Government expenditure and economic development

A Time-series Analysis of the Relationship between Economic Development and Government Expenditure in Syria

Introduction

During the last decades many questions have been raised by economists about the relationship between government expenditure (GE) and gross domestic product (GDP). Which of these variables is the dependent variable and which one is the independent variable in this relationship ? or it is a bidirectional relationship? And what is the type of this relationship, is it positive or negative? Wagner's hypothesis is the most important hypotheses which suggested answers to these questions. . Wagner's hypothesis was advanced in the late 19th century by the German economist Adolph Wagner. It asserts that as a country's level of development increases so does the relative size of its public sector. In modern terms, Wagner's hypothesis is usually interpreted as claiming that the income elasticity of the demand for government expenditure exceed unity (Koop and Poireir 1995: 123). " This " law" reflects the importance of government activity and expenditure as an inevitable feature of a progressive state" (Al-Hakami, 1999: 105). The law predicts that the development of an industrial economy will be accompanied by an increase in the share of public expenditure in gross national product as a natural consequence of increasing requirements of the manufacturing sector in particular, and the society in general. Hence, the causation run from gross domestic product (GDP) to government expenditure (GE) while according to Keynesian hypothesis, the causation is expected to run from GE to GDP (Demirbas, 1999: 12). On the other hand, Wagner assumes that economic growth motivates the government to spend more and that

opposed to Keynesian theory which supposes that increasing the government spending motivates the economic growth.

Wagner law has captured the interest of both scholars and political economists over 100 years. As a result, different empirical studies have tested Wagner hypothesis using various methodologies and have yielded conflicting results. Some studies have found support, for example: Abizadeh and Yousefi (1988), Asseery and Perdikis (1999) , Thornton (1999) and Al-Hakmi (2000). Studies that have found evidence against Wagner's Law include: Wagner and Weber (1977), Afxentiou and Serletis (1991), Bairam (1992) and Demirbas (1999). Three conditions should be conducive to Wagner's law: a period of growth, industrialization and modernization of the economy (Sideris 2006: 1).

The main objective of the study would be to analyse the relationship between the government expenditure and GDP in Syria Arab Republic over the period 1960-2007, basically in the long run by examining statistically the causal relationship between both of them. Then, more attention will be to test Wagner's paradigm because " Wagner's law is often considered to represent a long-term relationship between government spending and national income in countries which are in the early stages of the development" (Abizadeh 1985: 214) while Keynesian paradigm is mostly short run. In this paper, 1960 will be taken as the starting point because the Syrian government applied five years plan (FYP) since then. And in 1970 the Syrian government applied a new fiscal policy to improve the economic performance by increasing the government expenditure in different sectors like education, health services, and infrastructure. The government share of

real GDP per capita (RGDPL), was (17. 72%) in 1968 than decreased in 1969 to (15. 75%) by 1970 (when the new policy was applied) it had increased to (23. 83%). Hence, this paper test the effectiveness of government expenditure as an important tool in fiscal policy in Syria during the period from 1960 to 2007 by testing the existence of Wagner's hypothesis.

SECTION 2

THEORETICAL BACKGROUND AND LITERATURE REVIEW

This section presents both the theoretical background (2. 1) as well as empirical evidence (2. 2). The first section includes two parts. The first part is the government expenditure and GDP relationship theories which focuses on casualty direction in government expenditure and GDP relationship in both macroeconomic theories and public finance studies. Then, the second part goes through the various functional forms which have been used to describe Wagner's hypothesis. The second section (2. 2) shows empirical evidence of Wagner's law. Several empirical studies have tested Wagner hypothesis using various methodologies. Hence, in this paper more attention will be for the methodologies have been used by economists to test Wagner's law.

2. 1-Theoretical background

2. 1. 1- The government expenditure and GDP relationship theories

The role of government expenditure on economic performance take attention in both macroeconomic theories and public finance literature. Two different theories in macroeconomic have been advanced to analyse the effect of change in government expenditure on business cycle. The first

theory is the Keynesian theory. Keynesian analysis uses the multiplier effect to show how the increasing of government expenditure affects on the economic growth. The increasing of government expenditure increases the demand, thus boosts the production, the labor demand and real income because the inflexibility of goods prices. On other words, when the government rises the expenditure, actually it injects a purchasing power into the economy, thus motivates the firms to increase the production (Linnemann and Schabert 2003: 911).

