefficients were measured to test correlations between variables that have a nominal scale. Since the indices for legislative budgetary institutions were measured with information entered directly by individual countries, they have the nature of complex indices for comparison of attributes of institutions in many countries. Therefore, the relative position of each country may be determined by the priority indicated by such indices. If the statistically meaningful difference in the ranking of all countries before and after being weighted is great, however, the statistical safety of the model that compiles such indices may be questioned. Since it is confirmed as a result of Spearman correlation analysis that two variables have a statistically high correlation of 0.975 and the change in the ranking of all 60 countries, which arises after being weighted, is not statistically meaningful, the safety of the model of application of weights is deemed secured.
18. The reason is that the weighting for the index of financial authority (0.565) is higher than the weighting for the index of organisational capacity.
19. Legislative budget institution indices are power relations between the Executive and the Legislature in the budget process, which are converted into numerical values, and the higher indices increase, based on median values, the greater the Legislature's power over the budget process becomes. Be careful to avoid confusing measured values of indices with points usually expressed percentile and deeming that an index with the greater value is superior. For example, United States' indices had the highest values and there was a large gap of at least 20 points between United States and Sweden whose indices had the second highest values. This means that the United States Legislature is in an absolutely superior position. However, the latest shutdown of the United States Government can be counted as a problem arising from the Legislature's excess authority over the budget process. In other words, if the values of indices are excessively high or low, the balance in the distribution of powers between the Executive and the Legislature over the budget process may be broken, and losses at the national level and a crisis may be possibly caused as excessive powers are given to a specific participant.

