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# Provinces and Local Government Revenues Structures and Intra-Province Economic Disparity

Riatu Qibthiyyah
*Department Economic, Faculty Economics and Business, Universitas Indonesia.*, prcrmqx@gmail.com

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# Provinces and Local Government Revenues Structures and Intra-Province Economic Disparity

Riatu M. Qibthiyyah[a,*]

[a]*Department Economic, Faculty Economics and Business, Universitas Indonesia*

## Abstract

One of major policies of Indonesia Decentralisation is the adoption on various type of revenue sharing among provinces and local governments and also the devolved of taxes to lower level government in particular to the province level. Challenges of policy toward higher degree of revenue autonomy, is that an increase in revenue sharing as well as devolved taxes would enhance economic disparity among regions. Further, our finding shows that different types of revenue sharing seem to have different effect on intra-province economic disparity.
**Keywords:** decentralisation; provinces and local revenue; regional inequality

## *Abstrak*

*Salah satu kebijakan utama Desentralisasi Indonesia adalah pengambilan berbagai bagi hasil pendapatan antar provinsi dan pemerintah daerah serta pelimpahan pajak kepada pemerintah tingkat bawah khususnya ke tingkat provinsi. Tantangan kebijakan menuju otonomi pendapatan yang lebih tinggi, adalah bahwa pelimpahan bagi hasil serta pelimpahan pajak akan meningkatkan kesenjangan ekonomi antar daerah. Hasil temuan kami menunjukkan bahwa berbagai jenis bagi hasil tampaknya memiliki pengaruh yang berbeda terhadap kesenjangan ekonomi antar-provinsi.*
***Kata kunci:*** *desentralisasi; pendapatan provinsi dan daerah; ketimpangan daerah*

**JEL classifications:** D63; H71

## 1. Introduction

Existing studies on intergovernmental transfers, and in a more general context revenue structure, generally assessed of how the revenue structure may mitigate fiscal disparity, either it refers to horizontal and or vertical fiscal disparity. An assessment based on this objective to some extent is considered to be less practical for the policymaker. Policymaker may also want to know performance of these policies, i.e. on intergovernmental transfers, in relation to a more general development objective, as in the

case of handling economic disparity across region in Indonesia.

The revenue structure of lower level government, can be differentiated based on type of revenue sharing – a block grant and conditional grant that is based on certain formula of equalization, and revenue sharing that follows a derivation principle of certain economic resources – which in this case is revenue sharing on natural resources and taxes sharing. Unlike block grants or equalization grants which is perceived to reduce horizontal fiscal disparity across regions especially at the local level, revenue sharing and sub-national taxes on normative ground is viewed to mitigate vertical fiscal disparity.

There may be a trade-off between reduction of ver-

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*Corresponding Author*: Institute for Economic and Social Research (LPEM). Faculty of Economic and Busines, Universitas Indonesia. Jl. Salemba Raya, No.4 jakarta 10430, Indonesia. E-mail: prcrmqx@gmail.com.

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tical fiscal disparity and higher horizontal fiscal disparity across region, referring to inequity among provinces and or local governments. Inequity in fiscal, in the context of lower level governments, nonetheless may and may not also lead to economic disparity. Some of studies have explored the effect of fiscal disparity, represented by government expenditures distributive policies on national economic disparity (Rodriguez-Pose & Gill 2004, Shankar & Shah 2003, Lessmann 2011, Saachi & Salotti 2011). Rodriguez-Pose & Gill (2004) explored the correlation between reduction in fiscal inequality caused by devolution and regional economic disparity, in which in some countries – there are positive relationship between period of events of more decentralization policies led to higher regional economic disparities. By measure of expenditure decentralization index, on also cross-countries unit of analysis, found a negative relationship between fiscal decentralization and regional economic disparity (Shankar & Shah 2003, Lessmann 2011). However, the relationship between fiscal decentralization in the context of revenue autonomy on regional economic disparity is less clear. Saachi & Salotti (2001) conducted cross-country analysis and shows that higher revenue autonomy lead to higher regional economic disparity, however study by Ezcurra & Pascual (2008) that is based on analysis on European Union countries, found of higher revenue autonomy associate with lower regional economic disparity.

Previous studies, which mostly based on comparative cross-country analysis, has shown of inconclusive findings in support of whether improvement in revenue autonomy may come at the costs of deterioration of regional economic disparity. And at country specific level, there is also still a debate on the effect of distributive policies, from the type of expenditure decentralization as well as on degree of revenue autonomy on regional economic disparity (Rodriguez-Pose & Gill 2004). China and

Philippines are an example of how higher revenue autonomy as well as more devolution on functional arrangement from central to sub-national governments have associated with higher regional economic disparity (Song 2013, Jiang & Zhao 2012, Silva 2005).

This study aims to explore, in the context of country specific analysis, of whether the presence of revenue sharing would actually exacerbate economic inequality across region, a notion that hampered the effort to devolving more revenues to provincial and local governments. Existing literature on revenue sharing which include natural resource and taxes mostly are assessed its impact on horizontal economic disparity, solely at the national level and not yet in specific to the provincial intra-economic disparity. To our knowledge, there is not yet studies exploring on the effect of revenue structure on economic disparity, especially when the measured economic disparity also takes into account context of multi-tier level of government of its sub-national revenue structure (scheme).

