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The Public-Private Partnerships and the Fiscal Soundness of Local Governments in Korea†

By HOJUN LEE*

This paper studies the risks associated with local finance in Korea by identifying the financial status of each local government, including the financial burdens of PPP projects, and examined governmental future burdens related to PPP projects. We reviewed all fiscal burdens associated with projects, such as, for BTL (Build-Transfer-Lease) types of projects, facility lease and operating expenses, and, for the BTO (Build-Transfer-Operate) types of projects, construction subsidies that are paid at the construction stage, MRG (Minimum Revenue Guarantee) payments and the government’s share of payment. Furthermore, we compared the annual expenditures of local governments on PPP projects against their annual budgets and checked if the 2% ceiling rule could be applied.

Key Word: Public Private Partnership (PPP), Fiscal Burden, 2% Ceiling Rule, Fiscal Soundness, Local Government

JEL Code: H54, H63, H72

I. Introduction

Large-scale development projects are closely tied to the political interests of the region in which they occur. A politician who is elected through the elections tends to respond very sensitively to these political interests. According to Kim and Lee (2012), the chances of the head of a local government successfully to be re-elected significantly increases as the overall scale of the large-scale public investment projects she attracts during her term increases. This shows that there is a strong incentive for the heads of local governments to promote large-scale projects to increase their re-election chances and to strengthen their political positions.

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However, there is a limit when local governments directly lead public investment projects which are funded by the central government in Korea. Because the central government, including the Ministry of Strategy and Finance (MoSF), manages the public investment plans and measures their financial soundness from a national perspective, even if the local government wishes to carry out a project, it is often not approved by the finance ministry. On the other hand, in order to meet continuously increasing welfare demands, budget expenditures in the social welfare sector are expected to grow. Thus, the promotion of large-scale development projects within the budgets of local governments is limited.

For these reasons, local governments often seek to carry out large-scale development projects through what is termed a PPP (Public-Private Partnership). This enables them to carry out projects without major funding from the central government and without placing a greater short-term financial burden on local governments. Nonetheless, because most PPP projects require large amounts of spending over time frames measured in decades, the financial burden of each project must be carefully examined from a long-term perspective before a decision is made to proceed.

In cases where one is more focused on achieving political benefits through short-term project performance, as opposed to long-term financial risk, there is a possibility that politicians, especially the heads of local governments, would promote a project excessively and cause serious financial harm. This is especially true for certain smaller local governments, as the performances of even small PPP projects can damage the financial liquidity of such local governments.

Therefore, it is crucial to manage PPP projects sustainably given a certain level of financial risk, as the best advantages of public-private partnerships, such as the effective sharing of project risks, short-term relief of financial burdens, and the leveraging of the private sector’s creativity and efficiency throughout the phases of designing, constructing, and operating, can be achieved only when financial risks are managed well.

However, thus far the overall management of PPP projects by local governments in Korea has not been entirely satisfactory. The central government authority that oversees all PPP projects is the Ministry of Strategy and Finance (MoSF). However, the central government authority that oversees local finances is the Ministry of the Interior. Therefore, collective management at the governmental level of agendas such as those related to the impacts of PPP projects on local finances is challenging.

This paper focuses on analyzing the level of risks faced by those managing local finances by identifying the financial status of each local government, including the financial burdens of PPP projects. This requires a close examination of the nature of financial burdens related to PPP projects. The governments’ burdens related to PPP projects are, in the case of BTL (Build-Transfer-Lease) projects, facility leases and operating expenses, while for BTO (Build-Transfer-Operate) projects, construction subsidies that are paid at the construction stage\(^2\), MRG (Minimum

\(^2\)In this research, discussion on local governments’ construction subsidy payments will be excluded, as most construction subsidies paid by local governments come from the central government. Even for projects run by local municipalities, depending on the project types, often the central government supports certain portions from MoSF as a construction subsidy, and there is rarely a case where a local government pays such amounts alone.
Revenue Guarantee) payments and government’s share of the payment constitute the main costs for the government. All of the related payment rules are determined by the type of contract, also known as the concession agreement.

The accounting methods used to for an accurate measurement of the financial burdens of governments in relation to PPP projects have been debated over the last few years. There is some debate over whether or not to include definite government payments, such as facility lease payments for BTL projects, as part of the debt. In this regard, some argue that along with changing the government accounting standard to the Accrual and Double-Entry Bookkeeping Accounting System, accounting method used to measure PPP investments also needs to be strengthened.

In the case of Korea, in 2009 the government accounting system was converted from a cash basis system to an accrual basis system, and the double-entry bookkeeping accounting system was also adopted. Before the conversion, under the cash basis system, the governments’ payments on public projects were recognized as expenditures and were not counted as government assets or liabilities. After the conversion to the accrual basis, more claimed that PPP facilities should be counted as assets in accordance with the concept of contributed acceptance and that the payments should be counted as debt as well.

More importantly, after the adoption of the new government accounting system, the symmetry between corporate and governmental accounting systems become more evident. With corporate accounting systems, most recognize BTL projects as bonds with secured rights to future lease fees from the government in accordance with contributed acceptance. Considering the symmetry in accounting systems, the claim that the leases should be recognized as a liability is compelling.

Taking this into the consideration, the Ministry of Strategy and Finance announced that it would include lease payments to private partners for BTL projects as liabilities in starting in 2011, recognizing this situation as the acquisition of real assets. Moreover, the Local Finance Act was revised in 2014 and included lease payments related to BTL projects as debt management items. The revised Act also counted lease payments for BTL projects as among local government’s liabilities, which serves as a key indicator for use when measuring local bond issuance amount limits.

Despite the fact that there exist various opinions regarding how to account for BTL lease payments, this study aims to analyze BTL-related lease payments as a governmental burden in accordance with the accounting guidance set by central and local governments at present. Moreover, this research will attempt to include the government’s share of fixed payments related to BTO-type projects as local governments’ liabilities. In this way, this study aims to analyze how the fiscal risk

Moreover, despite the fact that construction grants are deemed payable by local governments, detailed information such as the payment schedule is not provided. For these reasons, this study does not investigate the financial burdens of local government as regards construction subsidies.

3The government was found to be taking too much demand risk; therefore, the Minimum Revenue Guarantee system was gradually abolished. Starting with new projects in 2009, it was completely discontinued.

4Until the Local Finance Act was revised in 2014, local government liabilities were limited to municipal bond borrowings, debt instruments and guaranteed liabilities. Especially the local governments’ PPP projects have high possibilities to cause long-term financial burdens by nature. However, as payments derived from PPP investment were not counted as the local liabilities, there has been a limit to accurately replicate financial burdens of local municipalities.
of each local government can change.

On the other hand, with regard to government payments that are decided upon after the completion of the project, it would be difficult to count these as among the liabilities directly. However, it would be important continuously to monitor the fiscal burdens of local governments that may stem from these payments. Therefore, this research will estimate these potential government payments based on the past financial records of each type of projects. Such payments will include costs, such as the operation costs of BTL-type projects and the MRG payments of BTO-type projects. Through these steps, this research aims to investigate the potential fiscal burdens of governments, with these then used as reference data while determining project decisions regarding future projects.

Furthermore, this paper aims to measure the annual fiscal burdens of governments against the annual governmental budget. Most international organizations, such as the International Monetary Fund (IMF), recommend that government spending on public projects remain under 2% of the government’s annual expenditure budget. The Ministry of Strategy and Finance also set their guidance at 2% and with continuously monitoring, such that annual expenditures on public projects are within 2% of the central government’s annual revenue-expenditure budget. However, such guidance is not yet considered for local governments. Therefore, we will compare the annual expenditures of local governments on PPP projects against their annual budgets. Thus, the present study examines whether the 2% guidance level can be implemented within all local governments or whether any local government would have difficulties meeting this guidance level.

We feel that this paper is significant in that it offers a full-scale analysis of the relationship between PPP projects and the financial burdens of local governments, which has not been addressed in detail. It will broaden the horizons of fiscal risk analysis by investigating the fiscal impact of PPP project investments on local governments, especially the debt level. Fiscal risk is analyzed with several assumptions about the economic environment in the future as well as the conditions of the agreements. We think this analysis is meaningful in public economics and accounting, as it deals with the issue of a discounting rate which is used to derive the present value of the fiscal burden in the future. How to determine the discount rate is related to the characteristics of the individual projects as well as the overall economic conditions.

5The 2% guidance is recommended to central governments, but we apply the guidance to the local government in this paper as a separate guidance for the local governments has not prepared. We need to set up guidance for small local government in the future research.

6This research was limited when used to analyze the liabilities of local governments, and we were not able to include an active analysis of the financial earnings and estimates, fiscal power, and demand for fiscal expenditures. As local governments financial burdens for the future can be adjusted due to future financial earnings trends and fiscal power, though it is important to note that limits apply here. Although all municipalities’ public investments and the financial burdens caused by these investments on local governments can be accessed, various factors that could impact local finances were not all taken into consideration. Therefore, it is difficult to define potential fiscal risks for local governments based on this research. However, it remains highly significant to note that this is the first attempt to analyze the risks for local finance derived by the financial burdens from the public investments.
II. Relevant Systems and Previous Literature

Since the National Finance Act was revised in 1963, various systems have been introduced in an effort to sustain the fiscal soundness of local governments. With the moratorium announcement by Seongnam City in Kyeongki province in 2010, the central government started to bolster the management of local finances. Establishing the Local Government Financial Risk Alert System through the adoption of the Fiscal Risk Management System (December, 2010) is one such example. An overview of this risk management system, which was legalized during the Local Finance Act revision carried out in 2011, is shown in Table 1.

Every year, key fiscal indicators related to local finances are monitored; after these assessments, the levels of riskiness are categorized into three groups: ‘Normal’, ‘Warning’, and ‘Critical’. If any local government is categorized into the “Warning” or “Critical” group, it is advised to take actions to improve its local finances. The key objective of the system is a properly assessment of fiscal riskiness before any organization faces critical stages and to give each local government the opportunity to improve the soundness of its local finances.

When accessing the fiscal riskiness of each local government, it is very important to choose the proper financial indicators that show the financial status. It is also crucial grade the level of riskiness properly. As of 2014, according to the Local Government Finance Risk Alert System Operational Guidelines established by the Ministry of Security and Public Administrations (currently the Ministry of the Interior) on March 25, 2013, the monitoring guidelines pertaining to indicators are very detailed, categorized by the consolidated central government balance deficit percentages, the debt-to-budget ratio, the debt service ratio, local tax collection status, remaining balances, the public enterprise debt ratio, and other factors. The following guideline shows how each case is categorized into either the “Warning” or “Critical” group after the monitoring stage.

| Monitoring | Financial Risk Pre-emergency Alert | Risk Management Solutions by Level of Riskiness |
|------------|-----------------------------------|-----------------------------------------------|
| Tax Deficit · Capital Balance · Local Debts · Profligate expenditure | Tax Deficit · Capital Balance · Local Debts · Profligate expenditure | Warning Group · Annual Expenditure / Debts Adjustment · Self-Endeavor Recommended |
| Integrated Diagnostics | In-depth Diagnostics (Financial Risk Management Committee) | Critical Group · Assigned as a group with fiscal risk |
| | | Fiscal Normalization Program is Activated |

The Local Finance Act
Article 55-2 (Designation of Local Governments in Financial Crisis)
<This Article was Newly Inserted by Act No. 10439, March 8, 2011>
(1) The Minister of Public Administration and Security may designate a local government deemed in the serious level of financial risk on the basis of the results, or other measures of a financial analysis and financial examination conducted under Article 55 (1) and (2)
(2) The Standards and procedures, for instance, used to designate a local government in financial crisis, shall be prescribed by Presidential Decree
### TABLE 2—LOCAL GOVERNMENT FINANCIAL RISK ALERT SYSTEM OPERATIONAL GUIDELINES

| Orders | Indicators | ‘Warning’ Category | ‘Critical’ Category |
|--------|------------|--------------------|---------------------|
| Chapter 65 Article 2-1, Item 1 | Consolidated central government balance deficit percentage | Over 25% | Over 30% |
| Chapter 65 Article 2-1, Item 2 | Debt-to-Budget Ratio | Over 25% | Over 40% |
| Chapter 65 Article 2-1, Item 3 | Debt Service Ratio | Over 12% | Over 17% |
| Chapter 65 Article 2-1, Item 4 | Local Tax Collection Status | Below 50% | Below 0% |
| Chapter 65 Article 2-1, Item 5 | Remaining Balances | Below 20% | Below 10% |
| Chapter 65 Article 2-1, Item 6 | Public Enterprise’s Debt Ratio | Over 400% | Over 600% |

*Source: Ministry of Security and Public Administration, Order 1, 2013. 3. 25.*

In order to maintain fiscal soundness in local governments, the Ministry of Security and Public Administration suggests a guideline for the issuance of local bonds, the “Guidance on Local Bond Issuance Plan.” The financial status of a local government has a significant impact on measurements of its local bond issuance capability. Therefore, assessments of indicators which represent the state of liabilities, such as a government’s payments for PPP project investments, most significantly for the BTL types of projects, have been strengthened in recent years. In 2012, the government payments arising from BTL projects were excluded when determining the limit of the local bond issuance amount. However, in 2013, in order to enhance the effectiveness of the local bond system, the regulation was revised to count BTL payments which have been confirmed for local municipalities to pay private partners. Moreover, in 2014, the category of ‘BTL payments’ was revised to ‘BTL Lease Payments’ to define these payments as the total amount local governments must pay private partners as part of the lease. As a result, among all BTL project-related government payments, only leases, which tend to be counted as definitive payments, are recognized as liabilities.

On the other hand, there exist gaps between the accounting systems of central governments and local governments with regard to PPP projects, making it very difficult to measure the level of the financial burden appropriately. However, the financial burdens stemming from PPP investments are gradually shifting to be accounted for as liabilities at present.

The Accounting Guidelines for PPP projects (BTO・BTL), issued by the Ministry of Strategy and Finance in 2011, set the full annual lease payment as a liability. It recognizes the lease amounts derived from BTL-type projects as a fiscal gain on real assets and accounts for these payments in accordance with the acquisition on a deferred payment basis. However, for lease payments, the nominal value is accounted for as debt and the operational expenses are only counted at the point of the payment, as they do not meet the requirements of the liability category.

Under the Guidelines for Local Governments Fiscal Accounting System, set by the Ministry of Security and Public Administration in 2009, BTL-type project investments of local governments are counted as finance leases. However, the 2013 Handbook for Local Finance Analysis (the Ministry of Security and Public Administration) revised the accounting guidelines to include only the remaining...
lease payments for BTL-type projects as liabilities and issued a revised the manual which includes related analysis indicators. Through this revision, in terms of regularity, the gaps between accounting guidelines set by the central government and local governments were narrowed.

Moreover, the revision of the Local Finance Act11 echoed the sentiments of the Ministry of Security and Public Administration’s efforts in strengthening the level of local fiscal soundness. The scope of manageable liabilities was expanded and the fiscal soundness management plan was developed and carried out. The scope of manageable liabilities included BTL-type project lease payments, as mentioned above, and also included the liabilities of local public companies and sovereign funded institutions.

In addition, the amendment of the Local Finance Act regulates the provision of finance information to residents from their perspective while also disclosing as much finance information as possible. The amendment requires information such as the total debt, contingent debt, investment review project, itemized statements on subsidiaries, investigation results from the Board of Audit and Inspection, and local subsidy reductions in financial disclosures, as well as a consolidated analysis, evaluation and announcement of each local government’s finances by the Minister of Security and Public Administration for a better comparison among local governments. Moreover, so that residents can easily assess the local finances overall, the head of each local autonomous entity will now draft and finalize a consolidated publication referred to as the “Integrated Local Finance Statistics,” including data regarding the local government, local public corporations, investment agencies and the local education agency, which are to be managed separately.

