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DECENTRALISING THE PUBLIC SECTOR

FISCAL DECENTRALISATION AND ECONOMIC GROWTH: IS THERE REALLY A LINK?

FRITZ BREUSS AND
MARKUS ELLER*

The relationship between fiscal decentralisation (FD) and economic growth has been analysed by a number of economists during the last three decades. Linking economic growth and FD together has mainly three reasons: firstly, growth is seen as an objective of FD and efficiency in the allocation of resources in the public sector; secondly, it is an explicit intention of governments to adopt policies that lead to a sustained increase in per capita income and thirdly, per capita growth is easier to measure and to interpret than other economic performance indicators. While theoretical examinations started with the pioneer publications of Tiebout (1956), Musgrave (1959) and Oates (1972), empirical analysis regarding the role of economic growth on FD started at the end of the 1970s and estimations concerning the direct impact of FD on economic growth have only been conducted since the end of the 1990s. Both theoretical and empirical analyses tend to be inconclusive and come up with ambiguous and differing results. One can conclude that this is the outcome of the theoretical trade-off construction, which reflects the various pros and cons of a decentralised government structure. But we shall also consider that direct empirical estimations are still scarce and do not sufficiently involve new results of economic growth theory and empiricism. In addition, different methodological approaches and diverse designs for decentralisation have been applied. Furthermore, theoretical foundations for the direct impact of FD on economic growth have remained largely undeveloped and have therefore weakened the validity of the empirical work on this topic (see Martinez-Vazquez and McNab 2001). Nevertheless, the empirical studies on the direct impact of FD on economic growth during the last decade have not only provided the first corresponding empirical examinations, but have also elaborated meaningful insights into various aspects of this relationship. Therefore, it is time for an evaluation (again)[1]. This article reviews these studies, summarises their major findings, examines the covered time horizon and region, compares the applied theoretical framework and the chosen empirical methodology, evaluates the chosen indicators for fiscal decentralisation and the specification of the dependent growth variable. In this way we would like to acknowledge this scientific focus of the last decade and contribute to a better understanding of the "real" linkage between the two variables of interest.

Survey of the status quo of empirical evidence

Data coverage

Since 1995 there have been few empirical studies, which have directly examined the impact of fiscal decentralisation on economic growth (in total 14 studies). This survey concentrates on cross-country studies and on studies on particular (federal) states, while studies on developing or transitional countries or studies, which concentrate on the effects of centralisation instead of decentralisation, are tackled only secondarily. Currently there are only six cross-country studies[2] and several ones on particular countries.[3] Within the cross-country

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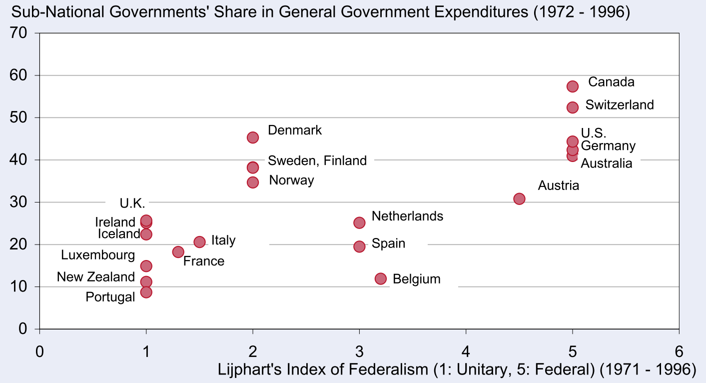
[1] In January 2001, Martinez-Vazquez and McNab composed a first survey regarding this issue. Nevertheless, they did not take into account several studies published before this date: Oates (1995), Thießen (2000), or Yilmaz (2000). Until today, a number of new studies have been conducted.

[2] Oates 1995; Davoodi and Zou 1998 (mixed set of developing countries and OECD countries); Woller and Phillips 1998 (set of least developed countries [LDCs]); Yilmaz 1999; Thießen 2000 and Thießen 2003 (high income OECD countries).

[3] Three on China (Zhang and Zou 1998; Lin and Liu 2000; Zhang and Zou 2001), two on the United States (Xie, Zou and Davoodi 1999; Akai, Nishimura and Sakata 2002 and 2004), one on Germany (Behnisch, Buettner and Stegarescu 2001), one on India (Zhang and Zou 2001), and one on Russia (Desai, Freinkman and Goldberg 2003).

Figure 1

CONSTITUTIONAL STRUCTURE AND DECENTRALISATION OF GOVERNMENT EXPENDITURES



Sources: IMF, Government Finance Statistics Yearbook, 2001; Lijphart (1999).

studies, the countries are grouped into high and low income ones (see Thießen 2000 and 2003), into unitary and federal ones (in order to consider the diverse constitutional structures, see Yilmaz 1999; see also Figure 1), or into different geographical areas (see Akai and Sakata 2002). They also consider the size of the jurisdictions in order to make the ratios more comparable across states and launch size variables (see Zhang and Zou 2001: area of Indian states; Desai et al. 2003: size of regional Russian population) or include per capita explanatory variables.

Following Yilmaz (1999), we have depicted Figure 1, where the relationship between the decentralisation of government expenditures and the constitutional structure of selected countries is shown. We use the "index of federalism" of Lijphart (1999), which is rated on a five-point scale: unitary and centralised (1), unitary but decentralised (2), semi-federal (3), federal but centralised (4), federal and decentralised (5). It is highly plausible that the different degrees of decentralisation can be partly explained by the constitutional structure of competence allocation. But, as the definition of the federalism index demonstrates, federalism and decentralisation need not necessarily be the same. For example, the unitary Scandinavian countries show quite high degrees of expenditure decentralisation, while Belgium as a semi-federal country exhibits a relatively low decentralisation ratio. Thus, the right to decide (constitutional determination of the allocation of competences to different levels of government) and the right to act (effective decentralisation of expenditures) might differ.

Chosen variables

Most authors choose the budget data approach and approximate the degree of FD using the share of sub-national government expenditures (or revenues) in general government expenditures (or revenues), net of intergovernmental transfers. The Government Finance Statistics (GFS) of the International Monetary Fund (IMF) operate as the corresponding database. As the GFS have been delivering data since the early 1970s, the resulting time series have a length of circa 30 years. While the revenue share is chosen only in three studies (see Woller and Phillips 1998, Thießen 2003 and Akai et al. 2004), the expenditure share is built into eight examinations. Zhang and Zou (1998 and 2001) examine the cross-provincial impact of FD in China and in India and use the ratio of consolidated provincial budgetary spending (revenue) to central budgetary spending (revenue). Lin and Liu (2000) and Desai et al. (2003) use the marginal revenue retention rate or tax revenue retention rate, respectively, as a measure for FD in order to consider regional fiscal incentives and regional fiscal autonomy. A similar measure for the independence of sub-national levels is the self-reliance ratio (share of own revenues of lower levels in their total revenues), which is used by Oates (1995) and Thießen (2000 and 2003).

These indicators for FD are disaggregated by function at different levels of government. Davoodi and Zou (1998) discuss the opposing expected effects of capital and infrastructure expenditures (positive growth effects) versus current and welfare expenditures (negative growth effects). In order to consider the accurate responsibility of either level of government, Woller and Phillips (1998) construct an expenditure share subtracting defence and social security spending and a revenue share subtracting grants-in-aid. Behnisch et al. (2001) analyse different spending categories (education and science, transport and communication) at the central level. Zhang and Zou (1998 and 2001) show the most sophisticated approach respecting functional diversification and differentiate between budgetary and extra-budgetary spending and different spending categories at the central and provincial level.

With respect to the dependent variable, the majority of the studies use the growth rate of real GDP per capita (in cross-country studies) or the growth rate of real provincial (state) income (in studies on particular countries). Exceptions are Behnisch et al. (2001), who analyse the impact of public sector centralisation on total factor productivity growth (TFPG), Desai et al. (2003), who use a recovery index focused on regional industrial output, or Akai et al. (2004), who test the impact of FD on economic volatility. Thießen (2000) decomposes economic growth into its components TFPG and the growth rate of real gross fixed capital formation and estimates own regressions using these rates as dependent variables.

Conceptual framework

Most authors use the endogenous growth model of Barro (1990), where the production function has multiple inputs including private capital and public spending. They split public spending into three levels of government (for the first time in Davoodi and Zou 1998) and analyse different decentralisation shares regarding their consistency with growth maximisation (see in particular Xie et al. 1999). Highest complexity is reached in Zhang and Zou (2001), who augment the aforementioned approach and develop a model that links multiple sectors of public spending by multiple levels of government to economic growth. Akai et al. (2004) refer additionally to Nishimura (2001), who developed a model that considers differences in the quality as well as complementarities of public services. Lin and Liu (2000) and Thießen (2003) choose a different approach. They follow Mankiw, Romer and Weil (1992) and adapt their augmented Solow model of economic growth introducing FD as explanatory variable.

