A Critique of Debt Financing for Local Governments

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Abstract: The dichotomy between pay-as-you-go (taxation financing) and pay-as-you-use (debt financing) methods of financing municipal projects, etc, is the area of concern in this paper. While there are advantages and disadvantages to both forms, debt financing carries a considerable amount of baggage known as interest. Interest or usury has been a concern of economic and religious thinkers through the ages. Given the potentially negative effect this has on the debtor, Indonesia is forewarned as it decentralizes fiscal administration to local governments. Besides reliance on taxation financing, an alternative public debt option is highlighted.
1. Introduction

Municipal government plays an exceptionally important role in the United States. According to the census bureau (2006), there were 232% more employees in local government than state government. There were 437% more employees than the federal government for the same year. It is at this level that many experience government and in which it has the most impact on them. It is for this reason that municipal finance is a very important issue. Over the course of several decades during the 20th century local governments have had to rely more and more upon own-source revenues. This was the result of changing policies and decreased revenues at the federal level (Aronson & Schwartz, 1987).

The issue of public financing generally is based on whether tax revenues or debt revenues should play a more prominent role. Concerns around debt financing are considered in this paper. Since public debt also relies on the interest rate, this is also explored. The situation of Indonesia is included in this discussion as well as an alternative to debt financing.

The second section deals explicitly with the advantages and disadvantages of debt financing versus taxation financing. The third section provides a critique of public debt with the fourth section developing a critique of interest-based borrowing. The fifth section explores the situation in Indonesia and an alternative to public debt financing.

2. Municipal Finance: Debt Financing/Taxation Financing

Municipalities can rely on several sources for capital financing. There are federal grants, state funds, tax revenues (general fund) and long-term debt. Federal grants are a variable source of revenue with decreases being the modus operandi. State funds have a similar fate for local governments. This leaves own-source taxes and long-term debt as the most constant source of revenue for local governments. Dillon's rule effectively curtailed absolute freedom for municipalities with many states limiting the ability of cities to tax at certain rates and take on debt at certain levels (Aronson & Schwartz, 1987).

Despite these limitations there has been debate over whether taxation or public debt should be relied on for the financing of capital. The debate centers on what is termed pay-as-you-go (taxation financing) and/or pay-as-you-use (debt financing). Typically pay-as-you-use is considered the best option because it spreads out spending and potentially increases inter-generational equality in regards the thing financed through this method (Wang and Hou, 2009).

Mayraj Fahim (2008), a local government advisor, applauds the method noting that, "without the ability of state and local governments to issue debt - with the growth of revenue authorities as major debt issuers and whole-sale providers of basic services - today's America, as we know it, would cease to exist (p. 1)."
Defaults in public debt arrangements were common in the 19th and 20th centuries leading some states to rein in local government borrowing. New York City was the first city in the United States to issue modern day municipal bonds. It also defaulted on its debt in 1975. Defaults continue to happen now in the 21st century (Temel, 2001).

There are some advantages of public debt. The development of human capital through education programs amongst others may lead to higher incomes in the future. It has been associated with stimulating the economy (Keynes). Interestingly it has also been seen as an inter-generational equalizer whereas projects are enjoyed equally and paid for equally across time (Wang and Hou, 2009).

Santo (2007) notes the debt financed public projects such as sports stadiums can create many benefits such as positive externalities / public goods and increased civic pride (intangible). The financing of these projects through debt at least initially means that the price that is paid is lower than the price that the project actually costs. For instance, if a new sports stadium is built with borrowed money and taxes don't increase to match this new borrowing than the actual cost to consumers is distorted. The result is a consumer surplus. An adaptation of this model to this scenario is illustrated in figure 1 below.

There are advantages to pay-as-you-go financing as well. The municipality saves on interest costs that may allow it to expand future services or reduce taxes. This also allows greater flexibility in regards to freeing budget revenues from debt service. Similarly it frees debt capacity for future borrowing if the need arises (Wang and Hou, 2009).

Figure 1

![Diagram](image)

As price decreases consumer surplus increases and municipal surplus decreases (benefits for the people)
Using the example of the sports stadium, Santo (2007) investigates the willingness to pay of citizens affected by the stadium. If taxes were increased to pay for a stadium instead of borrowing money, how willing would citizens be to pay the increased taxes? This invokes the use of contingent valuation. If the citizens are willing to pay the amount equivalent to the costs per capita for the stadium than the stadium is viable. Santo (2007) gives the example of a $250 million dollar stadium in a locality that affects 5 million citizens who would be expected to pay for it (in a district or region). In this scenario each citizen would be expected to be willing to pay $5 dollars. The assumption in this analysis would be that individual citizens would be expected to take into account use values and existence values in the calculation of willingness to pay thus leading to socially optimal outcomes. Figure 1 would be the outcome. The price in this case would be the tax that would go directly to the project.