As presented above, the regulations affecting local financial management have been evolving to strengthen each local government’s financial soundness. These positive changes have included (1) intensifications of financial crisis prediction abilities, (2) an extension of the range of local financial management, and (3) an expansion of financial information disclosures. At present, continuous management efforts are essential to make these improvements effective.

For example, the financial burden on local governments for PPP projects requires management by regulation; however, many local autonomous entities in fact have not included any items under the debt management category. Lease fees for BTL-type projects, in the middle of the transition period, are not included when identifying organizations which may be at financial risk.

Moreover, financial burdens in various forms, alongside lease payments for BTL-type projects, are expected to be imposed upon the government in the future. These potential burdens, however, are not being actively managed, as they do not fully qualify as debts. Although not managed as forms of debt, the scope of these burdens must be understood to be utilized for future financial decision-making activities.

As previously discussed, the local financial management regulations of the Republic of Korea have been improving to strengthen the financial soundness of

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11The Revision of the Local Finance Act passed at the National Assembly Plenary Meeting, April 2014.
local governments. Nonetheless, it is difficult to conclude that the regulations have been settled, and there is room for improvement. This section looks at various domestic and international case studies in to understand financial management methods for local governments’ PPP projects as recommended by different organizations. The section also aims to find ways to settle and improve current regulations.

Domestic studies thus far have mostly proposed the necessity of improving the accounting standards regarding the government’s share of PPP project lease payments. Choi (2007) emphasized the necessity of a budget management method to secure financial stability in the provision of public services through PPP projects for leases, where the loan is a major premise and does not allow for a continuous expansion of the project scope. As a solution, Choi proposed the establishment of an annual ceiling for government subsidization (1~2% of the total expenditures) and emphasized that restraints such as reviews of local councils are essential for local autonomous entity-driven PPP projects that exceed a certain size. Subsequently, Choi (2008) focused on the necessity of systematically managing the share of PPP projects within the government’s long-term financial plan, specifically public and SOC (social overhead capital) investments. In calling for a managerial system, Choi posited that local autonomous entities’ direct executions of PPP projects, without the central government’s support, could potentially build a blind spot for finance regulation. As of 2008, funding for BTL projects was recognized as extra-budgetary debts, but not categorized as national debt; it appeared necessary to review the inclusion of for-lease PPP projects when establishing strategies to manage national contingent debt.

The Korean Institute for Local Administration (2008) highlighted the limits in evaluating the level of the contribution local finance analyses and diagnoses at the time was making to the prevention of and restoration after a financial crisis, while emphasizing the need for a legal basis to instigate and systematically manage financial crisis management regulations. Min (2009), similar to previous studies, argued that BTL projects should be included in the debt takeover identified in the Local Finance Act. In detail, Min suggested that local debt management be strengthened by amending the Ministry of Public Administration and Security’s “regulation on establishing an upper limit for the local bond system and management of local loans.”

Choi (2010) looked at the status of the local finance analysis system, finding that its function was as a comprehensive examination system and not as a set of regulations that intensively analyzes and diagnoses pressure and crisis in local finances. Choi noted that improving the budget and accounting system and installing a control system are important, while arguing that the local finance analysis system must be revised to cover the financial information of local public enterprises and the third sector. Regarding the regulation of financial crisis management, Choi also posed the need to enact a regulation of the financial crisis management of autonomous entities (tentative) rather than amending the existing legislation.

Both Suh (2010) and Jung (2012) suggested the need to recognize all government funds for projects of autonomous entities as debts, forecasting the financial burden to increase continuously in the future. Specifically, Jung (2012 & 2013) called for
factors in not only BTL leases but also BTO allowances for bad debt or losses. Jung also argued that debts from PPP projects should be connected from a macro perspective and that residents’ rights to know should be met by disclosing detailed information regarding BTL and BTO projects in financial reports.

Additionally, Min (2013) noted the recent accounting management methods of the Ministry of Strategy and Finance and changes in perception toward debts by the Ministry of Government Administration and Home Affairs have made it clear that BTL project-related rental fees are local debts. However, Min pointed out that there is a gap in the financial management between the “Financial Management of PPP projects” (Ministry of Strategy and Finance, 2011) and the “Operation Regulation for Financial Accounting” (Ministry of Government Administration and Home Affairs), which must be unified as the guidelines of the Ministry of Strategy and Finance. Min also argued that it is necessary publicly to notify residents of comprehensive BTL project-related data such as financial statistics.

Kwak (2013) pointed out the limited possibility of defaults on monetary debt caused by contingency debt, as the current total upper limit ceiling of guaranty debt (payment guarantee) for local loans is not controlled properly. The current system does take into consideration items regarding an organization’s planning and execution to strengthen its financial soundness during a financial crisis, but it focuses more on functional execution as a “pre-warning system” and is less effective as a crisis management tool for local finances at a stage where a financial crisis has already broken out. Therefore, a set of management regulations for local financial crises is essential as compared to the current pre-warning system for local financial crises. Jung et al. (2013) argued that leases from BTL-type PPP projects must be clearly reflected as debts and that there should be a stoppage of debt trajectories as well as a definite application of standards for future financial burden management (2%).

According to Kim et al. (2007), it was forecasted that the fiscal burden of central-government-level PPP projects in Korea would demand approximately 2.1~2.3% of the annual budget under certain scenarios. Thus, they suggested the need for stronger fiscal management of PPP projects.

Most previous studies highlighted the need to include PPP projects by local autonomous entities, especially BTL-type projects, as local debts for comprehensive management. Different arguments regarding a comprehensive management method included a call for in-depth verification via a procedure by the national assembly for projects of a certain size, as well as a call for more proactive public notifications of PPP project-related financial statistics and the provision of this information to residents.

These arguments are similar to the standards of financial management of developed countries and international organizations. According to the International Financial Reporting Standard (IFRS), whether a fund is reported in a government’s financial statement is determined by whom among the contracted parties control and manage the services provided by the PFI/PPP funds. More specifically, the International Financial Reporting Interpretation Committee (IFRIC) states this in its 12th Service Concession Arrangements on the financial management regulations.
of PFI/PPP projects.\textsuperscript{12}

The UK has ensured that the financial standards of its central government are identical to the IFRS standards for the private sector since 2009-2010, also doing so for local governments since 2010-2011. The UK government financial regulations for PPP/PFI projects (HM Treasury, “Tangible Non-Current Assets,” Financial Report Manual, 2009-2010) manages PPP/PFI funds as governmental assets and related liabilities if they fall under all five of the categories below:

1. The government controls and regulates the type of service, user and price of the infrastructure.
2. The government controls a core part of the remaining share such as ownership and beneficiary rights of the infrastructure at the end of the service contract.
3. The operator has built or obtained the establishment from a third party for the service contract, or the establishment has been recognized as the operator’s asset in the past.
4. In unitary payment, portions related to property security are categorized as debt, separate from the service costs and interests.
5. Service costs and interests are treated as annual expenditures.

In addition, the standards of the UK are similar to the “Financial Management Regulations on BTO and BTL Projects” (Ministry of Strategy and Finance, 2011) and coincide with the arguments in various Korean studies where BTL facilities are treated as assets and the related rental fees as debts.

On the other hand, EU nations, unlike the UK, do not manage PPP-related government funds as government debts. Countries such as France treat PPP projects for service sale as annual expenditures in the form of operating leases, and do not show changes in their perspective toward government financial management regulations for PPP projects for service sales. The Manual on Government Deficit and Debt, 4th Edition (March 2012) by Eurostat included no changes to its financial regulations, implying that EU nations will follow Eurostat standards for their governments’ financial management until the International Public Sector Accounting Standards (IPSAS) are separately available. However, organizations such as the IMF and the European Central Bank report that the Eurostat standards are too generous, and the regulations of the International Public Sector Accounting Standards Board (IPSASB) should be adopted.

Specifically, the IMF states that all information such as costs and contingent liabilities for PPP projects should be transparent. The IMF (2007) also holds that PPP projects (or similar types) should provide notification of the contracted requirements (including government subsidiaries) and its impact on the financial earnings and expenses as well as the national debt in the government budget and financial statements. The IMF also argues that there is a need to set an upper limit depending on the capabilities of the country in question.

Many, including the UK which introduced the concept of PPP projects, which

\textsuperscript{12}Regarding influence, although a financial management strategy for private investors may be established, it must comply within the government’s financial management method.
have become globally popular, as well as major international organizations, emphasize the importance of managing government funds for PPP projects. Their arguments regarding the need to establish an upper limit for government funds toward PPP projects is similar to the perspective in earlier Korean studies.

Considering this, it can be said that Korea should also understand the government burden and prepare financial management solutions for PPP projects. Specifically, the scale of the financial burden on local autonomous entities and its influence on local finance should be grasped, especially targeting entities that have not received a thorough analysis of government subsidiaries. The next part of this paper looks at the scale of the governmental financial burden from PPP projects of local autonomous entities as well as its impact on local finance. Regulatory solutions in managing the PPP projects of local autonomous entities are also studied.

III. Estimation of the Change in the Debt Burden from PPP Projects of Local Autonomous Entities and an Analysis of Its Impact on the Soundness of Local Finance

This chapter estimates the remaining balance of rental fees from BTL-type projects among PPP projects of local autonomous entities. As previously discussed, including rents from BTL PPP projects in debt is consistent with the improvement strategy of regulations, considering the accounting management methods of the Ministry of Strategy and Finance, regulation improvement strategies of the Minister of Security and Public Administration, the policy of UK Department of the Treasury, and the IMF recommendations. Therefore, the remaining balance of BTL PPP projects should be included in the debt of the pertaining local autonomous entity. Despite the recent regulation changes, this work has not begun, posing limits to how each entity’s financial soundness changes depending on the rents of their PPP projects.

In this Part, how each local autonomous entity’s accounting status changes by factoring in the estimated rents to the existing debt of the entity. The change in the degree of financial risk at each entity is looked at based on the standards of the pre-warning system for local financial crisis.

In addition, some BTO-type projects resulted in direct payment of costs from the government. Among these cases are projects that included fixed charges for the government to pay fixed amounts of funds to private investors on a fiscal basis. In cases which a fixed amount is regularly paid is virtually considered a debt. Although the current accounting management standards does not specify directly, this study attempts to consider the characteristics of the ‘fixed charges’ and reflect them on debts to look at the financial soundness of the local autonomous entities.13

13 Many variables, aside from the debt status, should be included in the analysis to assess the risk of local finance. The degree of risk can be different for local autonomous entities that hold the same size of debt depending on the future financial earnings and expenses, budget changes and fiscal capacity of each entity. Due to the limited resources, not all of variables possible could be considered for financial risk analysis. Therefore, it is necessary to take caution not to be conclusive in judging the future financial risk of the local autonomous entities as estimated
A. Estimation of the BTL Project Balances of Local Governments\textsuperscript{14}

As of the end of 2013, 134 local autonomous-entity-managed projects (government funded)\textsuperscript{15} of 79 low-level local governments\textsuperscript{16, 17} receive local payments as facility leases among their government subsidiaries for BTL projects. Among these, 96 projects have commenced and 38 projects have not been started.

The total facility rental fees for the contract projects amounted to 13 trillion, 213.7 billion KRW (present value) and 663.7 billion KRW (present value) annually, among which approximately 451.1 billion KRW (present value) in leases is estimated for payment for the year 2013 for 96 projects under contract.

The status of facility leases by project type is shown in Table A1 in the appendix. The table above visualizes the contracted facility leases of each local autonomous entity’s PPP projects. In terms of the size of the annual lease by project, a number of projects exceed an annual rental fee of over 10 billion KRW, including Pohang-si (14.2 billion KRW annually) and Pyeongtaek-si (11.3 billion KRW annually).

BTL-type PPP projects are structured for the private investor to invest funds in the construction process for the establishment of social infrastructure, and to earn a certain amount of profit from the long-term lease amounts paid by the government for operation, collecting the funds (the total PPP investment). The rental fee is set by contract, and the government pays the rental fee to the private investor under normal circumstances. The facility lease is calculated as shown below:

\[
\text{Facility lease} = \frac{\text{Total PPP investment} \times \text{Rate of return}}{1 - \left(1 + \text{rate of return}\right)^{-\text{period of rent}}}
\]

TABLE 3—STATUS OF BTL PROJECTS (GOVERNMENT FUNDED) POST CONTRACT

| Category               | Contract | Pre-commencement | Post-commencement | Total |
|------------------------|----------|------------------|-------------------|-------|
| Culture and tourism    | 3        | 25               | 28                |       |
| Welfare                | 5        | 5                | 10                |       |
| Information and commun. | 1        | 2                | 3                 |       |
| Environment            | 2        | 27               | 64                | 93    |
| Grand total            | 3        | 35               | 96                | 134   |

TABLE 4—STATUS OF BTL PROJECTS’ LEASES (GOVERNMENT FUNDED) POST CONTRACT

| Category               | Number of projects managed by local autonomous entities (government funded) | Number of low-level local governments\textsuperscript{*} | Total amount of the facility lease (present value) | Annual facility lease (present value) |
|------------------------|---------------------------------------------------------------------------|------------------------------------------------------|-------------------------------------------------|-------------------------------------|
|                        | 134                                                                       | 79                                                   | 13,213.7 trillion KRW                           | 600.6 trillion KRW per Annum        |

Note: \textsuperscript{*} The projects executed by metropolitan city headquarters are appropriated as separate local autonomous entities.

\textsuperscript{14}The Infrainfo DB (Ministry of Strategy and Finance) is utilized for all PPP project-related information for this study. Projects only in the stage of post-contract are included.

\textsuperscript{15}Projects only in the stage of post-contract are included.

\textsuperscript{16}The headquarters of each local autonomous entity is assumed as a separate low-level local government.

\textsuperscript{17}Educational facility BTL projects of local autonomous entities were excluded in this study as the leases are paid by the Ministry of Education.
As shown above, the BTL-type lease follows the equation of the principal and interest method by dividing and paying the investment principal and interest, which reflects the rate of return on top of the total PPP investment by a PPP project operator, into equal amounts annually. Therefore, the annual facility lease to be paid is virtually settled when the total amount of PPP investment is decided. The BTL-type rental fees are considered to be similar to fixed debts.

Additionally, considering the fact that a lease set by contract has never been deducted due to problems during the operation time, it can be presupposed that the private investor or the government will pay the set rent, as fixed by contract, during the time of the project. Thus, to estimate the size of the BTL lease to be placed as a burden on local autonomous entities, it is fair to use the method of subtracting the lease payment made by the government through 2013 from the total lease laid out in each contract. As the payment is made via the equation of the principal and interest method on a fiscal basis, the total lease is divided by the rental period to calculate the annual rent, which can then be applied to the remaining project period to calculate the size of the future BTL rent.

This study assumes that the government has made payments as contracted through the end of 2013, as each local autonomous entity does not have actual information about the lease payments made. As this study focuses on local finance, the amount to be paid by each entity is separately calculated and combined by categorizing the payer within the government subsidiaries for BTL projects. In short, the lease payment data (divided into national treasury and local cost), as recorded in the Infrainfo DB, was utilized to calculate the share of local costs paid by local autonomous entities for facility leases of projects, which was then applied to the annual facility lease to calculate the balance of the lease between the end of 2013 and the end of the completion of each project.

By using this method to calculate the lease balance of 134 projects after 2014, the local burden on local autonomous entities was estimated to be 4 trillion 773.8 billion KRW (present value) in total. When the lease balance for current BTL projects was categorized according to the local autonomous entities, Jeju Special Self-Governing Province recorded the highest level at 340.9 billion KRW (present value), followed by Gwangju-si at 264.2 billion KRW and Daejeon-si at 250.3 billion KRW. Table 5 below and Table A2 in the appendix indicate the total lease amounts and the remaining balance of payments after 2014 by each local entity more in detail.

