EDUCATION-GROWTH DYNAMICS FOR AUSTRIA: A CASE STUDY APPROACH

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Abstract

The main focus of this research is to establish the relevancy of the Keynesian theory in explaining education expenditure on the economy of Austria using a case study approach. Wagner (1890) and Keynes (1936) have been for a long time been the two major theorists on the relationship between education expenditure and economic growth. Both theoretical and empirical literature review concludes that the two variables relate to each other in two distinct ways, the popular one being that education boost the economy (Keynes view) followed by the Wagner view that says it is the economy that is doing well that pushes investment in education. A case study review for Austria clearly shows that an increase in education expenditure does not only constitute a significant portion of the GDP per capita in Austria but also provided a positive influence on economic growth and development. The author recommends Austria policymakers and responsible authorities to up their education development programmes and budgets in order to lay a strong foundation for sustainable economic growth and prosperity.

Key Words: Case study; Education; Economy; Austria

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1. Introduction

This study comes on the backdrop of an absence of a consensus by various authors and researchers on the role of education on the economy and vice-versa. Despite a lot of studies having already been carried out to synthesize the relationship between the two variables, there is no meeting of minds so far amongst researchers and authors. Wagner (1890) and Keynes (1936) who are two dominant theorists on this topic also oppose each other in as far as the direction of causality between these two variables is concerned. Keynes (1936) is of the view that expenditure on education if it is increased can end up boosting the economy through imparting skills and increasing workforce's productivity. On the other hand, Wagner (1890)'s view is that if the economy grows, the country will end up having more financial resources that will end up being allocated to various sectors including for educational development.

The government of Austria is heavily involved in funding both primary and secondary education in an effort to boost the economy. Table 1 shows the total expenditure by Austria government per each student in both primary and secondary level of education (% of GDP per capita).

Table 1 shows that expenditure per primary student (% of GDP per capita) decreased by 0.17 percentage points, from 25.08% in 1998 to 24.91% in 1999 whilst expenditure per secondary student (% of GDP per capita) increased by 0.37 percentage points during the same period (from 29.60% in 1998 to 29.97% in 1999). Both expenditure per primary and secondary student (% of GDP per capita) declined by 1.89 and 2.14 percentage points respectively during the year 2000. However, the year 2001 saw both expenditure per primary and secondary student (% of GDP per capita) going up by 0.08 and 0.03 percentage points respectively. In 2002, expenditure per primary student (% of GDP per capita) went up by 0.40 percentage points, from 23.11% in 2001 to 23.51% in 2002 whilst expenditure per secondary student (% of GDP per capita) took a knock by 0.09 percentage points during the same period.

Expenditure per primary student (% of GDP per capita) decreased by 0.21 and 0.56 percentage points in 2003 and 2004 respectively. On the other hand, expenditure per secondary student (% of GDP per capita) increased by 0.97 percentage points, from 27.76% in 2002 to 28.73% in 2003 before taking a knock in 2004 by 1.27 percentage points. The year 2005 saw expenditure per primary student (% of GDP per capita) increasing by 0.69 percentage points whilst expenditure per secondary student (% of GDP per capita) declined by 1.15 percentage points during the same period. This was followed by an increase of 0.27 percentage points, from 26.31% in 2005 to 26.58% in 2006 in expenditure per secondary student (% of GDP per capita). Expenditure per primary student (% of GDP per capita) declined by 0.07 percentage points in 2006 and further went down by 0.36 percentage points in 2007. During the year 2007, expenditure per secondary student (% of GDP per

capita) declined by 0.23 percentage points, from 26.58% in 2006 to 26.35% in 2007.

Table 1. Expenditure per primary and secondary student (% of GDP per capita) for Austria

Year	Expenditure per primary student (% of GDP per capita)	Expenditure per secondary student (% of GDP per capita)
1998	25.08	29.60
1999	24.91	29.97
2000	23.03	27.83
2001	23.11	27.86
2002	23.51	27.76
2003	23.30	28.73
2004	22.73	27.46
2005	23.43	26.31
2006	23.35	26.58
2007	22.99	26.35
2008	24.10	27.37
2009	26.27	30.62
2010	25.92	29.60
2011	25.52	30.55

