

## Public Private Partnership – A Sustainable Solution for the Information Society? Experiences in the UK, Germany, and Austria

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### 1 CHALLENGES FOR ECONOMIC POLICY

In spite of the recent economic slowdown the spread of Information and Communication Technologies (ICT) and its importance for growth is set to continue. The diffusion of ICT may both increase and decrease the complexity of the production process, and economic globalisation is an inherent ingredient of the spread of ICT. The diffusion process does not occur evenly across regions, and the potential gains are not evenly distributed across regions. For firms it has become easier to avoid high taxes and strict regulations in individual countries due to its improved mobility and flexibility. This has increased the intensifying of international competition between the business investments of regions and nations.

Economic policy thus has been confronted with a need to re-consider its role in order to pave the way for grasping the full benefit of a potential long-term economic upswing (a “Kondratieff”-wave) based on the diffusion of ICT throughout the economy (Scherrer 2001). From a long-term perspective, the most important economic policies may be those which aim at fostering creativity and facilitating change in order to enhance the economic agents' abilities to unfold the economic potential of ICT (Michalski et al. 1999, McQuaid 2002). These policies target: first, the redesign of the regulatory framework which has been set up in the pre-ICT era of mass-production and which has partly become either obsolete or even an obstacle to reaping the economic benefits of the spread of ICT; second, the re-arranging of traditional work and incentive schemes; and third, the design of a framework which is conducive to experimental initiatives that create new spaces where entrepreneurship can succeed. Public Private Partnerships (PPPs) are relevant with respect to all three aspects. While the successful implementation of PPPs requires some re-regulation and has a somewhat experimental character, the redesign of the traditional incentive structure in a market economy is at the core of the concept.

The scope of economic policy to help shape the economic impact of ICT, and national economic policy autonomy in particular have been restricted by a variety of causes (Scherrer 2005). Thus the search for answers to the question asked in this paper's title “Public Private Partnership – A Sustainable Solution for the Information Society?” must not be restricted – maybe not even focused – to applications in the information and communication technology sector but has to be based on a more general view and a broad range of activities and fields of economic policy. Budget constraints have become a major restriction of national policy autonomy, and the concept of PPP has become relevant in this context in most European countries. More precisely: PPP has become relevant again, especially since the 1980s, because it is not an entirely new concept but it has had a long history in many countries. There are many reasons for (and against) public and private bodies considering working in public private partnerships such as: resource availability; effectiveness; and legitimacy (McQuaid 2000). The motivations for, and types of, PPPs have varied over time, across sectors and between countries (see for example: the European Community's Green Paper on PPPs, CEC 2004; Grout and Stevens 2003).

In this paper the term PPP will be restricted to those projects involving the private provision, but continued public funding, of services formally provided by the public sector, although it is recognised that PPPs may include other forms of partnership. The paper does not seek to consider the many advantages and disadvantages of individual types of PPP (see for instance: Coulson 2005; Budäus and Rüning 1997), but rather concentrates on comparing the broader motivations and implications of PPPs in the U.K., Germany, and Austria. After a brief overview of a typology of PPPs, sections 3 and 4 consider more general reasons for government involvement. Section 5 discusses the potential for sustainable overall (i.e. macro-economic) efficiency gains deriving from the implementation of PPPs. Conclusions are drawn in Section 6.

### 2 TYPES OF PUBLIC PRIVATE PARTNERSHIP

Historically both Germany and Austria have had experience with public-private sector partnerships dating back to at least the 19th century (e.g. the construction of parts of the Austrian railroad network by PPP) and more recently in the second half of the 20th century (e.g. key urban development projects in Germany in the 1980s). Nevertheless both countries have been latecomers within the recent PPP-movement (compare: Bastin 2003 and Beirat 1998, for Austria; and Friedrich Ebert Stiftung 2002 and Sack 2003, for Germany). The overall amount of investment has been very limited, notwithstanding a few large investment projects (e.g. the heavy goods vehicles toll systems which have been deployed, more or less, successfully in both countries) several smaller projects (see DIFU (2005) for Germany and Schaffhauser-Linzatti (2004) for Austria).