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18In BTL projects, the government pays the total of the rental and operation costs to the private investor on a fiscal basis. Even if the government subsidiary is reduced due to construction problems during operation and paid to the SPC instead, it is customary for the SPC to treat this as an operation problem and normally pay the contractor, of relatively supreme status, while decreasing the operation cost payment to the operator. Regardless of the fairness of this procedure, the lease must be paid as stipulated in the contract. As this study focuses on an analysis of the impact PPP projects have on local finances, the structural problem in BTL projects where the responsibilities are shifted to the operator, not considering construction problems, is not discussed.
| Competent authority (Lower level) | Sum of total lease by local autonomous entity | Sum of remaining lease by local autonomous entity as of year-end, 2013 | Competent authority (Lower level) | Sum of total lease by local autonomous entity | Sum of remaining lease by local autonomous entity as of year-end, 2013 |
|----------------------------------|---------------------------------------------|-----------------------------------------------------------------|----------------------------------|---------------------------------------------|-----------------------------------------------------------------|
| Seoul Metropolitan City | | | | | | |
| Gangnam-gu (2) | 990 | 537 | Iksan-si (4) | 3,713 | 1,417 |
| Busan Metropolitan City (6) | | | | | | |
| Haeundae | 238 | 191 | Gimje-si (2) | 1,815 | 545 |
| Buk-gu/Saha-gu | 216 | 122 | Gunsan-si | 1,433 | 376 |
| Headquarters | 2,309 | 1,559 | Wanju-gun | 910 | 232 |
| Daegu Metropolitan City | 986 | 502 | | | |
| Incheon Metropolitan City (3) | | | | | | |
| Bupyeong-gu | 670 | 519 | Jeongeup-si | 1,050 | 221 |
| Headquarters | 1,848 | 1,246 | Jinan-gun | 499 | 119 |
| Gwangju Metropolitan City (2) | 3,911 | 2,642 | | | |
| Jeollabuk-do (11) | | | | | | |
| Jeollanam-do (14) | | | | | | |
| Chungcheongbuk-do (14) | | | | | | |
| Jecheon-si (4) | 897 | 216 | | | |
| Jeonju-si (2) | 682 | 182 | | | |
| Goesan-gun | 353 | 72 | | | |
| Boeun-gun | 402 | 100 | | | |
| Okcheon-gun | 856 | 215 | | | |
| Jeju Special Self-Governing Province (10) | 9,840 | 3,409 | | | |

Note: 1) "( )" Indicates the number of projects. 2) The total facility rental fee is the national treasury and local funds combined by contract at the present value. 3) The lease balance is calculated based on the local share within the total facility rental fee.
The aim here is to sum up the debt and BTL lease balance of each local autonomous entity in an effort to understand the impact of the previously calculated BTL lease balance on local finances. First, the financial status of each local autonomous entity shows a total of 28 trillion 296 billion KRW in total local debt as of the end of 2013, with 21 trillion 665.4 billion KRW in metropolitan city debt and 6 trillion 923.2 billion KRW in city, country and district debt. Table 6 shows the sum of local city, country and district debt by each metropolitan city. The balance of local loans is the highest in the order of Seoul (approximately 5 trillion 300 billion KRW), Gyeonggi-do (approximately 4 trillion KRW) and Incheon (approximately 3 trillion 300 billion KRW).

On the other hand, the previously estimated BTL balance is the sum of all rental fees (present value) to be paid by local autonomous entities annually after 2014. However, to factor this in as debt, present value must be applied in a way similar to how debt is calculated. According to National Accounting Standards Article 46 Clause 1, in cases when the gap between the nominal value and the present value is important in transactions of long-term deferred payment terms, present value is used to evaluate value.

On the other hand, which discount rate is applied can have an important influence on the result of calculating the remaining BTL rental fees at present value. According to National Accounting Standards Article 46 Clause 2, the effective

| Category                     | Sum          | General accounting | Other special accounting | Public enterprise special accounting | Fund  |
|------------------------------|--------------|--------------------|-------------------------|-------------------------------------|-------|
| Grand total                  | 282,960      | 109,935            | 84,182                  | 88,614                              | 229   |
| Seoul Metropolitan City       | 52,822       | 5,130              | 46,121                  | 1,571                               | -     |
| Busan Metropolitan City       | 27,781       | 14,079             | 11,034                  | 2,637                               | 31    |
| Daegu Metropolitan City       | 19,597       | 11,930             | 5,845                   | 1,822                               | -     |
| Incheon Metropolitan City     | 32,764       | 12,423             | 12,333                  | 8,008                               | -     |
| Gwangju Metropolitan City     | 8,026        | 3,730              | -                       | 4,296                               | -     |
| Daejeon Metropolitan City     | 6,990        | 2,970              | -                       | 4,004                               | 16    |
| Ulsan Metropolitan City       | 5,295        | 743                | -                       | 4,533                               | 19    |
| Sejong Special Self-Governing City | 1,245    | 1                  | -                       | 1,244                               | -     |
| Gyeonggi-do                   | 39,572       | 18,729             | 1,584                   | 19,233                              | 26    |
| Gangwon-do                   | 11,226       | 6,912              | 464                     | 3,850                               | -     |
| Chungcheongbuk-do             | 6,676        | 2,301              | 304                     | 4,071                               | -     |
| Chungcheongnam-do             | 9,989        | 2,903              | 3,320                   | 3,753                               | 13    |
| Jeollabuk-do                  | 10,293       | 5,521              | 498                     | 4,274                               | -     |
| Jeollanam-do                  | 12,712       | 5,020              | 1,074                   | 6,546                               | 72    |
| Gyeongsangbuk-do              | 13,388       | 6,959              | 711                     | 5,718                               | -     |
| Gyeongsangnam-do              | 17,657       | 6,795              | 671                     | 10,141                              | 50    |
| Jeju Special Self-Governing Province | 6,927    | 3,789              | 223                     | 2,913                               | 2     |

Note: “Local loan status as of end of 2013” (http://lofin.mospa.go.kr)
interest rate of the transaction is to be discounted. The effective interest rate can be viewed as the rate of profit in BTL projects. However, considering the fact that there was no virtual reduction in BTL rental fees, and that the private operators of the BTL projects during the operation phase assume the rental fee to be at the same level of risk of the national debt, there is a limit when viewing the total PPP investment applied as taxation as fair value. Moreover, if the total PPP investment cannot easily be viewed at fair value, the effective interest rate cannot be viewed as profit. Therefore, this study applied 3.38%, the average yield of Korean Treasury bonds (five-year maturity) over the past three years, as a “Korean National Treasury distributed profits rate of similar requirements in case the effective interest rate is difficult to identify,” as stated in the National Accounting Standards.

When the remaining balance of BTL leases (present value) is added to the local debt amount under these assumptions, the total debt of 41 low-level local governments that are planning or operating BTL projects increases by approximately 22%, and the debt-to-budget ratio increases by approximately 3.4%p compared to the exiting ratio. The debt-to-budget ratio for some local autonomous entities increased dramatically. Specifically, the debt ratio of local entities, including Gyeryong-si of Chungnam (20.48%p), Gangjin-gun of Jeonnam (14.32%p), Gyeongju-si of Gyeongbuk (12.31%p), Cheonan of Chungnam (12.10%), Jecheon-si of Chungnam (12.10%), Jecheon-si of Chungbuk (11.23%p) and Iksan-si of Jeonbuk (10.04%p), increased tremendously.

As shown above, facility leases during BTL projects can pose a major burden on local finance, and BTL rental fees must be considered when managing local finance in the future. Due to these needs, the “Local Bond Plan Standards” (Ministry of Security and Public Administration, 2014) has identified the balances of BTL leases to be managed as debt, but they are not included in the monitoring of the identification of organizations at risk of financial crisis.19

It can be considered for inclusion during the monitoring of the identification of organizations at risk of a financial crisis, as BTL lease balances have a major impact on local finances. With this intention, the Board of Audit and Inspection told the Ministry of Security and Public Administration to reflect the BTL lease balance in the “Pre-Warning System Operation Regulation for Local Financial Crisis” during its audit in August of 2014. However, instead of simply applying the sum of the BTL lease balances to the existing debt while keeping the current Pre-Warning System standards (“Caution” if the debt-to-budget ratio is more than 25%; “Serious” if it is over 40%), introducing new standards in reflecting BTL lease amounts can be considered through a comprehensive review, considering the future status of local finance.

19It can be considered for inclusion during the monitoring of the identification of organizations at risk of a financial crisis, as BTL lease balances have a major impact on local finances. With this intention, the Board of Audit and Inspection told the Ministry of Security and Public Administration to reflect the BTL lease balance in the “Pre-Warning System Operation Regulation for Local Financial Crisis” during its audit in August of 2014. However, instead of simply applying the sum of the BTL lease balances to the existing debt while keeping the current Pre-Warning System standards (“Caution” if the debt-to-budget ratio is more than 25%; “Serious” if it is over 40%), introducing new standards in reflecting BTL lease amounts can be considered through a comprehensive review, considering the future status of local finance.
FIGURE 1. CHANGE IN THE DEBT RATIO WHEN INCLUDING THE BTL LEASE BALANCE OF LOW-LEVEL LOCAL GOVERNMENTS

TABLE 7—REVIEW OF DESIGNATION STANDARDS OF ORGANIZATIONS IN FINANCIAL CRISIS

| Category   | Local government | Debt-to-budget ratio (Existing) | Debt-to-budget ratio (Inclusive of BTL lease balance) | Change after including BTL lease balance |
|------------|------------------|--------------------------------|-------------------------------------------------------|----------------------------------------|
| Busan      | Headquarters     | 27.80%                         | 28.92%                                                | “Caution”                               |
| Daegu      | Headquarters     | 28.10%                         | 28.69%                                                | “Caution”                               |
| Incheon    | Headquarters     | 36.10%                         | 37.13%                                                | “Caution”                               |
| Gyeonggi   | Yongin-si        | 29.00%                         | 31.93%                                                | “Caution”                               |
| Chungnam   | Cheonan-si       | 15.00%                         | 27.10%                                                | “Caution”                               |
| Jeonbuk    | Iksan-si         | 17.20%                         | 27.24%                                                | “Caution”                               |

Note: The grades for Busan, Daegu and Incheon Metropolitan City were originally “Caution,” and none had changes.
C. The Need to Reflect the Debt of Fixed Charges in BTO Environmental Projects

Certain BTO environmental projects contracted between the years 2001 and 2004 have regulated fixed charges, and nine projects were confirmed to be paying fixed charges. These fixed charges are in fact similar to debts, as they work as an agreement for the government to pay fixed amounts to PPP projects every fiscal year. Therefore, this study estimated the total fixed charges to be paid by the government until the completion of future operations of the projects that are currently receiving the fees. The estimation was then reflected in terms of debt.

To do so, the unchangeable, contract-based fixed charges of the relevant projects were utilized to estimate the remaining fixed charges to be paid after 2014 through to the conclusion of the projects’ operations. The current fixed charges of 2014 were calculated based on the actual prices as of 2013 (2010 equivalent to an index of 100), and a 3% annual inflation rate was assumed for the charges thereafter until completion. The same method was used to calculate the remaining fixed charges of BTO environmental projects, and the calculated balance was included as local government debt. As a result, Chilgok-gun was degraded to receive the grade of “Caution,” while Pohang-si (23.35%) was very close to this grade as well.

| Category          | Local government | Debt (A) | Budget (B) | Debt-to-budget ratio (A/B) (%) | Debt ratio including lease balance (A'/B) | Balance of environmental fixed charges (Present value) | Rent balance + fixed charges balance debt (A") | Rent balance + fixed charges balance debt ratio (A"/B) |
|-------------------|-----------------|---------|------------|-------------------------------|------------------------------------------|---------------------------------------------------|-----------------------------------------------|--------------------------------------------------|
| Busan Headquarters|                 | 28,670  | 103,085    | 27.80%                        | 28.92%                                   | 1,326                                             | 31,136                                         | 30.20%                                           |
| Incheon Headquarters|                | 31,981  | 88,593     | 36.10%                        | 37.13%                                   | 651                                               | 33,542                                         | 37.86%                                           |
| Gyeonggi Pyeongtaek-si |              | 719     | 11,956     | 6.00%                         | 11.50%                                   | 693                                               | 2,068                                         | 17.30%                                           |
| Gyeonggi Hwaseong-si |                 | 1,715   | 14,050     | 12.20%                        | 12.20%                                   | 582                                               | 582                                            | 16.35%                                           |
| Jeonbuk Headquarters |                | 7,546   | 53,235     | 14.20%                        | 14.20%                                   | 2,143                                             | 9,689                                         | 18.20%                                           |
| Jeonnam Bosung-gun |                 | 0       | 3,942      | 0.00%                         | 0.00%                                    | 118                                               | 118                                            | 3.00%                                            |
| Gyeongbuk Pohang-si |                 | 1,414   | 13,678     | 19.99%                        | 19.99%                                   | 459                                               | 3,193                                         | 23.35%                                           |
| Gyeongbuk Chilgok-gun |                | 446     | 4,614      | 16.75%                        | 16.75%                                   | 459                                               | 1,231                                         | 26.69%                                           |

Note: 1) Hwaseong-si and Bosung-gun, Jeollabuk-do had no remaining BTL rents. Only remaining fixed charges would be generated. 2) 3.38%, the average yield of Korean Treasury bonds (five-year maturity) over the past three years, is applied as the discount rate of the present value.

The projects that were to be paid at the beginning of operation were excluded, as the payment period has expired.
| Competent authority | Name of project | Operation completion date | Fixed charges (Unchangeable, 1 mil. KRW/yr) | Current fixed charges in 2014 (100 mil. KRW/yr) | Total balance of fixed charges (100 mil. KRW) |
|---------------------|----------------|--------------------------|---------------------------------------------|-----------------------------------------------|---------------------------------------------|
| Gyeonggi-do         | Pyeongtaek-si Sewage Treatment Equipment (Tongbok, Jangdang, Hyeondeok of Anjung) | June 30, 2026 | Tongbok+Jangdang 2,561.99 mil. KRW/yr Hyeondeok 1,453.24 mil. KRW/yr | 59 | 873 |
|                     | Pyeongtaek-si   |                          |                                             |                                              |                                             |
|                     | Hwaseong-si     | Hwaseong-si Sewage Treatment Equipment | June 30, 2026 | 3,379 mil. KRW/yr | 49 | 733 |
|                     | Hwaseong-si     |                          |                                             |                                              |                                             |
| Gyeongsangbuk-do    | Chilgok-gun     | Waegwan Terminal Sewage Disposal Plant (Stage 1 of extension) | March 31, 2026 | 2,636.1 mil. KRW/yr | 40 | 575 |
|                     | Pohang-si       | Pohang Terminal Sewage Disposal Plant Stage 2 (Extension) | October 31, 2022 | 3,866 mil. KRW/yr | 54 | 542 |
|                     |                 |                          |                                             |                                              |                                             |
| Busan Metropolitan City | Dongbu Terminal Sewage Disposal Plant | October 26, 2021 | 7,682 mil. KRW/yr | 113 | 983 |
|                     | Yongdo Terminal Sewage Disposal Plant | December 31, 2020 | 4,900 mil. KRW/yr | 71 | 548 |
|                     |                 |                          |                                             |                                              |                                             |
| Incheon Metropolitan City | Geomdan Terminal Sewage Disposal Equipment | February 18, 2028 | 272.874 mil. KRW/yr | 49 | 844 |
|                     |                 |                          |                                             |                                              |                                             |
| Jeollanam-do        | Bosung-gun      | Beolgyo and Hoecheon Terminal Sewage Disposal Plants | December 1, 2021 | 861 mil. KRW/yr 237 mil. KRW/yr (Ecology park) | 16 | 137 |
|                     |                 |                          |                                             |                                              |                                             |
| Jeollabuk-do        | Basic Environmental Treatment Facility | June 24, 2028 | 10,854 mil. KRW/yr | 157 | 2,795 |
D. Estimation of Further Government Payments and Analysis of Local Financial Burdens Regarding Local Governments’ PPP Projects

Government payments for PPP projects are generated in various forms aside from lease fees for BTL projects and fixed charges for certain BTO projects. The minimum revenue guarantee payment for BTO projects and operation costs for BTL projects are some of the typical payment forms. However, these forms were not discussed in the preceding section as they do not satisfy the requirements of debt in terms of government payment methods. Nonetheless, in order to grasp the effect of government payments for PPP investments on the finances of local governments, it is necessary continuously to forecast the scale and amount of government payments and feed the results of such an analysis into regulations, even if some payment forms cannot be categorized as debt. Therefore, this part of the study estimates future MRG payment amounts for BTO projects and operation costs for BTL projects, which are not considered as debt funds but which can have a tremendous impact on the finances of local governments. In doing so, we can come to understand the anticipated scale of the burden to be carried by each local government for private sector investments in addition to BTL leases and BTO fixed charges, as previously discussed.