Source: World Bank (2013) Statistics

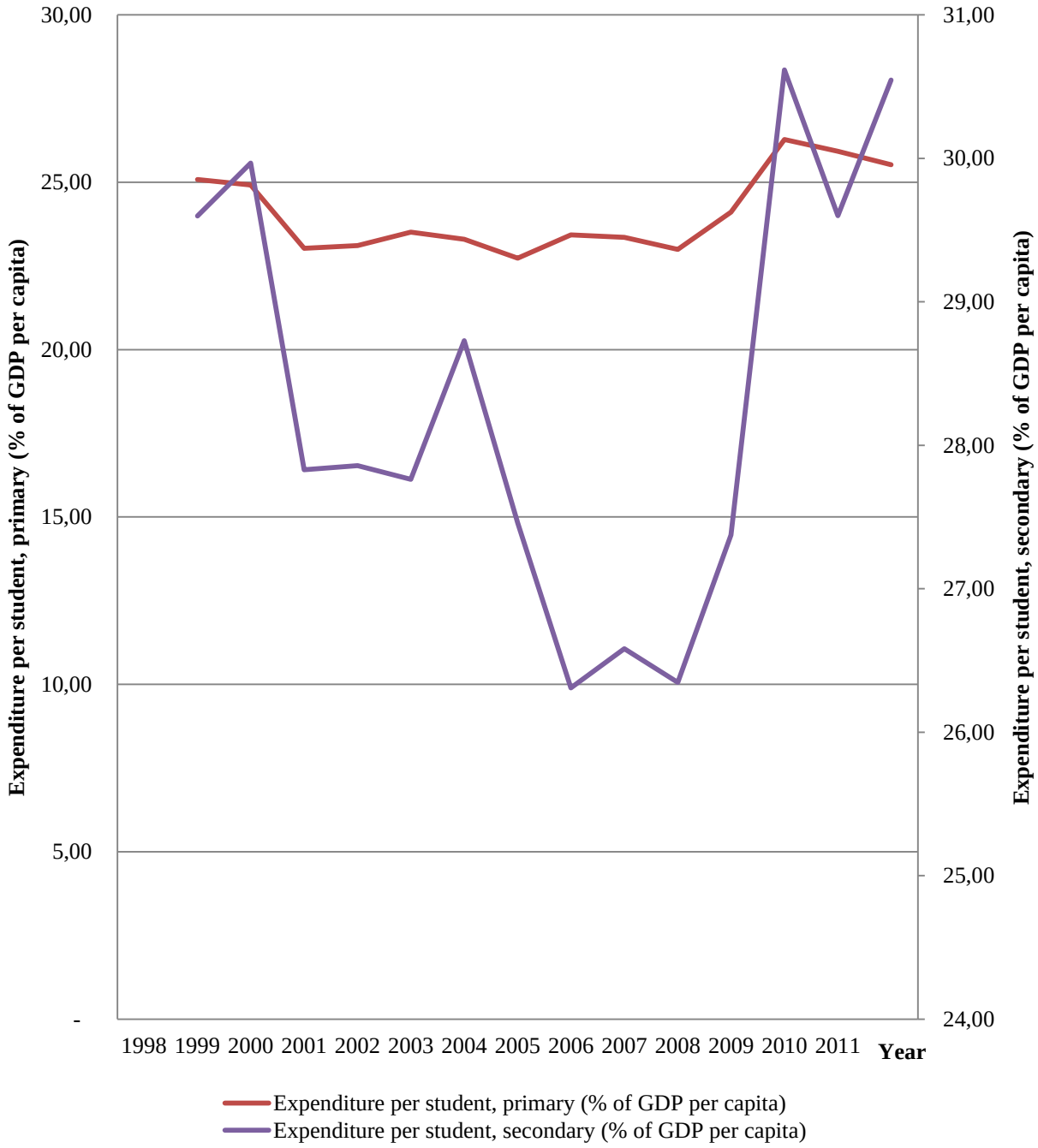
Both expenditure per primary student (% of GDP per capita) and expenditure per secondary student (% of GDP per capita) increased during the years 2008 and 2009 (see Table 1). Moreover, the year 2010 saw both expenditure per primary student (% of GDP per capita) and expenditure per secondary student (% of GDP per capita) declining by 0.35 and 1.02 percentage points respectively. Expenditure per primary student (% of GDP per capita) further went down by 0.40 percentage points in 2011, from 25.92% in 2010 to 25.52% in 2011 whilst expenditure per secondary student (% of GDP per capita) surged by 0.95 percentage points during the same timeframe (from 29.60% in 2010 to 30.55% in 2011). Figure 1 is a diagrammatical representation of the expenditure per primary student (% of GDP per capita) and expenditure per secondary student (% of GDP per capita) in Austria.

It is quite clear from the analysis so far that education expenditure per primary and secondary student occupies a significant portion of the GDP per capita in Austria. Between 1998 to 2011, expenditure per primary student (% of GDP per capita) ranged between 22.73% (recorded in 2004) to 26.27% in 2009. During the same time frame, expenditure per secondary student (% of GDP per capita) ranged from 26.31% in 2005 to 30.62% in 2009. What is not clear that this study intends to scrutinize is the linkage between education expenditure and the economic performance in Austria.

Even the theoretical and empirical literature is inconclusive with regard to the relation between education expenditure and the economy. It is against this background that this study is investigating the extent to which the relation between education expenditure and the economy as explained by Keynes (1936) philosophy. The study will assist policy makers and various authorities in Austria in devising educational policies and programmes that sustain the economy in the long run.

Section 11 discusses review of related literature whilst section 111 looks at the dynamics of education expenditure and economic growth patterns in Austria. Section 1V conclude the research whilst section V looks at bibliography.

Figure 1. Expenditure per primary and secondary student (% of GDP per capita) for Austria



Source: World Bank (2013) Statistics

1.1 Review of Related Literature

The Keynesian, Wagnerian, feedback and the no relationship perspective are the four dominant theoretical perspectives that explain the relationship between education expenditure and economic growth. According to the Keynesian perspective, education expenditure positively influences economic growth. Economic growth boosts education expenditure according to the Wagner's perspective whilst the feedback perspective maintains that both education expenditure and economic growth affect each other. The no relationship perspective says there is no relationship at all in whatever direction between education expenditure and economic growth.