However, the UK has been a leader in the large-scale introduction of PPPs across the economy (for example: Ball et al. 2002). The UK government considers PPPs “to cover a range of business structures and partnership arrangements, from the Private Finance Initiative (PFI) to joint ventures and concessions, to outsourcing, and to the sale of equity stakes in state-owned businesses” (Treasury 2000, p. 8). The private sector has also played an important role in the dissemination of PPPs as the UK has a quite highly developed set of private institutions (funders, developers, project managers, operators as well as banks, legal firms etc.) and a growing secondary market whereby PPP projects can be ‘sold on’ by the developers of the project to other firms to carry on the contracts. The public sector (locally and nationally) has also considerable experience in the UK. However, at a local level, individual public bodies may be inexperienced, so for any individual project the private sector will often have considerably more experience than the local public body, and may be better able to manipulate the long run return on the project to their advantage.

By the end of 2004 the UK government had signed 677 PPPs (or PFIs), worth nearly £43 billion (€65 billion), across 20 departments (or devolved governments) and particularly in Transport, Defence, Education and Skills, and Health (Treasury 2005a). The UK

government set out three main categories of public private partnerships concerning: ownership; provision of services (including infrastructure) to the public sector; and the selling of public sector services to others (such as through the exploitation of patents). In

addition PPPs have, fourth overlapping role in providing enabling organisations to provide common ground between public, private and third sectors to promote economic and social development policies. Under the first category PPPs are concerned with the introduction of private sector ownership into state-owned businesses. This involves a range of possible structures including a stock market flotation, or the introduction of a strategic partner, or with the sale of either a majority or a minority ownership stake to the private sector. Hence this can be seen as a continuation of the privatisation philosophy of the 1980s and 1990s primarily introduced by the Conservative government after 1979.

The second form of PPP concerns the provision of and/or operation of infrastructure. The Private Finance Initiative (PFI) and other arrangements are where the public sector contracts to purchase services on a long-term basis, so as to take advantage of private sector management skills and also to provide an incentive for the private sector by having a risk element in the private finance. This type of PPP includes concessions and franchises, where a private sector partner takes on the responsibility for providing a public service, including maintaining, enhancing or constructing the necessary infrastructure (e.g. many school or hospital investments or, in transport, the ill fated Skye Bridge PFI which was returned to public ownership after less than a decade). Basically such PPPs may be classified on two continuums, with different levels of ownership and involvement, of: who operates the service; and who provides the facilities (building and/or equipment etc.). PPPs may involve build and operate schemes (where the private sector both builds a facility and operates it for a defined period, such as 25 years, before handing it back to the public sector); to purely operating a service, while using public sector owned and constructed facilities; to providing a private sector facility, to be operated by public sector staff (or using private sector staff to maintain the facility and public sector staff to provide services based in the facility, such as health services). In some cases the private firm may sell on their interests to other firms with, as mentioned above, a market for aspects of the 'second phases' of PPPs being developed in countries such as the UK.

The third type of UK PPP is generating commercial value from public assets, such as selling Government services into wider markets, and other partnership arrangements where private sector expertise and finance are used to exploit the commercial potential of Government assets. For example innovations from government research laboratories, including defence research, may be exploited through a joint PPP.

Fourth, PPPs have also been used to provide organisations to promote specific policies. These may range from general local economic development policies (McQuaid 2000) to more specific policies aimed at helping the UK to improve the ICT infrastructure and to meet the Lisbon Agenda targets for employment and productivity growth through ICT (HM Treasury 2005b). To take a specific case, the UK Government set targets for both the competitiveness and the extensiveness of the broadband market, including having the most extensive and competitive broadband market in the G7 by 2005, although in the short term there may be a trade-off between these goals, and focussing on rolling out broadband may be at the expense of competition (DTI 2004). To advise them on the development and implementation of the government's broadband strategy a UK public/private partnership, the Broadband Stakeholder Group (BSG), was established in April 2001. The BSG is co-funded by the Department of Trade and Industry (DTI) and a number of private sector companies. The BSG notes that a wide range of broadband initiatives are being planned or implemented across the country with differing levels of public sector intervention, including: integrated public private partnerships; public sector funded infrastructure provision; public sector demand aggregation; subsidised broadband trials and technology pilots; promotion and content commissioning schemes and community network initiatives (DTI 2004). Hence PPPs are seen as one of a number of options for different circumstances (particularly where there is likely to be little commercial provision due to, for instance, low population density as in rural areas).