The second theory is the neoclassical theory. According to which the increasing of government spending decreases the consumption by the negative wealth effect, along with an increase in labor supply, thus raising output and employment while lowering wages (Bouakez and Rebei, 2007: 954).

This analyses of the effect of increase government expenditure is different from Keynesian analyses.

While the neoclassic analyses due the GDP growth induced by government expenditure to increase the firms' profits caused by the decreasing wages, the Keynesian analyses due it to increase the purchasing power which rises the corporations sales.

Although, the predictions of the neoclassical general equilibrium model are directly opposed to those of Keynesian theory with respect to some important variables like wages and private consumption but the both theories argue that an increase in government expenditure while increase the output (Linnemann and Schabert, 2003).

In summary, Singh and Sahni(1984: 630) write: macroeconomic theories, essentially Keynesian theory, " have treated with government expenditure as an exogenous policy instrument used to correct short-term cyclical fluctuations in aggregate expenditures", most particularly in the depression periods.

Than the causation run from government expenditure (GE) to gross domestic product (GDP) and that is known as (Keynesian approach).

On the other hand, Wagner's law of expanding states expenditures is the most interesting hypothesis in the Public finance studies which test the relationship between government expenditure (GE) and (GDP).

Wagner hypothesis suggests that government expenditure (GE) increases at faster rate than GDP. For this is called Wagner's law of expanding states expenditures.

From this perspective, Wagner saw three factors which would cause state activity to grow proportionately faster than other sector of the economy. First, since the economic growth associated with using high technology in production process along with increasing the labor division which push the government to expand the spending on administration, law and order.

Secondly, economic growth would lead to an increase in cultural and welfare services essentially the education . Thirdly, the increasing scale of technologically efficient production would cause that the government participation would be required to provide the capital funds to finance large-scale projects required to satisfy the technological needs of an industrialised

society which the private sector would be no longer capable to met (Diamond, 1977: 37).

" In other words, Wagner's law states that government grows because there is an increasing demand for public goods and for the control of externalities"(Sideris, 2007: 2).

So according to this hypothesis the causation run from gross domestic product (GDP) to government expenditure (GE).

In conclusion, " Public finance studies, following Wagner, have considered public expenditure as a behavioural variable"(Demirbas, 1999: 12). On other words, " Wagner views public spending as an endogenous factor, which is determined by the growth of national income" (Dogan, 2006: 49) . And that explain why casualty direction opposed to Keynesian hypothesis which suppose that public expenditure exogenously given.

2. 1. 2-Functional forms of Wagner's law

Various functional forms had been used to describing Wagner's law because several different proxies can be used for government expenditure and GDP (Ram, 1987: 194).

The most common functional forms of the law cited in the literature are as follows (see Halicioglu 2003 and Mann 1980) :

2. 1. 2. 1- Functional form 1

GE = f (GDP)

This form is referred as the Peacock-Wiseman (1961) traditional version, where it is postulated that government expenditure increases at a faster rate than GDP.

2. 1. 2. 2-Functional form 2

GCE = f (GDP)

Where GCE is the government consumption expenditure. This formulation was initially used by Pryor (1968: 451). According to this version, the share of public consumption expenditures in the national income increases during the economic growth period.

2. 1. 2. 3-Functional form 3

GE/GDP = f (GDP)

This form represents the modified version of Peacock-Wiseman (1961) and was also

adopted by Mann (1980).

2. 1. 2. 4-Functional form 4

GE = f (GDP/N)

This form is linked to Goffman (1968). Goffman idea is that during the growth period, an increase must occur in the activities of the public sector, and when converted into expenditure terms, would exceed the rate of increase in output per capita (Goffman, 1968: 359).

2. 1. 2. 5-Functional form 5

GE/N = f(GDP/N)

This form represents Gupta's (1967) version and was also adopted by Michas (1975), to support Wagner's law according to this version the elasticity of government expenditure per capita with respect to GDP per capita must be greater than unity.

2. 1. 2. 6-Functional form 6

GE/GDP = f (GDP/N)

This form is a Musgrave (1969) version, which argues that, the ratio of public expenditure to GDP is a function of per capita income. Hence, when the per capita income increases, the public sector share of GDP must increase (Wahab, 2004: 2128).