## 2. Literature Review

### 2.1. Inter and Intra – Province Economic Disparity

Discussion on regional economic disparity mostly focuses on economic disparity at the national, either referring to economic disparity among provinces (inter-province) or economic disparity among all local governments. Our study would like to explore, a somewhat similar but different perspective of economic disparity that is intra-province economic disparity. Given the decentralised system adopted in Indonesia for the last decades, mitigating economic disparity across regions on the national level may not only be the objective of central government.

Even for the case of national level, is quite different depending on the level of lower level governments regions that are analyzed. Economic development referring to indicator of per capita of Gross Regional Domestic Product (per capita GRDP), based on a measure of Gini coefficient as shown in Figure 1, tend to be more unequal on the context of local governments than for the case of provincial governments. The value of Gini coefficient of local governments per capita GRDP is much higher than Gini coefficient of provinces per capita GRDP. Figure 1 also shows that despite a higher degree of disparity among local governments nationally, the degree of disparity tends to decline, however it is less clear on whether inter-province disparity has improved. There is a spike of higher economic disparity among local governments for year 2009–2010, though in overall there is a slightly decline trend of economic disparity among local governments. Meanwhile, economic disparity among provinces tends to fluctuate but has been relatively constant for the last five years.

For the case of Indonesia, there is an increase trend in inequality among household income in Indonesia (Ministry of Finance, 2014). A relatively gloomy picture on household economic income equality, may also lead to another issue of whether there is also a worsening condition on regional economic disparity. Galbraith & Hale (2014) stated there is a close link between regional economic disparity – measured by per capita of national income or gross domestic product - and region households' income inequality.

As shown in previous Figure 1, there is higher though a slightly decrease in trend of economic disparity among local governments in period of 2010–2012, however, the pattern of economic disparity may likely be different among provinces. As shown in Figure 2, comparing economic development among local governments within each province, very few provinces that exhibit higher local governments' economic disparity (IPD – intra province disparity) in comparison of the national level of economic disparity for local governments (ND – national disparity). As intra-province (local governments) economic disparity tend to be better than national (local governments) economic disparity, in most of the provinces, an assessment of what might be the determinants of this intra-province economic disparity may also be important.

Improvement in intra-province economic disparity, is part of an effort than can be be viewed to mitigate inequality issue in general. Economic (development) disparity among local governments within province, refers to disparity in per capita gross domestic product among municipalities and cities in a province, may reflect a concentrated economic development that could reduce optimal efficiency of resources allocation in a province. As applied to central government, mitigating an increase in economic disparity may also be one of lower level government objectives at least for the case of province level of governments.

## 2.2. Province and Local Government Revenues Structures and Economic Disparity

In regard of fiscal decentralisation policies in Indonesia, one major characteristics of supporting expenditure decentralisation are through intergovernmental transfers. As there are various type of intergovernmental transfers, the distributive type of transfers are less supported on the context of revenue sharing and also on the case of devolved taxes to the provinces and local governments. The revenue sharing as well as devolved taxes are distributed based on region in which revenues are collected, and thus for the case that those type of revenues are buoyant, higher revenues received by more affluent (high income) provinces and or local governments. Translated to the context of economic

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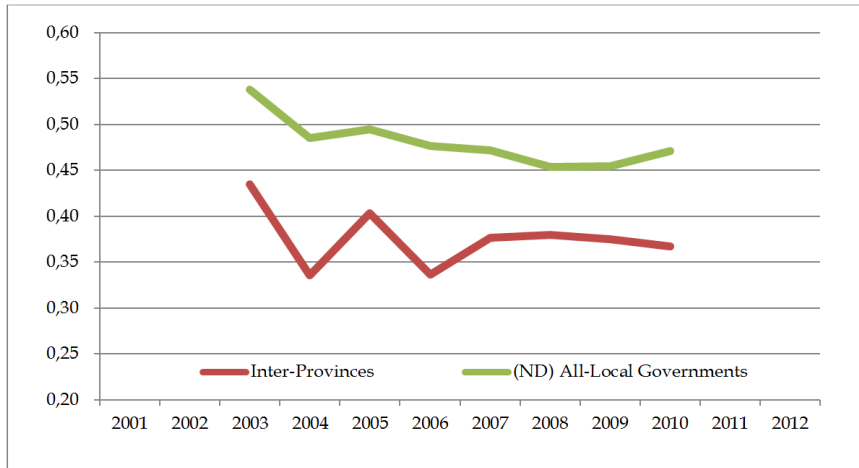**Figure 1: Trend in Gini Coefficient of per Capita GRDP: Provinces and Local Governments**
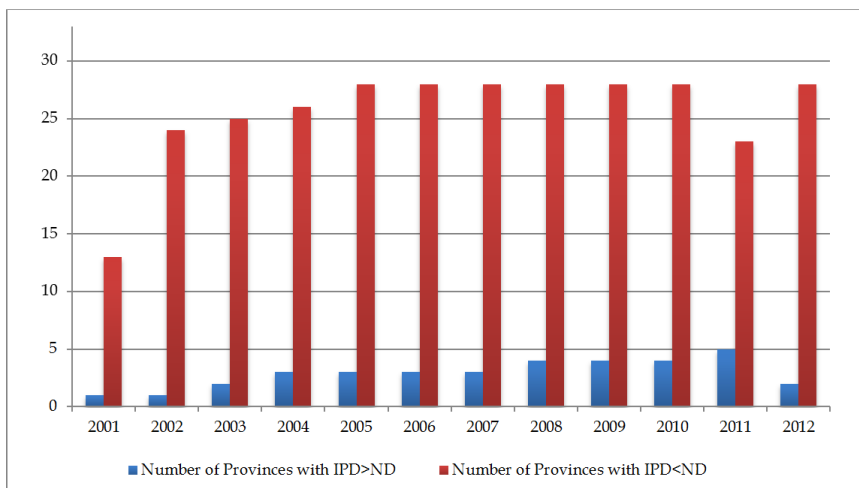Source: Authors' calculation