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## ANNEX A

**Outcomes of measurement of indices for legislative budget institutions:  
Comparison with Wehner's model (2010)**

| Country        | Financial authority |      |           |      |             |      | Organisational capacity |     |           |      |          |      | Legislative Budget Institution Index (BI) (Rank) |          |
|----------------|---------------------|------|-----------|------|-------------|------|-------------------------|-----|-----------|------|----------|------|--|----------|
|                | Amendment authority |      | Reversion |      | Flexibility |      | Time                    |     | Committee |      | Research |      | Wehner   | Kim      |
|                | Wehner              | Kim  | Wehner    | Kim  | Wehner      | Kim  | Wehner                  | Kim | Wehner    | Kim  | Wehner   | Kim  |  |          |
| Australia      | 2.5                 | 2.5  | 3.3       | 2.5  | 0.0         | 3.3  | 0.0                     | 2.0 | 6.7       | 2.5  | 0.0      | 0.0  | 20.8(26)   | 21.3(30) |
| Austria        | 10.0                | 10.0 | 6.7       | 5.0  | 6.7         | 2.2  | 3.3                     | 2.0 | 6.7       | 7.5  | 0.0      | 0.0  | 55.6(8)  | 44.5(13) |
| Belgium        | 10.0                | 10.0 | 10.0      | 5.0  | 0.0         | 3.3  | 0.0                     | 2.0 | 8.3       | 10.0 | 0.0      | 2.5  | 47.2(13)   | 54.7(6)  |
| Canada         | 2.5                 | 2.5  | 3.3       | 2.5  | 0.0         | 3.3  | 0.0                     | 2.0 | 6.7       | 10.0 | 2.5      | 2.5  | 25.0(25)   | 38.0(20) |
| Czech Republic | 10.0                | 7.5  | 6.7       | 5.0  | 0.0         | 0.0  | 3.3                     | 4.0 | 5.0       | 10.0 | 0.0      | 0.0  | 41.7(15)   | 44.2(14) |
| Denmark        | 10.0                | 10.0 | 6.7       | 5.0  | 3.3         | 10.0 | 6.7                     | 4.0 | 6.7       | 5.0  | 0.0      | 3.8  | 55.6(8)  | 63.0(3)  |
| Finland        | 10.0                | 10.0 | 0.0       | 2.5  | 6.7         | 4.4  | 3.3                     | 4.0 | 3.3       | 5.0  | 0.0      | 0.0  | 38.9(16)   | 43.2(17) |
| France         | 2.5                 | 2.5  | 0.0       | 0.0  | 0.0         | 0.0  | 3.3                     | 4.0 | 5.0       | 7.5  | 0.0      | 0.0  | 18.1(29)   | 23.3(27) |
| Germany        | 10.0                | 10.0 | 6.7       | 5.0  | 3.3         | 3.3  | 6.7                     | 4.0 | 5.0       | 5.0  | 0.0      | 0.0  | 52.8(10)   | 45.5(12) |
| Greece         | 0.0                 | 7.5  | 6.7       | 5.0  | 0.0         | 3.3  | 0.0                     | 2.0 | 5.0       | 5.0  | 0.0      | 0.0  | 19.4(28)   | 38.0(20) |
| Hungary        | 10.0                | 7.5  | 10.0      | 2.5  | 6.7         | 1.1  | 3.3                     | 4.0 | 10.0      | 10.0 | 0.0      | 0.0  | 66.7(2)  | 41.8(18) |
| Iceland        | 10.0                | 10.0 | 0.0       | 5.0  | 6.7         | 6.7  | 3.3                     | 4.0 | 3.3       | 5.0  | 0.0      | 0.0  | 38.9(16)   | 51.2(11) |