This study uses all the functional forms except the second form (Pryor (1968)) because the available data of public consumption expenditures GCE available from 1975 while the study covers the period from 1960 to 2007.

2. 2 Empirical evidence of Wagner's law of expanding state expenditure

Wagner's law of over-increasing state expansion was derived from the historical experience of continental Europe, principally Germany, at the early stages of industrialization.

Earlier version of Wagner's Law , Peacock-Wiseman (1961) traditional version, have assumed that the respective time series are stationary and

proceeded to estimate the following relation between government expenditure and GDP:

GEt = α + β GDPt €⊞ + et

Where β elasticity coefficient and Supporting Wagner's Law requires that β> 1 (Musgrave, 1969: 74).

An example for such kind of studies is Al-Hakmi (2000). The main objective of this study is testing the causal relationship between government expenditure and gross domestic product, Wagner against Keynesian in Saudi Arabia over the period 1965-1996 by using time series analysis.

The government owns the oil sector, which has an important influence on the Saudi Arabia economy through the government expenditure variable. Although, this fact give an evidence of validity of the Keynesian hypothesis, but the result of the study actually support Wagner's hypothesis.

The study does include two steps. The first step is to check if there is a relationship between government expenditure and GDP by using unit root test and the cointegration test which shows that the two time series are cointegrated. This means there is a long run relationship between both variables.

The second step is to determine the direction of the causal relationship between the variables. The study supports Wagner's hypothesis because the casualty test indicates a unidirectional causation running from GDP to government expenditure.

Thornton used the same methodology in 1999 to test Wagner's law for six developed economies (Denmark, Germany, Italy, Norway, Sweden, and the United Kingdom) but using data which begin around the middle of the 19th century when the size of government was relatively small by modern standards but increasing. A single equation model is used in this test:

$\ln(g) = a + Î^2 \ln(y) + (1 - Î^2) \ln(POP) + \mu$

where g represents real government expenditure, y is real income, POP is population size and μ is a serially uncorrelated random disturbance term. Granger-causality tests suggested that unidirectional causality ran mainly from income to government expenditure, or was bidirectional (Italy and United Kingdom) and there appears to be considerable support for Wagner's law in Europe the 19th century.

Some studies have been use disaggregated data because " not all expenditure is necessarily a function of national income and some of it may in fact be carried out with a view to improving national income in the future" (Asseery, Law and Perdikis, 1999: 43) The paper of Asseery and Perdikis (1999) is one of this studies. This paper tested Wagner's law in Iraq by using the data covering the period 1950-1980.

Disaggregated data have been used in this study by divided government expenditure by economic category and by major function and then tested the relationship between national income and each component parts of government expenditure. The tests showed that when income and several forms of expenditure are denoted in nominal terms, unidirectional causality ran mainly from income to government expenditure. This support the

existence of Wagner's Law but the causality runs in the opposite direction when expenditure denoted in real terms. Only in the case of spending on economic services, there is unidirectional causality in both cases, real and nominal.

All mentioned above studies tested the hypothesis for single country while there are other studies examined it for a group of countries like Abizadeh and Gray study in 1985. They tested Wagner's law against pooled time-series, cross-section data for 53, sampled cover the seventeen year period from 1963 to 1979, countries grouped into poor, developing, and developed countries by means of the Physical Quality of Life Index. Wagner's law was tested for each group in a model relating the growth of government expenditures to several measures of economic development; real per capita GDP (YRP), agricultural ratio (AR), openness (OP), total commercial energy consumption per capita (ENP) and financial intermediaries (FI).

The operational model was used in the test as follows:

G = Î± + Î²1 (T) + Î²2 (YRP)it - Î²3 (AR)it + Î²4 (ENP)it + Î²5 (OP)it - Î²6 (FI)it

Where i = number of countries

t = number of years

G = Government Expenditure Ratio: total government expenditure in year t divided by GDP in year t, the original paper use ER instead of G.

Wagner's hypothesis is found to hold for the developing group of countries, but not for the poor, or for the developed groups. Actually, for the developed

group a negative relationship between the government expenditure and economic development is observed, for all countries together the results are less convincing. Which means that Wagner's law is weaker than for the developing group (Abizadeh, 1985).