Empirical methodology

Two kinds of conventional growth regressions are employed: pure cross-country regressions and panel data regressions based on several period averages. In panels usually annual frequency data are used, but it is also possible to construct perennial average panels in order to capture the likelihood of long-run effects (see Davoodi and Zou 1998; Woller and Phillips 1998). Pros and cons of these two regression types are discussed in particular by Thießen (2000 and 2003), who finally gives priority to pure cross-sectional growth regressions based on averages of annual data. The differences between the two approaches are pronounced in his first study, where the estimated pure cross-section regression shows that FD affects GDP growth positively (the coefficient for Western European countries is not significant). Adding the time series dimension and estimating the panel regressions, the significance of the FD indicator disappears completely and the coefficient for European countries becomes even negative. However, most authors choose the panel data method and include country fixed and time fixed effects in order to control for individual-specific, time invariant characteristics of the analysed countries. Besides panel and pure cross-section regressions the growth accounting procedure is employed (see Thießen 2000; Behnisch et al. 2001). Ordinary least squares (OLS) estimation predominates the studies, while general least squares (GLS) (see Zhang and Zou 1998; Thießen 2000), least squares dummy variable (LSDV; see Zhang and Zou 1998), or maximum likelihood (ML) estimation (see Akai and Sakata 2002) are applied only in particular cases. In addition, Desai et al. (2003) estimate simultaneous growth regressions and use three stage least squares (3SLS) estimators in order to correct for simultaneity and the potential endogeneity of certain explanatory variables (i.e., budgetary transfers from the central level as percentage of regional governmental revenue).

Within empirical estimation most authors conduct sensitivity analyses following Levine and Renelt (1992). Accordingly they distinguish between three groups of explanatory variables: base regressors, which are always included in the regressions; the variables of interest (i.e., fiscal decentralisation); and a subset of regressors chosen from a pool of variables identified by past studies as potentially important explanatory variables for growth. In addition, they classify a variable as “robust”, “if it remains statistically significant and of the theoretically predicted sign when the conditioning set of variables in the regression changes” (Levine and Renelt 1992, 943). Only Woller and Phillips (1998) pick up the critique of Sala-i-Martin (1997) regarding the Levine-Renelt (1992) procedure (“the test is too strong for any variable to pass it”, Sala-i-Martin 1997, 179) and conduct additional robustness tests following his improvement advice, based mainly on the kind of the cumulative distribution of the estimates.

Major findings

While theory indicates a positive impact of FD on economic growth due to efficiency gains, the empirical verifications are only in part able to support this hypothesis. Oates (1995) detects a significant and robust positive correlation between FD and growth. The self-reliance variable is not statistically significant, but its first difference is. Lin and Liu (2000) show that China's overall growth rate depends positively on FD – mainly via efficiency improvements of resource allocation rather than via inducing more investment. Yilmaz (1999) finds for unitary countries a significant positive impact of FD on per capita growth while his results for federal countries are inconclusive. Desai et al. (2003) conclude that tax retention as a proxy for fiscal autonomy has shown a significant positive effect on industrial output recovery of the Russian regions since the break-up of the Soviet Union. The strongest effects can be observed in regions with limited opportunities for rent-seeking. Akai et al. (2004) demonstrate that FD affects economic growth of the US states positively and economic volatility negatively – thus, FD is conducive for providing a stable economic growth. Zhang and Zou (2001) detect a positive effect of the per capita FD shares on Indian regional economic growth, albeit the effect is only significant in the case of the per capita revenue share. The shares of central government budgetary spending on development as well as on social and community services show a significant positive impact on growth.

A significant and robust negative impact of FD on China's provincial economic growth is revealed by Zhang and Zou (1998 and 2001). Key infrastructure projects with nation-wide externalities, which are too decentralised in China, are the main reason for this result. Comparing this study with Lin and Liu (2000) it becomes clear that, interestingly, FD induces diverse growth performances at the national and at the provincial level. Davoodi and Zou (1998) find for the developing countries also a negative effect of FD on growth, albeit not significant, and for the developed countries no clear relationship. When the whole sample is used, this negative effect of FD on growth seems to be more significant. Excessive spending of sub-national governments on wrong expenditure items is stated as a reason. Woller and Phillips (1998) concur with Davoodi and Zou (1998) in finding no significant and robust relationship in LDCs. At best, they are able to detect a weak inverse relationship between the revenue share and growth. Xie et al. (1999) find for the US states also insignificant coefficients on local and state spending shares, but they argue, referring to their adopted theoretical model, that insignificant FD shares indicate consistency with growth maximisation. However, the model could even be wrong and insignificance could also indicate that FD is irrelevant to growth and should have no effect.

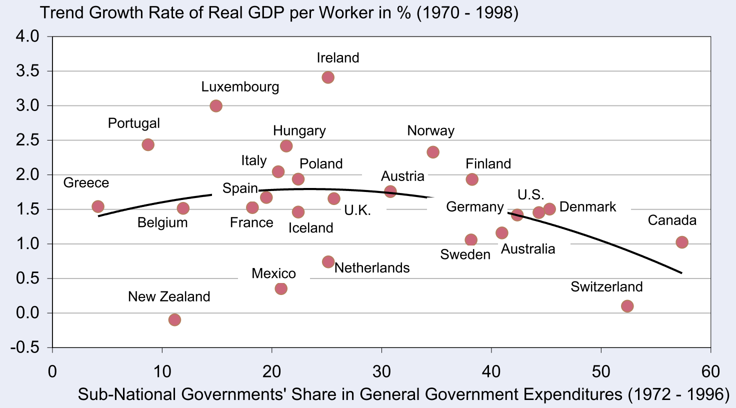
Observing the impact on growth from the opposite point of view – namely from the centralisation perspective – the results are still mixed. On the one hand, Behnisch et al. (2001) identify in Germany a statistically significant positive effect of overall centralisation on TFPG, but not for total public expenditures (insignificant, negative sign), central expenditures on education and science (weakly significant, negative sign) and central expenditures on transport and communication (insignificant, positive sign). They argue that co-ordination of policies among lower level jurisdictions is less efficient and overall central government intervention is still needed. On the other hand, Schneider and Wagner (2000) find that centralised wage bargaining shows a significant negative impact on long-run economic growth in the European Union, mainly because of transaction and free-rider costs.

Thießen (2000 and 2003) chooses a somewhat alternative approach. He tests the hypothesis of a hump-shaped relationship between FD and economic growth. In the case of too much decentralisation, inter-jurisdictional externalities cannot be internalised and economies of scale are not realised; negative growth effects are the consequence. The same holds for a low level of decentralisation: unconsidered preferences lead to inefficiencies in the provision of public goods, what inhibits, in turn, economic growth (see Breuss and Eller 2004). This theoretical trade-off construction indicates that the optimal degree of FD lies somewhere in between an extremely high and an extremely low one. Thießen (2000) finds that the hump-shaped relationship is particularly pronounced in the countries with highest per capita income[4] while there is evidence that low per capita income countries grow linearly with higher decentralisation degrees.[5] Figure 2 relates the degree of

[4] Australia, Belgium, Denmark, Finland, France, Germany, Luxembourg, Netherlands, Norway, Sweden, Switzerland, United States
[5] Greece, Ireland, Portugal, Spain; Argentina, Brazil, Republic of Korea, South Africa.

Figure 2

ECONOMIC GROWTH AND DECENTRALISATION OF GOVERNMENT EXPENDITURES



Sources: Penn World Tables, own calculations; IMF, Government Finance Statistics Yearbook, 2001.

expenditure decentralisation to the economic growth rate of 25 OECD countries. With the exception of a few outliers (Ireland, Luxembourg, New Zealand, and Mexico), the hump-shaped relationship is convincingly confirmed by descriptive data.

In addition, Thießen (2003) tests the convergence of the FD shares towards a medium degree implementing three dummy variables, which represent a low, medium and high degree of FD. Within the sample of 21 OECD countries the low and high degree are significant at the ten percent level, while the medium degree is significant at the five-percent level. The medium degree is associated with higher long-run per-worker growth than either a low or high degree. In this way, the observed trend of convergence among high-income OECD countries towards a medium degree of FD tends to promote economic growth (see Thießen 2003). Akai et al. (2004) classify their data set for FD variables also into high, medium and low degrees of FD in order to test the robustness of their estimations. All coefficients of the classified expenditure shares are highly significant at the one-percent level and show positive signs. Thus, FD is conducive to growth regardless of the current degree of decentralisation. Interestingly, the group with a low degree of FD shows the highest coefficient, indicating that US states with a low degree of FD tend to grow stronger.