The Keynesian perspective which was advocated for by Keynes (1936) suggested that education expenditure is crucial in stimulating

economic growth. Empirical studies that supported the Keynesian perspective include those undertaken by Li and Huang (2009), among others. According to Li and Huang (2009), both education and health positively impacted on economic growth in China. The same study also revealed that the interaction between health and education actually helped to boost economic growth in China. Webber (2002) found out results that suggested that education investment and increase in enrolment ratios led to an in economic growth. Lucas (1988) argued that more resources channeled towards boosting education result in increased marginal productivity and economic growth. A study by Mushkin (1962) showed that education indirectly contributes to economic growth through boosting health status of the workforce. A workforce that is not educated delays seeking medical help and this leads to the growth of the disease to a point where it starts to negatively impact on their productivity and economic growth in overall (Mushkin, 1962).Using Cobb-Douglas production function, Knowles (1997) revealed that tertiary education followed by secondary education and then primary education had the greatest impact on productivity and the economy in a cross sectional analysis of 77 countries.

Ndiyo (2007) revealed that redundancy of the workforce, brain drain and labour market distortions were the chief variables that contributed to the economic growth slowdown in Nigeria despite heavy education expenditure. Education system has to be improved, teachers have got to be correctly priced and industrial disputes minimized if education expenditure is to significantly contribute o economic growth in Nigeria (Ndiyo, 2007). According to Pritchett (2001), the positive impact of education expenditure on the economy varied across countries depending on the extent to which schooling has managed to produce cognitive skills.

Castello and Domenech (2002) revealed that inequality in education contributed to lower investment rates and consequently low economic growth rates. The same study pointed out that countries that are characterised by high levels of education inequality receive lower levels of investment and economy growth as compared to those countries whose inequality in education is very small (Castello and Domenech, 2002). Klasen (2002) concurred with Castello and Domenech (2002) by revealing that gender inequality in education decreased the human capital levels and thereby negatively affecting economic growth rates in East Asia, Sib-Saharan Africa, South Asia and the Middle East. Moreover, the same study by Klasen (2002) showed that gender inequality in education lowered investment and increased population growth rates thereby negatively impacting on economic growth rates in East Asia, Sib-Saharan Africa, South Asia and the Middle East. In a study of 29 provinces using cross sectional analysis in China, Chen and Feng (2000) discovered that higher education was one of the factors that were instrumental in positively influencing economic growth across all the 29 provinces of China.

According to Hanushek and Kimko (2000), labour force quality was found to have been instrumental in ensuring a stable, consistent and strong economic growth. The quality of education received has got a direct linkage towards productivity at the workplace (Hanushek and Kimko, 2000). Specifically, higher quality of education in mathematics and science subjects contributed more towards productivity than other areas of education, revealed Hanushek and Kimko (2000). Hanushek and Woessmann (2008) also discovered that cognitive skills as compared to general school attainment were far much more important in not only just economic growth but in income distribution across the populace. Cognitive skills were also found to have a larger impact on economic development in countries that are characterised by high quality of institutional environment (Hanushek and Woessmann, 2008). Kakar et al (2011) revealed a long run causal relationship running from the size of the educational expenditure towards economic growth in Pakistan. In the long run, economic was found to have been positively influenced by the better quality of education through improving efficiency and productivity levels at the workplaces (Kakar et al, 2011). Chuang (2000) also discovered a uni-directional causality relationship running from education accumulation to economic growth in Taiwan during the period 1952 to 1995. The same study revealed that Taiwan has to invest heavily in the education sector if it is to realise long term economic growth prospects. Skilled labour force ensures that Taiwan is able to continuously export refined and high quality products in the competitive international market thereby laying the ground for long run economic growth (Chuang, 2000).

A study by Jung and Thorbecke (2003) also showed that increased education expenditure positively influenced economic growth in both Zambia and Tanzania. A high level of education physical infrastructure investment accelerates the impact of education quality on economic growth (Jung and Thorbecke, 2003). Using panel data analysis approach, Sylwester (2002) revealed that increasing public education expenditures helped in lowering levels of income inequality in high income countries as compared to low income countries thus giving credence to the saying that education is a lot beneficial for other purposes other than economic growth only. However, the study failed to specify which level of education was responsible for lowering down the income inequality. Barro (2013) found out that economic growth was significantly influenced by school attainment of females at secondary and higher levels whilst male secondary and higher schooling failed to spur any economic growth. Knowles et al

(2002) however discovered that female education was of paramount importance if the general labour productivity of a country is to increase.

According to a study by Klasen and Lamanna (2009), gender gaps in education retards economic growth. The costs of education gaps on economic growth was found to be more pronounced in Middle East, North Africa and South Asia than in East Asia (Klasen and Lamanna, 2009). Moreover, Meulemeester and Rochat (1995) found out a uni-directional causality running from national higher education to economic development in Sweden, United Kingdom, Japan and France. Asteriou and Agiomirgianakis (2001) also revealed that enrolment rates in primary and secondary education Granger caused GDP per capita.