There is a range of economic, social and political reasons and motives for the growth of PPPs in the three countries over the last two decades. These revolved around: firstly budget or macro-economic factors (the availability of public investment resources); and secondly around more micro-economic arguments concerning the efficiency and effectiveness of public spending. It is argued that in Germany and Austria the main drivers of PPPs have so far appeared to focus predominantly, but not exclusively, upon macro-economic budget factors, such as the gap between public expenditure requirements and desires and potential revenues. In the UK, while these may be important, there has been an emphasis upon micro-economic factors – bringing in greater innovation and efficient management, as well as, especially in the 1980s and 1990s, being linked to a transfer of ownership and control from the public to private sector. Hence the comparison of the countries is of some interest.

### 3 MACRO-ECONOMIC DRIVERS OF PPP

In each of the three countries there has been a large requirement for public investment in services and infrastructure, especially since the 1990s. This investment need is due to a variety of factors, some of them being specific to, or at least significant in, Germany and Austria compared to other countries (Budäus 2003). In the transport sectors the enlargement of the European Union has shifted both countries from the border into the centre of the European Union, with a strong need to improve transport infrastructure to the new Member States. In some traditional utility sectors, like water supply and wastewater disposal, urbanisation trends and re-investment requirements have increased the current investment need. In all three countries demographic change and technological advances require heavy investment in the health sector. In the UK in the late 1990s there was also a legacy of under-investment in public infrastructure (schools, hospitals, transport etc.) from the previous two or three decades. This was worsened as during the 1980s and 1990s as local government, in particular, had often reacted to budget constraints through reducing maintenance, resulting in a long-term repair and rebuilding backlogs, together with requirements to bring in new technology infrastructure.

As public finances are insufficient for the levels of investment required private resources were used to fund services and facilities previously paid directly through public expenditure. In Germany the cost of re-unification turned out to be much higher than expected, and PPPs have been increasingly considered as a means to relieve public budgets. So, for example, from the public's point of view this has been a major motivation for establishing the highway-toll system – which is set to raise finance for highway construction – as a PPP. Nevertheless in the recent academic debate on PPPs in Germany the argument has been called a "wide spread misunderstanding" by the members of the scientific board of the Journal of Public and Non-profit Enterprises (ZöGU 2004), the leading German journal in this area, claiming that private sector financial contributions regularly are only of a transitory nature.

In Austria, the central government's budget was hit by the impacts of the increases in public consumption and transfer spending programmes in the early 1990s and by relatively increased demands for public funding due to slow economic growth. Therefore tapping new sources of finance for public infrastructure was one of the major motives for PPP in Austria listed by the Beirat für Wirtschafts- und Sozialfragen (which is a committee of the informal but still influential Austrian "social partnership"; Beirat 1998). Accordingly budget reasons were the major motives for PPPs in a variety of fields, particularly in the construction and operation of waste water treatment plants by municipalities (Föllner and Freitag 1999), and in the transport sector where a few roads have already been realised (see a critical report by Oberösterreichischer Landesrechnungshof/court of audit of the province Upper Austria, 2002), and major highway links in the Vienna area are to be realised using PPP.

In the UK in some local cases the PPP mechanism is used to raise public investment for realising land values that would normally be unavailable to the public body without the PPP. For example, some local authorities have promoted PPPs that would result in greenbelt or recreation sites (such as sports fields) being developed. Normally such sites could not be developed because they are 'protected' by the planning system and other local and national policies (e.g. to promote sports and maintain the provision of sports fields). Private housing would not normally be allowed to be developed on such sites, and local authorities permitting such developments would be accused of succumbing to the interests of private developers. However, under the PPP, proposals are made to build the school (or other facility) on such 'protected' sites, in the expectation that local people will not oppose a new public facility. The local authority (or other public body) is then able to sell the former school site as housing. The net result is that the previous greenbelt has been built upon and there has been an increase in housing development in locations that local planning policies often would not necessarily have permitted.