Critical appraisal and future research necessities

Despite the intense theoretical and political debate of the pros and cons of FD, systematic evidence of the impact of FD on economic growth is still scarce. Ambivalent effects are at work; clear recommendations regarding the optimal degree of decentralisation are difficult to draw. This survey showed that there is no unambiguous, automatic, relationship between decentralisation and growth. Martinez-Vazquez and McNab (2001) reviewed six empirical studies estimating the direct impact of FD on growth. Our survey is enriched by eight additional studies. Despite meaningful variations and differentiation within the budget data dimension (e.g., diversification by governmental function and level, consideration of size variables and constitutional structure, or examination of the hump-shaped and convergence hypothesis), several deficiencies of the respective estimations stated in Martinez-Vazquez and McNab (2001) have been removed only marginally.

(a) There is still a problem of possible misspecification of the empirical estimation models. Since most authors apply the Levine-Renelt (1992) procedure and exclude some of the necessary control variables, an omitted variable bias may be the consequence. As Sala-i-Martin (1997, 180) emphasises, "missing important variables is more of a problem than introducing irrelevant variables".

(b) The measurement of FD is still problematic because of the omnipresent budget data approach, which is only in part able to account for the various dimensions of FD. The World Bank evaluates the application of the GFS on decentralisation issues and highlights various shortcomings, ranging from the lack of details on expenditure autonomy and own-source revenue to deficiencies regarding reported data for the sub-national levels and information scarcity for analysing dispersion among sub-national regions (see http://www1.worldbank.org/ publicsector/ decentralization). In order to cope with multi-level governments and with the multidimensionality of FD, the exploration of new approaches plays a crucial role (see also Ebel and Yilmaz 2002, 17). It is time for a new generation of decentralisation variables. It is necessary to examine reliable and comparable indicators for federal autonomies. In this connection the attempts of the OECD ("Survey on Fiscal Design Across Levels of Government", with data for sub-national fiscal autonomy in Central and Eastern Europe), the World Bank ("Fiscal Decentralization Indicators Project"), or Treisman (2000; distinguishes five types of decentralisation: structural, decision, resource, electoral, and institutional decentralisation) have to be strongly supported.

(c) The different channels of interference and potential bi-directional causalities between FD and economic growth have not been sufficiently considered within theoretical models or empirical specifications, respectively. If decentralisation is seen as a superior good (due to possible quality gains in the supply of public goods) and shows therefore a higher income elasticity, then a higher income per capita can form the basis for additional expenditures used for the constitution of a new decentralised level. In this case per capita income is expected to have a positive effect on FD.[6] Since several studies showed that FD depends on the level of economic development, generally measured by per capita income (for a recent study see Letelier 2003), the problem of endogeneity and spurious correlation arises when FD is put as an explanatory variable into an economic growth regression.

Therefore, future research should intensify, firstly, the efforts to formalise the primary impact of FD on allocative efficiency, redistribution and macroeconomic stability. Then the linkage between these three branches and economic growth should be constructed. In this way the indirect impact of FD on growth can be considered. Secondly, given potential bi-directional causalities it is also necessary to address the present research regarding the impact of economic growth on FD and examine the various channels of interference. Thirdly, it is important to specify precisely the determinants and dimensions of both FD and economic growth and clarify which exogenous variables determine simultaneously the two variables of interest (as, e.g., population growth). Implementing these three fundamental components into a theoretical model will provide a basis for new, more sophisticated empirical verifications. These, in turn, are not only led by the latest estimation procedures of economic growth empiricism (in order to overcome the problem of empirical misspecification) but resort also to a new generation of decentralisation data (in order to overcome the problem of data inaccuracy). In this way more satisfactory outcomes should be expected.

[6] This hypothesis could particularly hold in high per capita income countries, such as Austria, Switzerland, or the United States, that are able to afford the costs for the implementation of decentralisation.

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The Impact of Decentralisation on Service Delivery, Corruption, Fiscal Management and Growth in Developing and Emerging Market Economies: A Synthesis of Empirical Evidence

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Decentralised public management continues to invite controversy and debate. Proponents of decentralisation consider it a panacea for reforming public sector in developing countries (Shah,1994, 1998) whereas opponents consider it as a road to wrecks and ruins (Tanzi, 1995). These disagreements primarily arise from perspectives on the potential impact of such policies in the institutional environment of developing countries. Regrettably, the literature provides little guidance to inform this debate. This note is intended to fill a critical gap in this literature by providing a synthesis of the empirical literature on the impact of decentralisation. The paper reviews the empirical literature on the impact of decentralisations and provides a summary of the conclusions on its impacts on service delivery, corruption, fiscal management and growth

Service delivery

A number of recent studies have explored the impact of decentralisation in various countries. In the following paragraphs, we have grouped these studies by their results – positive, negative and inconclusive.

Positive impacts

Alderman (1998) found that decentralisation had a positive impact on targeting of social assistance in Albania. Bardhan and Mookherjee (2003) similarly find that decentralised management advanced poverty alleviation goals in West Bengal, India. The same results were confirmed by Galasso and Ravallion (2001) for Bangladesh. Habibi et al (2001) studied the impact of devolution on social sector outcomes in Argentina for the period 1970-94 and concluded that fiscal decentralisation had a positive impact on delivery of education and health services as well as reducing intra-regional disparities. Eskeland and Filmer (2002) using a cross section data from Argentine schools also found that decentralisation of education led to improvement in school achievement scores. Faguet (2001) also found that decentralisation in Bolivia helped improve consistency of public services with local preferences and quality and access of social services. Foster and Rosenzweig (2001) concluded that in India democratic decentralisation led to improved allocation for pro-poor local services. Santos (1998) discovered the same effect in Porto Alegre, Brazil with participatory budgeting. Isham and Kahkonen (1999) observed improvements in water services in Central Java, Indonesia with local community management. King and Ozler (1998) observed that decentralised management of schools led to improvement in achievement scores in Nicaragua. Estache and Sinha (1995) using data on a cross-section of industrial and developing countries found that decentralisation leads to increased spending on public infrastructure. Huther and Shah (1996) and Enikolopov and Zhuravskaya (2003) using cross-section and time series data for a large number of countries find that decentralisation contributed to improved delivery of public goods provision.

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The views expressed in this paper are those of the authors alone and should not be attributed to the World Bank. Please address all communications to the corresponding author, Anwar Shah (ashah@worldbank.org).

Negative impacts

Ravallion (1998) found that in Argentina, poorer provinces were less successful in favor of their poor areas and decentralisation generated substantial inequality in public spending in poor areas. Azfar and Livingston (2002) did not find any positive impacts of decentralisation on efficiency and equity of local public service provision in Uganda. West and Wong (1995) found that in rural China, decentralisation resulted in lower level of public services in poorer regions.

Inconclusive impacts

Several studies observed mixed or inconclusive impacts of decentralisation. Azfar et al. (2000) for Philippines and Uganda, concluded that while local governments do appear to be aware of local preferences, their response is often inadequate as they are hamstrung by procedural, financing and governance constraints. Khaleghian (2003) using data for 140 countries found that while decentralisation improved the coverage of immunisation in low income countries, opposite results were obtained for middle income countries. Winkler and Rounds (1996) reviewed Chile's experience with education decentralisation and concluded that it resulted in improvement in efficiency of provision but also experienced decline in score on cognitive tests.

Corruption

Positive impacts

A number of studies provide support for the positive influence of decentralisation in controlling corruption. Crook and Manor (2000) examined the process of political decentralisation in India (Karnatka state), Bangladesh, Côte d'Ivoire and Ghana and found that decentralisation led to enhanced transparency and reduced incidence of corruption. They conclude that decentralisation reduces grand theft but increases petty corruption in the short run but in the long run, both may go down. Fiszbein (1997) based upon a review of political decentralisation in Colombia concluded that competition for political office opened the door for responsible and innovative leadership that in turn became the driving force behind capacity building, improved service delivery and reduced corruption at the local level. Kuncoro (2000) found that in Indonesia, administrative decentralisation led to lower corruption as firms relocated to areas with lower bribes.