| Ireland        | 0.0                 | 0.0  | 0.0       | 5.0  | 3.3         | 6.7  | 0.0                     | 2.0 | 6.7       | 2.5  | 0.0      | 0.0  | 16.7(30)   | 27.0(26) |
| Italia         | 10.0                | 10.0 | 0.0       | 5.0  | 3.3         | 2.2  | 3.3                     | 4.0 | 3.3       | 5.0  | 0.0      | 0.0  | 33.3(22)   | 43.7(16) |
| Japan          | 2.5                 | 2.5  | 10.0      | 2.5  | 6.7         | 5.5  | 3.3                     | 2.0 | 6.7       | 5.0  | 5.0      | 0.0  | 56.9(7)  | 29.2(25) |
| Luxembourg     | 10.0                | 10.0 | 10.0      | 10.0 | 0.0         | 2.2  | 3.3                     | 4.0 | 6.7       | 5.0  | 0.0      | 0.0  | 50.0(12)   | 52.0(10) |
| Mexico         | 7.5                 | 2.5  | 10.0      | 10.0 | 0.0         | 3.3  | 0.0                     | 4.0 | 6.7       | 10.0 | 7.5      | 7.5  | 52.8(10)   | 62.2(4)  |
| Netherlands    | 10.0                | 10.0 | 6.7       | 7.5  | 6.7         | 3.3  | 6.7                     | 4.0 | 3.3       | 2.5  | 2.5      | 5.0  | 59.7(6)  | 53.8(7)  |
| New Zealand    | 2.5                 | 2.5  | 3.3       | 3.3  | 6.7         | 3.3  | 0.0                     | 2.0 | 3.3       | 2.5  | 0.0      | 0.0  | 26.4(24)   | 22.7(28) |
| Norway         | 10.0                | 10.0 | 10.0      | 10.0 | 6.7         | 3.3  | 3.3                     | 4.0 | 6.7       | 10.0 | 0.0      | 0.0  | 61.1(4)  | 62.2(4)  |
| Poland         | 7.5                 | 7.5  | 0.0       | 0.0  | 0.0         | 1.1  | 3.3                     | 4.0 | 6.7       | 10.0 | 5.0      | 0.0  | 37.5(20)   | 37.7(22) |
| Portugal       | 10.0                | 10.0 | 6.7       | 5.0  | 0.0         | 0.0  | 3.3                     | 4.0 | 3.3       | 5.0  | 0.0      | 0.0  | 38.9(16)   | 40.0(19) |
| Slovakia       | 10.0                | 10.0 | 0.0       | 0.0  | 3.3         | 0.0  | 3.3                     | 4.0 | 3.3       | 5.0  | 0.0      | 0.0  | 33.3(22)   | 31.7(24) |
| Korea          | 2.5                 | 2.5  | 6.7       | 5.0  | 3.3         | 0.0  | 3.3                     | 4.0 | 3.3       | 10.0 | 7.5      | 10.0 | 44.4(14)   | 52.5(9)  |
| Spain          | 5.0                 | 7.5  | 6.7       | 5.0  | 3.3         | 3.3  | 3.3                     | 4.0 | 5.0       | 2.5  | 0.0      | 0.0  | 38.9(16)   | 37.2(23) |
| Sweden         | 10.0                | 10.0 | 10.0      | 10.0 | 6.7         | 6.7  | 3.3                     | 4.0 | 6.7       | 10.0 | 2.5      | 1.3  | 65.3(3)  | 70.1(2)  |
| Switzerland    | 10.0                | 10.0 | 10.0      | 10.0 | 10.0        | 3.3  | 3.3                     | 4.0 | 3.3       | 5.0  | 0.0      | 0.0  | 61.1(4)  | 53.8(7)  |
| Turkey         | 5.0                 | 7.5  | 10.0      | 7.5  | 0.0         | 0.0  | 3.3                     | 4.0 | 3.3       | 7.5  | 0.0      | 0.0  | 36.1(21)   | 44.2(14) |
| United Kingdom | 2.5                 | 2.5  | 3.3       | 5.0  | 3.3         | 1.1  | 0.0                     | 0.0 | 3.3       | 2.5  | 0.0      | 2.5  | 20.8(26)   | 22.7(28) |
| United States  | 10.0                | 10.0 | 10.0      | 10.0 | 6.7         | 7.7  | 10.0                    | 8.0 | 6.7       | 10.0 | 10.0     | 10.0 | 88.9(1)  | 92.8(1)  |