**Figure 2: Number of Provinces with Lower or Higher Economic Disparity than to National Level**
Note: IPD: Intra-Province Disparity, ND: National Disparity, and economic disparity is local governments per capita GRDP.
Source: Authors' calculation

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disparity, the revenue sharing aims to mitigate vertical (fiscal) disparity, may be viewed come with a trade-off of exacerbating horizontal economic disparity.

The revenue sharing as well as provincial and or local governments taxes, may also have impact on horizontal economic disparity. These revenues type link economic endowment or revenues bases, following a derivation principle. It is believed that an unequal nature of economic development among regions would be exacerbated by the presence of the revenue sharing. In this context, this study aims to explore the effect of these types of provincial and local government revenues on local governments economic disparity within each province, in an effort to understand determinants of intra-province economic disparity. Furthermore, as the beneficiaries of revenue sharing are administration unit of lower level of government, which in this case are provinces and local governments, the respective objective need to also be assessed in terms of administrative unit (level of government).

The structure of province and local government revenues consists of local revenue (PAD, called as own source revenues), balancing funds, and other legitimate revenue (other revenues). Balancing fund comes from central government that consists of revenue sharing (DBH), general allocation funds (DAU) and specific allocation funds (DAK). The purposes of balancing funds in overall is to mitigate vertical (fiscal) imbalance in terms of revenue between central and its lower level government as a consequence of mismatch of devolved government assignment between central and its lower level government.

The revenue sharing (DBH) which consist of natural resource revenue sharing and central government tax sharing. There is a different formula of sharing allocation across each type of revenues and also depending on the coverage of the endowment

or the tax base. The central government directly shared the revenues to province and local governments, which generally considered not only of the producing region but also non-producing regions. In the case of natural resource revenue sharing, the producing region referred to the province if the resources are located in more than one municipality, for example is revenue of central government from forestry (logging); or it is located in the sea territory of the province (3 mile up to 12 mile from the shore) as in the case of oil production sharing.

The natural resource revenue sharing allocation, applied to extractive sector production, consist of general mining activities (on minerals and coals) in which licenses or contract is managed by central government, forestry product (i.e. logging), oil, gas, geothermal, as well as fisheries. In terms of fisheries, the revenues do not come from production but from boat license that are issued by central government. The arrangement of natural resource revenues that are retained by central government, is 20% of the total resource revenues, with an exception is on the revenue sharing of oil and gas production. For example, in the case of natural resource revenues from forestry and mining permits (landrent) and production royalty, the revenue that will be retained by central government is 20%, as 80% of the revenues are allocated to the province in which the natural resources production is located and local governments in that provinces.

Related to oil production, the revenues that are allocated between central government and provinces and local governments based on production (lifting) that is used as estimation of gross revenues. In this case, the revenues has netted out the taxes that is paid to central government as well as to province and or local governments. The allocation of these revenues to regions – provinces and local governments – applied to area of production that are considered as on-shore oil production. In this case, on on-shore oil production revenues, the

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sharing arrangement of oil production (lifting) revenues are 84.5% to central government, and 15.5% to provinces and local governments. Meanwhile, on central government revenues from gas production, the allocation of revenues retained by central government is 69.5%, thus province and local government level receive 30.5% of the revenues from gas sector collected by central government. From pool of revenues to the producing's province and local governments within that province, local governments receive 80% of revenues allocation – which is also distributed following a 50:50 rule between producing local governments and non-producing local governments in that province.

In this case, the sharing arrangement between province and local governments are relatively similar across type of natural resources revenues. The allocation between province and local government follows 20:80 rule from pool allocated to lower level of government. As discussed, the natural revenues allocation to local governments refer to both the producing local governments and non-producing local governments in that province. The allocation to non-producing local governments are equally distributed. The share of this equal sharing is not small, in relative to numbers of local governments typically existed in the provinces endowed with high natural resources. The equal share of natural resource revenues sharing allocated to local governments generally followed a 50:50 rule between producing local governments and non-producing local governments.

The central government also shares some of its taxes revenues to province and local governments. The property taxes, prior devolution of the tax in effective 2014, is the type of tax in which most of its revenues are allocated to provinces and local governments. The central government also shares revenues from individual income tax and payroll tax to province and local governments, as well as excise tax from cigarette – called as revenue sharing

on CHT (*Cukai Hasil Tembakau*). To note, previously there is also tax sharing on property transfer tax (BPHTB – *Bea Pengalihan Hak atas Tanah dan Bangunan*), though as this tax is devolved to local governments since 2011, it has ended as part of central government tax sharing in 2010.