Wade (1997) found that over-centralised top-down management accompanied by weak communications and monitoring system contributed to corruption and poor delivery performance for canal irrigation in India. Huther and Shah (1998) using international cross-section and time series data found that fiscal decentralisation was associated with enhanced quality of governance as measured by citizen participation, political and bureaucratic accountability, social justice, improved economic management and reduced corruption. Arikan (2000) reconfirms the same result. De Mello and Barenstein (2001) based upon cross-country data concluded that tax decentralisation was positively associated with improved quality of governance. Fisman and Gatti (1999) found a negative relation between fiscal decentralisation and corruption.

Gurgur and Shah (2002) identify major drivers of corruption in order to isolate the effect of decentralisation. In a sample of industrial and non-industrial countries, lack of service orientation in the public sector, weak democratic institutions, economic isolation (closed economy), colonial past, internal bureaucratic controls and centralised decision making are identified as the major causes of corruption. For a non-industrial countries sample, drivers for corruption are lack of service orientation in the public sector, weak democratic institutions and closed economy. Decentralisation led to a greater reduction in the incidence of corruption in unitary countries than in federal countries. They concluded that decentralisation was confirmed here to support greater accountability in the public sector and reduced corruption.

Negative impacts

Triesman (2000) from analysis of cross-country data concluded that decentralised countries have higher perceived corruption and poorer service delivery performance in public health services.

Macro management and fiscal discipline

There is scant empirical evidence on the relationship between decentralisation and macroeconomic management. Shah (1998) found that decentralised fiscal system had a better record in controlling inflation and deficits and debts. These results were later confirmed by King and Ma (2001). Huther and Shah (1998) using a sample of 85 countries found positive association between fiscal decentralisation and macroeconomic management. De Mello (2000), on the contrary, using a smaller sample of 30 countries, found that coordination failures in intergovernmental relations were likely to result in a deficit bias in decentralised policy making.

Economic growth

Positive Impacts

Several studies found a positive impact of decentralisation on growth. Akai and Sakata (2002) using state level data for the USA concluded that fiscal decentralisation contributed positively to the US growth. These results are further confirmed by Akai, Skata and Ma (2003). Lin and Liu (2000) found that fiscal decentralisation had a positive impact on China's growth. Thiessen (2000) found a positive and direct relationship between decentralisation and growth for panels of high income, Western European and middle-income countries. Zhang and Zou (1997) found the same for regional growth in India.

Negative or inconclusive impacts

Several other studies find that the impact of decentralisation on growth is either negative or inconclusive. Davoodi and Zou (1998) and Xie, Zou and Davoodi (1999) using various data sets for the developing countries, developed countries, and time series data of the US discovered that decentralisation was associated with slower growth. Zhang and Zou (1998) found that fiscal decentralisation in China contributed to lower provincial growth. According to Davoodi and Zou (1998) and Zhang and Zou (1998), the negative association between fiscal decentralisation and economic growth may indicate that in practice local governments may not be responsive to local citizens' preferences and needs. This can occur when local officials are not elected by local citizens and when local citizens may be too poor to "vote with their feet."

For the case of China, the central government is constantly constrained by the limited resources for public investment in national priorities such as highways, railways, power stations, telecommunications, and energy. Such key infrastructure projects may have a far more significant impact on growth across Chinese provinces than their counterparts in each province. This finding has some implications for other developing countries and transitional economies. The merit of fiscal decentralisation have to be measured relative to existing revenue and expenditure assignments and the stage of economic development. The central government may be in a much better position to undertake public investment with nation-wide externalities in the early stage of economic development. More importantly, if local shares in total fiscal revenue and expenditure are already high, according to Zhang and Zou (1998), further decentralisation may result in slower overall economic growth. Rodriguez-Pose and Bwire (2003) found a negative impact of decentralisation on economic growth for Mexico and the USA but no impact for Germany, India, Italy and Spain. Phillips and Woller (1997) and Matinez-Vazquez and McNab (2003) could not find a statistically significant relationship between fiscal decentralisation and economic growth for a cross-section of countries.

Conclusions

Decentralisation whereby local governments are empowered to make all policy and program decisions on behalf of their resident-voters represents a complex system of political, administrative and fiscal autonomy and associated accountability mechanisms to ensure responsiveness and accountability to voters. While in theory, such a system is expected to have positive impacts on the efficiency and equity of public service provision, in practice, these outcomes depend upon the existing institutional arrangements (including power relations) and coherence of decentralisation policies to create the proper incentive environment for bottom-up accountability. This explains the myriad of outcomes that we see in practice. Nevertheless, the empirical evidence presented here is broadly supportive of a positive influence of decentralisation policies in reforming public sector in developing countries.

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Fiscal Decentralisation as a Mechanism to Modernise the State: Truths and Myths

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It has been argued that generally Fiscal Decentralisation (FD) enhances public sector efficiency and thereby constitutes a powerful mechanism to modernise the State. The extent to which such a view is supported by the empirical evidence is, however, a contestable issue. In the same way as the theoretical debate on the subject matter has been intense, the empirical evidence has made significant progresses in providing a more accurate diagnostic about the effects of FD. This paper presents a comprehensive review of this controversy, trying to distinguish between the truths and the myths concerning the potential benefits of FD.

Three questions are still open on the debate we are dealing with. One is the extent to which every government's function has to be decentralised. Whilst some evidence suggests that education and health are attractive areas to look upon, this is far from being clear for most other functions. Secondly, although FD appears to be good in some cases, it seems to be equally relevant to discuss whether this is valid for all countries, regardless of their institutional development and other idiosyncratic characteristics. Finally, even if we acknowledge that some countries and specific policies are the optimum candidates to be decentralised, there is still the need to specify the way in which this FD will take place. Although more FD involves some kind of devolution of public resources in favor of lower tiers of government, this may adopt a wide range of forms. In order to shed light on these questions, we first briefly describe the most important theoretical arguments both in favor as well as against FD. Secondly, the empirical evidence on these hypotheses is presented.

The theory on Fiscal Decentralisation

A common starting point on the subject under analysis is the so-called Decentralisation Theorem developed by Oates (1972). It asserts that "…the level of welfare will always be at least as high (and typically higher) if Pareto-efficient levels of consumption are provided in each jurisdiction than if any single uniform level of consumption is maintained across all jurisdictions" (Oates 1972, 54). Since any hypothesis on the subject entails a particular set of assumptions about the real functioning of independent jurisdictions, many theories can be built upon the theorem. They can be sorted into those that identify the likely positive effects of FD and those that emphasise its weaknesses. In this regard, Oates's theorem is a useful benchmark to take as a starting point. The theorem explicitly assumes no costs of FD and the absence of inter-jurisdictional externalities.

Pro-decentralisation hypotheses belong to three basic categories. The first one is what may be labeled the "information argument", which emphasises the gains derived from the fact that decentralisation gets public officers and politicians closer to the people they are supposed to serve. Since information on real local needs will be more easily available, public policies will be more efficiently designed. The second hypothesis hinges upon the analogy between decentralisation and the functioning of a competitive market. This is based on the assumption that fiscally decentralised jurisdictions will interact with each other in a similar way as firms compete in the market place. Accountability is being enforced by the "voting with the feet" mechanism, whereby residents penalize badly performing local governments by exerting their right to exit. Thirdly, the public choice school has popularised what might be called the Leviathan hypothesis, whereby decentralisation prevents tax-

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payer's exploitation by government's bureaucrats and in so doing it protects citizens from the dangers of the Leviathan.

However trendy, FD has numerous detractors. A first strand of criticism stresses the weaknesses of the view that competitive private firms may be assimilated to the case of independent jurisdictions playing in the political market. In the first place, there is the old and highly theoretical issue as to whether a competitive equilibrium between jurisdictions does indeed exist. Closely linked to this point is the extent to which individuals make their decisions about migration on the basis of the current performance of the particular tier of government they belong to. It may be hypothesised that some kind of "citizen's surplus" exists, which makes citizens value cultural affinities, ties of friendship, family and local economic connections beyond the performance of the jurisdiction where they live.

Secondly, a key issue to the caveats on FD is the assumption about externalities. Their existence raises numerous problems about the functioning of competitive jurisdictions making independent decisions. The case for externalities can easily be extended to the issue of tax competition and its potential effects on the efficient funding of local public goods. In so far as subnational governments are faced with a trade-off between higher tax rates and smaller tax bases, more FD leads to significant distortions in local tax structures. Similarly, decentralisation of some national public policies might result in severe coordination costs and underprovision of local public goods. The potential for this to jeopardize fiscal balance and macroeconomic stability has been widely discussed.