Muysken and Nour (2006) revealed that poor educational facilities resulted in poor training, low skills level, skills mismatch and poor transfer of knowledge in the Gulf countries. The same study further showed that poor education facilities led to low research and development initiatives aimed at boosting the economy in the Gulf countries. The existence of poor education system that is composed of low quality of teachers, low enrolment and low access to schooling negatively influenced economic growth in the Gulf countries (Muysken and Nour, 2006). Barro (2001) found out that male primary schooling insignificantly affected economic growth whilst female primary education was statistically insignificant though positive across all the countries that were under study.

However, Hanushek and Kimko (2000) argued that it is the quality of education obtained that critically impacts on the economy and not the number of years spent on attaining the education. A study by Barro (2001) showed that both science and mathematics played a positive and significant role in influencing economic growth across all the countries that were under study. However, science contributed more towards economic growth than mathematics (Barro, 2001). Lin (2003) also showed that education positively and significantly contributed towards economic growth and development whilst the economic growth impact of technological progress appeared to be minor in Taiwan. The same study found out that one additional year of schooling increased economic growth by 0.15% in Taiwan. In a study on United Kingdom (UK), Carpentier (2003) showed that public expenditure on education had a long term impact on economic growth.

According to Wagner's theory (1890), economic growth positively influences education expenditure and empirical studies that support Wagner's perspective include but are not limited to Asteriou and Agiomirgianakis (2001). A study carried out by Asteriou and Agiomirgianakis (2001) showed a uni-directional causality relationship running from economic growth as represented by GDP per capita to higher education. Moreover, Self and Grabowski (2004) found out that primary education played a huge role in terms of positively influencing economic growth with secondary education proven to have had a limited impact on the economy in India. The same study by Self and Grabowski (2004) however revealed that female education as compared to male education had a huge impact on the economic prospects of India.

The feedback perspective explains that both education expenditure and economic growth affect each other. Previous studies that are consistent with the feedback perspective encompass those undertaken by Francis and Lyare (2006). A study by Francis and Lyare (2006) showed a bi-directional causal relationship between education per capita and gross national income (GNI) per capita in the short run only in Jamaica.

According to the no relationship perspective, there is no relationship at all between education expenditure and economic growth. Empirical studies that are consistent with the no relationship perspective include those undertaken by Kakar et al (2011), Francis and Lyare (2006), Meulemeester and Rochat (1995). A study by Kakar et al (2011) failed to find any significant relationship between education and economic growth in Pakistan. A study carried out by Francis and Lyare (2006) also showed that no relationship existed at all between expenditure on education per capita and GNI per capita either in the short or long run in Barbados, Trinidad and Tobago. A study by Meulemeester and Rochat (1995) could not establish any causal relationship between economic development and education expenditure in Italy and Australia.

1.1.1 Dynamics of Education-Growth Patterns in Austria

Table 2 shows that expenditure per tertiary student (% of GDP per capita) decreased by 1.05 percentage points, from 52.80% in 1998 to 51.75% in 1999 whilst total public spending on education expenditure (% of government expenditure) remained constant during the same period. Both expenditure per tertiary student (% of GDP per capita) and total public spending on education expenditure (% of government expenditure) declined in 2000 by 7.83 and 0.67 percentage points respectively. In 2001, expenditure per tertiary student (% of GDP per capita) further declined by 2.69 percentage points, from 43.92% in 2000 to 41.24% in 2001 whilst and total public spending on education expenditure (% of government expenditure) gained a marginal 0.17 percentage points during the same period (refer to Table 2).

Table 2. Expenditure per tertiary student (% of GDP per capita) and total government expenditure on education (% of government expenditure) in Austria

Year	Expenditure per tertiary student (% of GDP per capita)	Total government expenditure on education (% of government expenditure)
1998	52.80	11.69
1999	51.75	11.69
2000	43.92	11.03
2001	41.24	11.20
2002	46.29	11.21
2003	45.93	10.77
2004	49.00	10.19
2005	49.95	10.89
2006	47.94	11.00
2007	47.09	10.97
2008	43.54	11.09
2009	42.49	11.36
2010	39.27	11.20
2011	36.16	11.42