The central government allocates 90% of property taxes revenues to provinces and local governments. The sharing arrangement to provinces and local governments is based on derivation (property taxes collection) – 81%, and incentive - 9%. For the pool of 81% of property tax revenues, the provinces receive 16.2% of the allocation, while local governments received 64.8% of the allocation. In this case, the incentive of 9% is allocated in equal amount to all local governments (6.5%) and to local governments that have revenues collection exceeded the target (3.5%).

On the context of individual income tax and payroll tax, the central government shares 20% of these taxes revenues to provinces and local governments. The sharing arrangement between provinces and local governments are 8% for the provinces, and 12% of the taxes revenues are for local governments. In this case, the distribution to local governments is based on taxpayers' registration – referring if it is payroll taxes, then it generally will be where firms are located, and about 3.6% of the revenues will be allocated equally to all local governments in respective province.

Other than property taxes and individual (and payroll) taxes, central government also shared cigarette excise revenues to provinces and local governments. As Law No. 28 2009 stipulate on part of excise cigarette that is considered as provincial tax, which can be levied by the producing region (uniformly), the central government keep part of the revenues other than "the piggyback" part, to be allocated as well to local governments. The cigarette excise tax is central government excise levied to

cigarette production, and 2% of this excise tax revenue is allocated to local governments based on certain criteria.

To note, revenue sharing (DBH) is not a dominant type of revenues in comparison to equalization grants (DAU). This equalizaton grant, called as General Allocation Fund, contributed to almost 60% to overall central government transfers (Ministry of Finance 2017). In this case, the taxes revenue sharing also tend to exceed natural resource revenue sharing, especially as extractive sector seems to be more fluctuated in terms of production as it also links to regulatory dynamic in the sector.

Figure 3 shows the share of government transfer to local government revenue is very high. During 2010–2012, the average transfer to city and municipality are more than 80% of their local revenue. In city (*kota*) and municipality (*kabupaten*), the transfers from central government are higher than in province level. For the province level, the share is more than 44% each year during 2010–2012. In comparison to other sources of revenue that is own source revenues (PAD), their share is almost the same. In 2012, government transfers are 51.09% of local government revenue. It increases 13.8% from 2010 where the transfers are only 44%. In 2010–2012, the role of own source revenues (PAD) in province level are quite high rather than in city and municipality level. The smallest contributions are in district level. In province level average contribution of PAD to total revenue are more than 47%, while in district and municipality the share is only 5.5% and 16.2%.

From total of 16 types of province and local government taxes, only 5 types of taxes are assigned to provincial level of government. These taxes are the annual vehicle taxes (PKB – *Pajak Kendaraan Bermotor*), the vehicle transfer tax which is a tax based on transaction or sales of vehicles (BBNKB – *Bea Balik Nama Kendaraan Bermotor*), tax on gaso-

line consumption (PBBKB – *Pajak Bahan Bakar Kendaraan Bermotor*), tax on surface water, and the cigarette tax. The vehicle related taxes are dominant revenue source and also withholding taxes. It is the central government agency – which is the Police – that administered and collected these province taxes. Similar to the vehicles related tax, the province cigarette tax is also administered and collected by central government – the Directorate of Custom, Ministry of Finance.

Figure 4 shows that own source revenue (PAD) during 2010–2012. As a part of PAD, the role of local taxes is very high in all government level. The contribution of local taxes to PAD in province level are more than 80%, while in municipality (*kabupaten*) and city level (*kota*), local taxes revenues on average are 55% and 34% respectively.

In regard to province and local government taxes (local tax in PAD), the sharing arrangement only applied for province taxes and not local governments taxes. A similar approach as with intergovernmental transfer that is allocated from higher level government, the sharing arrangement of taxes revenues only available from the province to local governments and not vice versa. Province may receive or collect taxes and then determine the period and disbursement (allocation) formula of these taxes to local governments.

On vehicle related taxes, the province shared to local governments within that province 30% of province tax revenues, in which each province may have different formula on the allocation of these province taxes. Meanwhile, on surface water tax, the sharing arrangement between province and its local government follows a 50:50 rule on the base of surface water that located in more than one municipality, but the province will only retain tax revenues of 20% if the surface water is located specific in one municipality. Given this arrangement that is considered to be low for provincial government, in
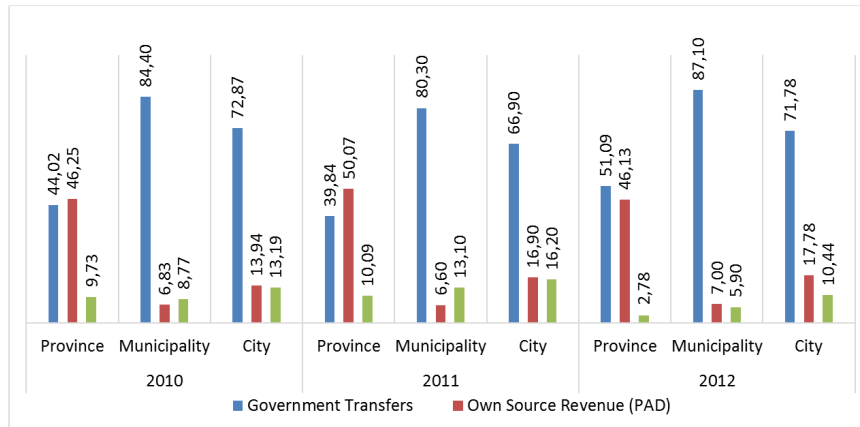
**Figure 3: The Structure of Local Government Revenue 2010–2012**
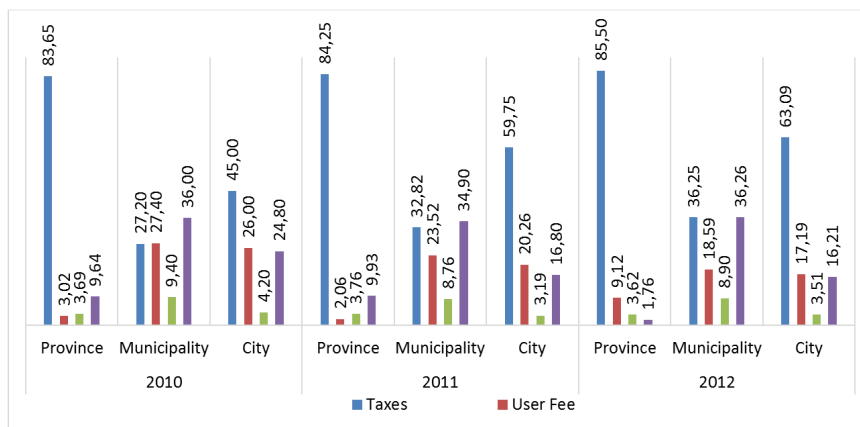Source: Authors' calculation