A third type of criticism can be put under the label of "technological" arguments. They hinge upon the characteristics of the particular technologies that are needed for the efficient provision of public goods. As long as decentralisation results in the loss of economies of scale, local budgets will rise excessively relative to what might be expected under a more centralised arrangement. On the one hand, it might be argued that developing countries need a significant degree of centralisation to build up its basic infrastructure. On the other, if economies of scale are a factor worth considering in the provision of some public goods, it follows that decentralisation may appear as a very expensive "good" which developing countries can hardly afford.

Fourthly, efficient local public provision can also be negatively affected by the shortage of some kind of input. This is likely to be the case when it comes to lower tiers of government's officers and their capacity to provide highly skilled quality public management. Moreover, access to up-to-date and comprehensive information will be initially available at the highest administrative level. Alongside the public management quality is the concern for corruption. Excess closeness of local officers from private local interests is a potentially dangerous fact in poor countries.

What we know about the effects of Fiscal Decentralisation

The first conclusion we can draw from the hypotheses above is that FD might improve the allocation of resources and thereby enhance growth. Evidence on this is, however, far from clear (Martinez-Vazquez and McNab 2003). The table below shows that neither cross-country estimations nor country-specific studies provide systematic evidence on the effect of FD on growth. Results seem to be sensitive to the data set being used in the estimations (Ebel and Yilmaz 2002), the proxy for decentralisation, the set of control variables in the regressions and the specific country being analysed (Zhang and Zou 1997, 1998; Lin and Lui 2000). A recent study on the case of Russia suggests that even the specific form of subnational governments' revenues appears to be relevant in the likelihood of FD having an effect on growth (Desai, Freinkman and Goldberg 2003).

If we accept that no strong evidence exists which relates FD with growth, it is still feasible that the quality of growth may indeed be effected. As long as quality of life involves good governance, it follows that a comprehensive account of indicators on government's performance should be positively related to FD. Existing evidence from the table below shows that generally FD appears to enhance good governance. In a well-quoted paper, Huther and Shaha (1998) found a significant and strong correlation between FD and a composite index of "good governance". Further support to this finding is given by De Mello and Barenstein (2001). Their results suggest that governance is only improved when FD is very high and sub national governments' funding comes from non-tax revenues. Interestingly, while De Mello and Barenstein conclude that only a high degree of FD may lead to a significant effect on governance, further evidence given by Braun and Grote (2000) shows that this effect is decreasing on the level of FD. Closely related with the concept of good government is the potential relationship between decentralisation and corruption. The evidence available allows us to say that, while FD seems to reduce corruption when this is measured as the share of subnational governments on the general government's expenditures or revenues (Fisman and Gatti 2002; De Mello 2000a, Huther and Shah 1998), this result is reversed when the political definition of decentralisation is adopted (Treisman 2000a).

A similar research line has focused on more specific functional areas of government. Evidence showing that social capital might be positively affected by FD is provided by De Mello (2000a). By using cross country data, Letelier (2001) and Lindaman and Thurmaier (2002) support the finding that FD enhances the role of government on education and health. Country specific results confirms this in the case of Chile (Vega 2002) and Argentina (Habibi et al. 2003). A closer look at the health issue raises new questions on the type of countries in which this conclusion is applicable. Whereas immunisation appears to respond positively to FD in low income countries, the opposite occurs in middle income countries (Khaleghian 2003). In this regard, the strength on political institutions appears to be a precondition for decentralisation to have a significant impact on the infant mortality rate (Robalino, Picazo and Voetberg 2001). Evidence of the effect of decentralisation on the level and quality of the current infrastructure is still scant and subject to further review. Whilst Faguet (2001) shows that decentralising policies implemented in Bolivia which started in 1994 had a major impact on the allocation of public investment in favor of those areas more in need, Humplick and Estache (1995) provide cross country evidence showing that decentralisation may result in a higher variance in performance across regions.

The argument that FD improves various aspects of basic human needs leads to the conclusion that even if FD dos not affect growth directly, it does so indirectly through some of the factors commonly recognized in the literature as being responsible for growth. As this appears to be relevant in education and health, it might also be the case for other variables. One of them is the potential for fiscal imbalance stemming from FD. Fornasari, Webb and Zou (1999) perform long- and short-run estimates of the effects of FD on government expenditures and fiscal deficit. In the steady-state long-run estimates, their results show that no significant effects of FD can be detected. When it comes to the short run, FD clearly increases the central government's deficit. The main lesson to be learnt is that general fiscal imbalance is more likely to arise when a process of FD is in progress. Similarly, the lack of clear cut rules that limit the support of the central government to heavily indebted subnational governments seems to be a key factor in understanding why FD will probably worsen fiscal balance in developing countries. In support of this, De Mello (1999, 2000b) shows that FD is more likely to deteriorate fiscal balance in non-OEDC countries. Nevertheless, when using a more accurate measurement of FD, Ebel and Yilmaz (2002) find that FD is equally conducive to fiscal imbalance in OECD countries. As far as inflation is concerned, Treisman (2000b) finds no clear relation between FD and the level of inflation. However, Treisman also finds that decentralisation tends to perpetuate the existing pattern of monetary policy regardless of the current level of inflation. While high income federations exhibit more stable inflation patterns over time, low-income federations that started with higher degrees of inflation tend to worsen the initial situation very rapidly.

What we do not know about Fiscal Decentralisation

There are at least three avenues through which future research on the effects of FD might be enriched. The first one refers to testing the benefits of FD by using a more accurate cross-country measurement of it. The fact that different results are obtained when two alternative data set are used in order to estimate similar or even identical models, confirms that a lot is still to be done in order to produce better quality data on FD. In particular, it would be of much help to have better cross-country measurements of tax autonomy and the share of block grants as opposed to categorical grants being given to subnational governments. Whilst some measurements of this kind do exist for the OECD countries (Ebel and Yilmaz 2002), similar information is still far from

Empirical evidence on the effects of Fiscal Decentralisation	
Growth	
• Woller and Phillips (1998)	No strong relationship is found. (*)
• Davoodi and Zou (1998)	Developing countries appear to respond negatively, albeit not significantly, to FD (*).
• Zhang and Zou (1997)	Evidence of a significant effect of FD on growth for India.
• Zhang and Zou (1998)	A negative relationship is found for China.
• Lin and Liu (2000)	A positive relationship is found for China.
• Xie, , Zou, and Davoodi (1999)	No evidence of systematic effects of FD on growth for the USA.
• Ebel and Yilmaz. (2002)	Evidence is not clear for a sample of OECD countries. Results are very sensitive to the measurement of FD (*).
• Desai, Freinkman and Goldberg (2003)	Generally, FD enhances growth in the Russian Federation. However, the effect of FD is negative on regions in which local revenues mostly derive from sources other than taxes. This is the case of natural resources and transfers from the federal government.
Life Quality	
• Humplick and Estache (1995)	Weak evidence in favor of the hypothesis that FD strengthens infrastructure. Decentralization results in higher variance in performance across jurisdictions (*).
• De Mello (2000a)	FD affects social capital positively (*).
• Braun and Grote (2000)	FD Improves the human Development Index. It does it at a decreasing rate (*).
• Faguet (2001)	Evidence for Bolivia shows that decentralizing policies started in 1994 produced major changes on 13 different areas of public interest.
• Letelier (2001)	A positive and strong relationship is found between FD and government s performance on education and health (*).
• Robalino, Picazo and Voetberg (2001)	FD reduces infant mortality rate in low-income countries with strong political institutions.
• Lindaman and Thurmaier (2002)	A positive and strong relationship is found between FD and government s performance on education and health (*).
• Vegas (2002)	Decentralized publicly funded schools perform better than non-decentralized ones in Chile.
• Habibi et al. (2003)	It shows that for the case of Argentina, the process of FD affected positively and significantly the outputs of health and education.
• Khaleghian (2003)	FD improves immunization in low-income countries, but it worsens it in middle income countries.
Governance	
• Huther and Shaha (1998)	Evidence of a positive relationship between FD and a composite index of good governance (*).
• De Mello and Barenstein (2001)	FD affects governance positively. Non-tax revenues are the best way to fund sub national governments.
Corruption	
• Huther and Shah (1998)	FD reduces corruption (*).
• Treisman (2000b)	Five alternative definitions of decentralization show that corruption is higher in federal countries. (*)
• De Mello (2000a)	FD reduces corruption (*).
• Fisman and Gatti (2002).	FD reduces corruption (*).
Fiscal Imbalance	
• Fornasari, Webb and Zou (1999)	No significant effect is detected in the long run. In the short run FD clearly increases the Central Government deficit (*).
• De Mello (1999)	FD may lead to coordination failures between levels of government. Evidence confirms this for developing countries (*).
• De Mello (2000b)	Tax autonomy exerts a negative effect on subnational and central government balances. This is more likely to occur in developing countries with fragile institutional arrangements.
• Treisman, D. (2000a)	No clear relationship between decentralization and the level of inflation is found. However, political decentralization reduces the variability of inflation over time.
• Ebel and Yilmaz (2002)	Evidence is not clear for a sample of OECD countries. Results are very sensitive to the measurement of FD (*).
* Cross-country evidence.	