In Germany and Austria, which are members of the European Monetary Union (EMU), public finances are constrained by the requirements of the European Monetary Union and the stability and growth pact, particularly in times of weak economic conditions. The impact of the restrictions has been felt at all levels of government due to intra-national "stability pacts" which require state and municipal governments to keep in line with the national requirements to meet the targets stipulated in the national stability programmes as part of the EU's stability and growth pact procedure. As state and municipal governments cover the bulk of public investment expenditure PPPs have become particularly attractive for them as a measure to relieve their budgets. The pressure to use PPPs to relieve pressure on government budgets has been stronger in Germany, compared to Austria, as public finances are strained more severely. In the UK policy has been to maintain state finances somewhat similar to the requirements of the European Monetary Union. The 'Golden Rule' whereby public finances are balanced over the economic cycle may limit the amounts that taxes should rise and encourage 'off balance sheet' funding where PPP finances do not appear as large capital expenditures in the year in which they occur, but rather as a series of smaller annual 'revenue' expenditures over the life of the project.

Reducing the overall tax burden (including social security contributions) is another driver of PPP, particularly in Germany and Austria, which are countries in which the tax burden on Gross Domestic Product (GDP) is well above EU-average. Tax competition within and outside the European Union – in particular with the new Member States – has made it difficult and risky to raise these ratios further. Thus the size of the tax burden has become a key issue of political debate both in Germany and Austria in which (micro-) economic arguments have begun to play a role. In the UK, in general, there is also pressure from opposition parties, which may make most governments reluctant to raise direct taxation. Pressures from globalisation and the ageing demographic structures of the countries also suggest that in the longer term significant tax rises are likely to be more difficult than in the past.

The greater use of user charges (rather than paying for individual services out of general taxation) can also more generally be seen as a move towards using market mechanisms to achieve more efficient management of demand for infrastructure rather than primarily providing new infrastructure to meet existing or expected demand. It can be seen as partly linked to wider user or polluter pays principles, whereby market mechanisms are used to change behaviour and the distribute the costs concerning environmental pollution. Road user charging is an example of the greater use of user charges in transport, with some pilots schemes being developed in the UK as a possible forerunner for national road pricing, while Germany has already developed a scheme for heavy goods vehicles. The technology for such large scheme may well require the greater use of ICT based PPPs in future, in order to develop the necessary technology and the implementation of the policies, although Fietelson and Solomon (2004) suggest that adoption of transport innovations is the outcome of a political process rather than simply diffusing technical innovation.

Deregulation and economic structural change has made some sectors, which had been dominated by public firms, attractive for PPPs. Formerly sheltered sectors such as parts of the transport or health services have turned or are expected to become more competitive markets with the entry of private competitors or the transfer of organisations from public to private, or the creation of 'internal markets' (internal to the public providers, as in the UK health service in the 1990s).

Finally, the European Union Green Paper on PPPs (CEC 2004) and other development policies at the local, national and European Union levels (Jones 1999) deliberately promoted network building between private and public partners, particularly in the fields of structural and regional policies and the creation of PPPs in order to reinforce collective entrepreneurship (Silva and Rodriguez 2005).

#### 4 MICRO-ECONOMIC DRIVERS OF PPP

Part of the PPP agenda, particularly in the UK, is to improve the efficiency and effectiveness of the provision of public services. This is done mainly through innovations from other, usually private sector, approaches, and the development of appropriate incentives to each party. These incentives are claimed to include the introduction of competition or the threat of competition in the early stage of deciding upon the PPP (as firms compete to have their PPP chosen) and a transfer of real risks to the developer or operator.

The UK government (Treasury 2000) argues that PPPs enable them to tap into the disciplines, incentives, skills and expertise that private sector firms have developed in the course of their normal everyday business, while releasing the full potential of the people, knowledge and assets in the public sector. An analysis of the internet-based provision of information about a business location (Scherrer 2002) shows that these arguments seem to be particularly relevant for providing ICT based public services. Here PPPs might be supportive for changing the organisational structure of the units which provide the service, for adjusting the organisational

culture in order to enable these institutions to meet the needs of customers, including those in the private business sector, better and for closing specific knowledge gaps. The private sector involvement, the Treasury (2000) argues further, should result in greater commercial incentives for delivering efficient and effective services, a greater focus on customer requirements, and new and innovative approaches to providing services or infrastructure. PPPs then may help improve the operation of state-owned enterprises or replace them with private providers. Meanwhile Government retains the responsibility and democratic accountability for: deciding between competing objectives; defining the chosen objectives, and then seeing that they are delivered to the standards required; and ensuring that wider public interests are safeguarded.