Finally, some economists like Demirbas (1999) used various functional forms describing Wagner's law to examine the existence of Wagner's law. Demirbas used data for Turkey over the period 1950-1990. The cointegration test results indicated that the variables are not cointegrated. Thus, no long-run relationship between public expenditure and GNP found in Turkey case. As well as, Granger causality tests indicated neither variable Granger causes the other. So, there is no evidence to support either Wagner's Law or Keynes' hypothesis. In other words, according to Demirbas" the increasing of public expenditure in the case of Turkey is not directly dependent on and determined by economic growth".

Two main points can be drawn from reviewing previous studies which mentioned above. First, most studies, which tested Wagner's hypothesis, have applied the same methodology with different proxies of government expenditure and GDP. This methodology described in section 3 includes three basic tests i- stationary test ii- cointegration test iii- Granger Causality test. Second, there is no argument among the economists about the validity of Wagner's hypothesis. Indeed, it is difficult to predict the outcome of this hypothesis study for developing countries because each one is considered as a special case.

SECTION 3- METHODOLOGY

This section contains of four parts which present the methodology of study. The first part (3. 1) goes through the statistical tests used to estimate the relationship between government expenditure and gross domestic product while the second part (3. 2) describes the data used in this study. The third part (3. 3) relates in the empirical techniques. Finally the fourth part (3. 4) explains the limitation of study.

3. 1 Econometrics tests

Three tests have been use to examine the relationship between GE and GDP. The first test is stationary test to determine the order of integration of each series. Then, the cointegration test which shows if there are a long run relationship between the variables. The final test is the casualty test to determine the direction of the causal relationship between the variables.

These tests apply for five famous functional forms describing Wagner's hypothesis. A diagram summarizes these tests at the end of this part.

3. 1. 1 Stationarity test (Unit root test)

A series yt is said to be integrated of order d, denoted I(d), if d is the number of times the series must be differenced to achieve stationarity (Al-Hakmi, 2000: 107). According to the above definition, when d = 0, the series yt is stationary in levels of its values, and when d = 1 it is the change in the levels from one time period to the next that is stationary (Vinod, 1997). An I(1) also indicate the series contains one unit root. One formal test for the hypothesis that the time series is an I(1) involved an augmented Dicky-Fuller (1979;

1981) (ADF). The following equations are estimated for each of the time series

(1)

Where Δ is the first difference operator y is the series being tested, and k is the number of lagged differences included to capture any autocorrelation (Ho, Wei and Wong, 2004: 12). The null and alternative hypotheses may be written as,

H0: $\beta_0 = 0$ (the series is not stationary and needs to be differenced to make it stationary)

H1: $\beta_0 < 0$ (the series is stationary and doesn't need to be differenced)

3. 1. 2 Cointegration test

If the respective series are difference stationary with the same order , the next step estimates a cointegrating regression linking the levels of the two series. The cointegration is a study of the behaviour of linear combinations of time series. Thus, when the two series are cointegrated, this means there is a long run relationship between the variables . " However, to support Wagner's Law would require unidirectional causality from income to public expenditure. Therefore cointegration should be seen as a necessary condition for Wagner's Law, but not sufficient" (Demirbas, 1999: 1). Assuming that the original variables in the cointegration equation are integrated of order k, cointegration among these variables requires that the residuals must be found integrated of order q where qk (Ansary, 1993). To establish the stationarity of the residuals the following equation is estimated:

GE = $\hat{\beta}_0$ + $\hat{\beta}_2$ RGDPL + μ_t (2) Then, DF/ADF test is applied to the residuals from equation (3), as follows: (3)

H0: $\hat{\lambda}$ = 0 (the series residuals are not stationary/series are not cointegated /)

H1: $\hat{\lambda}$ < 0

If we reject the null hypothesis, the cointegration is found to exist between the variables, this mean there are along run relationship between variables, then either unidirectional or bidirectional causality must exist in the variables.