being available as far as developing countries are concerned. This is not only relevant from the viewpoint of making more robust predictions on the impact of FD, but it would also shed light on the particular form of FD that enhances the provision of public services. Since fiscal autonomy involves varying degrees of maneuvers on taxes, grants, borrowing and user charges, it certainly matters what the optimal share and the specific design of these sources is. Regardless of the data quality problem, more research is clearly needed at the country level. Although the empirical literature is abundant in case country studies, these are very seldom based on rigorous statistical analysis. For example, a public policy target being commonly considered but largely disregarded in the empirical literature, is the potential effect of FD on innovation. Various countries grant subnational governments and/or publicly supported service producing units in order to promote innovation in the areas of education, health, public investment and the like. Although the well-known review by Oates (1999) reports two studies on the subject matter, they both refer to the United States, use very limited information and their results are rather inconclusive.

Finally, there is still the question as to whether FD is indeed an exogenous variable at the disposal of the policy maker. An obvious question is why – decentralisation being so clearly beneficial to some areas of public interest – the national median voter is not always willing to undertake radical reforms in this respect (Panizza 1999; Letelier 2003). One possible answer is that even if the median voter is well informed about the effects reported above, he will face numerous constraints to achieve the optimum. Elections in developing countries are very often non-democratic and subject to various imperfections. Additionally, FD is not a cost-free policy. On the one hand, economies of scale and extra coordination costs might be important in the provision of some public goods. On the other, typically low income countries with weak institutions might not be willing to put their precarious fiscal stability at jeopardy by conceding subnational governments more leeway to decide on taxes, expenditures and borrowing. If we accept that any form of decentralisation is at least in part being explained by development, it follows that policy recommendations should be qualified in terms of the country at stake and the public function being decentralised.

Conclusions

This paper offers a typology of the main theoretical arguments in favor and against FD, and it provides a comprehensive review on the empirical literature about its likely effects. On the theoretical front, three basic arguments in support of decentralisation are identified. They are the information argument, the analogy between decentralisation and the functioning of a competitive market, and the Leviathan argument. The core of the academic criticism on FD can be summarised by five basic points. Firstly, there is the potential of externalities between jurisdictions, which leads to differences between the national social optimum and the targets being achieved by decentralised jurisdictions as a group. Secondly, the set of assumptions on which the well-known Tibout model is built has been subject to severe critiques. Thirdly, it has been argued that local government's officers and politicians are not as capable of obtaining and close to up-to-date relevant information as their central government counterparts. Finally, the potential for corruption stems from the extreme proximity of local officers to private local interests.

Whilst the empirical literature is not conclusive about the potential effects on growth, it does show that the quality of growth may be significantly improved by FD. In particular, there exists substantial evidence that decentralisation improves the quality of public education, health and other indicators of good governance. Concerning the impact of FD on fiscal balance, results are very sensitive to the definition of decentralisation being used, the set of control variables in the regressions, the extension of time over which this impact is being measured, and more importantly, the type of countries being considered in the sample. Some of this evidence, and specially that on the effects of inflation, shows that FD is more likely to worsen the initial situation in developing countries, while it tends to perpetuate the current performance over time. The strength of institutions appears to be a fundamental condition for FD to be beneficiary.

A lot more work is still to be done in order to capture normative aspects on the measurement of FD. Country case studies based on robust statistical techniques is certainly the most promising future research avenue for empirical studies on this field. Finally and most importantly, the empirical literature is generally based on the assumption of decentralisation as an exogenous variable. While this might be a sound assumption for some specific decentralising policies in specific countries, it does not seem to be the case for the aggregate trend of FD in large samples of countries. The degree to which public officers and politicians are indeed able to promote decentralisation hinges upon the dubious view that this is a factor explaining development rather than a consequence of it.

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What Drives Fiscal Decentralisation?

Ugo Panizza*

This article summarises two papers in which I try to identify empirical regularities explaining cross-country differences in the level of fiscal centralisation (Panizza 1999) and look at the relationship between centralisation and secession (Panizza 1998). The issues discussed in this article relate to the recent strand of political economy literature that studies the optimal number and size of nations (Alesina and Spolaore 1997, 2003) and the optimal amount of public goods in countries with heterogeneous preferences (Alesina, Baqir and Easterly 1999).

I use the expressions fiscal decentralisation and fiscal federalism interchangeably to describe the institutional set-up of countries with more than one level of government. This is more general than a strict political definition that only refers to countries with a federal constitution. Although the constitutional set-up is extremely important (see, for instance, Persson 2003), countries that are not formally federal are often characterised by a large delegation of powers from higher to lower levels of government. In this context, the center of attention is not the presence or absence of a federal constitution, but the degree of centralisation.[1]

The traditional literature on fiscal centralisation can be divided into three main branches. The first branch studies the optimal division of powers between the central and local governments (Musgrave 1959; Oates 1972). One of the main results of this literature is the Decentralisation Theorem (Oates 1972) that identifies the conditions under which it is more efficient for local governments to provide the Pareto-efficient levels of output for their respective jurisdictions than for the central government to provide a uniform level of output across all jurisdictions. One of the corollaries of the Decentralisation Theorem is that the benefits of decentralisation are positively correlated with the variance in demands for publicly provided goods.

The second branch of the literature concentrates on the role of organisation costs (Breton and Scott 1978). A decentralised system can reduce mobility and signaling costs, but it is likely to increase administrative and coordination costs. The optimal level of decentralisation is the one that minimises the sum of these costs.

The third branch of the literature emphasises the benefits of competition among jurisdictions. Tiebout (1956) studies how, in a system with many jurisdictions, agents can "vote with their feet" and locate in the jurisdiction that has policies that are closer to their preferences. While Tiebout concentrates on horizontal competition, Breton (1996) studies the benefits of vertical competition. According to this notion, different levels of government, in an effort to increase their "market share", provide the citizens with the optimal type and quantity of public goods. Brennan and Buchanan (1980) claim that horizontal and vertical competition among different levels of government can be very important in containing the size of their budgets.

A simple model of fiscal centralisation

The model studied in Panizza (1999) assumes that government produces one public good and that all individuals have the same income (the assumption of homogeneous income makes it possible to abstract from all the issues linked to income redistribution) but that they differ in their tastes for the type of public good.[2] Education is an example of

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[1] Vaubel (1966) studies the relationship between decentralisation and the presence of a federal constitution.

[2] Since it is not possible to capture in a single model the richness of the vast literature on fiscal centralisation, the focus of the model described here is simplification and unification. The model extends the framework developed by Alesina and Spolaore (1997) and Alesina, Baqir and Easterly (1999) to an economy with two levels of government.

publicly provided good on which preferences are often polarised: some citizens may prefer religious as opposed to secular schools or may favor the use of a specific language. It is assumed that the individuals are stratified and sorted according to their preferences for the public good.

The degree of fiscal centralisation is defined as the share of public good that is produced by the central government (therefore, centralisation is 100 percent if all public goods are produced by the central government and centralisation is zero if all goods are produced by the local governments). The equilibrium level of centralisation is derived under the assumption that the central government is the first mover and decides the level of centralisation. While this assumption may seem at odds with democratic voting over the type and amount of public good, its theoretical background relates to the large political science literature that shows how the agenda setter can manipulate the final outcome of an election.

After observing the level of centralisation, the citizens vote on the amount of the public good, and then on the type of the public good.[3] On principle, anybody who promises to supply the type of public goods preferred by the median voter could play the role of central government, but only one individual can credibly commit to provide such type of public good: the "national" median voter herself. Besides sharing the preferences of the national median voter, the central government derives additional utility from staying in power. Following Brennan and Buchanan's interpretation (1980), it is assumed that the utility that the government obtains from staying in power is a function of the budget it controls. Given the discretional power of the agenda setter, the central government will always be able to extract some rent. The level of democracy measures how much of this rent the central government is willing to extract as well as the level of utility that the government derives from the budget.