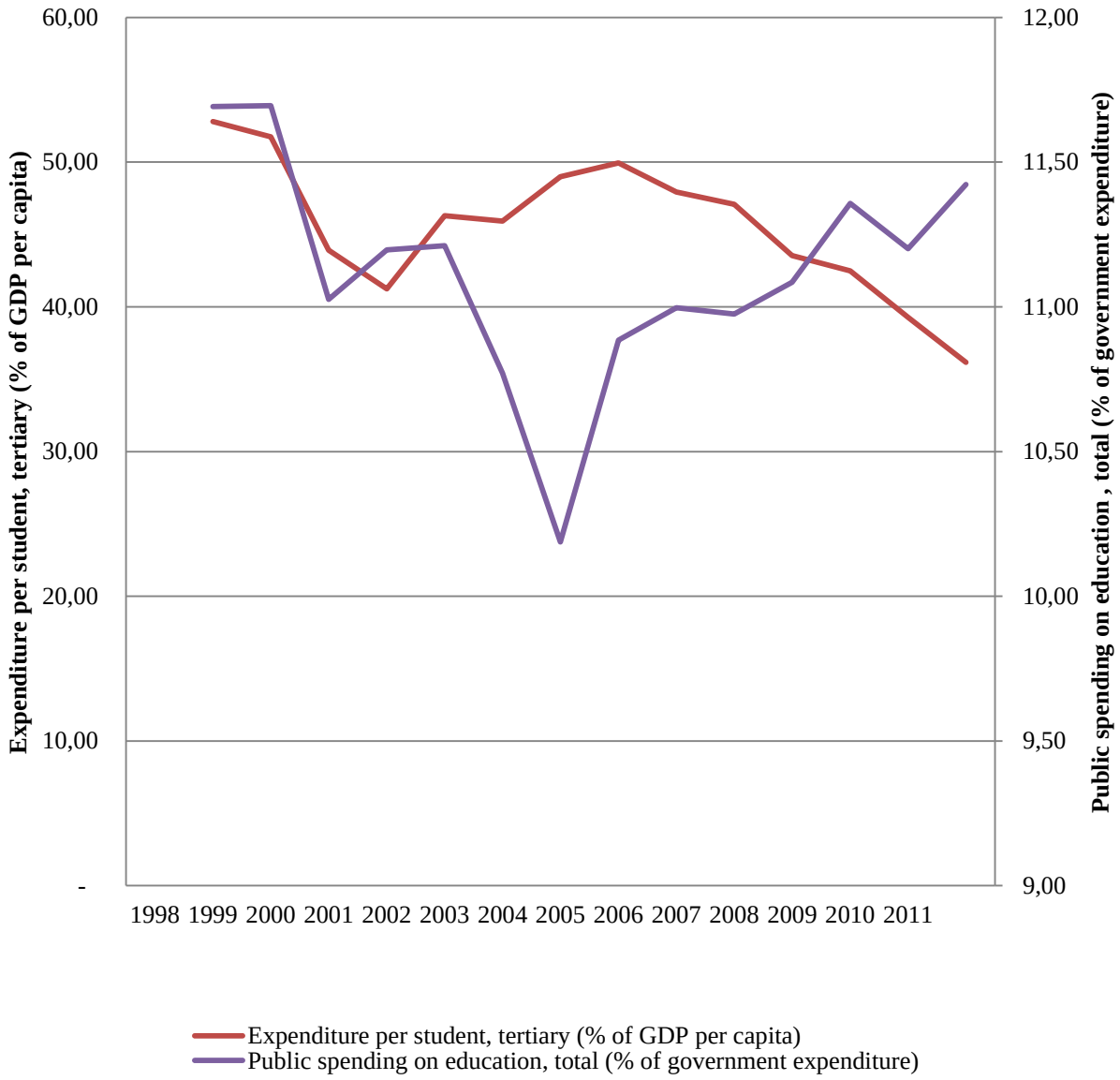
Source: World Bank (2013)

Moreover, both expenditure per tertiary student (% of GDP per capita) and and total public spending on education expenditure (% of government expenditure) increased by 5.06 and 0.01 percentage points respectively during the year 2002. Expenditure per tertiary student (% of GDP per capita) and total public spending on education expenditure (% of government expenditure) took a knock by 0.36 and 0.44 percentage points respectively in 2003. On the other hand, expenditure per tertiary secondary student (% of GDP per capita) increased by 3.07 percentage points, from 45.93% in 2003 to 45.00% in 2004 before registering another marginal increase of 0.95 percentage points during 2005 to close at 49.95%. The same year 2005 saw total public spending on education expenditure (% of government expenditure) slightly going up by 0.70 percentage points, from 10.19% in 2004 to 10.89% in 2005 (see Figure 2).

From 2006 to 2011, expenditure per tertiary student (% of GDP per capita) registered a gradual decline whilst the trend for total public spending on education expenditure (% of government expenditure) was mixed during the same time frame. Year 2006 saw total public spending on education expenditure (% of government expenditure) going up by 0.11 percentage points whilst expenditure per tertiary student (% of GDP per capita) declined by 2 percentage points, from 49.95% in 2005 to 47.94% in 2006. Both variables plummeted in 2007 while on the other hand total public spending on education expenditure (% of government expenditure) increased marginally by 0.11 percentage points and expenditure per tertiary student (% of GDP per capita) declined by 3.55 percentage points during the same time frame (refer to Table 2 & Figure 2).

The year 2009 was characterized by a 1.05 percentage points decrease in expenditure per tertiary student (% of GDP per capita) and an increase of total public spending on education expenditure (% of government expenditure) by 0.27 percentage points, from 11.09% in 2008 to 11.36% in 2009. This was followed by a decline of 3.22 percentage points, from 42.49% in 2009 to 39.27% in 2010.