First, based on year-end data recorded as of 2013, there are 19 local government projects and five Korean cash-reserve subsidized projects that are forecasted to need future MRG payments, as explained in detail below:

| Category                          | Project                                                                 |
|-----------------------------------|-------------------------------------------------------------------------|
| Local government projects         | **The following 19 projects:**                                          |
|                                   | the Busan Sujeongsan Tunnel,                                            |
|                                   | Daegu Buman Road,                                                       |
|                                   | Gwangju Second Circulation Section 3-1,                                 |
|                                   | Gwangju Second Circulation Section 4,                                   |
|                                   | Incheon Munhaksan Tunnel,                                               |
|                                   | Incheon Manweolsan Tunnel,                                              |
|                                   | Incheon Wonjeoksan Tunnel,                                              |
|                                   | Yeoju-si Food Disposal Facility,                                        |
|                                   | Boryeong River Sewage System,                                           |
|                                   | Mungyeong Gaeun Sewage Treatment Plant,                                 |
|                                   | Yangju Sincheon Sewage System,                                          |
|                                   | Gangwon Misiryeong Road,                                                |
|                                   | Gyeryong-Si Waste Incineration Facility,                                |
|                                   | Ichheon-Si Sewage System,                                               |
|                                   | Gunpo-Si Daeya Sewage System,                                           |
|                                   | Gyeongju-Si OedongGeoncheon Sewage System,                              |
|                                   | Gongheung Doyang Sewage Treatment Plant,                                |
|                                   | Pocheon Sludge Fluidized Bed Incineration Facility,                     |
|                                   | and the Gongju Yugu Gongam Donghaksa Sewage System                      |
| Korean government-               | **The following five projects:**                                        |
| subsidized projects               | Gwangju Second Circulation Section 1,                                   |
|                                   | Seoul Umyeonsan Tunnel,                                                 |
|                                   | Seoul Metro Line 9,                                                     |
|                                   | Gyeonggi Ilsan Bridge,                                                  |
|                                   | and Gyeongnam Machang Bridge                                            |
| Category                        | Assumption                                                                                                                                                                                                 |
|--------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Base year                      | December 31, 2013                                                                                                                                                                                          |
| Inflation rate                 | Through 2013: CPI record                                                                                                                                                                                   |
|                                 | After 2014: Apply annual rate of 3%                                                                                                                                                                          |
| Discount rate                  | Apply annual rate of 3.38% (the average yield of five-year Korean Treasury bonds over the past three years)                                                                                                     |
| Actual operation income        | Apply a weighted average ratio of actual income from user charges to the anticipated income from user fees at the time of the contract for the past three years (2011-2013)                                           |
| Minimum responsibility         | Reflect the future MRG estimation if the minimum responsibility management standard exists where MRG is not paid in case the achieved actual operation income does not exceed a certain proportion of the contracted operation income |
| management standard            |                                                                                                                                                                                                             |
| Assumed charges                | If the actual income from user charges is calculated based on the assumed charges at a certain ratio to the charges decided upon at the time of the contract in assessing the MRG amount, apply a weighted average of the ratio between the actual traffic and charges at the time of the contract to the actual traffic and charges for the past three years. This method is used rather than applying the ratio between the anticipated income from charges to the actual income from charges for the past three years in order to apply the traffic factor (Q) and the user charge unit (P) separately. |

*Note:* The weighted average is calculated at the ratio of (2013:2012:2011) = (3:2:1).

Furthermore, the assumptions below were made to estimate the MRG amount to be generated for the projects after 2014. The base point was the end of 2013, and a 3% future annual inflation rate was applied. Moreover, the future income from user charges was forecasted based on the actual charges earned during the past three years, where the income from 2013 was given more weight than that of 2011; the weighted average income from each year was calculated at a ratio of 3:2:1.²¹

The forecasted MRG amount based on the above suppositions are shown in the table below. The MRG payment to be issued after 2014 for government-subsidized local projects is estimated to be approximately 100 billion KRW per year for a total of 200 billion KRW. However, local governments are recently easing or abolishing the MRG for the projects that are anticipated to generate excessive MRG payments, targeting the restructuring of the process to result in both low risk and low profit levels. The currently posed burden of the MRG is expected to become lighter if these new attempts succeed.

In addition, similar to the rental fee calculations of BTL projects, the remaining balances of the operation costs were estimated per project and then summed by the local government. Moreover, based on the above data, the sum total of BTL project rental fees, operation costs, estimated MRG amounts for BTO projects, and fixed charges are presented in Table A5 in the appendix.

²¹The payment forecast based on the assumptions in this analysis is a simplified means of forecasting which differs from the forecasting method of the IMF’s PFRAM (PPP Fiscal Risk Assessment Model).
TABLE 12—ESTIMATION OF THE MRG AMOUNT TO BE GENERATED IN THE FUTURE

(UNIT: 100 MIL. KRW)

| Category                      | Name of project                               | Estimated MRG generation after 2014 | Estimated MRG generation after 2014 (Present value) | Payment period for remaining MRG after 2014 | Annual average of MRG paid during the remaining period |
|-------------------------------|------------------------------------------------|-------------------------------------|-------------------------------------------------------|-------------------------------------------|--------------------------------------------------------|
| Local government projects     | Busan Sujeongsan Tunnel                        | 1,012                               | 758                                                   | 15                                        | 67                                                     |
|                               | Daegu Buman Road (4)                           | -                                   | -                                                     | -                                        | -                                                      |
|                               | Gwangju Second Circulation Section 3-1        | -                                   | -                                                     | -                                        | -                                                      |
|                               | Gwangju Second Circulation Section 4          | -                                   | -                                                     | 20                                       | -                                                      |
|                               | Incheon Munhaksan Tunnel                       | 667                                 | 502                                                   | 9                                        | 74                                                     |
|                               | Incheon Manweolsan Tunnel (3)                  | -                                   | -                                                     | -                                        | -                                                      |
|                               | Incheon Wonjeoksan Tunnel (3)                  | -                                   | -                                                     | -                                        | -                                                      |
|                               | Yeoju-si Food Disposal Facility                | 5                                   | 3                                                     | 9                                         | 1                                                      |
|                               | Boryeong River Sewage System                   | 81                                  | 60                                                    | 12                                        | 7                                                      |
|                               | Mungyeong Gaeun Sewage Treatment Plant         | 52                                  | 42                                                    | 11                                        | 5                                                      |
|                               | Yangju Sincheon Sewage System (1)              | -                                   | -                                                     | -                                        | -                                                      |
|                               | Gangwon Misiryeong Road                       | 1,033                               | 657                                                   | 23                                        | 45                                                     |
|                               | Gyeryong-Si Waste Incineration Facility        | -                                   | -                                                     | 8                                         | -                                                      |
|                               | Icheon-Si Sewage System                        | -                                   | -                                                     | 6                                         | -                                                      |
|                               | Gunpo-Si Daeya Sewage System                   | 106                                 | 74                                                    | 16                                        | 7                                                      |
|                               | Gyeongju-Si OedongGeoncheon Sewage System      | -                                   | -                                                     | 5                                         | -                                                      |
|                               | Gongheung Doyang Sewage Treatment Plant        | 4                                   | 3                                                     | 12                                        | -                                                      |
|                               | Pocheon Sludge Fluidized Bed Incineration Facility | -                                | -                                                     | 8                                         | -                                                      |
|                               | Gungju Yugu Gongam Donghaksa Sewage System (2) | -                                   | -                                                     | 12                                        | -                                                      |
|                               | Sub-total                                      | 5,258                               | 3,569                                                 | 187                                       | 315                                                    |
| Korean government-subsidized projects | Gwangju Second Circulation Section 1     | 4,940                               | 3,704                                                 | 15                                        | 329                                                    |
|                               | Seoul Umyeonsan Tunnel                         | 1,425                               | 1,034                                                 | 21                                        | 68                                                     |
|                               | Seoul Metro Line 9 (3)                         | -                                   | -                                                     | -                                        | -                                                      |
|                               | Gyeonggi Ilisan Bridge                         | 3,535                               | 2,225                                                 | 25                                        | 141                                                    |
|                               | Gyeongnam Machang Bridge                       | 6,688                               | 4,160                                                 | 25                                        | 268                                                    |
|                               | Sub-total                                      | 16,587                              | 11,123                                                | 86                                        | 806                                                    |
|                               | Grand total                                    | 21,846                              | 14,692                                                | 273                                       | 1,121                                                  |

Note: 1) Changed into financial projects as Yangju-si took over PPP projects. 2) The MRG amount is calculated by simply carrying over the unchangeable estimated income by contract, which only came into effect as of January of 2006, for 10 months. 3) The MRG is abolished for these projects due to reasons including changes in contracts.

Establishing an upper ceiling for annual government spending for PPP projects is one of the solutions proposed to manage the government’s financial risk. This solution involves managing the total annual spending on PPP projects, typically including rental fees for BTL projects, operation costs, MRG payments for BTO projects and fixed charges, by holding it to within 2% of the total annual expenditure budget (a 2% ceiling rule). This study estimates the annual government

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22The 2% ceiling rule, however, is proposed for the central government level, and there has not been a suggested rule for the local level. In this paper, we consider each local government as an independent central government and apply the 2% ceiling rule. Even if the 2% rule in this paper is restrictive, our approach is not excessive because each local government with its own budget takes all responsibility for its PPP contracts with private partners. Regarding the relative size of the local government budget, the rule should be tightened. Moreover, the rule was initially proposed based upon the case of the U.K., where the fiscal risk is relatively well managed and the PPP management history is longer than in any other country. Thus, the rule cannot be applied to...
expenditure on PPP projects by local governments and attempts to determine the ratio with regard to the budget. This methodology allows us to examine whether each local government is effectively managing its financial risk in PPP projects based on the 2% ceiling rule. To do this, it was necessary to gather the annual expenditures of various types of government spending, as previously calculated. Due to limited resources, however, annual lease and operation costs were utilized as indicated in contracts, and the average amount of annual payments is presented for the MRG. Therefore, there is a possibility of a gap compared to the actual annual spending. Nonetheless, the analysis used here assumed that the available data was sufficient to understand the scale of the financial burden placed on each any country, and it must be stricter for countries where fiscal risk is not well maintained. Therefore, the 2% rule is not the only reference, and local governments should not feel comfortable only because the 2% rule is met in their cases.
local government due to PPP projects compared to the original budget.

The results of the analysis conducted here found that the annual spending on PPP projects by Geryong-si, Chungnam (2.50%) exceeded 2%, while four local governments, in this case Gangjin-gun in Jeonnam (1.75%), Chilgok-gun in Gyeongbuk (1.64%), and Jecheon-si (1.61%) and Gwangju-si (1.54%) in Chungbuk, recorded annual spending amounts which exceeded 1.5%. These local governments are thus shown to be burdened with excessive financial responsibilities for PPP projects compared to their budgets. The analysis calls for some efforts to ease the financial burdens on local governments from various perspectives as well as a cautious approach for a better execution of new projects in the future.23

E. Conclusion

The scale of the burden on local finance posed by the PPP investment system pursued by local governments was estimated and changes in financial risk levels were examined. It was a common understanding that local finance does not face a high level of risk if rental fees for BTL and fixed charges for BTO, which carry the features of debt, are included in local government finances. In contrast, the study showed that there are in fact some local governments that have financial risk.

In addition, the estimated annual payment as various government subsidiaries for PPP projects, aside from the payment forms that fall under the debt category, were calculated. These results showed that most local autonomous entities, with an exception of a few, are managing the expenditure within the aforementioned 2% rate of their annual budgets.

This paper differs from earlier work for the following reasons. First, earlier works mainly studied the institutional or policy aspects of PPP projects and did not include a quantitative analysis. At best, some of them merely reviewed one or two PPP projects of a local government to derive policy implications. This paper overcame these limitations and analyzed all of the PPP projects at the local level. Secondly, this paper adopts the Accrual and Double-Entry Bookkeeping Accounting System and considers the lease payment of local governments as government debt. It is unique, in Korea, to sum all lease payments as government debt and consider the fiscal risk of each local government, though doing so is closer to global standards. Thirdly, this work also represents the first attempt to include fixed charges of BTO projects in the analysis. At the earlier stage of Korean PPP, fixed charges were introduced to relieve the risk of the private sector. However, previous works did not include them when considering the fiscal risks of local governments. The characteristics of the charges are very similar to those of the lease fee of BTL projects because the payment of fixed charge is confirmed by agreements. Thus, we included these charges in our analysis. Fourthly, papers related to the fiscal burden from MRG have been published in the literature, but the studies were done mainly at the central level. The present paper can be considered to be the first attempt to analyze all of the fiscal burdens from MRG at the local level and then to provide important policy implications for each local government.23

23See Tables A6 and A7 of the appendix for details.
Finally, the paper is the first to apply the 2% ceiling rule to local governments. With this approach, we can easily check and compare the levels of fiscal risk from the PPP projects of each local government. PPP projects must be carefully examined before their execution, as they may develop long-term financial risks while lessening the financial burdens. Only considering the fact that PPP projects do not pose short-term burdens may increase the long-term financial risks for local governments, which ultimately can imperil the national financial status. A detailed review and analysis of the financial risk forecast is required for both national and local government-managed PPP projects. Decision making for project execution also requires consideration of the possible financial risks that may harm local governments. In doing so, this study presents the three suggestions below.

First, it is necessary to examine potential financial burdens during the early stage of PPP project execution, which usually includes the steps of eligibility investigation, proposal review, and validation. This will provide an institutional tool as a reference to use when determining a project’s validity and eligibility by reviewing the financial burdens during the planning process.

Second, information on the financial risk level, based on the financial status of the local government and project in question, must be studied according to the process of the PPP project review board. A comprehensive review would not only examine the validity of a project but also the potential effects of the project on local finances. Furthermore, the fiscal impact of a PPP project on a smaller local governments can be higher, which should be considered during the project selection process.

Third, it is necessary to consider the extension of the 2% ceiling rule, which is now only applicable to projects managed by central governments, to those managed by local governments. Continuous management is essential for holding estimated expenditures below the 2% ratio relative to the annual budget, whether it is considered as debt or not. Focusing only on debt funds for government subsidiaries may result in some financial risk stemming from MRG payments or BTL operation costs. Therefore, local governments must closely examine the scale of annual government funds for current PPP projects. In addition, it is important to examine the possibility of managing the share of annual government funds within 2% of the annual budget for long-term financial risk management, especially when planning new projects.