Source: Author's calculations.



## ANNEX B

## Points for items of weighted indices for legislative budget institutions

| Name of country          | Financial authority |                |           |                |             |                | Organisational capacity |                |           |                |          |                | Legislative Budget Institution Index (BI vs BI <sub>ω</sub> ) |                 |
|--------------------------|---------------------|----------------|-----------|----------------|-------------|----------------|-------------------------|----------------|-----------|----------------|----------|----------------|---|-----------------|
|                          | Amendment authority |                | Reversion |                | Flexibility |                | Time                    |                | Committee |                | Research |                | BI  | BI <sub>ω</sub> |
|                          | a                   | a <sub>ω</sub> | v         | v <sub>ω</sub> | f           | f <sub>ω</sub> | t                       | t <sub>ω</sub> | c         | c <sub>ω</sub> | r        | r <sub>ω</sub> |   |                 |
| 1 Albania                | 2.5                 | 3.9            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 35.3  | 34.6            |
| 2 Argentina              | 2.5                 | 3.9            | 5.0       | 4.1            | 6.7         | 6.8            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 38.7  | 35.8            |
| 3 Australia <sup>1</sup> | 2.5                 | 3.9            | 2.5       | 2.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 21.3  | 21.0            |
| 4 Austria                | 10.0                | 15.5           | 5.0       | 4.1            | 2.2         | 2.2            | 2.0                     | 0.8            | 7.5       | 7.7            | 0.0      | 0.0            | 44.5  | 50.6            |
| 5 Belgium                | 10.0                | 15.5           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 10.0      | 10.3           | 2.5      | 3.0            | 54.7  | 61.7            |
| 6 Brazil                 | 7.5                 | 11.6           | 10.0      | 8.2            | 3.3         | 3.4            | 6.0                     | 2.3            | 7.5       | 7.7            | 0.0      | 0.0            | 57.2  | 55.3            |
| 7 Bulgaria               | 10.0                | 15.5           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 10.0      | 10.3           | 0.0      | 0.0            | 50.5  | 56.7            |
| 8 Cambodia               | 7.5                 | 11.6           | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 43.7  | 47.5            |
| 9 Canada                 | 2.5                 | 3.9            | 2.5       | 2.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 10.0      | 10.3           | 2.5      | 3.0            | 38.0  | 38.9            |
| 10 Chile                 | 2.5                 | 3.9            | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 19.2  | 17.6            |
| 11 Czech Republic        | 7.5                 | 11.6           | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 44.2  | 45.9            |
| 12 Denmark               | 10.0                | 15.5           | 5.0       | 4.1            | 10.0        | 10.2           | 4.0                     | 1.5            | 5.0       | 5.2            | 3.8      | 4.6            | 63.0  | 68.4            |
| 13 Fiji                  | 10.0                | 15.5           | 5.0       | 4.1            | 0.0         | 0.0            | 2.0                     | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 32.5  | 38.2            |
| 14 Finland               | 10.0                | 15.5           | 2.5       | 2.1            | 4.4         | 4.5            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 43.2  | 47.8            |
| 15 France                | 2.5                 | 3.9            | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                     | 1.5            | 7.5       | 7.7            | 0.0      | 0.0            | 23.3  | 21.9            |
| 16 Germany               | 10.0                | 15.5           | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 45.5  | 49.4            |
| 17 Ghana                 | 2.5                 | 3.9            | 7.5       | 6.2            | 1.1         | 1.1            | 2.0                     | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 26.0  | 24.2            |
| 18 Greece                | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 38.0  | 41.7            |
| 19 Hong Kong             | 5.0                 | 7.7            | 7.5       | 6.2            | 1.1         | 1.1            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 34.3  | 34.9            |
| 20 Hungary               | 7.5                 | 11.6           | 2.5       | 2.1            | 1.1         | 1.1            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 41.8  | 44.4            |
| 21 Iceland               | 10.0                | 15.5           | 5.0       | 4.1            | 6.7         | 6.8            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 51.2  | 55.2            |
| 22 Indonesia             | 10.0                | 15.5           | 5.0       | 4.1            | 6.7         | 6.8            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 51.2  | 55.2            |
| 23 Ireland               | 0.0                 | 0.0            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                     | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 27.0  | 23.8            |
| 24 Israel                | 0.0                 | 0.0            | 5.0       | 4.1            | 5.5         | 5.6            | 2.0                     | 0.8            | 10.0      | 10.3           | 0.0      | 0.0            | 37.5  | 34.7            |
| 25 Italy                 | 10.0                | 15.5           | 5.0       | 4.1            | 2.2         | 2.2            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 43.7  | 47.5            |
| 26 Japan                 | 2.5                 | 3.9            | 2.5       | 2.1            | 5.5         | 5.6            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 29.2  | 29.1            |
| 27 Kenya                 | 2.5                 | 3.9            | 7.5       | 6.2            | 2.2         | 2.2            | 2.0                     | 0.8            | 5.0       | 5.2            | 2.5      | 3.0            | 36.2  | 35.3            |
| 28 Korea                 | 2.5                 | 3.9            | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                     | 1.5            | 10.0      | 10.3           | 10.0     | 12.0           | 52.5  | 53.0            |
| 29 Latvia                | 5.0                 | 7.7            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 45.5  | 45.1            |
| 30 Luxembourg            | 10.0                | 15.5           | 10.0      | 8.2            | 2.2         | 2.2            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 52.0  | 54.4            |
| 31 Malawi                | 0.0                 | 0.0            | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 25.5  | 22.3            |
| 32 Mexico                | 2.5                 | 3.9            | 10.0      | 8.2            | 3.3         | 3.4            | 4.0                     | 1.5            | 10.0      | 10.3           | 7.5      | 9.0            | 62.2  | 60.5            |
| 33 Morocco               | 2.5                 | 3.9            | 0.0       | 0.0            | 2.2         | 2.2            | 2.0                     | 0.8            | 10.0      | 10.3           | 2.5      | 3.0            | 32.0  | 33.7            |
| 34 Netherlands           | 10.0                | 15.5           | 7.5       | 6.2            | 3.3         | 3.4            | 4.0                     | 1.5            | 2.5       | 2.6            | 5.0      | 6.0            | 53.8  | 58.5            |
| 35 New Zealand           | 2.5                 | 3.9            | 3.3       | 2.7            | 3.3         | 3.4            | 2.0                     | 0.8            | 2.5       | 2.6            | 0.0      | 0.0            | 22.7  | 22.1            |
| 36 Norway                | 10.0                | 15.5           | 10.0      | 8.2            | 3.3         | 3.4            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 62.2  | 64.8            |
| 37 Panama                | 2.5                 | 3.9            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 33.0  | 30.0            |
| 38 Peru                  | 7.5                 | 11.6           | 0.0       | 0.0            | 1.1         | 1.1            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 29.3  | 32.3            |