**Figure 4: The Structure of Own Source Revenue (PAD)**
Source: Authors' calculation

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addition to unclear value of surface water, to some extent – there are provinces that are not collected this type of tax (Suratman et al. 2013). As in the case of cigarette tax, only 30% of revenues is retained by province. Around 70% of the revenues from cigarette tax is allocated to local governments in which 10% of it is equally shared among local governments within that province.[1]

Other prospective source of PAD are user fee and other legitimate PAD. The major contribution of user fee are high in city level rather than in municipality level. during 2010 until 2013 the average revenue from user fee are 22% in city and 13.5% in municipality. The share of other own revenues in province are quite small but it is quite high in city/municipality. The average of other revenues in PAD during 2010–2013 are 7.5% in province while in district are more than 27% and municipality 18.7%.

As economic disparity may initially present in a particular province due to the initial variation of natural resources and geographic condition among its municipalities and cities (List & Gallet 1999, Knight & Song 2003), it can also be influenced by government revenues and expenditures structures of province or local governments (Shankar & Shah 2003). However, as discussed, there are not yet litteratures explaining the effect of revenues structure on economic disparity, albeit there is a quite large of literature that explore the effect of government revenues structures on economic growth (Mofidi & Stone 1990, Wildmalm 2001) as well as on the relationship between economic growth and economic disparity (Lessman 2011).

There is a competing theory on how higher devolution, on expenditures as well as revenues, may resulted on either a decrease or an increase in regional economic disparity. A decrease of regional economic disparity from devolution of fiscal power, can occur as low income local governments, can still catch up in delivering standardized public services due to support from central government through intergovernmental transfers. Poor regions (province or local government) that are able to improve and provide standardized of quality public services may attract higher resources that will enhance economic development in those regions. In contrast, higher devolution can also increase regional economic disparity, assuming that more efficient and rich provinces (and or local governments) are able to provide a higher quality of public services and thus may attract more residents that translated to more resources attracted to those provinces and or local governments, leaving other lagging provinces and or local governments experiencing higher gap in economic development.

Economic disparity among provinces or local governments to some extent may also be resulted from the provinces or local governments comparative characteristics, for example the presence of unequal natural resources distribution that are generally unevenly distributed, the variety in geographic conditions, and the dynamic of population distribution (Ross et al. 2012, Song 2013). Provinces or local governments with abundance natural resources, would be benefited from high though unstable stream of revenues than other provinces.

In the case of Indonesia, existing studies generally choose pre-determined a type of transfer that is viewed will mostly affect economic disparity. Swastyardi (2008) explores the dominant type of the transfers, General Allocation Fund, on region economic disparity (Swastyardi 2008). In contrast to General Allocation Fund (DAU), the revenue sharing is not an instrument to reduce economic disparity, though as noted in previous section, we cannot rule the likely impact of revenue sharing to intra-province economic disparity. Swastyardi (2008) views that

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[1]To note, cigarette tax as it is administered by central government, the additional rate of the excise (on central government cigarette excise) can also be allocated to the producing region – referring to provinces in which the cigarette factories located.

General Allocation Fund has a different impact on economic disparity in Indonesia. An increase in DAU would lower economic disparity at national level, specifically on the region of Sumatera, Java, and Bali, but DAU tend to instead increase economic disparity in region of Kalimantan and Sulawesi.

To sum, on the determinants of intra-province disparity, components of revenues type either at the provincial level or local level may play role as explained in the previous section. On framework of revenues type and economic disparity that come from derivation based as in the case of revenue sharing (DBH) and own source revenues (OSR), which is believed to be highly unevenly dispersed among regions, these revenues may be viewed to increase economic disparity.

## 3. Empirical Model

As discussed, previous studies mostly focused on cross-country analysis, and those studies may not be adequate, as fiscal decentralization policy, may not be defined uniformly across countries – not only on the context of expenditure devolution but also on the degree of revenue autonomy (Shankar & Shah 2003, Saachi & Salotti 2011). An assessment on country specific, may complement existing studies – especially in exploring the effect of derivation-based revenue sharing as whether it will deteriorate regional economic disparity, as mostly presumed. Furthermore, the estimation model would also explore of whether equalization revenue sharing as in the case of General Allocation Fund (DAU) may have effect on regional economic disparity.