3. 1. 3- Testing for causality

This test includes two cases according to the cointegration test results:

I- Granger Causality test (If the two series cointegrated):

Granger causality test is the appropriate test to examine the existence and direction of causality between the integrated variables. Two hypotheses exists about the direction of causality between government expenditure and GDP. While Wagner in 1883 argued that causality runs from economic growth to government expenditure, Keynesian view postulates that the causality runs from government expenditure to economic growth (Samudram and Nair, 2009). The regression used to examine the causality are:

(4) (5)

where in equations 4 and 5 is zero-mean serially uncorrelated, constant variance residual term. Equation (4) is used to test Wagner's hypothesis

(causality runs from GDP to GE), where equation (5) is used to examine Keynes hypothesis (causality runs from GE to GDP). The null hypothesis that GDP does not Granger cause government expenditure is rejected if the coefficients,, in equation (4) are jointly significant, based on a standard F-test. Likewise, the null hypothesis that government expenditure Granger-causes GDP is rejected if the coefficients, in equation (5) are jointly significant (Al Hakami; 1999: 109).

Four findings are possible in a Granger causality test: (i) neither variable " Granger causes" the other. (ii) unidirectional causality from GDP to GE: That is, GDP causes GE, but not vice versa (in this case Wagner's Law applies); (iii) unidirectional causality from GE to GDP: That is, GE causes GDP, but not vice versa (Keynesian modelling is valid in that case); (iv) GDP and GE " Granger cause" each other . If (iv) is found to be true, there is a feedback effect (or bilateral causality) between two variables So neither the Keynesian or Wagnerian approach is valid (Demirbas, 1999: 16).

II- Vector auto regression test (VAR) (If the two series are not cointegrated):

If the two series are not cointegrated which means rejecting the Wagner's hypothesis because no long run relationship between government expenditure and GDP but with a chance to prove Keynesian hypothesis which applied in short run . Hence, in this case we examine the short-run linkages between government expenditure and GDP . Thus we will test Causality using Granger Causality test but for the GDP and GE growth, lets denoted as âˆ†GE and âˆ†GDP, instead original time series (GE and GDP). The Granger causality test results obtained by vector auto regression (VAR) approach,

because no cointegration between variables (Biswal; 1999: 1288). So we will replace the equations (4 and 5) in equations (7 and 8) as follow:

(6)

(7)

If the coefficients,, in equation (6) are significant, based on a t-test this mean that the casualty run from $\hat{a}$†GDP to $\hat{a}$†GE but that is not enough to support Warner's hypothesis because this relation in short run. On the other hand, if the coefficients,, in equation (7) are significant that mean the casualty run from $\hat{a}$†GE to $\hat{a}$†GDP. This result support Keynesian hypothesis.

After applied VAR test we can do Granger Causality test (like in case I) to support VAR test results .

This diagram summarizes the econometrics tests, the test result in parentheses ().

Tests for unit roots

(The same order of integration)

Tests for Cointegration

(the series are cointegrated) (the series are not cointegrated)

Test for Causality /Granger Causality test / Test for Causality / VAR Causality test /

(unidirectional causality run from (unidirectional causality run from

GE to GDP) âˆ†GDP to âˆ†GE)

Supporting of Wagner's hypothesis Supporting of Keynesian hypothesis

3. 2-Data The series are downloaded from Penn World Table PWT 6. 3 (189 countries, 1950, 2007, 2005 as base year). The annual data for variables, RGDPL Real GDP per capita , KG Government Share of Real GDP per capita (RGDPL) and Population (POP), are choose covering the period 1960-2007 in Syria Arab Republic (in this paper GDP/P is used to refer to Real GDP per capita instead RGDPL). According to Kennedy, it is useful to use annual data because " the power of unit root tests depends much more on the span of the data, ceteris paribus, than on the number of observations; i. e., for macroeconomic data where long business cycles are of importance, a long span of annual data would be preferred to a shorter span with, say, monthly data, even though the latter case may have more observations" (Kennedy, 1998: 267).

RGDPL is obtained by adding up consumption, investment, government and exports, and subtracting imports in any given year. The given year components are obtained by extrapolating the 1996 values in international dollars from the Geary aggregation using national growth rates. It is a fixed base index where the reference year is 1996 (Penn World Table 6. 1 (PWT 6. 1)) , hence the designation (L) for Laspeyres.

KG is obtained by dividing each component by the RGDPL(in this paper GE/P is used to refer to instead KG where G is the total government expenditure and p is population). Using annual data is appropriate here because government spending is not very sensitive to seasonal and cyclical

fluctuations. Finally, population is from the world bank Development Indicators 2001.

3. 3-EMPIRICAL TECHNIQUES AND METHODOLOGICAL ISSUES

Eviews 7 was used to process the data . The following tests were carried out:

- Tests for unit roots of all the series using the Augmented Dickey fuller test.