The micro-economic drivers of PPPs emphasize the importance of choice and implementation schemes to exploit possible efficiency gains in the provision of public services. This reflects the outcomes of the debates in the 1980s concerning whether the public sector should have an enabling role, determining the form and level of public services, or a role as sole provider of services (see for instance: Giloth and Mier 1993). In other words the public sector has to decide whether they should provide services or carry out activities themselves or should they get someone else (in the private or Third-sector) to do them for them? The increased role of PPPs suggests that the enabling view of government and governance has to a degree prevailed. In addition to the benefits of an enabling approach, PPPs have potential problems concerning: the ability to learn the lessons from providing the service in order to develop a policy; the availability of actors who can carry out the service, be they in the private, public or Third-sectors; and the danger of the organisation failing to 'learn' from past experience and so repeating mistakes of the past or 'reinventing the wheel' as there may be a lack of corporate memory. The theoretical and empirical benefits of economies of scale may be outweighed by the disadvantages of lack of local knowledge and the lack of continuity on the part of large-scale providers. In the UK PPPs have also restricted the ability of decision makers to reduce their maintenance, or even provision, of facilities at times of budget tightening (see below). Some of the constraints on decision makers related to PPPs are now considered.

In Germany and Austria micro-economic factors are not neglected, of course, but compared to the UK, 'Value for Money' considerations are less prominent in the debate about advantages and disadvantages of PPP. As in the UK, "privatisation-type" PPPs and "PFI-type" PPPs have to be distinguished. Due to the historically large share of state owned enterprises in sectors like mining, heavy industries, and banking (particularly in Austria) a process of privatisation has aimed at reducing government interference in management decisions, partly as government pursued goals other than micro-economic or efficiency-oriented ones. While formally, in many cases, more or less private sector-type corporate governance mechanisms existed in most of these firms, actual interference by governments at the federal, state, and sometimes even local levels, was common. The formal corporate governance structures are likely to converge towards private sector governance structures as most formerly government owned enterprises have become at least partly privatised. In the public, and even in the scientific, debate this process was labelled "privatisation" both in Germany and Austria, even in those cases when only a minority ownership stake was sold to private investors. The public to (partly-) private-enterprises in most cases have not been considered as being PPPs (for example the survey of PPP projects in Austria by Schaffhauser-Linzatti (2004) includes virtually no fully privatisation-type PPPs).

PFI-type PPPs have been less important in Germany and have only rarely been implemented in Austria. In both countries the provision of public infrastructure (particularly in the transport sector) has been largely state provided and funded. Most infrastructure which is provided by central, regional and municipal government is in relatively good condition and, although the quality of some government services has been criticized, this criticism has been limited. The scientific community both in Austria (e.g. Puwein et al. 2004) and in Germany (e.g. ZgöU 2004) formulated very differentiated positions towards the possible efficiency gains through PPP. Such efficiency gains could only be expected if a wide range of conditions are met, and to realise efficiency gains of increased private sector involvement in the provision of public infrastructure would not necessarily require PPP models as traditional public investment (based on the concept of "Generalunternehmer" taking comprehensive responsibility for the construction process) could yield similar results in terms of efficiency (ZgöU 2004, p. 412). Reports about the negative implications of privatisation of public infrastructure in other countries have added to the concerns about private sector involvement in the provision of infrastructure in the German and even more so in the Austrian public debate.

Public awareness and interest in PPP has been increased in Germany and Austria by some major domestic firms' involvement in PPP projects. Interest increased in order to help make these and other firms fit for international competition and to warrant that a bigger piece of the PPP-cake would be distributed to domestic firms. This motive is particularly important in the the two countries' construction industries, which have suffered severely from a drop in domestic public investment, and thus had been forced to focus more on the export business. Construction firms, partly due to international competition, have often tried to become infrastructure operators; a few have achieved this very successfully. In addition large firms with core businesses in a variety of industries – like Siemens and Deutsche Telekom in Germany, and the national highway operator ASFINAG in Austria – have entered this market. The firms' lobbying for PPP-financed infrastructure gained more momentum when a few banks, which started to specialize in PPP-finance in the second half of the 1990s, joined the effort.