Figure 2. Expenditure per student, tertiary (% of GDP per capita) and public spending on education, total (% of government expenditure) patterns for Austria

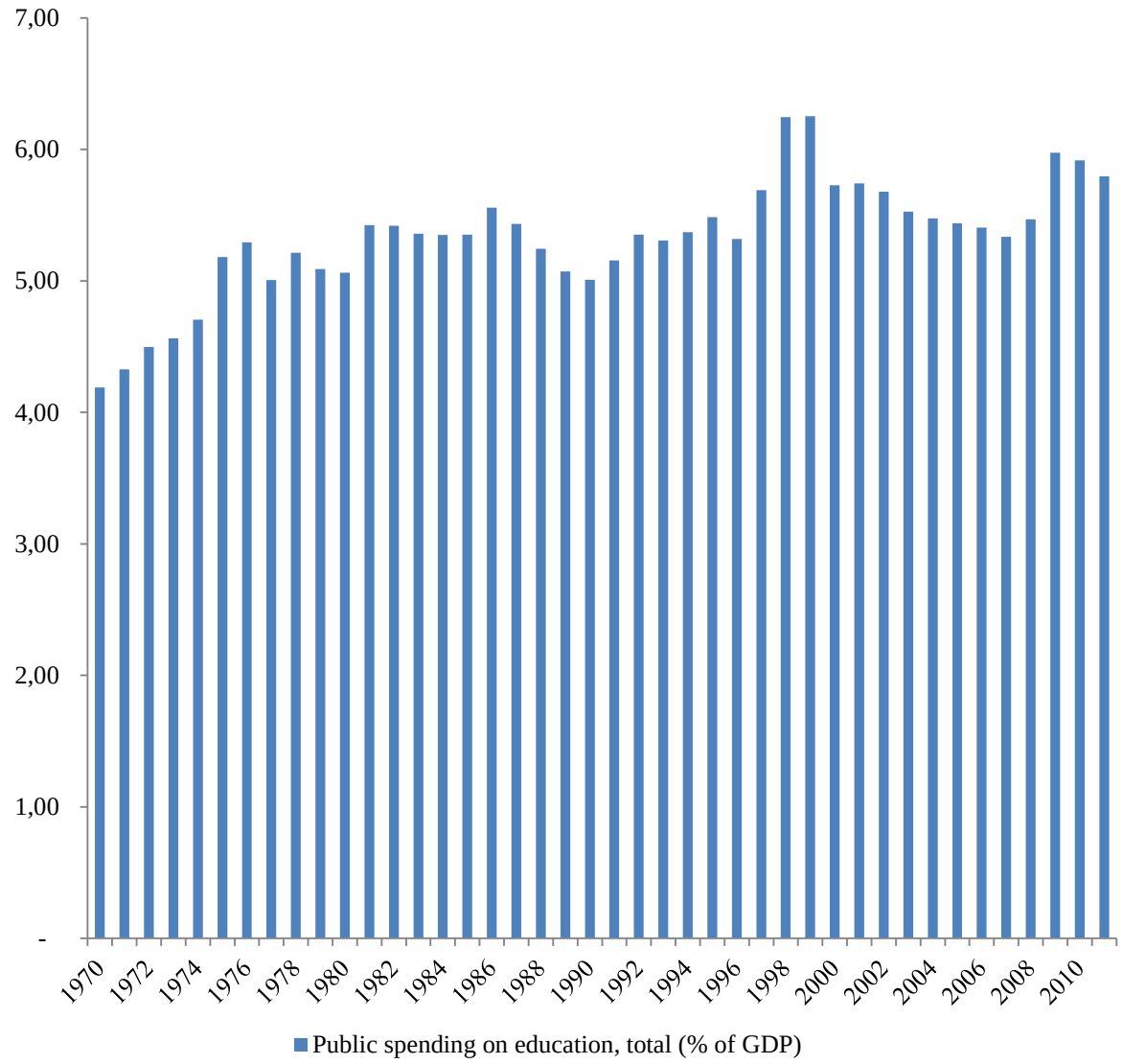


Source: World Bank (2013)

Total public spending on education expenditure (% of government expenditure) also plummeted by 0.16 percentage points during the year 2010, from 11.36% in 2009 to 11.20% in 2010. Last but not least, the year 2011 was punctuated by a 0.22 percentage points increase in total public spending on education expenditure (% of government expenditure). On the other hand, expenditure per tertiary student (% of GDP per capita) declined by 3.11 percentage points in 2011, from 39.27% in 2010 to 36.16% in 2011.

Figure 3 below shows total public spending on education (% of GDP) patterns during the period 1970 to 2010 for Austria.