**Points for items of weighted indices for legislative budget institutions (cont.)**

| Name of country   | Financial authority |                |           |                |             |                | Organisational capacity |                |           |                |          |                | Legislative Budget Institution Index (BI vs BI <sub>ω</sub> ) |                 |
|-------------------|---------------------|----------------|-----------|----------------|-------------|----------------|-------------------------|----------------|-----------|----------------|----------|----------------|---|-----------------|
|                   | Amendment authority |                | Reversion |                | Flexibility |                | Time                    |                | Committee |                | Research |                | BI  | BI <sub>ω</sub> |
|                   | a                   | a <sub>ω</sub> | v         | v <sub>ω</sub> | f           | f <sub>ω</sub> | t                       | t <sub>ω</sub> | c         | c <sub>ω</sub> | r        | r <sub>ω</sub> |   |                 |
| 39 Philippines    | 7.5                 | 11.6           | 5.0       | 4.1            | 4.4         | 4.5            | 0.0                     | 0.0            | 5.0       | 5.2            | 0.0      | 0.0            | 36.5  | 42.3            |
| 40 Poland         | 7.5                 | 11.6           | 0.0       | 0.0            | 1.1         | 1.1            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 37.7  | 40.9            |
| 41 Portugal       | 10.0                | 15.5           | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 40.0  | 43.8            |
| 42 Romania        | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 41.3  | 42.9            |
| 43 Russia         | 5.0                 | 7.7            | 5.0       | 4.1            | 1.1         | 1.1            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 33.5  | 32.7            |
| 44 Serbia         | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 38.0  | 41.7            |
| 45 Slovakia       | 10.0                | 15.5           | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 31.7  | 36.9            |
| 46 Slovenia       | 7.5                 | 11.6           | 5.0       | 4.1            | 0.0         | 0.0            | 4.0                     | 1.5            | 5.0       | 5.2            | 1.3      | 1.6            | 38.0  | 39.9            |
| 47 South Africa   | 0.0                 | 0.0            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 31.2  | 28.1            |
| 48 Spain          | 7.5                 | 11.6           | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 2.5       | 2.6            | 0.0      | 0.0            | 37.2  | 38.6            |
| 49 Swaziland      | 2.5                 | 3.9            | 5.0       | 4.1            | 6.7         | 6.8            | 2.0                     | 0.8            | 5.0       | 5.2            | 0.0      | 0.0            | 35.3  | 34.6            |
| 50 Sweden         | 10.0                | 15.5           | 10.0      | 8.2            | 6.7         | 6.8            | 4.0                     | 1.5            | 10.0      | 10.3           | 1.3      | 1.6            | 70.1  | 73.3            |
| 51 Switzerland    | 10.0                | 15.5           | 10.0      | 8.2            | 3.3         | 3.4            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 53.8  | 56.2            |
| 52 Taiwan         | 2.5                 | 3.9            | 0.0       | 0.0            | 0.0         | 0.0            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 27.5  | 26.2            |
| 53 Tajikistan     | 0.0                 | 0.0            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 37.2  | 32.2            |
| 54 Thailand       | 0.0                 | 0.0            | 5.0       | 4.1            | 1.1         | 1.1            | 4.0                     | 1.5            | 5.0       | 5.2            | 0.0      | 0.0            | 25.2  | 19.8            |
| 55 Turkey         | 7.5                 | 11.6           | 7.5       | 6.2            | 0.0         | 0.0            | 4.0                     | 1.5            | 7.5       | 7.7            | 0.0      | 0.0            | 44.2  | 45.0            |
| 56 Uganda         | 2.5                 | 3.9            | 2.5       | 2.1            | 5.5         | 5.6            | 2.0                     | 0.8            | 10.0      | 10.3           | 5.0      | 6.0            | 45.8  | 47.7            |
| 57 United Kingdom | 2.5                 | 3.9            | 5.0       | 4.1            | 1.1         | 1.1            | 0.0                     | 0.0            | 2.5       | 2.6            | 2.5      | 3.0            | 22.7  | 24.5            |
| 58 United States  | 10.0                | 15.5           | 10.0      | 8.2            | 7.7         | 7.9            | 8.0                     | 3.0            | 10.0      | 10.3           | 10.0     | 12.0           | 92.8  | 94.8            |
| 59 Uruguay        | 2.5                 | 3.9            | 5.0       | 4.1            | 3.3         | 3.4            | 4.0                     | 1.5            | 10.0      | 10.3           | 0.0      | 0.0            | 41.3  | 38.6            |
| 60 Venezuela      | 7.5                 | 11.6           | 5.0       | 4.1            | 6.7         | 6.8            | 6.0                     | 2.3            | 5.0       | 5.2            | 0.0      | 0.0            | 50.3  | 50.0            |