The government maximises its utility function by solving the model backward. The last decision (and therefore the first to analyse) is on the type of public good. The next step is to determine the amount of the public good to be provided in equilibrium. By applying the median voter theorem, it is possible to show that the optimal quantity of public good is a weighted average of the median distance from the national median and the jurisdiction median and that the equilibrium level of fiscal centralisation is decreasing in: (i) the level of taste differentiation; (ii) the level of democracy; (iii) the level of income per capita and (iv) country size.[4]

What do the data say?

The model discussed above generates four predictions. First, it suggests that, other things equal, countries with polarised preferences for the type of public good should be more decentralised than countries with homogeneous preferences. Hence, we should find a negative correlation between the level of centralisation and heterogeneity in the demand of public goods. Economic theory indicates that the key factors in determining demand are tastes and income. Since the model assumes constant income, the empirical analysis concentrates on the role of taste heterogeneity.

The second result focuses on the role of democracy and suggests that we should find a negative correlation between the level of democracy and the degree of centralisation. The theoretical model suggests that perfect democracies should set centralisation equal to zero, and very repressive dictatorships should be fully centralized. The majority of countries included in the empirical analysis fall between these two extremes. Most of the real world governments are neither perfect democracies (because they are run by self-interested politicians with some agenda-setting power) nor perfect dictatorships (even dictators need to rely on the support of the group of people who put them in power). Furthermore, some public goods cannot be efficiently produced by the local governments (these are goods with large spillover; defense is an example of such a good). Hence, even perfect democracies will have levels of centralisation greater than zero.

[3] The assumption of sequential decision-making reflects the budget process adopted in many countries (Alesina and Perotti 1999). The model considers two types of median voters: the "national" median voter and the median voter of a given jurisdiction. Given the assumption on the spatial distribution of individuals, the median voters are located at the center of the country and at the center of their jurisdictions, respectively.

[4] The relationship between decentralisation and democracy is in line with Alesina and Spolaore's finding (1997) that democratisation should be positively correlated with the equilibrium number of countries and it confirms the claim that their analysis can be applied to the division of a country into jurisdictions. This result is also consistent with Ades and Glaeser's (1995) finding that dictatorships tend to have larger capital cities.

The third result focuses on the relationship between decentralisation and the level of development. It suggests that we should find a negative correlation between centralisation and income per capita.

The fourth result highlights the role of size. It suggests that, other things being equal, the bigger the country, the larger the ideological distance from the center, and hence the smaller the quantity of public good provided in equilibrium. Therefore, we should find a negative correlation between centralisation and country size.

The Data

To test the predictions of the model it is necessary to build a data set of measures of fiscal centralisation. Identifying such measures is not an easy task. The main issue is finding a method to quantify the activity of local governments that results from independent decision-making. Oates (1972) discusses the conceptual problems involved in the choice of the right measure of fiscal centralisation. These problems can be summarised as follows: (i) Different levels of local governments should be weighted in different ways. (ii) Sometimes the local governments collect revenues or make expenditure but have no autonomy in deciding the tax amount to be collected or the type of expenditure to be made. (iii) The role of intergovernmental grants.

The available data do not allow the problems listed above to be addressed. They distinguish between the central government and local governments as a group. Information on the appropriate decision units and on the use of intergovernmental grants is not available. It is therefore impossible to apply a weighing scheme to different levels of local governments or to identify the number of relevant jurisdictions. Therefore, I define centralisation ratios as the percentage of revenues (or expenditure) of the central government out of the total revenues (or expenditure) of the public sector. Two measures of fiscal centralisation (Total Revenues and Total Expenditure) for 1975, 1980 and 1985 are built using data from the IMF's Government Finance Statistics Yearbook. For most measures, former Yugoslavia is the most decentralised country. Among the industrialised countries Switzerland, Canada and the United States are the most decentralised.

Another key variable is the one that measures heterogeneity in the preferences for public goods. Since tastes are not directly observable, it is necessary to find a proxy for this variable. It is not unlikely that different ethnic groups may diverge in their tastes for publicly provided goods (education is an important example). In fact, Alesina, Baqir and Easterly (1999) quote a vast sociological literature that finds that preferences and conflicts over public policies are more strongly correlated with ethnic as opposed to income differences. Therefore, I proxy differences in tastes with a measure of ethnic fractionalisation originally collected by the Department of Geodesy and Cartography of the State Geological Committee of the Soviet Union and popularized by Mauro (1995). These data show that most African countries are highly ethnically fractionalised (nine out of the ten most fractionalised countries are in Africa, the tenth one is India). Among the industrialised countries, Canada has the highest degree of ethnic fractionalisation, followed by Belgium, Switzerland and the United States.

To test the link between decentralisation and democracy, I use the data on political rights assembled by Gastil (1990) rescaled on a 0 to 1 ranking, where 0 corresponds to dictatorship and 1 to full democracy.

Revenues centralisation ratios, Tobit estimations for 1985

	(1)	(2)	(3)	(4) Dropping Yugoslavia and Zaire
Area	– 3.202 (– 3.865)***	– 3.85 (– 5.129)***	– 3.253 (– 3.949)***	– 3.37 (– 5.49)***
Y	– 10.961 (– 5.638)***	– 7.736 (– 3.098)***	– 8.937 (– 3.488) ***	– 5.23 (– 2.66)***
Fract	– 18.438 (– 2.724)***		– 18.435 (– 2.732)***	– 10.49 (– 2.06)**
Dem		–6.876 (–1.008)	– 8.247 (– 1.192)	– 15.85 (– 2.99)***
Const.	225.481 (10.69)***	204.559 (9.17)***	214.361 (9.417)***	187.26 (11.06)***
N. Obs.	56 37	60 39.2	56 38.43	54 52.48

t statistics in parentheses. – *** Denotes a parameter that is statistically significant at 1% confidence level.

Estimations of the determinants of fiscal centralisation

I start the analysis by estimating two regressions where measures of ethnic fractionalisation (Fract) and democracy (Dem) are added, one at a time, to a basic specification that includes income per capita (Y) and country size (Area). For all regressions, Y and Area are negatively correlated with centralisation and have large and statistically significant coefficients (baseline results for revenues centralisation are reported in Table 1). If we focus on 1985, we find that both ethnic fractionalisation and democracy have the expected negative sign, but while the coefficient on ethnic fractionalisation is statistically significant (columns 1 and 3) the one of democracy is not significant at the conventional confidence level (columns 2 and 3). There are two important outliers in the data: the former Yugoslavia and the Democratic Republic of Congo (Zaire). Both countries have high levels of ethnic fragmentation and low levels of democracy, but Yugoslavia has the most decentralised fiscal structure and Zaire one of the most centralised. To explore the role of these two countries, I have dropped them from the sample and find that both democracy and ethnic fractionalisation are significant (column 4). I find similar results by applying semi-parametric estimations to the full sample.

The role of history

Some political scientists have pointed out that intergovernmental fiscal relations are the outcome of a bargaining process that is generally unpredictable (Oates 1972). In some cases, this bargaining process generated a structure of intergovernmental fiscal relations that, although optimal at the time the process took place, may not reflect the current preferences of the citizens. Since the process of adjusting to the optimal fiscal structure requires time, many countries may still be far away from their optimal level of centralisation.

Although the model discussed above is static, it is interesting to study whether some of the countries included in the sample are out of equilibrium and slowly adjusting towards it. An ideal way to control for the role of history would be to include in the regression fiscal centralisation measured at the time a given country achieved its independence, but this variable is not available. An alternative method is to augment the regression with the lagged value of fiscal centralisation. The results of this experiment confirm that history is very important. The lagged value of fiscal centralisation absorbs most of the variance of the regression (but its coefficient is significantly lower than 1) and reduces the explanatory power of the other variables. If we accept the idea that some countries are out of equilibrium, the residuals of the regression should be correlated with changes in fiscal centralisation over time. Countries where the actual level of centralisation is higher than the predicted value (i.e. $u_i > 0$) should be moving towards a more decentralised system and vice-versa. In fact, Belgium, France, Italy, Spain and the United Kingdom are all countries where, in 1985, $u_i > 0$. Since then, all these countries have moved or are moving towards a more decentralised system. The situation is more complex for Canada (for which $u_i < 0$); the strong movement for the independence of Quebec seems to indicate that the country is too centralised (and therefore contrasts with the negative residual). Another possible interpretation is that, in order to prevent secession, the central government is "bribing" Quebec with "too much" autonomy. This idea finds some support in the results of the referendum in which the residents of Quebec voted against secession from the rest of Canada.