This study focuses on the estimation at the province level. The estimation on the province level may shed light on the determinants of intra-province economic disparity. On the context of Indonesia,

distributive policies related to mitigating economic disparity among jurisdictions would be relevant if it is discussed at the provincial level rather than at municipalities or cities level. This is given the function among level of governments that can channel directly to beneficiaries such as households as well as to jurisdictions, but in the case of province, it can only function through planning and making distributive policies solely in the context of empowering respective local governments through grants from the provincial level, as specific programs such as social assistance may not be considered as provincial function.

The period of estimation is between 2010 and up to 2012, as in this period an issuance of province and local taxes and charges – Law No. 28 2009, more on province taxes and the sharing arrangement, but not yet on the devolved local government taxes (property taxes). The Law stipulated that in the case of province taxes – some percentage of tax revenues will also be shared to local governments. The Government also implemented a wider base of revenue sharing especially in the form tax sharing. In this period, the devolved of property taxes, referring to urban and rural property tax, is not yet in effect. The adoption of rural and urban property tax by most of local governments is in year 2014.

On indicator of intra-province economics disparity, we use indicator of economic disparity represented by Gini coefficient of per capita Gross Regional Domestic Product (per capita GRDP), that has a value between 0 to 1. Zero value of Gini coefficient represent a perfectly equal distribution of per capital GRDP which means that all local governments in that province have the same value of per capita GRDP, while value 1 of Gini coefficient reflect economic value added (GRDP) in that respective province concentrated only in one local government. The measured variable of economic disparity is income indicator of per capita GRDP that is also used in Shankar & Shah (2003). A Gini coefficient is not

the only indicator that can be used to measure disparity, as we can also use coefficient of variation (CV), and or any other type of indicators. However, the values are generally not much different across these indicators (Shankar & Shah 2003). Rationally of using Gini coefficient, is usually also based on that this indicator can be linked to Lorenz Curve and thus is more interpretative than other inequality or disparity indicator measurement.

Given the type of dependent variable, which has range of value between 0 and 1, the estimation is based on Tobit panel regression, as shown in the following estimation model:

$$Y_{it} = \alpha_0 + \sum_k \alpha_k X_{kt} + \varepsilon_{it} + v_i \qquad (1)$$

where Y : intra-province economic disparity; X : explanatory variables (set of social and economic characteristic indicators, set of variables on provincial as well as local government revenues that are linked to derivation-based type of revenues); and $\varepsilon_{it}$ : random error term.

The explanatory variables consist of province GRDP, province population, share of provincial as well as local government revenues that are linked to derivation based (revenue sharing and own source revenues), and region specific characteristics.

The revenues structure variables, are revenue sharing, general allocation fund (province) and own source revenues. The separation on type of revenue sharing into tax sharing and natural resource sharing is applied to revenues sharing received by the province, as well as local governments. To note, variable of local government revenues refers to local government revenues on specific type of revenues aggregated to the province level. The revenue sharing that are received by local governments, only include revenue sharing from central government taxes and natural resource sharing. The local governments, also received sharing of province taxes,

which in this case is part on the overall province own source revenues.

## 4. Results and Analysis

The empirical results show that revenue sharing received by the provinces and local governments affect differently to intra-province economic disparity. Table 1 shows results from three model estimations to incorporate general model (model 1), disaggregation of revenue sharing (model 2), and spatial differences (model 3). As shown in Table 1 in estimation model 1, higher revenue sharing to local governments, in aggregate, tends to associate with higher intra-province economic disparity. The revenue sharing to local governments in this model estimation is the sum of natural resource revenue sharing and central government taxes that are shared to local governments.

From estimation result shown in model 2 and model 3 (Table 1), given that local governments revenue sharing is disaggregated into tax sharing and natural resource sharing, the results show that tax sharing to local government consistently associates with higher intra-province economic disparity, but there is unclear evidence that natural resources sharing to local government also exacerbates intra-province economic disparity. However, after controlling for region specific, as shown in estimation model 3 in Table 1, both local governments taxes revenue sharing and local government natural resources revenue sharing significantly increase intra-province economic disparity.

To note, there is less clear differences on the base (of economic activity) in terms of revenue sharing to local governments that come from natural resource revenues and taxes revenues – especially between natural resource sharing and central government property tax sharing. In the context of central gov-

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ernment tax sharing, tax sharing on property taxes, around 90% of tax revenue is distributed back to local governments. The property taxes consist of the tax on urban and rural land and building, as well as taxes related to natural resource activity – property tax on mining, plantation, and oil and gas. For the property in these three sectors, the structure in terms of the rate and the base in which the tax is levied to some extent link to natural resource activity, as it is also levied to production value.

Meanwhile, for the case of provincial revenue sharing, estimation results in Table 1 show there is no evidence that provincial revenue sharing tend to increase intra-province inequality. As shown model 2 and model 3 in Table 1, even after disaggregating type of revenue sharing and controlling for region specific, provincial revenue tax sharing as well provincial natural resources sharing do not affect intra-province economic disparity.