A concerted effort to manage the financial risk of PPP projects will ultimately increase the sustainability of and stabilize the PPP investment system. Indiscrete execution of PPP projects that only consider short-term relief of financial burdens and political interests harm the safety of the system and foster negative perspectives toward PPP projects in the long run. We expect a stable, long-term advancement of the PPP investment system through rigorous management of the financial risks of PPP investments based on the suggestions presented here.
## APPENDIX

### TABLE A1—FACILITY LEASE STATUS BY PROJECT TYPE (PRESENT VALUE)

| Competent authority (Lower level) | Name of project | Total facility lease (present value) | Annual facility lease (present value) |
|-----------------------------------|----------------|--------------------------------------|--------------------------------------|
| Seoul Metropolitan City (2)       | Gangnam-gu     | Gangnam Geriatric Hospital            | 686                                  | 34                                    |
|                                   |                | Establishment of Daechi Reservoir Themed Sports Park | 305                                  | 15                                    |
| Busan Metropolitan City (6)       | Haeundae-gu    | Haeundae New Town Library              | 238                                  | 12                                    |
|                                   | Buk-gu/Saha-gu (Multiple) | Hwamyeong Library and Dadae Library | 216                                  | 11                                    |
|                                   |                | Headquarters | Establishment of the 4th Busan City Geriatric Hospital | 154 | 8 |
|                                   |                |            | Establishment of Busan Information Highway | 180 | 23 |
|                                   |                |            | Busan Metropolitan City (Gamjeonbun-gu) Sewer Maintenance 2011 | 1,067 | 53 |
|                                   |                |            | Busan Metropolitan City (Samrak-gu & Deokcheon-gu) Sewer Maintenance 2012 | 908 | 45 |
| Daegu Metropolitan City           | Headquarters   | Daegu City Art Museum                   | 986                                  | 49                                    |
| Incheon Metropolitan City (3)     | Bupyeong-gu    | Bupyeong Culture & Art Center (Bupyeong Art Center) | 670                                  | 33                                    |
|                                   |                | Headquarters | Relocation of Incheon City Library      | 339                                  | 17                                    |
|                                   |                |            | Incheon Metropolitan City Sewer Maintenance | 1,509 | 75 |
| Gwangju Metropolitan City (2)     | Headquarters   | Gwangju Metropolitan City Sewer Maintenance 2007 | 2,272 | 114 |
|                                   |                |            | Gwangju Metropolitan City Sewer Maintenance 2008 | 1,639 | 82 |
| Daejeon Metropolitan City (2)     | Headquarters   | Daejeon Metropolitan City Sewer Maintenance 2006 | 2,246 | 112 |
|                                   |                |            | Daejeon Metropolitan City Sewer Maintenance 2008 | 1,593 | 80 |
| Ulsan Metropolitan City (3)       | Headquarters   | Ulsan Museum                                   | 840                                  | 42                                    |
|                                   |                |            | Ulsan Metropolitan City Sewer Maintenance 2006 | 1,906 | 95 |
|                                   |                |            | Ulsan Metropolitan City Sewer Maintenance 2008 | 1,940 | 97 |
| Gyeonggi-do (10)                  | Paju-si (3)    | Paju Kyoha Library                           | 204                                  | 10                                    |
|                                   |                | Paju-si Sewer Maintenance 2011          | 1,508                                 | 75                                    |
|                                   |                | Paju-si Sewer Maintenance                 | 1,454                                 | 73                                    |
|                                   | Yongin-si (2)  | Yongin-si Sewer Maintenance 2009          | 819                                  | 41                                    |
|                                   |                | Yongin-si Sewer Maintenance               | 1,791                                 | 90                                    |
|                                   | Gimpo-si       | Gimpo-si Sewer Maintenance                 | 1,627                                 | 81                                    |
|                                   | Anseong-si     | Anseong-si Sewer                           | 1,219                                 | 61                                    |
|                                   | Ansan-si (2)   | Safe Ansan Secure Ansan U-City Establishment Stage 2 | 98 | 12 |
|                                   | Pyeongtaek-si  | Pyeongtaek Sewer Maintenance               | 2,854                                 | 143                                   |
| Competent authority (Lower level) | Name of project                                | Total facility lease (present value) | Annual facility lease (present value) |
|----------------------------------|------------------------------------------------|--------------------------------------|---------------------------------------|
| Gangwon-do (4)                  | Gangneung-si Sewer Maintenance                 | 1,305                                | 65                                    |
|                                 | Wonju-si Sewer Maintenance                     | 2,104                                | 105                                   |
|                                 | Chuncheon-si Sewer Maintenance                 | 1,902                                | 95                                    |
|                                 | Hongcheon-gun Sewer Maintenance                | 621                                  | 31                                    |
| Chungcheongbuk-do (14)          | Jecheon-si Excellent Herbal Medicine Retail Support Facility | 181                                  | 9                                     |
|                                 | Herbal Medicine Life Science Center            | 321                                  | 16                                    |
|                                 | Jecheon-si Sewer Maintenance 2007              | 1,391                                | 70                                    |
|                                 | Jecheon-si Sewer Maintenance 2009              | 948                                  | 47                                    |
|                                 | Jincheon-gun Sewer Maintenance 2005            | 360                                  | 18                                    |
|                                 | Jincheon-gun Sewer Maintenance 2006            | 537                                  | 27                                    |
|                                 | Goesan-gun Sewer Maintenance                   | 682                                  | 34                                    |
|                                 | Boeun-gun Sewer Maintenance                    | 353                                  | 18                                    |
|                                 | Okcheon-gun Sewer Maintenance                  | 402                                  | 20                                    |
|                                 | Eumseong-gun Sewer Maintenance                 | 856                                  | 43                                    |
|                                 | Jeungpyeong-gun Jeungpyeong-gun Sewer Maintenance | 337                                 | 17                                    |
|                                 | Chungju-si Sewer Maintenance                   | 1,748                                | 87                                    |
|                                 | Cheongju-si Sewer Maintenance                  | 518                                  | 26                                    |
|                                 | Headquarters Relocation of Chungju-si Medical Center | 1,153                           | 58                                    |
| Chungcheongnam-do (19)          | Gyeryong-si Gyeryong Culture Multiplex          | 417                                  | 21                                    |
|                                 | Gyeryong-si Sewer Maintenance                  | 700                                  | 35                                    |
|                                 | Cheonan-si Sewer Maintenance (Stage 1)         | 2,198                                | 110                                   |
|                                 | Cheonan-si Sewer Maintenance (Stage 2)         | 942                                  | 47                                    |
|                                 | Establishment of North Cheonan Library          | 253                                  | 13                                    |
|                                 | Cheonan Life Sports Park                       | 231                                  | 12                                    |
|                                 | Cheonan Hong Dae Yong Science Museum           | 336                                  | 17                                    |
|                                 | Cheonan Culture & Art Multiplex                | 1,145                                | 57                                    |
|                                 | Dangjin-si Dangjin-si Sewer Maintenance        | 781                                  | 39                                    |
|                                 | Establishment of Dangjin Education, Culture & Sports Center | 350                                  | 18                                    |
|                                 | Ansan-si Ansan Indo Life Sports Center         | 422                                  | 21                                    |
|                                 | Ansan Sewer Maintenance                        | 1,583                                | 79                                    |
|                                 | Ansan Jang Young Sil Science Museum            | 243                                  | 12                                    |
|                                 | Geumsan-gun Geumsan-gun Sewer Maintenance      | 653                                  | 33                                    |
|                                 | Nonsan-si Nonsan-si Sewer Maintenance          | 641                                  | 32                                    |
|                                 | Boryeong-si Boryeong-si Sewer Maintenance      | 718                                  | 36                                    |
|                                 | Seosan-si Seosan-si Sewer Maintenance          | 1,366                                | 68                                    |
|                                 | Segocheon-gun Segocheon-gun Sewer Maintenance | 598                                  | 30                                    |
|                                 | Hongseong-gun Hongseong-gun Sewer Maintenance | 1,361                                | 68                                    |
TABLE A1—FACILITY LEASE STATUS BY PROJECT TYPE (PRESENT VALUE) (Continued)

| Competent authority (Lower level) | Name of project | Total facility lease (present value) | Annual facility lease (present value) |
|-----------------------------------|-----------------|-------------------------------------|----------------------------------------|
| Jeollabuk-do (11)                 |                 |                                     |                                        |
| Iksan-si (4)                      | Establishment of Iksan Culture Multiplex | 647                                | 32                                      |
|                                   | Iksan City Mohyun Library                  | 219                                | 11                                      |
|                                   | Iksan-si Sewer Maintenance 2006            | 1,279                               | 64                                      |
|                                   | Iksan-si Sewer Maintenance 2009            | 1,568                               | 78                                      |
| Jeollabuk-do (11)                 |                 |                                     |                                        |
| Gimje-si (2)                      | Gimje-si Sewer Maintenance 2009            | 1,223                               | 61                                      |
|                                   | Gimje-si Sewer Maintenance                 | 592                                | 30                                      |
|                                   | Gunsan-si Sewer Maintenance                | 1,433                               | 72                                      |
|                                   | Wanju-gun Sewer Maintenance                | 910                                | 45                                      |
|                                   | Jeonju-si Sewer Maintenance                | 1,987                               | 99                                      |
|                                   | Jeongeup-si Sewer Maintenance              | 1,050                               | 53                                      |
|                                   | Jinan-gun Sewer                           | 499                                | 25                                      |
| Jeollabuk-do (11)                 |                 |                                     |                                        |
| Jeollanam-do (14)                 |                 |                                     |                                        |
| Gangjin-gun (2)                   | Establishment of Gangjin Culture & Welfare Town | 753                        | 38                                      |
|                                   | Gangjin-gun Sewer                         | 604                                | 30                                      |
|                                   | Wando-gun Customized Culture Multiplex     | 305                                | 15                                      |
|                                   | Relocation of Gangjin Hospital             | 602                                | 30                                      |
|                                   | Hampyeong-gun Public Geriatric Medical Care Hospital | 103                        | 5                                       |
|                                   | Hwasun-gun Geriatric Hospital              | 290                                | 15                                      |
| Mokpo-si (3)                      | Mokpo-si Sewer Maintenance 2005            | 1,101                               | 55                                      |
|                                   | Mokpo-si Sewer Maintenance 2006            | 1,302                               | 65                                      |
|                                   | Mokpo-si Sewer Maintenance 2009            | 643                                | 32                                      |
| Yeosu-si (2)                      | Yeosu-si Sewer Maintenance 2008            | 926                                | 46                                      |
|                                   | Yeosu-si Sewer Maintenance 2005            | 768                                | 38                                      |
| Naju-si                           | Naju-si Sewer Maintenance                  | 1,207                               | 60                                      |
| Damyang-gun                       | Damyang-gun Sewer Maintenance              | 480                                | 24                                      |
| Jangheung-gun                     | Jangheung-gun Sewer Maintenance            | 681                                | 34                                      |
| Gyeongsangbuk-do (20)             |                 |                                     |                                        |
| Gyeongju-si (3)                   | Establishment of Gyeongju Culture & Art Center | 1,338                    | 67                                      |
|                                   | Gyeongju-si Sewer Maintenance 2005         | 1,785                               | 89                                      |
|                                   | Gyeongju-si Sewer Maintenance 2008         | 1,424                               | 71                                      |
| Andong-si                         | Andong Culture & Art enter                 | 951                                | 48                                      |
| Uiseong-gun                       | Uiseong-gun Public Hospital for Dementia   | 207                                | 10                                      |
| Sangju-si (2)                     | Sangju-si Sewer Maintenance 2005           | 1,405                               | 70                                      |
|                                   | Sangju-si Sewer Maintenance 2006           | 932                                | 47                                      |
| Pohang-si (3)                     | Pohang-si Sewer Maintenance 2007           | 2,862                               | 143                                     |
|                                   | Pohang-si Sewer Maintenance 2009           | 1,537                               | 77                                      |
|                                   | Pohang-si Sewer Maintenance 2010           | 1,730                               | 86                                      |
| Competent authority (Lower level) | Name of project                        | Total facility lease (present value) | Annual facility lease (present value) |
|----------------------------------|---------------------------------------|--------------------------------------|---------------------------------------|
| Gyeongsangbuk-do (20)            | Goryeong-gun Sewer Maintenance         | 530                                  | 27                                    |
|                                  | Gimcheon-si Sewer Maintenance          | 1,347                                | 67                                    |
|                                  | Gimcheon Green Future Science Museum   | 568                                  | 28                                    |
|                                  | Mungyeong-si Sewer Maintenance         | 1,749                                | 87                                    |
|                                  | Yeongdeok-gun Sewer Maintenance       | 708                                  | 35                                    |
|                                  | Yeongju-si Sewer Maintenance 2010      | 744                                  | 37                                    |
|                                  | Yeongju-si Sewer Maintenance 2010      | 1,425                                | 71                                    |
|                                  | Yecheon-gun Sewer Maintenance         | 820                                  | 41                                    |
|                                  | Uijin-gun Sewer Maintenance            | 1,200                                | 60                                    |
|                                  | Chilgok-gun Sewer Maintenance          | 1,603                                | 80                                    |
|                                  | Uiryeong-gun Geriatric Hospital        | 74                                   | 4                                     |
|                                  | Gimhae-si Sewer Maintenance 2005       | 1,599                                | 80                                    |
|                                  | Gimhae-si Sewer Maintenance 2006       | 1,470                                | 74                                    |
|                                  | Gimhae-si Sewer Maintenance 2008       | 1,052                                | 53                                    |
|                                  | Yangsan-si Sewer Maintenance 2006      | 958                                  | 48                                    |
|                                  | Yangsan-si Sewer Maintenance 2008      | 660                                  | 33                                    |
|                                  | Jinju-si Sewer Maintenance 2006        | 1,333                                | 67                                    |
|                                  | Jinju-si Sewer Maintenance 2008        | 1,758                                | 88                                    |
|                                  | Geochang-gun Sewer                     | 587                                  | 29                                    |
|                                  | Changwon-si Masan Sewer Maintenance    | 2,207                                | 110                                   |
|                                  | Changwon Science Experience EXPO       | 534                                  | 27                                    |
|                                  | Sacheon High-Tech Aviation Space Science Museum | 227                              | 11                                    |
|                                  | Tongyeong Sewer Maintenance            | 1,696                                | 85                                    |
| Jeju Special Self-Governing Province (10) | Establishment of Jeju Culture Multiplex | 270                                  | 13                                    |
|                                  | Jeju Special Self-Governing Province Art Museum | 288                              | 14                                    |
|                                  | Seogwipo Hospital                      | 744                                  | 37                                    |
|                                  | Seogwipo-si Country & Town Sewer Maintenance 2006 | 1,719                             | 86                                    |
|                                  | Jeju-si Country & Town Sewer Maintenance 2006 | 1,135                             | 57                                    |
|                                  | Jeju-si (East) Sewer Maintenance 2006  | 1,045                                | 52                                    |
|                                  | Jeju-si (East) Sewer Maintenance 2008  | 1,201                                | 60                                    |
|                                  | Jeju-si Country & Town Sewer Maintenance 2008 | 1,776                             | 89                                    |
|                                  | Jeju-si Country & Town Sewer Maintenance 2009 | 893                             | 45                                    |
|                                  | Jeju-si Country & Town Sewer Maintenance 2010 | 771                             | 39                                    |
| Total                           |                                       | 132,139                              | 6,634                                 |

Note: 1) "(" )" Indicates the number of projects. 2) Total facility rental fee is the national treasury and local funds combined by contract at the present value.
**TABLE A2—ESTIMATED BALANCE OF BTL LEASES BY LOCAL AUTONOMOUS ENTITIES**