The disadvantages in public borrowing are listed in the advantages to taxation financing. With increased borrowing there is less flexibility with increased debt services. Also the municipality can suffer from lower credit ratings that could increase costs of borrowing when borrowing is absolutely needed. There are also increased risks in default which always increases when the debt is long-term, the interest is fixed and the potential of experiencing an economic recession is greater (Wang and Hou, 2009).

Wang and Hou (2009) studied total state capital expenditures by source as it relates to taxation financing versus debt financing in regards to impacts on long-run volatility and short-run variability of expenditures. Wang and Hou (2009) point out that, "the ideal policy design would be such that the annual capital outlay is smooth with little fluctuation despite the ups and downs of the economy and the government revenue stream; that is, the flow of capital spending is 'ideally' neutral to the business cycle (p. 97)."

Unfortunately, as the authors point out, this idealized state is often unreachable because capital outlays are impacted by taxes based on revenue sources that are impacted by the economy. Under this scenario, Wang and Hou (2009) find in their analysis that, "the use of pay-go financing is associated with lower volatility in capital spending in the long run, but it contributes to increasing the cyclical variability of capital expenditures in the short run (p. 106)."

These conclusions juxtapose taxation financing against debt financing as being the difference between lower volatility and lower variability. Wang and Hou (2009) note that given this scenario the best option would be to rely on taxation during years of surplus and during years of deficit relying on borrowing. This would create relative stability to municipal financing.
3. Critiques of Public Debt

The classical economists, Adam Smith, David Ricardo, and John Stuart Mill, did not think highly of public debt. They felt that direct taxation for public projects was better because it had an immediate impact on the populace. This impact was considered less severe through taxation than public debt had later through interest costs. Conversely, these economists felt that public debt actually stunted growth instead of fueling it through the limitation on the accumulation of wealth (Tsoufidis, 2007).

Thomas Jefferson was similarly opposed to public debt because of the authority the wealthy would have over government (Wang and Hou, 2009). He felt that at the very least long-term debt, particularly debt that exceeded 19 years, was irresponsible because one generation has no right to impose their debts on another generation (Hecllo, 2008). Under this logic, in 1798 he made the concept of the balanced budget part of the Constitution (Wang and Hou, 2009).

An economic application explains these concerns. Figure 1 explains how the consumers of a public good would benefit from debt financing. Unfortunately, as the classical economists point out, this only delays the inevitable increases in taxes later. The use of a tax has commonly been associated with a dead weight loss (Stiglitz, 2000). See figure 2 below.

As figure 2 illustrates, an increased tax would cause a dead weight loss in quantity. Applying this model to public projects, a potential tax increase would limit the number and scale of the projects. If T1 is the tax paid now for certain services and projects, then T2 is the tax paid on large projects/services which would take away from projects/services produced before. If debt is used, T1 can remain while more projects/services are produced. See figure 3 below.

Figure 2:
Figure 3 shows increasing demands for more projects and services. These increasing demands tend to follow the economic well-being of a community. The better off the community the more services they expect (Hochstein, 2008), (Aronson & Schwartz, 1987). As demand increases so does the costs, but the tax doesn't increase. This discrepancy is where public borrowing makes up the difference. The shaded area is the area of public borrowing required.

Interestingly, eventually the tax will have to increase to match increased demands on revenue for debt service. This means that eventually the tax will match this demand curve, but the demand curve of yesteryear. There may be increased demands requiring more borrowing while the tax level only reflects demands of the past. Eventually the debt ceiling will be reached where debt service may begin consuming more revenues than are available (Bo, 2007). This breaching of the debt limit or threshold is illustrated in figure 4 below.

Figure 3:

The scenario as presented by figure four would mean that projects/services would cease and there would only be debt service. The tax would gradually increase to meet the debt requirements. Residents would see taxes increase but wouldn't see any more projects and services. This may cause future residents to move to other areas where taxes are lower.