- Tests for Cointegration between two variables using Johansen cointegration test.

- Test for Causality using Granger Causality test.

- Test for Causality using VAR Causality test.

International dollar, is a hypothetical unit of currency that has the same purchasing power that the U. S. dollar had in the United States at a given point in time. . . A Laspeyres price index is computed by taking the ratio of the total cost of purchasing a specified group of commodities at current prices to the cost of the same group at base-period prices and multiplying by 100.

3. 4-LIMITATION

The two major limitations of this study are limited available data for the period from 1960 to 1970 and the weakness of cointegration test. We have to treat with the results of this study with caution due to these limitations

First, all functional forms of Wagner's law described above used proxies for total government expenditure (GE , GE/P and GE/GDP). Since not all

expenditure is necessarily have a long run relationship with GDP, it is helpful to study the relation between the government expenditure components and GDP. While the cointegration test show that the total GE and GDP series are not cointegrated, which means no long run relationship between variables, some expenditure components could be cointegrated with GDP. " There might be a bias introduced by using aggregate government expenditure data. It is possible that different components of expenditure affect real income in different ways, but when aggregate expenditure data are used these effects might be difficult to detect" (Dogan, 2006: 54). It was considerably difficult to get data for components of expenditure since 1960, hence we study only the aggregate expenditure.

Second, the weakness of cointegration test proposed by Engle and Granger because the test results are effected by omission of some variables (see Abizadeh (1985)), but because the limitation of data for these variables during the study period we just use two variables in all functional forms but it is high recommended to use more variables to avoid this shortage in cointegration test.

Although of these limitations, it is still important to study the relation between the total government expenditure and GDP. Actually most empirical studies use various forms to thus two variables to test Wagner's law against Keynes hypothesis.

Abizadeh used many variables in his model which we explain in the empirical evidence.

SECTION 4 - RESULTS

The empirical results are reported in this section of the paper.

The Augmented Dickey fuller test results are reported in Table 1.

As it is evident from the results, the Augmented Dickey fuller test fails to reject the null hypothesis of unit root in all the variables at 5% level of significance, and all variables integrated of order 1, I(1). We include a constant but no trend. The symbol L denotes to logarithm.

Table 1 Unit root test on the variables

Variables ADF test Statistic order of integration

LGE Level -2. 7066

1st difference -4. 7970** I (1)

LGE/P Level -2. 3529

1st difference -4. 8286** I (1)

LGE/GDP Level -1. 8260

1st difference -7. 3614** I(1)

LGDP Level -1. 0466

1st difference -9. 3242** I(1)

LGDP/P Level -1. 4995

1st difference -9. 2485** I(1)

Notes: ** denotes significance at 5% level

Hence, the results show that all variables have the same order of integrate I(1). The same results, I(1), for ADF test with trend and intercept (See appendix 1). The next step is testing the cointegration between series according to the various formulations of Wagner's Law. The null hypothesis of the cointegration test is that the series are not cointegrated. The result of cointegration regressions and DF/ADF Tests reported in table 2.

Table 2 Cointegration Regressions and DF/ADF Tests

functional Dependent independent Constant Elasticity adjusted ADF(*) Critical

Form variable variable Coefficient value**

1 LGE LGDP -4. 255 1. 1142 0. 843 -1. 5765(0) -3. 4925

3 LGE/GDP LGDP 0. 349 0. 1142 -0. 005 -1. 5765(0) -3. 4925

4 LGE LGDP/P -0. 833 3. 04 0. 857 -3. 288(0) -3. 4925

5 LGE/P LGDP/P -4. 955 1. 4524 0. 569 -1. 7186(0) -3. 4925

6 LGE/GDP LGDP/P -0. 348 0. 4524 0. 059 -1. 7186 (0) -3. 4925

*Number of lags (in parentheses) were chosen by the Akaike Information Criterion.

** Critical values (at 5% significance level).

Table 2 shows that: first the 5% critical values of the Augmented Dickey-Fuller Test are bigger than the calculated t-values for all tested versions of Wagner's Law. Hence we cannot reject the null hypothesis for all cases. which means that there is no long-run relationship between public expenditure and GDP in Syria for all tested versions of Wagner's Law. Second, to support Wagner's law the real income elasti