Note: 1.  $\omega$  is weighted with the composite weighting from AHP and has a value of  $0 < \omega < 1$ .

Source: Author's calculations.

## ANNEX C

## Superior indices for legislative budget institution with weighting

| Country | Financial authority    |             | Organisational capacity |             | Budget Institution Index |             |      |
|---------|------------------------|-------------|-------------------------|-------------|--------------------------|-------------|------|
|         | FA                     | FA $\omega$ | OC                      | OC $\omega$ | BI                       | BI $\omega$ |      |
| 1       | Albania                | 23.7        | 24.7                    | 11.7        | 9.9                      | 35.3        | 34.6 |
| 2       | Argentina              | 23.7        | 24.7                    | 15.0        | 11.1                     | 38.7        | 35.8 |
| 3       | Australia <sup>1</sup> | 13.8        | 15.5                    | 7.5         | 5.6                      | 21.3        | 21.0 |
| 4       | Austria                | 28.7        | 36.4                    | 15.8        | 14.2                     | 44.5        | 50.6 |
| 5       | Belgium                | 30.5        | 38.3                    | 24.2        | 23.5                     | 54.7        | 61.7 |
| 6       | Brazil                 | 34.7        | 38.7                    | 22.5        | 16.7                     | 57.2        | 55.3 |
| 7       | Bulgaria               | 30.5        | 38.3                    | 20.0        | 18.5                     | 50.5        | 56.7 |
| 8       | Cambodia               | 32.0        | 37.6                    | 11.7        | 9.9                      | 43.7        | 47.5 |
| 9       | Canada                 | 13.8        | 15.5                    | 24.2        | 23.5                     | 38.0        | 38.9 |
| 10      | Chile                  | 4.2         | 6.5                     | 15.0        | 11.1                     | 19.2        | 17.6 |
| 11      | Czech Republic         | 20.8        | 26.2                    | 23.3        | 19.7                     | 44.2        | 45.9 |
| 12      | Denmark                | 41.7        | 49.7                    | 21.3        | 18.7                     | 63.0        | 68.4 |
| 13      | Fiji                   | 25.0        | 32.7                    | 7.5         | 5.6                      | 32.5        | 38.2 |
| 14      | Finland                | 28.2        | 36.7                    | 15.0        | 11.1                     | 43.2        | 47.8 |
| 15      | France                 | 4.2         | 6.5                     | 19.2        | 15.4                     | 23.3        | 21.9 |
| 16      | Germany                | 30.5        | 38.3                    | 15.0        | 11.1                     | 45.5        | 49.4 |
| 17      | Ghana                  | 18.5        | 18.6                    | 7.5         | 5.6                      | 26.0        | 24.2 |
| 18      | Greece                 | 26.3        | 31.8                    | 11.7        | 9.9                      | 38.0        | 41.7 |
| 19      | Hong Kong              | 22.7        | 25.0                    | 11.7        | 9.9                      | 34.3        | 34.9 |
| 20      | Hungary                | 18.5        | 24.6                    | 23.3        | 19.7                     | 41.8        | 44.4 |
| 21      | Iceland                | 36.2        | 44.0                    | 15.0        | 11.1                     | 51.2        | 55.2 |
| 22      | Indonesia              | 36.2        | 44.0                    | 15.0        | 11.1                     | 51.2        | 55.2 |
| 23      | Ireland                | 19.5        | 18.2                    | 7.5         | 5.6                      | 27.0        | 23.8 |
| 24      | Israel                 | 17.5        | 16.2                    | 20.0        | 18.5                     | 37.5        | 34.7 |
| 25      | Italy                  | 28.7        | 36.4                    | 15.0        | 11.1                     | 43.7        | 47.5 |
| 26      | Japan                  | 17.5        | 19.2                    | 11.7        | 9.9                      | 29.2        | 29.1 |
| 27      | Kenya                  | 20.3        | 20.5                    | 15.8        | 14.9                     | 36.2        | 35.3 |
| 28      | Korea                  | 12.5        | 13.3                    | 40.0        | 39.7                     | 52.5        | 53.0 |
| 29      | Latvia                 | 22.2        | 25.4                    | 23.3        | 19.7                     | 45.5        | 45.1 |
| 30      | Luxembourg             | 37.0        | 43.2                    | 15.0        | 11.1                     | 52.0        | 54.4 |
| 31      | Malawi                 | 13.8        | 12.5                    | 11.7        | 9.9                      | 25.5        | 22.3 |
| 32      | Mexico                 | 26.3        | 25.8                    | 35.8        | 34.7                     | 62.2        | 60.5 |
| 33      | Morocco                | 7.8         | 10.2                    | 24.2        | 23.5                     | 32.0        | 33.7 |
| 34      | Netherlands            | 34.7        | 41.7                    | 19.2        | 16.8                     | 53.8        | 58.5 |
| 35      | New Zealand            | 15.2        | 16.6                    | 7.5         | 5.6                      | 22.7        | 22.1 |
| 36      | Norway                 | 38.8        | 45.1                    | 23.3        | 19.7                     | 62.2        | 64.8 |
| 37      | Panama                 | 18.0        | 18.9                    | 15.0        | 11.1                     | 33.0        | 30.0 |
| 38      | Peru                   | 14.3        | 21.2                    | 15.0        | 11.1                     | 29.3        | 32.3 |
| 39      | Philippines            | 28.2        | 33.7                    | 8.3         | 8.6                      | 36.5        | 42.3 |
| 40      | Poland                 | 14.3        | 21.2                    | 23.3        | 19.7                     | 37.7        | 40.9 |