The classical economists and Thomas Jefferson worried about this problem. The above scenario would not be possible because of debt limits formulated on property values which are set low enough to prevent spiraling debt. These debt limits only mean that the equivalence between project/service costs and taxation are met a lot faster. Resident demands may continue to increase and if these demands are consistently not met than they may relocate undermining the tax base.
A cost-benefit ratio may determine the feasibility of a project. Typically, a discount value is determined based on the interest rate. This assumes that over time the value of capital decreases (Stiglitz, 2000). Certainly, projects depreciate and local governments have to consider this fact in maintenance costs. Despite this maintenance, the value of the project decreases at some calculable rate, typically the interest rate. Contemporaneously, interest is paid on money borrowed to build a project reflecting the decreased value so while investors are compensated for the loss in value, the city and the residents are not.

Interestingly, the true costs of borrowing are rarely accurately calculated. Simonsen and Robbins (2002) explain that the standard method of measuring bond issuance cost is the True Interest Cost measurement. While the measurement includes the principal and interest payments equivalent to bond proceeds, there are two methods for calculating this measure. One method is to set payments equal to the date of bond issuance while ignoring accrued interest. The other method is to set the value to the closing date and include accrued interest. Simonsen and Robbins (2002) notes that another method not typically used by municipalities in determining bond costs is the Internal Financing Rate (IFR) which includes other miscellaneous costs plus accrued interest which is equal to both the principal and interest payments. The fact that most municipalities do not use this other more comprehensive measurement to gauge bond costs means that there exists inaccurate cost estimates in any cost/benefit ratio developed.

The assumption that later generations will have more income to pay for the later tax increases is also flawed. According to Elizabeth Warren although the total
family incomes have increased by close to 75% since the 1970s, fixed expenses have increased by over 76% for mortgages, over 1000% for day care, over 1000% for pre-school and over 74% for health insurance. Similarly, taxes have increased by over 116%. With all these increases, ¾ of families spending is wrapped up in basic spending (including taxes) leaving only 25% of their income for discretionary spending. In the 1970s it was at about 50% (Sullivan, 2007). This shows that if increases in taxes are from debt taken in the 70s than the burden is not equally shared across generations. If wages are not keeping track with inflation i.e. living expenses than any increase less than that level is considered useless. Besides the increase in family incomes are due primarily to women in the workplace. Men have actually experienced negative income growth since the 1970s (Sullivan, 2007). See table 1 below.  

Table 1. Comparing budgets for two typical, four-member families

<table>
<thead>
<tr>
<th></th>
<th>&quot;Tom and Susan,&quot;</th>
<th>&quot;Kimberly and Justin,&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>single-income family, mid-1970s (adjusted to 2004 dollars)</td>
<td>dual-income family, 2004</td>
</tr>
<tr>
<td>Husband's income</td>
<td>$42,450</td>
<td>$41,670</td>
</tr>
<tr>
<td>Wife's income</td>
<td>$0</td>
<td>$32,100</td>
</tr>
<tr>
<td>Total family income</td>
<td>$42,450</td>
<td>$73,770</td>
</tr>
<tr>
<td>Tax rate (% of income: local, state &amp; federal)</td>
<td>24 percent</td>
<td>30 percent</td>
</tr>
<tr>
<td>Taxes</td>
<td>$10,300</td>
<td>$22,280</td>
</tr>
<tr>
<td>After-tax income</td>
<td>$32,150</td>
<td>$51,490</td>
</tr>
</tbody>
</table>

MAJOR FIXED EXPENSES

<table>
<thead>
<tr>
<th></th>
<th>&quot;Tom and Susan,&quot;</th>
<th>&quot;Kimberly and Justin,&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home mortgage</td>
<td>$5,820</td>
<td>$10,250</td>
</tr>
<tr>
<td>Day care (7-year-old)</td>
<td>$0</td>
<td>$5,660</td>
</tr>
<tr>
<td>Preschool (3-year-old)</td>
<td>$0</td>
<td>$6,920</td>
</tr>
<tr>
<td>Health insurance</td>
<td>$1,130</td>
<td>$1,970</td>
</tr>
<tr>
<td>Automobile #1</td>
<td>$5,640</td>
<td>$4,275</td>
</tr>
<tr>
<td>(purchase, upkeep, insurance)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Automobile #2</td>
<td>$0</td>
<td>$4,275</td>
</tr>
<tr>
<td>Total fixed expenses</td>
<td>$12,590</td>
<td>$33,350</td>
</tr>
</tbody>
</table>

4. Problems With The Multiplier

Another problem with public debt beyond delaying the time expense of projects is the impact of interest. Interest is the periodic charge on borrowed money and is typically viewed in relation to the risk of lending. Long-term debt involves the time value of money which is assumed to decrease over time. There have been many critiques of the use of interest in the borrowing of money while its impact on public borrowing has been to increase costs. It might be asserted that the borrowing of money not only delays the impact of a project, but swells its impact by a percent equal to the interest rate.