(UNIT: 1 MILLION KRW)

| Headquarters       | Total Amount of Lease | Lease payments expected from 2014 |
|--------------------|-----------------------|----------------------------------|
| Seoul              |                       |                                  |
| Gangnam            | 98,974                | 53,701                           |
| Busan              |                       |                                  |
| Haeundae           | 23,782                | 19,139                           |
| Buk/Saha           | 21,621                | 12,181                           |
| Main Office        | 230,940               | 155,895                          |
| Daegu              | 98,576                | 50,202                           |
| Incheon            |                       |                                  |
| Bupyung            | 66,983                | 51,860                           |
| Main Office        | 184,779               | 124,636                          |
| Gwangju            | 391,102               | 264,179                          |
| Daejeon            | 333,586               | 250,315                          |
| Ulsan              | 468,527               | 221,802                          |
| Gyeonggi           |                       |                                  |
| Paju               | 316,618               | 95,120                           |
| Yongin             | 261,002               | 72,458                           |
| Gimpo              | 162,652               | 48,795                           |
| Ansung             | 121,867               | 36,253                           |
| Ansan              | 27,788                | 20,647                           |
| Pyungtaek          | 285,446               | 90,695                           |
| Gangwon            |                       |                                  |
| Gangneung          | 130,538               | 28,142                           |
| Wonju              | 210,423               | 57,207                           |
| Chuncheon          | 190,153               | 57,048                           |
| Hongchun           | 62,054                | 15,825                           |
| Chungbuk           |                       |                                  |
| Jecheon            | 284,123               | 88,019                           |
| Jincheon           | 89,684                | 21,564                           |
| Gochang            | 68,222                | 18,217                           |
| Boeun              | 35,309                | 7,207                            |
| Ogcheon            | 40,208                | 9,999                            |
| Umsung             | 85,642                | 21,517                           |
| Jeungpyung         | 33,655                | 7,994                            |
| Chungju            | 174,766               | 46,966                           |
| Cheongju           | 51,837                | 23,762                           |
| Main Office        | 115,340               | 52,623                           |
| Chungnam           |                       |                                  |
| Guryeong           | 111,732               | 48,703                           |
| Cheonan            | 510,570               | 221,256                          |
| Dangjin            | 113,194               | 35,368                           |
| Asan               | 224,801               | 75,947                           |
| Geumsan            | 65,340                | 16,906                           |
| Nonsan             | 64,147                | 15,153                           |
| Boryung            | 71,789                | 21,219                           |
| Seosan             | 136,587               | 38,754                           |
| Seocheon           | 59,759                | 15,911                           |
| Main Office        | 975                   | 17,807                           |
### TABLE A2—Estimated Balance of BTL Leases by Local Autonomous Entities (Continued)

(UNIT: 1 MILLION KRW)

| Headquarters  | Total Amount of Lease | Lease payments expected from 2014 |
|--------------|-----------------------|----------------------------------|
| **Jeonbuk**  |                       |                                  |
| Iksan        | 371,259               | 141,743                          |
| Gimje        | 181,507               | 54,450                           |
| Gunsan       | 143,285               | 37,611                           |
| Wanju        | 90,987                | 23,199                           |
| Jeonju       | 198,710               | 81,135                           |
| Jeongup      | 105,020               | 22,071                           |
| Jinan        | 49,928                | 11,897                           |
| **Jeonnam**  |                       |                                  |
| Gangjin      | 60,181                | 28,084                           |
| Wando        | 135,660               | 60,015                           |
| Main Office  | 30,456                | 14,991                           |
| Hampyeung    | 10,274                | 4,880                            |
| Hwasun       | 28,995                | 14,532                           |
| Mokpo        | 304,662               | 81,060                           |
| Yeosu        | 169,376               | 46,398                           |
| Naju         | 120,679               | 34,393                           |
| Dannyang     | 48,032                | 9,127                            |
| Janheung     | 68,104                | 17,535                           |
| **Gyeongbuk**|                       |                                  |
| Gyeongju     | 454,659               | 196,817                          |
| Andong       | 95,112                | 48,889                           |
| Uisong       | 20,711                | 10,101                           |
| Sanju        | 233,648               | 56,715                           |
| Pohang       | 612,819               | 183,840                          |
| Goryung      | 53,040                | 9,869                            |
| Gimcheon     | 191,498               | 63,590                           |
| Mungyung     | 174,914               | 47,767                           |
| Youngduk     | 70,783                | 16,810                           |
| Youngju      | 216,877               | 65,064                           |
| Yecheon      | 82,025                | 24,607                           |
| Uljin        | 120,009               | 32,700                           |
| **Gyeongnam**|                       |                                  |
| Chilgok      | 160,268               | 44,472                           |
| Uliryung     | 7,409                 | 3,222                            |
| Gimhae       | 412,131               | 112,800                          |
| Yangsan      | 161,776               | 38,968                           |
| Jinju        | 309,096               | 88,731                           |
| Geochang     | 58,708                | 11,873                           |
| Changwon     | 274,123               | 79,021                           |
| Sacheon      | 22,743                | 10,801                           |
| Tongyung     | 169,644               | 49,407                           |
| **Jeju**     |                       |                                  |
|              | 984,048               | 340,932                          |
| Category          | Low-level local government | Budget (Grand total including fund) (B) | Debt-to-budget ratio (A/B) (%) | Rent balance of BTL project (Present value) | Debt including BTL lease balance (A') | Debt-to-budget ratio (A'/B) |
|-------------------|-----------------------------|----------------------------------------|-------------------------------|---------------------------------------------|--------------------------------------|---------------------------|
| Seoul             | Gangnam-gu                  | 8,333                                  | 0.00                          | 398                                         | 29,810                               | 4.77%                     |
|                   | **Busan**                   | **28,670**                             | **103,085**                   | **1,140**                                   | **29,810**                           | **28.92%**                |
|                   | Buk-gu                      | 3,116                                  | 0.00                          | 93                                          | 94                                   | 3.01%                     |
|                   | Haemundae                   | 4,123                                  | 0.60                          | 146                                         | 171                                  | 4.14%                     |
| Daegu             | Headquarters                | **19,379**                             | **68,877**                    | **382**                                     | **19,761**                           | **28.69%**                |
|                   | Haeundae                    | 5,169                                  | 7.40                          | 396                                         | 780                                  | 15.09%                    |
| Incheon           | Headquarters                | **31,981**                             | **88,593**                    | **910**                                     | **32,891**                           | **37.13%**                |
|                   | Bupyeong-gu                 | 384                                     | 17.94                        | 386                                         | 780                                  | 20.74%                    |
| Gwangju           | Headquarters                | **7,987**                              | **39,787**                    | **1,918**                                   | **9,905**                            | **24.89%**                |
|                   | Daejeon                     | **6,687**                              | **40,003**                    | **1,834**                                   | **8,521**                            | **21.30%**                |
| Ulsan             | Headquarters                | **5,215**                              | **30,461**                    | **1,647**                                   | **6,862**                            | **22.53%**                |
| Gyeonggi          | Yongin-si                   | 5,211                                  | 17.993                        | 535                                         | 5,746                                | 31.93%                    |
|                   | Ansan-si                    | 187                                     | 21.092                        | 181                                         | 368                                  | 1.75%                     |
|                   | Pyeongtaek-si               | 719                                     | 11.956                        | 656                                         | 1,375                                | 11.50%                    |
|                   | Paju-si                     | 833                                     | 9.185                         | 701                                         | 1,534                                | 16.70%                    |
|                   | Gimpo-si                    | 981                                     | 7.941                         | 351                                         | 1,332                                | 16.77%                    |
|                   | Anseong-si                  | 122                                     | 6.600                         | 261                                         | 383                                  | 5.80%                     |
| Gangwon           | Chuncheon-si                | 910                                     | 10.812                        | 410                                         | 1,320                                | 12.21%                    |
|                   | **Wonju-si**                | **1,563**                              | **9.810**                     | **419**                                     | **1,982**                            | **20.20%**                |
|                   | Gangneung-si                | 736                                     | 7.449                         | 213                                         | 949                                  | 12.74%                    |
|                   | Hongcheon-gun              | 5,265                                   | 0.00                          | 119                                         | 119                                  | 2.26%                     |
| Chungbuk          | Headquarters                | 6,105                                  | 38.348                        | 388                                         | 6,493                                | 16.92%                    |
|                   | Cheongju-si                 | 1,482                                  | 12.847                        | 181                                         | 1,663                                | 12.94%                    |
|                   | Chungju-si                  | 303                                     | 8.715                         | 348                                         | 651                                  | 7.47%                     |
|                   | Jecheon-si                  | 0                                      | 5.753                         | 646                                         | 646                                  | 11.23%                    |
|                   | Boeun-gun                   | 165                                     | 3.116                         | 55                                          | 220                                  | 7.05%                     |
|                   | Okcheon-gun                 | 157                                     | 3.921                         | 76                                          | 233                                  | 5.93%                     |
|                   | Jeongpyeong-gun             | 85                                      | 1.878                         | 61                                          | 146                                  | 7.78%                     |
|                   | Jincheon-gun                | 170                                     | 3.460                         | 164                                         | 334                                  | 9.66%                     |
|                   | Goesan-gun                  | 0                                       | 3.711                         | 0.00                                         | 134                                  | 3.61%                     |
|                   | Eumseong-gun                | 65                                      | 4.798                         | 1.40                                         | 229                                  | 4.78%                     |
| Chungnam          | Cheonan-si                  | **2,033**                              | **13,534**                    | **1,634**                                   | **3,667**                            | **27.01%**                |
|                   | Boryeong-si                 | 857                                     | 6.067                         | 157                                         | 1,014                                | 16.72%                    |
|                   | Asan-si                     | 777                                     | 9.413                         | 570                                         | 1,347                                | 14.31%                    |
|                   | Seosan-si                   | 429                                     | 6.737                         | 283                                         | 712                                  | 10.57%                    |
|                   | Nonsan-si                   | 433                                     | 5.745                         | 116                                         | 549                                  | 9.56%                     |
|                   | Geryong-si                  | **199**                                 | **1,746**                     | **358**                                      | **557**                              | **31.88%**                |
|                   | Dangjin-si                  | 358                                     | 7.023                         | 5.10                                         | 269                                  | 8.92%                     |
|                   | Geumsan-gun                 | 129                                     | 3.611                         | 127                                         | 256                                  | 7.08%                     |
|                   | Seocheon-gun                | 138                                     | 4.016                         | 3.40                                         | 118                                  | 6.38%                     |
|                   | Hongseong-gun               | 309                                     | 4.611                         | 6.70                                         | 292                                  | 13.03%                    |
| Jeonbuk           | Jeonju-si                   | **1,917**                              | **14,335**                    | **616**                                      | **2,533**                            | **17.67%**                |
|                   | Gunsan-si                   | 489                                     | 9.627                         | 5.10                                         | 280                                  | 7.69%                     |
|                   | Iksan-si                    | **1,780**                              | **10,324**                    | **1,032**                                   | **2,812**                            | **27.24%**                |
|                   | Jeongeup-si                 | 594                                     | 6.749                         | 8.80                                         | 168                                  | 11.29%                    |
|                   | Gimje-si                    | 219                                     | 6.359                         | 3.40                                         | 371                                  | 9.27%                     |
|                   | Wanju-gun                   | 827                                     | 5.443                         | 15.20                                        | 174                                  | 18.40%                    |
|                   | Jinan-gun                   | 18                                      | 3.326                         | 0.50                                         | 88                                   | 3.18%                     |
## Table A3—Change in Debt Ratio When Including the BTL Lease Balance (Continued)

(UNIT: 100 MIL. KRW, %)

| Category         | Low-level local government | Debt (A) | Budget (Grand total including fund) (B) | Debt-to-budget ratio (A/B) (%) | Rent balance of BTL project (Present value) | Debt including BTL lease balance (A') | Debt-to-budget ratio (A'/B) |
|------------------|----------------------------|----------|-----------------------------------------|-------------------------------|---------------------------------------------|-------------------------------------|--------------------------|
| **Jeonnam**      |                            |          |                                         |                               |                                             |                                     |                          |
|                  | Headquarters               | 10,683   | 69,987                                  | 15.30                         | 206                                         | 10,889                              | 15.56%                   |
|                  | Mokpo-si                   | 953      | 6,717                                   | 14.20                         | 602                                         | 1,555                               | 23.14%                   |
|                  | Yeoju-si                   | 916      | 9,923                                   | 9.20                          | 341                                         | 1,257                               | 12.67%                   |
|                  | Naju-si                    | 344      | 6,041                                   | 5.70                          | 251                                         | 595                                 | 9.85%                    |
|                  | Damyang-gun                | 78       | 3,446                                   | 2.30                          | 70                                          | 148                                 | 4.29%                    |
|                  | Hwasun-gun                 | 261      | 4,900                                   | 5.30                          | 108                                         | 369                                 | 7.54%                    |
|                  | Jangheung-gun              | 80       | 3,523                                   | 2.30                          | 131                                         | 211                                 | 6.00%                    |
|                  | Ganguk-gun                 | 55       | 3,140                                   | 1.80                          | 451                                         | 506                                 | 16.12%                   |
|                  | Hampyeong-gun              | 60       | 3,309                                   | 1.80                          | 36                                          | 96                                 | 2.89%                    |
|                  | Wando-gun                  | 0        | 4,223                                   | 0.00                          | 114                                         | 114                                 | 2.69%                    |
| **Gyeongbuk**    |                            |          |                                         |                               |                                             |                                     |                          |
|                  | Pohang-si                  | 1,414    | 13,678                                  | 10.30                         | 1,321                                       | 2,735                               | 19.99%                   |
|                  | Gyeongju-si                | 593      | 12,008                                  | 4.90                          | 1,475                                       | 2,068                               | 17.22%                   |
|                  | Gimcheon-si                | 0        | 6,791                                   | 0.00                          | 467                                         | 467                                 | 6.87%                    |
|                  | Andong-si                  | 130      | 8,951                                   | 1.50                          | 370                                         | 500                                 | 5.58%                    |
|                  | Yeongju-si                 | 395      | 5,820                                   | 6.80                          | 467                                         | 862                                 | 14.82%                   |
|                  | Sangju-si                  | 423      | 6,771                                   | 6.20                          | 428                                         | 851                                 | 12.57%                   |
|                  | Munyeong-si                | 454      | 4,943                                   | 9.20                          | 349                                         | 803                                 | 16.25%                   |
|                  | Uiseong-gun                | 0        | 4,879                                   | 0.00                          | 73                                          | 73                                 | 1.50%                    |
|                  | Yeongdeok-gun              | 199      | 3,318                                   | 6.00                          | 129                                         | 328                                 | 9.87%                    |
|                  | Goryeong-gun               | 33       | 2,889                                   | 1.10                          | 74                                          | 107                                 | 3.71%                    |
|                  | Chilgok-gun                | 446      | 4,614                                   | 9.70                          | 327                                         | 773                                 | 16.75%                   |
|                  | Yecheon-gun               | 210      | 3,552                                   | 5.90                          | 177                                         | 387                                 | 10.89%                   |
|                  | Uljin-gun                  | 159      | 5,575                                   | 2.90                          | 241                                         | 400                                 | 7.18%                    |
| **Gyeongnam**    |                            |          |                                         |                               |                                             |                                     |                          |
|                  | Changwon-si                | 2,013    | 27,307                                  | 7.40                          | 593                                         | 2,606                               | 9.54%                    |
|                  | Jinju-si                   | 1,215    | 11,584                                  | 10.50                         | 645                                         | 1,860                               | 16.06%                   |
|                  | Tongyeong-si               | 398      | 5,083                                   | 7.80                          | 358                                         | 756                                 | 14.87%                   |
|                  | Sacheon-si                 | 232      | 4,813                                   | 4.80                          | 79                                          | 311                                 | 6.46%                    |
|                  | Gimhae-si                  | 1,419    | 11,645                                  | 12.20                         | 839                                         | 2,258                               | 19.39%                   |
|                  | Yangsan-si                 | 1,122    | 7,926                                   | 14.20                         | 290                                         | 1,412                               | 17.81%                   |
|                  | Uriyeong-gun               | 96       | 3,651                                   | 2.60                          | 24                                          | 120                                 | 3.29%                    |
|                  | Geochang-gun               | 8        | 5,014                                   | 0.20                          | 88                                          | 96                                 | 1.92%                    |
| **Jeju**         | Headquarters               | 6,927    | 42,914                                  | 16.10                         | 2,504                                       | 9,431                               | 21.98%                   |