**Superior indices for legislative budget institution with weighting (cont.)**

| Country |                | Financial authority |             | Organisational capacity |             | Budget Institution Index |             |
|---------|----------------|---------------------|-------------|-------------------------|-------------|--------------------------|-------------|
|         |                | FA                  | FA $\omega$ | OC                      | OC $\omega$ | BI                       | BI $\omega$ |
| 41      | Portugal       | 25.0                | 32.7        | 15.0                    | 11.1        | 40.0                     | 43.8        |
| 42      | Romania        | 26.3                | 31.8        | 15.0                    | 11.1        | 41.3                     | 42.9        |
| 43      | Russia         | 18.5                | 21.6        | 15.0                    | 11.1        | 33.5                     | 32.7        |
| 44      | Serbia         | 26.3                | 31.8        | 11.7                    | 9.9         | 38.0                     | 41.7        |
| 45      | Slovakia       | 16.7                | 25.8        | 15.0                    | 11.1        | 31.7                     | 36.9        |
| 46      | Slovenia       | 20.8                | 26.2        | 17.2                    | 13.7        | 38.0                     | 39.9        |
| 47      | South Africa   | 19.5                | 18.2        | 11.7                    | 9.9         | 31.2                     | 28.1        |
| 48      | Spain          | 26.3                | 31.8        | 10.8                    | 6.8         | 37.2                     | 38.6        |
| 49      | Swaziland      | 23.7                | 24.7        | 11.7                    | 9.9         | 35.3                     | 34.6        |
| 50      | Sweden         | 44.5                | 50.9        | 25.6                    | 22.4        | 70.1                     | 73.3        |
| 51      | Switzerland    | 38.8                | 45.1        | 15.0                    | 11.1        | 53.8                     | 56.2        |
| 52      | Taiwan         | 4.2                 | 6.5         | 23.3                    | 19.7        | 27.5                     | 26.2        |
| 53      | Tajikistan     | 13.8                | 12.5        | 23.3                    | 19.7        | 37.2                     | 32.2        |
| 54      | Thailand       | 10.2                | 8.7         | 15.0                    | 11.1        | 25.2                     | 19.8        |
| 55      | Turkey         | 25.0                | 29.6        | 19.2                    | 15.4        | 44.2                     | 45.0        |
| 56      | Uganda         | 17.5                | 19.2        | 28.3                    | 28.5        | 45.8                     | 47.7        |
| 57      | United Kingdom | 14.3                | 15.2        | 8.3                     | 9.3         | 22.7                     | 24.5        |
| 58      | United States  | 46.2                | 52.6        | 46.7                    | 42.2        | 92.8                     | 94.8        |
| 59      | Uruguay        | 18.0                | 18.9        | 23.3                    | 19.7        | 41.3                     | 38.6        |
| 60      | Venezuela      | 32.0                | 37.6        | 18.3                    | 12.4        | 50.3                     | 50.0        |