Finally, the distribution of costs and benefits of new ICT PPPs on different parts of society is important, especially where they are funded out of public expenditure (McQuaid et al. 2004). The proposed use of ICT in the provision of public services has been argued, in the UK and elsewhere, as reflecting a belief in the potential for new technologies to promote the social inclusion of disadvantaged individuals and communities. This is partly based on the idea that: "ICT can have a far-reaching impact on the quality of life of marginalised segments of the population, by providing more responsive and transparent governance as well as improving the reach and delivery of health, education and other social services" (ILO 2001). The UK government has argued for using ICT as a tool for social inclusion policy (DTI 2000). For example, the New Opportunities Fund invested over £250 million to develop a national 'electronic library network' which provided web-based facilities and resources through existing public libraries and dedicated 'ICT learning centres' in disadvantaged areas (Liff and Steward 2001). The UK government's 'WiredUp Communities' initiative provided broadband Internet access, digital television, mobile and standard telephone links, and advice and support services for all residents in selected pilot areas (DfES 2002). The objective was to assess how individual access to the Internet can transform opportunities for people living in these communities, by developing new ways of accessing learning, work and public services. The take up of Internet

services has varied widely between and within communities, with overall Internet use in pilot areas ranging between 50% and 90% (Devins et al. 2003).

It has also been argued that the Internet's capacity to help in the sharing of information, and in increasing the participation of individuals, can lead to the growth of more demand-responsive services from the 'bottom up', and so facilitate a more democratic and dynamic relationship between public service professionals and their clients (Carter and Grieco 2000). However, the introduction of new technologies has generally tended to benefit the more advantaged, (Servaes and Heinderyckx 2002) and ICT infrastructure development (including broadband) lags behind in many rural and disadvantaged urban areas, when compared with more affluent communities and centres of employment (US Department of Commerce 1999). By carefully specifying the terms of PPPs it may be possible to improve (or make worse) such distributional effects.

## 5 EFFICIENCY GAINS OR LOSSES THROUGH PPP

For most OECD member states it may be assumed that so far there exists only a minor macro-economic impact of PPP on macro-economic efficiency because – the United Kingdom, Australia, New Zealand being possible exceptions – this dimension of PPP may be assumed to be relatively small. As infrastructure and services are provided by the public sector, and thus financed by taxes, resources are distributed from the private sector to the public sector. Assuming the – debatable – position that PPPs may be instrumental in reducing government activity to its core competences, because private production of goods is claimed by some to be "always more cost efficient" and "stronger oriented towards the needs of demand than public production" (Oberender and Rudolf 2004, translation by the authors), PPPs would potentially lead to sustainable gains in overall economic efficiency which would be reflected by a reduced tax burden (tax to GDP ratio) and/or by an improved quality of services. The argument is based on the idea that the distortion of the allocation restricts economic freedom, which might reduce overall economic efficiency and competitiveness; and also a high (marginal) taxation is further considered a major cause of tax avoidance.

Although it is of limited significance, the tax to GDP ratio has become an influential indicator of the tax burden and thus of the intensity of government intervention. Thus, in the context of PPPs and overall efficiency, a major issue of concern is whether PPPs are used as a means to reduce the apparent tax burden as measured by the tax to GDP-ratio? If activities can be shifted, at least partly, from the public sector to the private sector then it can be argued that, *ceteris paribus*, a reduction of the tax burden should be achieved. This may be only an apparent shift in tax burden as public sector liabilities will remain even if capital or operating expenditure is reduced in the short term. However, if PPPs actually improve efficiency then there could be a reduction in tax to GDP-ratios without a loss of public sector provision (and the reverse if PPPs are less efficient overall). For identifying the potential impact of PPPs on overall efficiency and tax to GDP-ratios several dimensions of PPPs have to be distinguished in order to define the relevant scenario for comparisons with alternative forms of providing and financing.