Figure 3. Public spending on education, total (% of GDP)

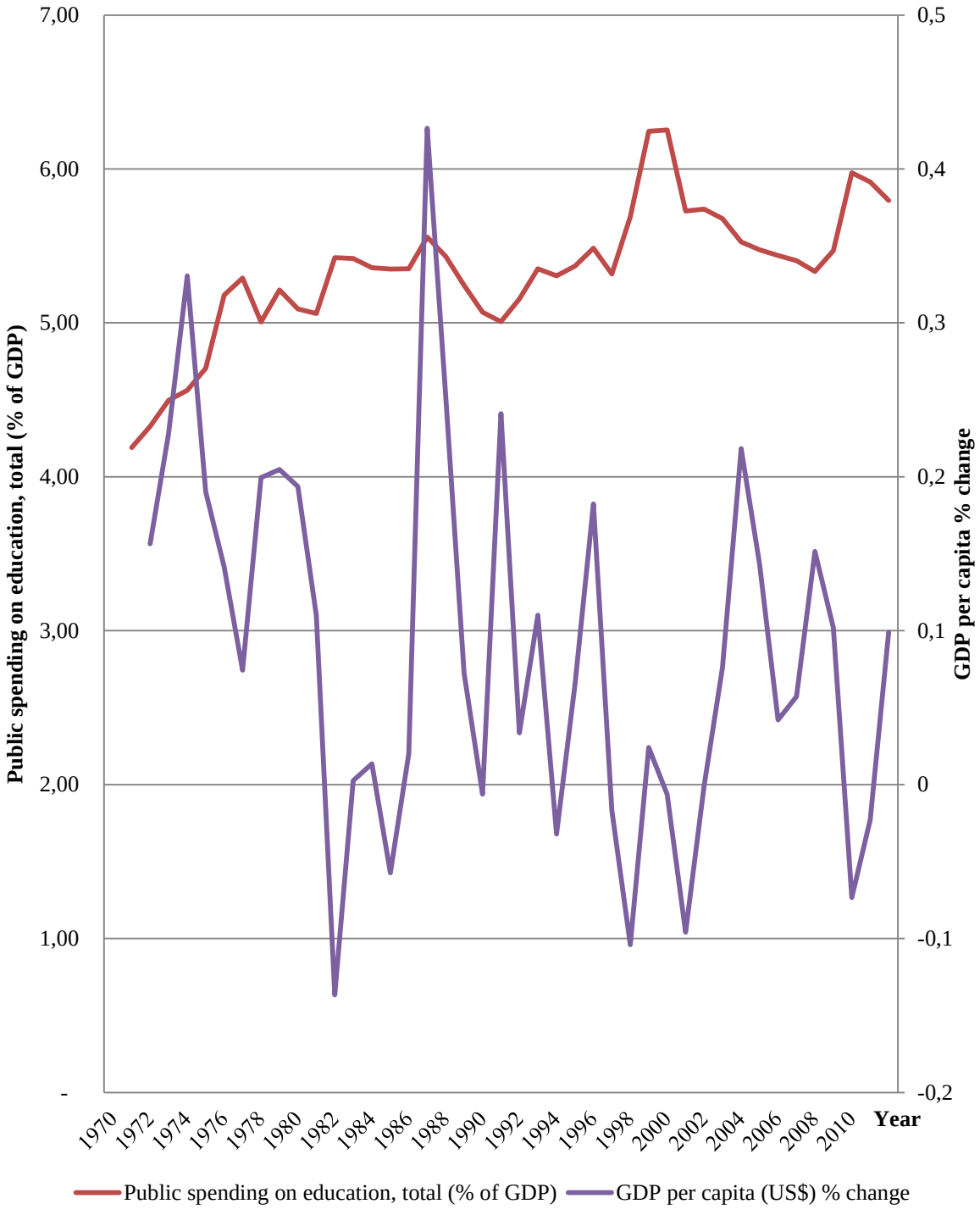


Source: World Bank (2013)

According to the World Bank (2013), total public spending on education (% of GDP) increased from 4.19% in 1970 to 5.18% in 1975 whilst gross domestic product (GDP) per capita went up by 1.57% during the same period. GDP per capita went up from US$5 273 in 1975 to US$10 843 in 1980, representing a mere 1.06% increase whilst total public spending on education (% of GDP) surged from 5.18% to 5.06% during the same period (see Figure 3).

Whilst World Bank (2013), statistics shows that GDP per capita went down by 0.16%, from US$10 843 in 1980 to US$9 150 in 1985, total public spending on education (% of GDP) slightly increased from 5.06% to 5.35% during the same timeframe (see Figure 4).

Figure 4. Public spending on education, total (% of GDP) and GDP per capita % change trends for Austria – 1970 to 2010