3 Table from http://www.msnbc.msn.com/id/21309318
Interest or usury has been around for thousands of years. It has also been a concern of people for a similar amount of time. The world’s great religions criticize its practice. The ancient philosophers condemned it. The classical economists were concerned about it. Even Keynes acknowledged its potential abusive power (Visser & MacIntosh, 1998).

Despite all these concerns usury has formed the backbone of the current economic system. The rise of Protestantism, particularly Calvinism, has been associated with a libertine view towards the issuance of interest charges on borrowed money. Despite this, capitalistic thinkers like Adam Smith were in support of usury limits. This concept persists today with limits in 19 U.S. states and in other countries of the world. The limits have great benefits in which, "a suitable usury law creates a deadweight gain in redistributing income from lenders to borrowers (Coco & Meza, 2009, p. 1702)." See figure 5 below.

Figure 5:

![Diagram of Interest Level on Loans](https://example.com/diagram.png)

Figure 5 shows that by decreasing interest on loans the previous dead weight loss becomes a gain for the borrower. He can then increase the loan amount or at least borrow at a lower cost. This diagram of course assumes rational behavior whereas many take loans without consideration of the eventual costs. The current financial crisis was precipitated by this behavior when people began foreclosing on their homes (Miller & Svara, 2009).

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4 Islam, Christianity, Judaism, Hinduism and Buddhism all critique usury in their texts.
5 Plato, Aristotle, Cicero, Seneca and Plutarch all critiqued usury.
6 Adam Smith argued for a control of usury.
Beyond extravagant usury rates, there are critiques on the taking of any increase on lending at all. Usury has been seen as a mechanism of gain on unearned income, double-billing, exploitation of needs, inequitable redistribution, destabilizing the economy and discounting the future. Some of the critiques have centered on productive income versus unproductive income. The earnings from debt are typically based on no effort by either the borrower or the lender. In this case, lending for an interest rate is considered a market distortion and turns money into something that it is not meant to be (Visser & MacIntosh, 1998).

"Usury is what marks the distinction between money being simply a socially contracted abstract mechanism to lubricate the interaction between supply and demand, and money as an end in itself (Visser & MacIntosh, 1998, p. 181)."

The lending of money has been considered exploitative when it comes to the interest rate. For instance, the payday lenders charge in excess of 400% APR to cash checks (Coco & Meza, 2009). Those who typically use that service are the poor and are therefore big victims of this practice. For the municipality, the building of a public project for the benefit of the masses can experience this exploitation through standardized lending practices that allow a handful of institutes such as Moody's to determine a credit rating which then determines the interest rate. If a municipality has a poor property base it means it can only ever borrow at a high interest rate. Even Muhammad Yunus's microfinance for the poor charges large interest rates on small loans (Yunus, 2007). This perpetually keeps a municipality poor with little investment.

"For the relatively rich, the utility gain provided by usury is marginal to the already substantial utility of the principal sum. The principle of the diminishing marginal utility of wealth therefore applies to each incremental unit of wealth procured by interest earnings (Visser & MacIntosh, 1998, p. 184)."

Coco & Meza (2009) similarly notes that, "a usury law therefore redistributes from low marginal utility of income lenders to borrowers whose marginal utility is higher even at the time of repayment (p. 1692)."
In figure 6 the marginal utility decreases for any income made above the principal amount i.e. interest. In figure 7 the marginal utility increases for additional borrowed money not subject to usury. The municipality would fit into figure 7 in which by releasing the amount of debt service in proportion to an interest rate, those tax revenues could be used in other areas for municipal development. This shows interest as inducing a socially sub-optimal outcome.

Re-examining figure 3 shows that the black box would increase by whatever rate of interest on that debt for however long the debt was to last. For instance, if $20 million dollars of loans were released at 5% interest annually for a 30 year period the total interest would be $20 million dollars times .05. This would adjust for each year by the difference. The first year alone would cost $1 million in interest. The second year would cost $950, 000 in interest, and so on. If the loan is for 30 years than at least $600, 000 in principal payment must be made annually.
Figure 7:

Increasing Marginal Utility

Utility

Increased borrowed money not subject to interest charges

5. Developing An Indonesian Debt Market

Starting May 1999 government and fiscal administration was decentralized to local governments for the first time in Indonesian history. Although this change did not entirely change the reliance on the central government it started the winds of change for greater independence for local governments. The central government still has the final say on any new taxes though (Lewis, 2005). Despite the new authority only 8% of local government revenues are from own-source. This is the case even though thousands of taxes have been created since decentralization began. Most of the revenues are from the central government through inter-governmental transfers (Lewis, 2006).