*Note: 1) 3.38%, the average yield of Korean Treasury bonds (five-year maturity) over the past three years, is applied as the discount rate of the present value. 2) Although Buk-gu and Saha-gu, Busan, are multiple competent authorities in charge of the Hwamyeong Library and Dae Library projects, the comparison is made under Buk-gu, as it is difficult to identify each local government's share due to limited resources. 3) Local governments that have a debt-to-budget ratio exceeding 20% are in bold.*
| Competent authority (Lower level) | Estimation of average annual operation cost by local government | Estimation of remaining operation cost as of year-end 2013 | Competent authority (Lower level) | Estimation of average annual operation cost by local government | Estimation of remaining operation cost as of year-end 2013 |
|---------------------------------|---------------------------------------------------------------|----------------------------------------------------------|---------------------------------|---------------------------------------------------------------|----------------------------------------------------------|
| Seoul Metropolitan City (2)     | Gangnam-gu (2)                                                | 15                                                       | 264                             | Jeolla buk-do (11)                                             | Iksan-si (4)                                            |
|                                 |                                                                |                                                          |                                 |                                                               |                                                         |
| Busan Metropolitan City (6)     | Haeundae                                                       | 7                                                        | 117                             | Gimje-si (2)                                                 | 17                                                       |
|                                 | Buk-gu/Saha-gu                                                 | 11                                                       | 169                             | Gunsan-si                                                     | 16                                                       |
|                                 | Headquarters (4)                                               | 37                                                       | 513                             | Wanju-gun                                                    | 9                                                        |
| Daegu Metropolitan City         | Bupyeong-gu                                                   | 0.018                                                    | 3                               | Jeonju-si                                                    | 8                                                        |
|                                 | Headquarters                                                  | 40                                                       | 736                             | Jeongeup-si                                                  | 6                                                        |
|                                 |                                                                |                                                          |                                 |                                                              | 8                                                        |
| Incheon Metropolitan City (3)   | Gwangju Metropolitan City (2)                                  | 36                                                       | 699                             | Jeollanam-do (14)                                            |                                                         |
|                                 |                                                                |                                                          |                                 |                                                               |                                                         |
| Daegu Metropolitan City (2)     | Daejeon                                                       | 58                                                      | 1,101                           | Gangjin-gun                                                  | 7                                                        |
|                                 |                                                                |                                                          |                                 |                                                               | 124                                                     |
| Ulsan Metropolitan City (3)     |                                                                |                                                          |                                 |                                                               |                                                         |
|                                 | Gyeonggi-do (10)                                               | 54                                                      | 969                             |                                                               |                                                         |
|                                 |                                                                |                                                          |                                 |                                                               |                                                         |
|                                 | Daegu Metropolitan City (2)                                    | 39                                                      | 704                             |                                                               |                                                         |
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|                                 | Gyeonggi-do (10)                                               | 58                                                      | 1,060                           |                                                               |                                                         |
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TABLE A4—ESTIMATED OPERATION COST BALANCE OF BTL PROJECTS BY LOCAL GOVERNMENTS (Continued)

| Competent authority (Lower level) | Estimation of the average annual operation cost by local government | Estimation of the remaining operation cost as of year-end 2013 | Competent authority (Lower level) | Estimation of the average annual operation cost by local governments | Estimation of the remaining operation cost as of 2013 |
|----------------------------------|-------------------------------------------------|-------------------------------------------------------------|----------------------------------|-------------------------------------------------|-------------------------------------------------|
| Chungcheongbuk-do (14) | Jecheon-si (4) | 45 | 797 | Chungcheongnam-do (19) | Pohang-si (3) | 31 | 610 |
| Jincheon-gun (2) | 8 | 129 | | Goryeong-gun | 8 | 135 |
| Goesan-gun | 7 | 122 | | Gimcheon-si (2) | 23 | 422 |
| Boeun-gun | 5 | 79 | | Mungyeong-si | 16 | 293 |
| Okcheon-gun | 6 | 100 | | Yeongdeok-gun | 5 | 85 |
| Eumseong-gun | 9 | 154 | | Yeongju-si (2) | 19 | 387 |
| Jeongpyeong-gun | 3 | 50 | | Yecheon-gun | 7 | 143 |
| Chungju-si | 23 | 419 | | Uljin-gun | 10 | 190 |
| Cheongju-si | 3 | 52 | | Chilgok-gun | 13 | 236 |
| Headquarters | 10 | 178 | | Uiryeong-gun | 3 | 51 |
| Chungcheongnam-do (19) | Gyeryong-si (2) | 15 | 262 | Gimhae-si (3) | 26 | 474 |
| Cheonan-si (6) | 77 | 1,393 | | Yangsan-si (2) | 17 | 296 |
| Dangjin-si (2) | 25 | 403 | | Jinju-si (2) | 26 | 495 |
| Geumsan-gun | 8 | 140 | | Geochang-gun | 5 | 94 |
| Nonsan-si | 3 | 52 | | Changwon-si (2) | 18 | 300 |
| Boryeong-si | 8 | 141 | | Sacheon-si | 7 | 137 |
| Seosan-si | 15 | 292 | | Tongyeong-si | 14 | 272 |
| Seocheon-gun | 6 | 108 | | Jeju Special Self-Governing Province (10) | 100 | 1,824 |
| Hongseong-gun | 14 | 282 | | | | |

Note: 1) “( )” indicates the number of projects. 2) All operation costs are paid by local governments.
### TABLE A5—ESTIMATION TOTAL OF FUTURE PAYMENT AMOUNTS (PRESENT VALUES) REGARDING PPP PROJECTS BY LOCAL GOVERNMENTS

(UNIT: 100 MIL. KRW)

| Competent authority (Lower level) | Estimation of BTL lease balance by local governments | Estimation of BTL operation cost balance by local governments | Estimation of MRG balance by local governments | Estimation of fixed charges balance by local governments | Total |
|-----------------------------------|-----------------------------------------------------|------------------------------------------------------------|-----------------------------------------------|--------------------------------------------------------|-------|
| Seoul Metropolitan City Headquarters | 1,425                                               | 1,425                                                      |                                                |                                                        | 2,845 |
| Gangnam-gu                        | 537                                                 | 264                                                       |                                                |                                                        | 801   |
| Busan Metropolitan City Headquarters | 1,559                                               | 513                                                       | 1,012                                         | 1,531                                                  | 4,615 |
| Haeundae-gu                       | 191                                                 | 117                                                       |                                                |                                                        | 308   |
| Buk-gu/Saha-gu                    | 122                                                 | 169                                                       |                                                |                                                        | 291   |
| Daegu Metropolitan City Headquarters | 502                                                 | 194                                                       |                                                |                                                        | 696   |
| Incheon Metropolitan City Headquarters | 1,246                                               | 736                                                       | 667                                           | 844                                                    | 3,494 |
| Bupyeong-gu                       | 519                                                 | 3                                                         |                                                |                                                        | 521   |
| Gwangju Metropolitan City          | 2,642                                               | 699                                                       | 7,237                                         | 10,578                                                 | 23,455|
| Daejeon Metropolitan City          | 2,503                                               | 1101                                                      |                                                |                                                        | 3,604 |
| Ulsan Metropolitan City Headquarters | 2,218                                               | 969                                                       |                                                |                                                        | 3,187 |
| Gyeonggi-do Headquarters           | 3,535                                               |                                                            |                                                |                                                        | 3,535 |
| Paju-si                           | 951                                                 | 704                                                       |                                                |                                                        | 1,655 |
| Yongin-si                         | 725                                                 | 1060                                                      |                                                |                                                        | 1,784 |
| Gimpo-si                          | 488                                                 | 333                                                       |                                                |                                                        | 821   |
| Anseong-si                        | 363                                                 | 167                                                       |                                                |                                                        | 530   |
| Ansan-si                          | 206                                                 | 91                                                        |                                                |                                                        | 297   |
| Pyeongtaek-si                     | 907                                                 | 354                                                       | 873                                           | 2,134                                                  | 3,388 |
| Gunpo-Si                          |                                                    |                                                            | 106                                           |                                                        | 106   |
| Yeoju-si                          | 5                                                   |                                                            |                                                |                                                        | 5     |
| Hwaseong-si                       |                                                    |                                                            | 733                                           |                                                        | 733   |
| Gangwon-do Headquarters           | 1,033                                               |                                                            |                                                |                                                        | 1,033 |
| Gangneung-si                      | 281                                                 | 219                                                       |                                                |                                                        | 500   |
| Wonju-si                          | 572                                                 | 278                                                       |                                                |                                                        | 850   |
| Chuncheon-si                      | 570                                                 | 280                                                       |                                                |                                                        | 851   |
| Hongcheon-gun                     | 158                                                 | 147                                                       |                                                |                                                        | 306   |
| Chungcheong buk-do Headquartes     | 526                                                 | 178                                                       |                                                |                                                        | 704   |
| Jecheon-si                        | 880                                                 | 797                                                       |                                                |                                                        | 1,677 |
| Jincheon-gun                      | 216                                                 | 129                                                       |                                                |                                                        | 345   |
| Goesan-gun                        | 182                                                 | 122                                                       |                                                |                                                        | 304   |
| Boeun-gun                         | 72                                                  | 79                                                        |                                                |                                                        | 151   |
| Okcheon-gun                       | 100                                                 | 100                                                       |                                                |                                                        | 200   |
| Eumseong-gun                      | 215                                                 | 154                                                       |                                                |                                                        | 369   |
| Jeungpyeong-gun                   | 80                                                  | 50                                                        |                                                |                                                        | 130   |
| Chungju-si                        | 470                                                 | 419                                                       |                                                |                                                        | 888   |
| Cheongju-si                       | 238                                                 | 52                                                        |                                                |                                                        | 290   |
| Chungcheong nam-do Gyeryong-si     | 487                                                 | 261                                                       |                                                |                                                        | 749   |
| Cheonan-si                        | 2,213                                               | 1,393                                                     |                                                |                                                        | 3,606 |
| Dangin-si                         | 354                                                 | 403                                                       |                                                |                                                        | 757   |
| Asan-si                           | 759                                                 | 648                                                       |                                                |                                                        | 1,407 |
| Geumsan-gun                       | 169                                                 | 140                                                       |                                                |                                                        | 309   |
| Nonsan-si                         | 152                                                 | 52                                                        |                                                |                                                        | 204   |
| Boryeong-si                       | 212                                                 | 141                                                       | 81                                             |                                                        | 434   |
| Seosan-si                         | 388                                                 | 292                                                       |                                                |                                                        | 680   |
| Seocheon-gun                      | 159                                                 | 108                                                       |                                                |                                                        | 268   |
| Hongseong-gun                     | 405                                                 | 282                                                       |                                                |                                                        | 687   |
| Competent authority (Lower level) | Estimation of BTL lease balance by local governments | Estimation of BTL operation cost balance by local governments | Estimation of MRG balance by local governments | Estimation of fixed charges balance by local governments | Total |
|---------------------------------|----------------------------------------------------|-----------------------------------------------------------|---------------------------------------------------|------------------------------------------------------|--------|
| **Jeollabuk-do**                |                                                    |                                                           |                                                   |                                                      |        |
| Headquarters                    | 2,795                                              |                                                           |                                                   |                                                      |        |
| Iksan-si                        | 1,417                                              | 837                                                       |                                                   |                                                      | 2,254  |
| Gimje-si                        | 545                                                | 316                                                       |                                                   |                                                      | 861    |
| Gunsan-si                       | 376                                                | 280                                                       |                                                   |                                                      | 656    |
| Wanju-gun                       | 232                                                | 151                                                       |                                                   |                                                      | 383    |
| Jeonju-si                       | 811                                                | 133                                                       |                                                   |                                                      | 944    |
| Jeongeup-si                     | 221                                                | 98                                                        |                                                   |                                                      | 318    |
| Jinan-gun                       | 119                                                | 87                                                        |                                                   |                                                      | 206    |
| **Jeollanam-do**               |                                                    |                                                           |                                                   |                                                      |        |
| Headquarters                    | 281                                                | 124                                                       |                                                   |                                                      | 405    |
| Gangjin-gun                     | 600                                                | 332                                                       |                                                   |                                                      | 932    |
| Wando-gun                       | 150                                                | 144                                                       |                                                   |                                                      | 294    |
| Hampyeong-gun                   | 49                                                 | 43                                                        |                                                   |                                                      | 92     |
| Hwasan-gun                      | 145                                                | 88                                                        |                                                   |                                                      | 233    |
| Mokpo-si                        | 811                                                | 272                                                       |                                                   |                                                      | 1,082  |
| Bosung-gun                      |                                                    |                                                           |                                                   | 137                                                  | 137    |
| Yeosu-si                        | 464                                                | 243                                                       |                                                   |                                                      | 707    |
| Naju-si                         | 344                                                | 194                                                       |                                                   |                                                      | 538    |
| Damyang-gun                     | 91                                                 | 79                                                        |                                                   |                                                      | 170    |
| Jangheung-gun                   | 175                                                | 48                                                        |                                                   |                                                      | 223    |
| Goheung-gun                     |                                                    |                                                           |                                                   | 4                                                    | 4      |
| **Gyeongsang buk-do**           |                                                    |                                                           |                                                   |                                                      |        |
| Gyeongju-si                     | 1,968                                              | 896                                                       |                                                   |                                                      | 2,865  |
| Andong-si                       | 489                                                | 309                                                       |                                                   |                                                      | 797    |
| Uiseong-gun                     | 101                                                | 91                                                        |                                                   |                                                      | 192    |
| Sangju-si                       | 567                                                | 299                                                       |                                                   |                                                      | 866    |
| Pohang-si                       | 1,838                                              | 610                                                       |                                                   | 542                                                  | 2,991  |
| Goryeong-gun                    | 99                                                 | 135                                                       |                                                   |                                                      | 233    |
| Gimcheon-si                     | 636                                                | 422                                                       |                                                   |                                                      | 1,058  |
| Mungyeong-si                    | 478                                                | 293                                                       | 52                                                |                                                      | 823    |
| Yeongdeok-gun                   | 168                                                | 85                                                        |                                                   |                                                      | 253    |
| Yeongju-si                      | 651                                                | 387                                                       |                                                   |                                                      | 1,038  |
| Yecheon-gun                     | 264                                                | 143                                                       |                                                   |                                                      | 389    |
| Uljin-gun                       | 327                                                | 190                                                       |                                                   |                                                      | 517    |
| Chilgok-gun                     | 445                                                | 236                                                       |                                                   | 575                                                  | 1,255  |
| **Gyeongsang nam-do**           |                                                    |                                                           |                                                   |                                                      |        |
| Headquarters                    |                                                    |                                                           |                                                   | 6,688                                                 | 6,688  |
| Uiryeong-gun                    | 32                                                 | 51                                                        |                                                   |                                                      | 83     |
| Gimhae-si                       | 1,128                                              | 474                                                       |                                                   |                                                      | 1,602  |
| Yangsan-si                      | 390                                                | 296                                                       |                                                   |                                                      | 686    |
| Jinju-si                        | 887                                                | 495                                                       |                                                   |                                                      | 1,382  |
| Geochang-gun                    | 119                                                | 94                                                        |                                                   |                                                      | 213    |
| Changwon-si                     | 790                                                | 300                                                       |                                                   |                                                      | 1,090  |
| Sacheon-si                      | 108                                                | 137                                                       |                                                   |                                                      | 245    |
| Tongyeong-si                    | 494                                                | 272                                                       |                                                   |                                                      | 766    |
| **Jeju Special Self-Governing Province** | 3,409                                              | 1,824                                                     |                                                   |                                                      | 5,233  |
### Table A6—Ratio Between Annual Expenditure and Budget by Low-Level Local Governments