First, what is the alternative to PPP finance of a project that is relevant for comparison? The impact of a PPP-project on overall efficiency and tax to GDP-ratios will be different: if the project could not be accomplished otherwise; if it could be achieved only at a later period when the financial situation of public budget would have improved; or if it could be achieved only by debt finance. If most of a construct and operate-type PPP project's construction is funded by government debt, then PPP normally will reduce debt, interest payments, and government spending on public sector staff and other costs. However, if the costs of the contracts are allocated to current government expenditure, then there should not be any difference in operating costs between a PPP situation and direct government provision (assuming efficiencies are the same in each case and that all labour, capital and other costs, including pensions are fully costed in). The capital expenditure on a public sector project will normally lead to an increase in debt, while the PPP expenditure may not be allocated against government capital expenditure (although in a perfect market the long-term costs of each should theoretically be the same).

Second, experience with public private partnerships has been mixed so far (Joumard et al. 2004; Puwein et al. 2004). Some projects have been considered a success, having been completed on time and budget and having proved to be a cost effective method of delivering public services, while others have failed to deliver the expected gains. There have been significant delays associated with the interpretation of relevant contracts, cost overruns have been experienced because parts of projects had not been fully submitted to competitive pressures, and PPPs have also entailed bailouts by the public sector in a number of countries (see for example, WATIAC 2004). A recent survey of approximately 200 PPP projects in Germany, sponsored by the "PPP Task Force" of the German Ministry of Transport and Construction, suggests a more optimistic view of the experience PPPs finding out that the public administration's efficiency expectations have been regularly met (DIFU 2005). However, care needs to be taken concerning these optimistic views as it may be that the efficiency of PPP projects has been solely measured by overall efficiency judgements of those persons who initiated the projects and were responsible for its implementation, and that most respondents in the survey did not answer the question about efficiency expectations. So assumptions have to be made on the efficiency of a PPP project in comparison with other forms of service delivery. If a PPP project – particularly of the construct and operate type – is less financially efficient than a debt financed project then taxes will go up and vice versa. In the case of ICT projects there are many UK, and other, examples of large cost and time overruns and poorly performing projects (e.g. the Inland Revenue etc.), due to accountability, technology and project management issues (POST 2003), each of which can be affected by the use of PPPs although it is not necessarily clear if a purely public sector procurement would have been more efficient.

Third, it makes a difference if a PPP project is financed by government taxes or by user charges over its life cycle. User charge financed PPP projects may have a downward impact on the tax burden and tax to GDP-ratios, although some sort of a financial illusion might be involved: citizens might prefer paying user charges for the use of (semi-) private services to paying taxes for public goods. However, if it is hard to avoid such expenditure there is – given equal efficiency of the alternatives – an equal burden on private income in both cases. Economically user charges then come very close to taxation, which is unproblematic if the principle of equivalence finance is considered to be superior to ability-to-pay-finance and if the supply of the service is the same in each case (arguably tax funded public provision could over or under estimate the supply and demand). Nevertheless it is likely that efficiency considerations may stand against equity considerations. There may also be distributional and equity issues and the burden of taxes and user charges may vary between individuals.

If a PPP project is financed by government debt, and if taxes are collected during the use and pay-back period of the project, then the contractual design could make a difference for tax burden-comparisons. Assuming that PPP and government funded projects are equally efficient there should be no cash flow if the debt to pay for the project is paid back evenly every year. However, if the debt is paid back unevenly (e.g. in early years more interest but even amounts of capital are paid) then PPPs might result in less expenditure in early years and more in later years – which is attractive for government, of course. However, when inflation is considered the picture may differ according to contract details: if PPP payments go up with inflation then in later years there could be greater real public expenditure – and overall efficiency could be reduced.

Fourth, the statistical treatment of public expenditure may play a role in the time path of tax to GDP-ratios and thus in the interpretation of “efficiency gains”. Conventional public investment is treated as expenditure in public account statistics in the periods when projects are undertaken. In the case of PPP – e.g. when the public sector purchases services from infrastructure utilities – public expenditure is spread over a much longer period. Consequently in periods when reliance on PPPs are increasing there will be a transitory reduction of public expenditure and of the tax to GDP-ratios.