"Given the relatively meager locally generated own-source revenues in most regions, the capacity of local governments to achieve local (let alone national) development targets was a function of the volume and stricter of intergovernmental transfer grants (Silver & Azis, 2001, p. 349)."

Most of the new revenues come from a redistribution of natural resource revenues and the national personal income tax. There are also two grant programs that supply a good portion of local government revenues. This new decentralization has not only expanded democracy to these local governments allowing local elections but has led to local surpluses in revenue. This is despite expanded responsibilities as outlined by the central government. These local governments
spend about 2/3 of their revenues for routine expenses and the remaining 1/3 for development projects (Lewis, 2005).

The local debt market is entirely non-existent. 2/3 of borrowing in localities is by the local water authorities. Most debt is taken in loans from the central government. This is despite the fact that the laws passed in 1999 regarding decentralization include giving local governments the right to borrow. Many of the mechanisms needed to have a successful debt market are missing such as a regulatory framework/policy, financial intermediaries and local administrative development (Martell & Guess, 2006).

Even though the local governments may not be ready to take on public debt they still have a high capacity to borrow (surplus/deficit ratio) (Martell & Guess, 2006). This coupled with the need to increase local development necessitates the raising of substantial revenues. The environment seems ripe for a local debt market.

The first thing Indonesian local governments should do is to clear up inefficiency and reallocate tax and transfer revenues from routine tasks to development tasks. The second thing would be to explore various progressive but not exploitative forms of taxation that wouldn't severely impact local businesses to fund projects. The third thing would be to implement a responsible public debt market that would seek borrowers locally and nationally (possibly internationally).

This paper argues that 'responsible' debt does not have to be interest-bearing bonds. There are other alternatives. For instance, in the Islamic world of which Indonesia is a part and interest/usury is forbidden, there is a form of non-interest bearing bond called a sukuk (sakk - singular). The sukuk are essentially a form of equity-financing. Under this form a trust certificate is issued whereas the lender is considered a partial owner to any asset or project the money is used for (Vishwanath & Azmi, 2009).

There are different forms of sukuk such as Musharakah sukuk where the lender and borrower (municipality) enter a profit-sharing agreement for a fixed period for a fixed ratio in which the borrower eventually buys back the lender's share of the asset (risk is shared). Mudarabah sukuk is when the lender provides the capital and the borrower provides the labor and the profit is shared between them (risk is shouldered by lender). Murabaha sukuk is when the lender buys the asset and then resells it to the borrower at a spot price plus profit. The borrower pays on installments. The Salam sukuk provides funds based on future production whereas the difference between profit and price sold are the returns to the lenders (Vishwanath & Azmi, 2009).

The concept of interest is eliminated entirely from these forms of bonds, but in its place does remain a substantial amount of risk. This risk remains whether one is lending on interest or profit because fixed interest still has to contend with default from municipalities. In this case, the ability of this market to thrive is dependent on
inelasticity (Coco & Meza, 2009) and liquidity of the market (Vishwanath & Azmi, 2009). The Islamic world seems to have these two elements and the sukuk market grows by billions every year (Vishwanath & Azmi, 2009). It would be a wise move for Indonesian local governments to explore these potentials before entering interest-based arrangements. Similarly it would give access to the oil-based markets in the Middle East where the sukuk market is expanding.

6. Conclusions
Reliance on public debt to finance projects may be an irresponsible move, but an expedient one for local politicians. Since these city councilmen as well as possibly mayors amongst other local officials are elected, the issuance of new taxes is always considered an unpopular and risky move. Issuing public debt is always easier because the burden can always be placed on later generations to raise taxes.

This is also a disconnect between the government and the people. Efforts to get citizens more involved in budgeting have not worked out so well. People either think that it is not their responsibility or they assume that it is beyond their comprehension. This psychology to the working of government needs to be overcome if effective governance is ever going to be achieved (Alexander, Paterline, & Hulsey, 2007).

Public administrators need to avoid over-reliance on the issuance of public debt and need to evaluate an effective form of public taxation that is neither regressive nor hurtful of business. Finding this middle ground is difficult, but not impossible. The current troubles with debt markets needs to serve as a forewarning that this form of public revenue generation is too risky for the municipality and more sustainable options need to be fully explored.

References