| Local government (Basics) | Annual Gov’t Payment/Budget ratio |
|---------------------------|----------------------------------|
| **Seoul**                 |                                  |
| Main Office               | 0.03%                            |
| Gangnam                   | 0.54%                            |
| **Busan**                 |                                  |
| Main Office               | 0.37%                            |
| Haeundae                  | 0.46%                            |
| Buk/Saha                  | 0.58%                            |
| **Daegu**                 |                                  |
| Main Office               | 0.06%                            |
| **Incheon**               |                                  |
| Main Office               | 0.26%                            |
| Bupyeong                  | 0.63%                            |
| **Gwangju**               | 1.54%                            |
| **Daegu**                 | 0.48%                            |
| Ulsan                     | 0.59%                            |
| **Gyeonggi**              |                                  |
| Main Office               | 0.08%                            |
| Paju                      | 1.00%                            |
| Yongin                    | 0.55%                            |
| Gimpo                     | 0.52%                            |
| Ansan                     | 0.40%                            |
| Ansung                    | 0.21%                            |
| Pyungtaek                 | 1.02%                            |
| Gunpo                     | 0.13%                            |
| Yeoju                     | 0.01%                            |
| Hwasung                   | 0.34%                            |
| **Gangwon**               |                                  |
| Main Office               | 0.09%                            |
| Gangneung                 | 0.41%                            |
| Wongju                    | 0.46%                            |
| Chunchun                  | 0.39%                            |
| Hongchun                  | 0.34%                            |
| **Chungbuk**              |                                  |
| Main Office               | 0.10%                            |
| Jecheon                   | 1.61%                            |
| Jincheon                  | 0.62%                            |
| Goisan                    | 0.44%                            |
| Boeun                     | 0.30%                            |
| Okcheon                   | 0.31%                            |
| Umsung                    | 0.46%                            |
| Jangpyung                 | 0.44%                            |
| Cheongju                  | 0.57%                            |
| **Chungnam**              |                                  |
| Gyeryong                  | 2.50%                            |
| Chenan                    | 1.47%                            |
| Dangjin                   | 0.67%                            |
| Asan                      | 0.87%                            |
| Geumsan                   | 0.50%                            |
| Nonsan                    | 0.22%                            |
| Boryung                   | 0.44%                            |
| Seosan                    | 0.53%                            |
| Seocheon                  | 0.38%                            |
| Hongsung                  | 0.75%                            |
| Local government (Basics) | Ratio to budget Annual Gov’t Payment/Budget ratio |
|--------------------------|---------------------------------------------|
| Jeonbuk                  |                                             |
| Main Office              | 0.29%                                       |
| Iksan                    | 1.15%                                       |
| Gimje                    | 0.69%                                       |
| Gunsan                   | 0.39%                                       |
| Wanju                    | 0.41%                                       |
| Jeonju                   | 0.40%                                       |
| Jeungup                  | 0.29%                                       |
| Jinan                    | 0.34%                                       |
| Jeonnam                  |                                             |
| Main Office              | 0.03%                                       |
| Gangjin                  | 1.75%                                       |
| Wando                    | 0.42%                                       |
| Hampyung                 | 0.15%                                       |
| Hwasun                   | 0.27%                                       |
| Mokpo                    | 0.90%                                       |
| Bosung                   | 0.39%                                       |
| Yeosu                    | 0.39%                                       |
| Naju                     | 0.47%                                       |
| Damyang                  | 0.31%                                       |
| Jangheung                | 0.37%                                       |
| Goheung                  | 0.01%                                       |
| Gyeongbuk                |                                             |
| Gyeongju                 | 1.39%                                       |
| Andong                   | 0.54%                                       |
| Uisung                   | 0.20%                                       |
| Sangju                   | 0.77%                                       |
| Pohang                   | 1.29%                                       |
| Goryung                  | 0.48%                                       |
| Gimcheon                 | 0.84%                                       |
| Mungyeong                | 0.92%                                       |
| Youngduk                 | 0.48%                                       |
| Youngju                  | 0.74%                                       |
| Yecheon                  | 0.55%                                       |
| Uljin                    | 0.51%                                       |
| Chilgok                  | 1.64%                                       |
| Gyeongnam                |                                             |
| Main Office              | 0.35%                                       |
| Uiryung                  | 0.13%                                       |
| Gimhae                   | 0.78%                                       |
| Yangsan                  | 0.49%                                       |
| Jinju                    | 0.63%                                       |
| Geochang                 | 0.24%                                       |
| Changwon                 | 0.24%                                       |
| Sacheon                  | 0.27%                                       |
| Tongyoung                | 0.78%                                       |
| Jeju Special Self-Governing Province | 0.66% |
### TABLE A7—TOTAL ANNUAL EXPENDITURE ON PPP PROJECTS COMPARED TO THE BUDGET BY LOCAL GOVERNMENTS

(UNIT: 100 MIL. KRW)

| Competent authority (Lower level) | Budget (Grand total including funds) | Annual BTL lease | Fixed charges in 2013 | Annual BTL operation cost | Average annual MRG payments | Total | Ratio to budget (%) |
|----------------------------------|--------------------------------------|------------------|-----------------------|---------------------------|-----------------------------|-------|------------------|
| Seoul Metropolitan City           |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 260,345                               |                  |                       |                           |                             | 68    | 68.03%           |
| Gangnam-gu                       | 8,333                                 | 31               |                       | 15                        | 45                          | 68    | 54.04%           |
| Busan Metropolitan City           |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 103,085                               | 96               | 183                   | 37                        | 67                          | 383   | 0.37%            |
| Haeundae-gu                      | 4,123                                 | 12               |                       | 7                         | 19                          | 19    | 0.46%            |
| Buk-gu                           | 3,116                                 | 8                |                       | 10                        | 18                          | 18    | 0.58%            |
| Daegu Metropolitan City          |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 68,877                                | 31               |                       | 12                        | 43                          | 43    | 0.06%            |
| Incheon Metropolitan City        |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 88,593                                | 66               | 48                    | 40                        | 74                          | 229   | 0.26%            |
| Bupyeong-gu                      | 5,169                                 | 33               |                       | 0.18                      |                             | 33    | 0.63%            |
| Gwangju Metropolitan City        | 39,787                                | 137              |                       | 36                        | 439                         | 612   | 1.54%            |
| Daejeon Metropolitan City        | 40,003                                | 134              |                       | 58                        |                             | 193   | 0.48%            |
| Ulsan Metropolitan City          | 30,461                                | 125              |                       | 54                        |                             | 180   | 0.59%            |
| Gyeonggi-do                      |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 174,935                               |                  |                       |                           |                             | 141   | 0.08%            |
| Paju-si                          | 9,185                                 | 53               |                       | 39                        |                             | 92    | 1.00%            |
| Yongin-si                        | 17,993                                | 40               |                       | 58                        |                             | 98    | 0.55%            |
| Gimpo-si                         | 7,941                                 | 24               |                       | 17                        |                             | 41    | 0.52%            |
| Anseong-si                       | 6,600                                 | 18               |                       | 8                         |                             | 27    | 0.40%            |
| Ansan-si                         | 21,092                                | 30               |                       | 13                        |                             | 43    | 0.21%            |
| Pyeongtaek-si                    | 11,956                                | 46               | 58                    | 18                        |                             | 122   | 1.02%            |
| Gunpo-Si                         | 4,963                                 |                  |                       | 7                         |                             | 7     | 0.13%            |
| Yeoju-si                         | 3,731                                 |                  |                       | 1                         |                             | 1     | 0.01%            |
| Hwaseong-si                      | 14,150                                |                  |                       | 49                        |                             | 49    | 0.34%            |
| Gangwon-do                       |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 48,461                                |                  |                       |                           |                             | 45    | 0.09%            |
| Gangneung-si                     | 7,449                                 | 17               |                       | 13                        |                             | 30    | 0.41%            |
| Wonju-si                         | 9,810                                 | 31               |                       | 15                        |                             | 45    | 0.46%            |
| Chuncheon-si                     | 10,812                                | 29               |                       | 14                        |                             | 43    | 0.39%            |
| Hongcheon-gun                    | 5,265                                 | 9                |                       | 9                         |                             | 18    | 0.34%            |
| Chungcheong buk-do               |                                       |                  |                       |                           |                             |       |                  |
| Headquarters                     | 38,384                                | 29               |                       | 10                        |                             | 39    | 0.10%            |
| Jecheon-si                       | 5,753                                 | 48               |                       | 45                        |                             | 92    | 1.61%            |
| Jincheon-gun                     | 3,460                                 | 13               |                       | 8                         |                             | 21    | 0.62%            |
| Goesan-gun                       | 3,711                                 | 10               |                       | 7                         |                             | 16    | 0.44%            |
| Boeun-gun                        | 3,116                                 | 4                |                       | 5                         |                             | 9     | 0.30%            |
| Okcheon-gun                      | 3,921                                 | 6                |                       | 6                         |                             | 12    | 0.31%            |
| Eumseong-gun                     | 4,798                                 | 13               |                       | 9                         |                             | 22    | 0.46%            |
| Jeungpyeong-gun                  | 1,878                                 | 5                |                       | 3                         |                             | 8     | 0.44%            |
| Chungju-si                       | 8,715                                 | 26               |                       | 23                        |                             | 50    | 0.57%            |
| Cheongju-si                      | 12,847                                | 15               |                       | 3                         |                             | 18    | 0.14%            |
| Chungcheong nam-do               |                                       |                  |                       |                           |                             |       |                  |
| Geryeong-si                      | 1,746                                 | 28               |                       | 15                        |                             | 44    | 2.50%            |
| Cheonan-si                       | 13,534                                | 122              |                       | 77                        |                             | 199   | 1.47%            |
| Dangjin-si                       | 7,023                                 | 22               |                       | 25                        |                             | 47    | 0.67%            |
| Asan-si                          | 9,413                                 | 45               |                       | 37                        |                             | 82    | 0.87%            |
| Geumsan-gun                      | 3,611                                 | 10               |                       | 8                         |                             | 18    | 0.50%            |
| Nonsan-si                        | 5,745                                 | 10               |                       | 3                         |                             | 13    | 0.22%            |
| Boryeong-si                      | 6,067                                 | 12               |                       | 8                         |                             | 7     | 0.44%            |
| Seosan-si                        | 6,737                                 | 20               |                       | 15                        |                             | 36    | 0.53%            |
| Seocheon-gun                     | 4,016                                 | 9                |                       | 6                         |                             | 15    | 0.38%            |
| Hongseong-gun                    | 4,611                                 | 20               |                       | 14                        |                             | 35    | 0.75%            |
TABLE A7—TOTAL ANNUAL EXPENDITURE ON PPP PROJECTS COMPARED TO THE BUDGET BY LOCAL GOVERNMENTS (Continued)  

(UNIT: 100 MIL. KRW)

| Competent authority (Lower level) | Budget (Grand total including funds) | Annual BTL lease | Annual BTL operation cost | Fixed charges in 2013 | Average annual MRG payments | Total Ratio to budget (%) |
|-----------------------------------|--------------------------------------|------------------|---------------------------|-----------------------|-----------------------------|--------------------------|
| Jeollabuk-do                     |                                      |                  |                           |                       |                             |                          |
| Headquarters                     | 53,235                               | 0                | 155                       | 44                    | 119                         | 0.29%                    |
| Iksan-si                         | 10,324                               | 74               |                           | 44                    | 119                         | 1.15%                    |
| Gimje-si                         | 6,359                                | 27               |                           | 17                    | 44                          | 0.69%                    |
| Gunsan-si                        | 9,627                                | 21               |                           | 44                    | 65                          | 0.68%                    |
| Wanju-gun                        | 5,443                                | 14               |                           | 9                     | 23                          | 0.41%                    |
| Jeonju-si                        | 14,335                               | 50               |                           | 8                     | 58                          | 0.40%                    |
| Jeongeup-si                      | 6,749                                | 14               |                           | 6                     | 20                          | 0.29%                    |
| Jinan-gun                        | 3,326                                | 6                |                           | 5                     | 11                          | 0.34%                    |

| Jeollanam-do                     |                                      |                  |                           |                       |                             |                          |
| Headquarters                     | 69,987                               | 15               |                           | 7                     | 22                          | 0.03%                    |
| Gwangju-gu                       | 3,140                                | 35               |                           | 19                    | 55                          | 1.75%                    |
| Wando-gu                         | 4,223                                | 9                |                           | 9                     | 18                          | 0.42%                    |
| Hapyeong-gun                     | 3,309                                | 3                |                           | 2                     | 5                           | 0.15%                    |
| Hwasung-gun                      | 4,900                                | 8                |                           | 5                     | 13                          | 0.27%                    |
| Mokpo-si                         | 6,717                                | 46               |                           | 15                    | 61                          | 0.90%                    |
| Busan-si                         | 3,942                                | 0                | 15                       |                       |                             |                          |
| Yeosu-si                         | 9,923                                | 25               |                           | 13                    | 38                          | 0.39%                    |
| Naju-si                          | 6,041                                | 18               |                           | 10                    | 28                          | 0.47%                    |
| Damyang-gun                      | 3,446                                | 6                |                           | 5                     | 11                          | 0.31%                    |
| Jangheung-gun                    | 3,523                                | 10               |                           | 3                     | 13                          | 0.37%                    |
| Golheung-gun                     | 5,557                                |                  |                           | 0.36                  | 0                           | 0.01%                    |

| Gyeongsangbuk-do                 |                                      |                  |                           |                       |                             |                          |
| Gyeongju-si                      | 12,008                               | 115              |                           | 52                    | 167                         | 1.39%                    |
| Andong-si                        | 8,951                                | 29               |                           | 19                    | 48                          | 0.54%                    |
| Uiseong-gun                      | 4,879                                | 5                |                           | 5                     | 10                          | 0.20%                    |
| Sangju-si                        | 6,771                                | 34               |                           | 18                    | 52                          | 0.77%                    |
| Pohang-si                        | 13,678                               | 92               | 54                        | 31                    | 176                         | 1.29%                    |
| Goryeong-gun                     | 2,889                                | 6                |                           | 8                     | 14                          | 0.48%                    |
| Gimcheon-si                      | 6,791                                | 34               |                           | 23                    | 57                          | 0.84%                    |
| Mungyeong-si                     | 4,943                                | 25               |                           | 16                    | 46                          | 0.92%                    |
| Yeongdeok-gun                    | 3,318                                | 11               |                           | 5                     | 16                          | 0.48%                    |
| Yeongju-si                       | 5,820                                | 23               |                           | 19                    | 43                          | 0.74%                    |
| Yecheon-gun                      | 3,552                                | 12               |                           | 7                     | 19                          | 0.55%                    |
| Uljin-gun                        | 5,575                                | 18               |                           | 10                    | 28                          | 0.51%                    |
| Chilgok-gun                      | 4,614                                | 24               | 39                        | 13                    | 76                          | 1.64%                    |

| Gyeongsangnam-do                 |                                      |                  |                           |                       |                             |                          |
| Headquarters                     | 76,969                               |                  |                           | 268                   | 268                         | 0.35%                    |
| Uiryong-gun                      | 3,651                                | 2                |                           | 3                     | 5                           | 0.13%                    |
| Gimhae-si                        | 11,645                               | 64               |                           | 26                    | 90                          | 0.78%                    |
| Yangsan-si                       | 7,926                                | 22               |                           | 17                    | 39                          | 0.49%                    |
| Jinju-si                         | 11,584                               | 46               |                           | 26                    | 72                          | 0.63%                    |
| Geocheon-gun                     | 5,014                                | 7                |                           | 5                     | 12                          | 0.24%                    |
| Changwon-si                      | 27,307                               | 46               |                           | 18                    | 65                          | 0.24%                    |
| Sacheon-si                       | 4,813                                | 6                |                           | 7                     | 13                          | 0.27%                    |
| Tongyeong-si                     | 5,083                                | 25               |                           | 14                    | 39                          | 0.78%                    |

| Jeju Special Self-Governing Province |                                      |                  |                           |                       |                             |                          |
|                                     | 42,914                               | 185              |                           | 100                   | 285                         | 0.66%                    |
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