Note: Each superior index is a value out of 100 points.

## ANNEX D

## Examples of questions of legislative budget institution indices

| Variable                        | Questions  | Answers   |
|---------------------------------|--|---|
| Amendment authority             | Q40. What is the formal authority of the Legislature to amend the budget proposed by the Executive?  | <ul style="list-style-type: none"> <li>- The Legislature has unrestricted authority to amend the budget.</li> <li>- The Legislature may make amendments but only if it does not change the total deficit/surplus proposed by the Executive.</li> <li>- The Legislature may only decrease existing expenditures/revenues (i.e. the Legislature cannot increase existing items nor create new ones)</li> <li>- The Legislature may not make any changes; it can only approve or reject the budget as a whole</li> </ul>   |
| Reversion                       | Q43. If the budget is declined by the Legislature before the start of the fiscal year which of the following describes the consequences?   | <ul style="list-style-type: none"> <li>- The Executive's budget proposal takes effect</li> <li>- The Executive's budget proposal takes effect on an interim basis, i.e. for a limited period</li> <li>- Last year's budget takes effect on an interim basis, i.e. for a limited period</li> <li>- Other interim measures are voted on by the Legislature</li> <li>- Expenditure without legislative approval are not allowed</li> </ul>   |
| Flexibility                     | <p>Q.53. Are ministers allowed to reallocate/vire funds between line items within their responsibility?</p> <p>Q.61. Did the budget for the last fiscal year include any central reserve funds to meet unforeseen expenditures?</p> <p>Q.54. Can ministers carry-over unused funds or appropriations from one year to another?</p> | <ul style="list-style-type: none"> <li>- No</li> <li>- Yes, without restrictions</li> <li>- Yes, with restrictions</li> <li>- With the approval of the Legislature</li> <li>- With the approval of the Finance Minister</li> <li>- Yes</li> <li>- No</li> <li>- No</li> <li>- Yes, without restrictions</li> <li>- Yes, with restrictions</li> <li>- With the approval of the Legislature</li> <li>- With the approval of the Finance Minister</li> </ul>   |
| Time for scrutiny               | Q 39. In practice, what is the timeframe for the following stages of budget approval? The budget is presented to the Legislature   | <ul style="list-style-type: none"> <li>- 10 months to 1 month before</li> <li>- 1 month after-10 months after</li> </ul>  |
| Committee capacity              | Q 33. In view of the following types of committee structures for dealing with the budget, please indicate which arrangement applies to each chamber  | <ul style="list-style-type: none"> <li>- Q.33.a A single budget committee formally considers all budget-related matters, but it does not have to follow recommendations of sectoral committees</li> <li>- Q.33.b A single budget committee formally considers the budget, but members from sectoral committees attend meetings of the budget committee</li> <li>- Q.33.c A single budget committee formally considers budget aggregates and sectoral committees consider spending for sector specific appropriations</li> <li>- Q.33.d Sectoral committees formally consider appropriations for each respective sector. No budget committee is in place</li> <li>- Q.33.e No formal committee involvement, but committees may choose to consider aspects of the budget</li> <li>- Q.33.f Other</li> </ul> |
| Access to Budgetary Information | Q.34. Is there a specialized budget research office/unit belonging to the Legislature to conduct analyses of the budget?   | <ul style="list-style-type: none"> <li>- No</li> <li>- Yes, there is a specialized budget research office/unit</li> </ul>   |





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