Instead, we found the different impact on the effect of own source revenues on intra-province economic disparity. Province with high provincial own source revenues seems to also have low intra-province economic disparity, and vice versa. However, there is a positive effect from local governments own source revenues on intra-province economic disparity. This result of positive effect of local governments own source revenues is somewhat in line with the results that also show the positive effect of local governments taxes sharing on intra-province economic disparity, as shown in model 2 and model 3 in Table 1.

In regard to region specific, the estimation result in model 3 Table 1 shows that provinces in Kalimantan, Sulawesi, and Sumatera have lower intra-province economic disparity relative to other regions. However, we have not found a similar evidence for the case of provinces in Java regions. Relatively lower intra-province economic disparity in non-Java island provinces may not associate to a dispersed

population in these region, in comparison to Java provinces. As shown in Table 1, the estimation model has controlled population, which in this case have a positive effect to intra-province economic disparity. Provinces with higher population, referring to provinces in Java island, tend to have higher intra-province economic disparity.

## 5. Conclusion

The distributive policy is generally reviewed in the context of national, and rarely it is reviewed the distributive policy based on provincial level, referring to intra-province disparity. The current government effort of distributive policies on decentralization that focusing on level of local government is applied on the case of general allocation fund. The general allocation fund (DAU), is aimed to ascertain a minimum of fiscal disparity among local governments. However, it is less clear of the distributive impact from revenue sharing as in the case of natural resource and tax sharing that will mostly follow a derivation-based principle, and at the extreme is the devolved tax (i.e. own source revenues).

Meanwhile, reversing the course of decentralization policies in Indonesia from a dominant expenditures' decentralization to a more balance revenues share across level of government tends to be challenging, as quite many cross-country studies show that higher revenue decentralisation would have impact on higher economic disparity (Sacchi and Salotti 2011).

Our study shows that there is no evidence on the case of Indonesia government transfers in the form of General Allocation Fund would actually influence regional inequality referring to intra-province economic disparity. The effect of revenue sharing on intra-province economic disparity has not also been conclusive. Despite to a popular belief that revenue

**Table 1: Estimation Results on Intra- Province Economic Disparity (Gini Coefficient)**

|  | Model 1 | | Model 2 | | Model 3 | |
|---|---|---|---|---|---|---|
| PDRB | + | NS | + | NS | + | NS |
| Population | + | *** | + | *** | + | *** |
| Province General Allocation Fund | + | NS | + | NS | + | NS |
| Local Governments Revenue Sharing | + | *** | | | | |
| Province Revenue Sharing | + | NS | | | | |
| Province Tax Sharing | | | - | NS | - | NS |
| Province Natural Resources Sharing | | | + | NS | + | NS |
| Local Governments Tax Sharing | | | + | *** | + | *** |
| Local Governments Natural Resources Sharing | | | + | NS | + | ** |
| Province Own Source Revenues | - | ** | - | ** | - | ** |
| Local Governments Own Source Revenues | + | NS | + | NS | + | NS |
| Region Specific: Kalimantan | | | | | - | *** |
| Region Specific: Sumatera | | | | | - | *** |
| Region Specific: Jawa dan Bali | | | | | - | NS |
| Region Specific: Sulawesi | | | | | - | *** |
| Constant | + | *** | + | *** | + | *** |

Note: ***:1% significance, ** 5% significance, *10%, NS: not significant.
The coefficient estimates are shown in Appendix

sharing as well as own source revenue may actually increase intra-province economic disparity, our study shows that at least for the case of provincial level, there is no evidence that these derivation-based revenues may increase intra-province disparity. Instead, on the case of province own-source revenue, our study finds that higher own source revenues may to some extent associate with lower intra-province disparity. Moving forward, the findings in our study imply that to some extent may also imply that a shift of more revenue decentralisation to the provincial level may not always create a trade-off of creating more regional (economic) disparity.

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# Appendix

| Variable | Obs | Mean | Std. Dev. | Min | Max |
|---|---|---|---|---|---|
| gini | 353 | .2685552 | .1334333 | 0 | .71 |
| pdrb | 390 | 88790.88 | 156912 | 1554.97 | 982540 |
| pop1 | 384 | 6973.169 | 9968.737 | 651.958 | 43053.73 |
| dau_p | 374 | 405538.5 | 308455.3 | 0 | 1569780 |
| dbhsda_p | 396 | 181189.5 | 546415.2 | 0 | 5268680 |
| dbhtax_p | 374 | 370766.3 | 1134879 | 0 | 1.10e+07 |
| dbhtax_lg | 383 | 760932.5 | 1355098 | 0 | 1.48e+07 |
| dbhsda_lg | 383 | 518480 | 1519772 | 0 | 1.23e+07 |
| osr_p | 374 | 1187438 | 2303643 | 185.8 | 2.20e+07 |
| pad_lg | 383 | 713133.8 | 1296925 | 10572.01 | 1.09e+07 |

