

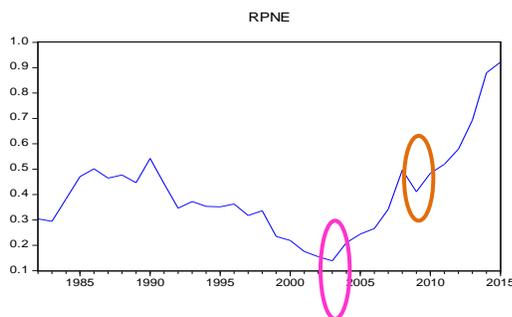


### Evidence of Wagner’s Law in Odisha

**Wagner’s law states that an increase in the real income of the state over a time period results in an increase in the total expenditure of the economy (Wagner, 1883) in the long-run.**

Total expenditure of Odisha which includes both plan and non-plan expenditure has been increasing over the period 1980-81 to 2014-15. The interesting point here is that the ratio of plan to non plan expenditure has been continuously rising over the period 2004-05 to 2014-15 from 21% to approximately 90%. This indicates the contribution of plan expenditure is more over non plan expenditure in the recent period. This is presented in Figure 1, which shows one break point in 2004-05 and another in 2010-11. By keeping up the importance of public expenditure for economic growth, this study examines the validation of Wagner’s law as well as shows the impact of both plan and non plan expenditure on economic growth of Odisha.

Figure 1: Ratio of Plan and Non-Plan Expenditure of Odisha



In order to validate the Wagner (1883) law for Odisha, we not only consider the total expenditure of Odisha’s economy but also look at both revenue as well as capital expenditure. Our model is in the following form:

$$\ln X_t = \alpha_1 + \alpha_2 \ln Y_t + \varepsilon_{1t} \quad (1)$$

Where, X represents **the total real expenditure, total real revenue expenditure, total real capital expenditure** and Y represents the economic growth; ln denotes the natural logarithmic form of the variables and t shows the time period. This study is conducted for the period 1980-81 to 2014-15. In order to obtain real terms of all the variables, we deflated them with respect to GDP deflator. Thus, all the variables are executed with real magnitude<sup>1</sup>.

In the next step, the long run relationship between expenditure and GSDP is established through **Bound F- Test methodology**. Result shows that the calculated F-statistic is greater than the critical values of Narayan (2005) and Pesaran (2001) at 1% level of significance. **Therefore, it is concluded that there is a long run relationship between total expenditure, total revenue expenditure, total capital expenditure and economic growth of Odisha.**

Further, the study shows the impact of both plan and non plan expenditure on economic growth through dynamic OLS (DOLS) model. Our model is as follows:

$$\ln Y_t = \beta_1 \ln rpe_t + \beta_2 \ln rnpet + \varepsilon_{2t}$$

Where, Y represents the GSDP growth, rpe and rnpet represents plan and non plan expenditure respectively; ln denotes the natural logarithmic form of the variables. The result is presented in Table 1.

Table 1: Result of DOLS

Variables	Coefficient
<b>Lrpe(real plan exp)</b>	<b>0.50*** (0.00)</b>
<b>lnrnpet (real non plan exp)</b>	<b>0.74*** (0.00)</b>
<b>R-Square</b>	<b>0.90</b>

Dependent variable: LY

Note: Figure in parenthesis shows the p-value and \*\*\* indicates significant at 1% level.

The result derived from Table 1 show that both plan and non plan expenditure affect economic growth positively. **The coefficient of non-plan expenditure indicates that GSDP growth in Odisha is driven by non-plan expenditure historically. However, the importance of plan expenditure on economic growth in recent period will play an important role for Odisha’s economy.**

**Hence, the study validates Wagner’s law and also finds a positive impact of both plan and non plan expenditure on economic growth of Odisha. Therefore, the policy implication of this study is to execute more expenditure particularly plan expenditure in order to achieve higher economic growth in Odisha.**

Reference

Narayan, P. K. (2005), The Saving and Investment nexus for China: Evidence from cointegration test, Applied Economics, Vol.37, pp. 1979-90.

Pesaran, H.M., Shin, Y., Smith, R. J. (2001), Bound Test Approaches to the Analysis of Level Relationship, Journal of Applied Econometrics, Vol.16, pp.289-326.

Wagner, A. (1883), Finanzwissenschaft, Third Edition, Winter, Leipzig.

<sup>1</sup> All the data used in this study has been collected from Financial Account, Govt. of Odisha.