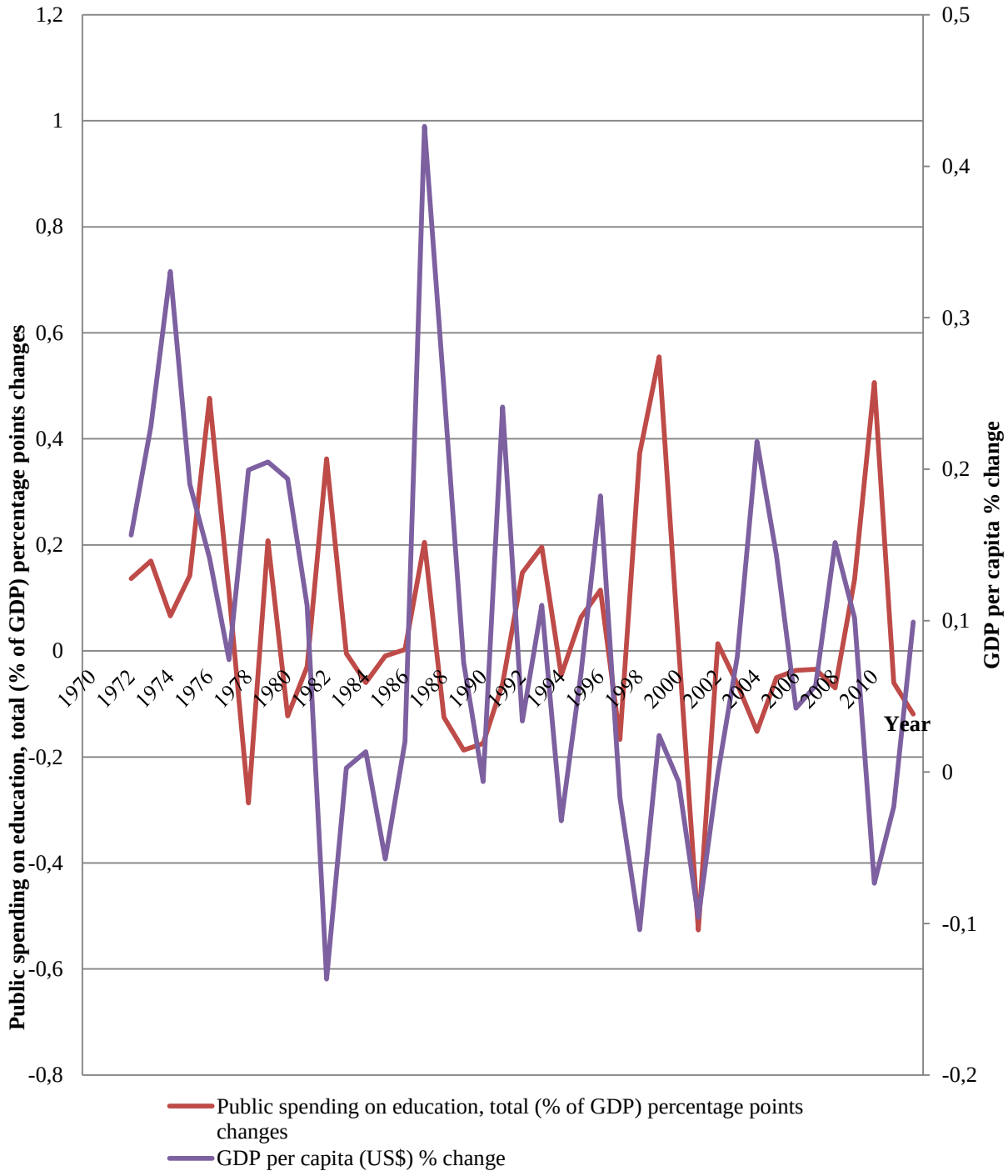
Source: World Bank (2013)

The period between 1985 and 1990 saw total public spending on education (% of GDP) plummeting by 0.34 percentage points, from 5.35% to 5.01%. The same period saw GDP per capita going up by a massive 1.36%, from US$9 150 in 1985 to US$21 623 in 1990. The subsequent five-year period recorded another huge increase in GDP per capita from US$21 623 in 1990 to US$30 253 in 1995 whilst saw total public spending on education (% of

GDP) also surged from 5.01% in 1990 to 5.48% in 1995.

Total public spending on education (% of GDP) increased again by 0.24 percentage points during the period from 1995 to 2000, before experiencing a 0.29 percentage points decline, from 5.73% in 2000 to 5.44% in 2005. On the other hand, GDP per capita went down by 0.19%, from US$30 253 in 1995 to US$24 517 in 2000. The next five year period saw GDP per capita increasing by 0.56%, from US$24 517 in 2000 to US$38 241 in 2005.

Figure 5. Public spending on education, total (% of GDP) percentage points changes and GDP per capita % change trends for Austria – 1971 to 2010



Source: World Bank (2013)

GDP per capita and total public spending on education (% of GDP) registered an increase during the period 2005 to 2010. Total public spending on education (% of GDP) grew by 0.48 percentage points, from 5.44% in 2005 to 5.92% in in 2010 whilst GDP per capita increased by 0.21%, from US$38 241 in 2005 to US$46 444 in 2010 (refer to Figure 5).

Conclusion

The main focus of this research was to establish the relevancy of the Keynesian theory in explaining education expenditure on the economy of Austria. Wagner (1890) and Keynes (1936) have been for a long time been the two major theorists on the relationship between education expenditure and economic growth. Both theoretical and empirical literature review identified four different versions of the causality relationship between education expenditure and the economy.

From the literature review, it is clear that the most dominant view is by Keynes (1936) which says that education expenditure provides a cornerstone for economic prosperity. A case study review for Austria also clearly shows that an increase in education expenditure does not only constitute a significant portion of the GDP per capita in Austria but also provided a positive influence on economic growth and development. The author recommends Austria policymakers and responsible authorities to up their education development programmes and budgets in order to lay a strong foundation for sustainable economic growth and prosperity.

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