**Figure A1:** Descriptive Statistics

```
Tobit regression                              Number of obs   =        331
                                              LR chi2(7)      =      86.63
                                              Prob > chi2     =     0.0000
Log likelihood =  241.45492                   Pseudo R2       =    -0.2186
```

| gini | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| pdrb | 6.33e-08 | 9.84e-08 | 0.64 | 0.521 | -1.30e-07 | 2.57e-07 |
| pop1 | 4.23e-06 | 1.07e-06 | 3.97 | 0.000 | 2.14e-06 | 6.33e-06 |
| dau_p | 1.13e-08 | 2.59e-08 | 0.44 | 0.662 | -3.96e-08 | 6.23e-08 |
| dbh_p | 3.06e-09 | 1.24e-08 | 0.25 | 0.805 | -2.13e-08 | 2.74e-08 |
| dbh_lg | 2.22e-08 | 4.30e-09 | 5.16 | 0.000 | 1.37e-08 | 3.07e-08 |
| osr_p | -2.74e-08 | 1.15e-08 | -2.38 | 0.018 | -5.00e-08 | -4.76e-09 |
| pad_lg | 1.13e-08 | 7.13e-09 | 1.59 | 0.113 | -2.68e-09 | 2.54e-08 |
| _cons | .2129807 | .0126083 | 16.89 | 0.000 | .1881763 | .2377851 |
| /sigma | .1166696 | .0045344 | | | .1077489 | .1255902 |

```
Obs. summary:          0  left-censored observations
                     331     uncensored observations
                       0  right-censored observations
```

**Figure A2:** Model 1

```
Tobit regression                          Number of obs    =       331
                                          LR chi2(9)       =     88.02
                                          Prob > chi2      =    0.0000
Log likelihood =  242.14844               Pseudo R2        =   -0.2221
```

| gini | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| pdrb | 6.10e−08 | 1.00e−07 | 0.61 | 0.544 | −1.36e−07 | 2.58e−07 |
| pop1 | 4.34e−06 | 1.11e−06 | 3.91 | 0.000 | 2.15e−06 | 6.53e−06 |
| dau_p | 1.42e−08 | 2.64e−08 | 0.54 | 0.590 | −3.77e−08 | 6.62e−08 |
| dbhsda_p | 3.02e−08 | 2.76e−08 | 1.09 | 0.275 | −2.41e−08 | 8.44e−08 |
| dbhtax_p | −8.86e−09 | 1.61e−08 | −0.55 | 0.582 | −4.05e−08 | 2.28e−08 |
| dbhtax_lg | 2.25e−08 | 5.36e−09 | 4.20 | 0.000 | 1.19e−08 | 3.30e−08 |
| dbhsda_lg | 1.42e−08 | 1.04e−08 | 1.37 | 0.170 | −6.13e−09 | 3.46e−08 |
| osr_p | −2.72e−08 | 1.15e−08 | −2.37 | 0.018 | −4.98e−08 | −4.64e−09 |
| pad_lg | 1.14e−08 | 7.13e−09 | 1.60 | 0.110 | −2.61e−09 | 2.54e−08 |
| _cons | .2125656 | .012654 | 16.80 | 0.000 | .1876707 | .2374605 |
| /sigma | .1164254 | .0045249 | | | .1075232 | .1253275 |

```
Obs. summary:        0  left-censored observations
                   331      uncensored observations
                     0 right-censored observations
```

**Figure A3:** Model 2

```
Tobit regression                          Number of obs    =       331
                                          LR chi2(13)      =    131.97
                                          Prob > chi2      =    0.0000
Log likelihood =   264.1243               Pseudo R2        =   -0.3330
```

| gini | Coef. | Std. Err. | t | P>\|t\| | [95% Conf. Interval] | |
|---|---|---|---|---|---|---|
| pdrb | 7.05e−08 | 9.43e−08 | 0.75 | 0.455 | −1.15e−07 | 2.56e−07 |
| pop1 | 3.22e−06 | 1.15e−06 | 2.79 | 0.006 | 9.49e−07 | 5.49e−06 |
| dau_p | −1.62e−09 | 2.55e−08 | −0.06 | 0.949 | −5.19e−08 | 4.86e−08 |
| dbhsda_p | 2.63e−08 | 2.59e−08 | 1.02 | 0.310 | −2.46e−08 | 7.72e−08 |
| dbhtax_p | −1.12e−08 | 1.51e−08 | −0.74 | 0.459 | −4.08e−08 | 1.85e−08 |
| dbhtax_lg | 2.05e−08 | 5.07e−09 | 4.04 | 0.000 | 1.05e−08 | 3.05e−08 |
| dbhsda_lg | 1.73e−08 | 9.79e−09 | 1.77 | 0.078 | −1.93e−09 | 3.66e−08 |
| osr_p | −2.13e−08 | 1.09e−08 | −1.95 | 0.052 | −4.28e−08 | 1.56e−10 |
| pad_lg | 8.33e−09 | 6.70e−09 | 1.24 | 0.215 | −4.86e−09 | 2.15e−08 |
| dkalimantan | −.0834599 | .0227824 | −3.66 | 0.000 | −.1282833 | −.0386366 |
| dsumatera | −.1007 | .0187674 | −5.37 | 0.000 | −.137624 | −.063776 |
| djawa | −.0379572 | .0256813 | −1.48 | 0.140 | −.088484 | .0125695 |
| dsulawesi | −.1208329 | .0204022 | −5.92 | 0.000 | −.1609732 | −.0806926 |
| _cons | .2960106 | .0186496 | 15.87 | 0.000 | .2593184 | .3327028 |
| /sigma | .1089466 | .0042342 | | | .100616 | .1172773 |

```
Obs. summary:        0  left-censored observations
                   331      uncensored observations
                     0 right-censored observations
```

**Figure A4:** Model 3

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