Fifth, as discussed earlier, PPPs can be used to realise the value of public assets that could not normally be achieved (for political reasons). The example of building new schools on greenbelt land and then selling the former school site for housing has been discussed earlier. While such a transaction could possibly be carried out solely through public transactions, it is much more difficult to argue to do so politically, as opposed to ‘blaming it’ on private developers. In such cases PPPs could contribute to raise overall efficiency.

However, sixth, there may be changes in future freedom of action. There is a danger of long-term PPP contracts tying an organisation (such as a government department) into a specific type of technology (or a particular building layout and usage) for decades, and hence reducing flexibility and the introduction of newer technologies in the future. For example a major issue is if a PPP is used to build a school or hospital suitable for 2000 IT technology, but then technology, and/or the organisation of the activity, changes it may be very expensive to change the IT and other infrastructure and building layouts and so reduce future adaptability and efficiency and effectiveness.

As the dimensions of PPP interact, a comprehensive analysis would have to take into account quite a large number of different cases or scenarios. Our analysis demonstrates that there is a broad scope of potential outcomes regarding the impact of PPP on overall efficiency and tax to GDP-ratios, and that there is no straightforward answer to the relationship between PPP and overall efficiency.

## 6 CONCLUSIONS

The political context of governments differs between the UK, Germany and Austria, but each government has an optimistic view of PPP. In Germany, and even more so in Austria, there is a strong preference for a consensus society, and the call for reduction of government intervention is, arguably, not as strongly motivated by ideological concerns as in Anglo-Saxon countries. In the UK the current government has argued for PPPs on resource availability, efficiency and quality of delivery grounds while accepting continued government control and financing of most services and infrastructure. The consensus preference has been stronger in Austria although a change occurred in Austria after 2000, as reducing government intervention and the tax to GDP-ratio has since been formulated as a deliberate policy goal, and PPPs could serve as one way to achieve this. In all three countries there appears to be a reluctance to increase the level of direct privatisation in most cases, although PPPs can in some cases be seen as a middle way between privatisation and public delivery.

There are more significant multi-tiered levels of government in the Federal systems of Germany and Austria, with many autonomous players including federal government, states and municipalities. Investment by the latter two exceeds investment expenditure of the federal government. In the more centralised UK system, there has been the devolved government in Scotland, Wales and Northern Ireland since the late 1990s. However, public expenditure and infrastructure investment in these devolved territories is still highly controlled by central UK government, who fund the vast majority of their income. Hence policies towards PPPs have been relatively rapid and similar, although not identical across the UK. In Germany the search for a comprehensive approach (“Gesamtkonzept”) has slowed the dissemination of PPP; Austria seems to handle the issue more pragmatically.

There are many similarities to the drivers for PPPs in Austria, Germany and the UK. The UK has had more experience, and the conservative-led government in Austria has been moving towards greater use of PPPs of the “privatisation”-type, but only very cautiously towards PPPs of the “PFI-type”. The major motives for moving towards PPPs are macro-economic or budgetary, especially in Germany and Austria, but also micro-economic or improving the efficiency of public service delivery, especially in the UK. In all three countries PPPs appear to be a systematic middle response to the alternatives of privatisation or public service provision of infrastructure and operational support.

In summary, being confronted with enormous investment needs, with tax income increasing only slowly and overall tax burdens being high, and with restrictions being placed on government’s ability to draw on borrowed money, new forms of investment finance received the attention of policy makers. PPPs are therefore primarily considered as a possible means to raise private funds and thus to close infrastructure gaps faster, and to improve the efficiency of the provision of infrastructure. In addition, however, PPPs restrict the choices of future decision makers. Although PPPs have so far only played a minor role in Austria and Germany, there is considerable potential for expansion, as has occurred in the UK. More theoretical analysis of PPP would be useful, for instance through adapting principal-agent models, theories of co-operation, trust and partnership (McQuaid, 2000). One issue that remains crucial to the future impacts of PPPs is whether they offer genuine and sustainable increases in efficiency and effectiveness compared the alternatives. If they do then they should have a positive impact on future public resource availability, but if they do not then they may provide short-term financial and political benefits but at the cost of constraining future decision makers and placing greater pressures on public finances in the longer-term. Our analysis demonstrates that there is a broad scope of potential outcomes regarding the impact of PPP on overall efficiency and that it is unclear if Public Private Partnerships are a sustainable solution for the information society.

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