The idea that the central government can decentralise to prevent secession is the focus of Panizza (1998). In that paper, I use a model similar to the one discussed above but I focus on the trade-off between the benefits of decentralisation and the costs of secession. In that set-up, voters can induce the government to decentralise with a threat of secession. Such a threat is credible only if utility under secession exceeds utility under union. Also in this case, I find that the benefits of secession are increasing with country size and preference heterogeneity and conclude that larger and more ethically different countries will need to decentralise more in order to preserve national unity.

Conclusions

It has been claimed that it is not possible to find a single set of variables explaining the cross-country differences in the degree of fiscal centralisation. Oates' (1972) attempt seems to support this view. The work described in this article is more optimistic on the possibility of finding empirical regularities explaining decentralisation and suggest that country size, income per capita, ethnic fractionalisation, and the level of democracy are negatively correlated with fiscal centralisation.

These findings seem consistent with the fact that, in the real world, democratisation has often been followed by decentralisation. This happened in Spain, where the death of Francisco Franco and the return to a democratic system was soon followed by a massive process of decentralisation. Other examples are Poland, Czechoslovakia, Russia, and Ukraine. The end of the Cold War also favored the rise of secessionist (or pro-decentralisation) political movements in countries that, although democratic, used to have an extremely rigid political situation. In Italy, for instance, the end of the "Cold War equilibrium" was soon followed by the rise of a separatist political party.

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Transition and the Recent Reforms in Intergovernmental Fiscal Relations in the Czech Republic

Jorge Martinez-Vazquez and João do Carmo Oliveira*

Over the period 1991–2000, the Czech Republic largely overcame the inertia of socialism and the 1993 break-up of the Czech and Slovak Federal Republic. During this period, the Czech Republic also embarked on an accelerated transition to a market economy. Also, a fast evolving agenda in intergovernmental fiscal relations had to address critical emerging issues, including the need for substantial improvement in the overall efficiency of the public sector and joining the European Union.

During 1991–2000, the Czech Republic made important advances in the decentralisation of the government structure. At the time of the significant reforms that took place in 2000, the Czech Republic still faced several important challenges: (a) a fragmented and inefficient structure of local governments; (b) the existence of vertical and horizontal imbalances; (c) limited access to and control of municipal credit; and (d) deficient budgetary institutions.

The reform of intergovernmental fiscal relations in 2000

With the aim of improving the system of intergovernmental fiscal relations, the Parliament approved in 2000 a reform, package, which: (a) eliminated the de-concentrated structure of the State territorial administration, based on 77 districts, and replaced it with 14 new intermediate self-governing regions; and (b) restructured the tax-sharing system between the central government and municipalities. The new regions have elected representatives, who are intended to be autonomous on fiscal matters and directly accountable to the citizens.[1] The 2000 reform addressed two long brewing problems – an increasing vertical imbalance (against the State) and increasing horizontal disparities among municipalities – by restructuring the pool of shared taxes and by shifting its distribution rules from a derivation basis towards a per capita basis. The goals of the reform were a more diversified shared-tax pool, a more equitable distribution, and tax shares more stable for all levels of government.[2]

These measures were important because the 2000 reform was, to a large extent, motivated by the increasing vertical and horizontal fiscal imbalances observed during the 1990s (see Figure 1). The increasing vertical imbalance against the central government was seen as the result of the lower GDP-elasticity of non-shared taxes (customs duties, excise and VAT) vis-à-vis shared taxes (especially personal income tax).

The increasing horizontal fiscal imbalances across local governments were seen as the result of growing disparities in social and economic conditions and growth,[3] and the fact that shared-tax distribution was essentially based on a derivation principle. Because the Czech Republic lacked a system of equalisation grants, local expenditures reflected the uneven distribution of regional tax capacity.

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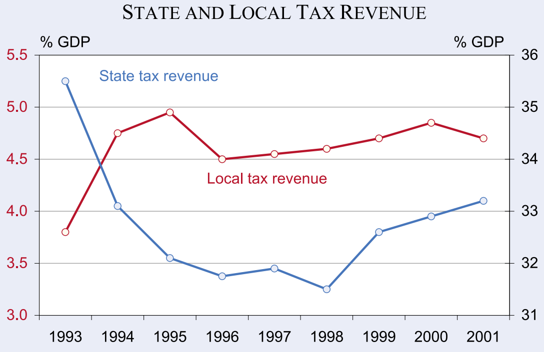
[1] The new regions' fiscal responsibilities and resources have been defined during the last three years, while the old districts were being phased out.

[2] Previously, the pool was based on different proportions of personal and corporate income taxes. The new pool is based on a uniform share of total revenues from both income taxes (PIT and CIT) and the value-added tax (VAT). The starting uniform sharing rate was 20.59 percent, which reflects the 1999 municipalities' aggregate share.

[3] For example, higher incidence of some diseases, unemployment and poverty in structurally distressed industrial regions owing to causes associated to the transition as well as to short-term economic adjustment policies – e.g., Usti nad Labem, Most versus Prague or Brno.

Figure 1



Source: Ministry of Finance, Czech Republic.

Despite the shortcomings of the system and the differences in fiscal resources, municipalities have to a large extent followed a responsible expenditure pattern. While the coefficient of variation for total per capita expenditure (aggregated at district level) increased to 0.60 in 1999 from 0.56 in 1997, its distribution (1997–99 average) by type of functional expenditure (Figure 2) demonstrates that disparities in expenditures per capita have been the lowest for basic services, such as education and water, and the highest for "economic functions", such as telecommunications or financial operations.[4]

Some challenges for the future

Despite many of the virtues of the 2000 Reform, the issue of fragmentation of municipalities was addressed only marginally by allowing the Ministry of Finance to use an adjustment coefficient on the per capita distribution of shared-taxes. Although allegedly to reflect agglomeration costs and equity concerns, this coefficient was poorly conceived and designed. The coefficient had no clear economic rationale and it was perceived as arbitrary and confusing. There were several other important issues not sufficiently addressed by the 2000 reform. These included the effective transfer of fiscal powers to subnational self-governing units; the restoration of local tax effort incentives; the equalisation of fiscal opportunities; access to municipal credit; and autonomy of local governments and budgetary transparency.

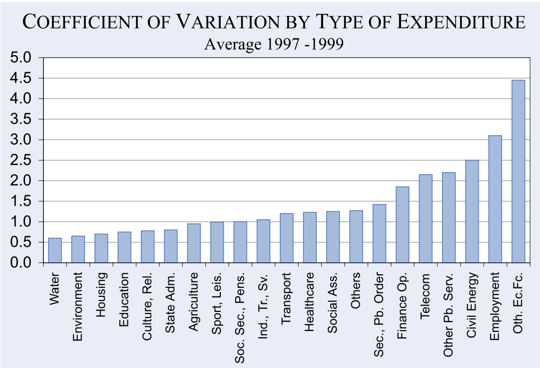
Fragmentation at the municipal level

Eighty-seven percent of the 6,254 Czech municipalities have fewer than 1,500 inhabitants, and 42 percent have fewer than 300 inhabitants. By international standards this is an extremely fragmented administrative structure, with critical political and efficiency implications. Politically, this structure may be justified on the grounds of the strong democratic representation and horizontal accountability that it may allow. However, the small size is associated with low fiscal autonomy, given the insignificant size of the tax bases, low technical/ administrative capacity and inability to take advantage of economies of scale in public service delivery. Furthermore, the privatisation of local services is still taking off and municipalities have been slow in cooperating on service delivery.

Four possible options have been considered to address the issue of excessive municipal fragmentation. The first option, mandatory amalgamation, has been discarded so far, as politically impractical. The strong local opposition to this solution is rooted in the negative experiences during the 1960s and 1970s with forced amalgamations of local governments and the subsequent perception of arbitrariness and lack of representation.

The second option, voluntary amalgamation, would avoid political distress and can be efficient for taking into account residents' preferences. But this option may require too costly financial incentives and it may be too slow in achieving results. The third option, the central encouragement for greater municipal cooperation on joint local service delivery and the creation of large special districts for services with significant economies of scale, may also likely require a long maturation period. The fourth option is the asymmetric assignment of responsibilities (and resources) to local govern-

Figure 2



Source: Ministry of Finance, Czech Republic; calculations by the authors.

[4] Notice, however, that the small per capita variation of local expenditures for certain social programs, like "education", reflect central government policies designed to equalize services, mainly through earmarked transfers. Services for which local governments have been only complementary to national programs, such as "health care" and "unemployment", show greater variations across region.

ments.[5] In the end, it probably will take a combination of these options to adequately address the problem of fragmentation.

The effective transfer of fiscal powers to the self-governing units

There still is a risk that the 2000 Reform will become a mere re-design of the previous de-concentrated State territorial administration. The 2000 reform left it entirely to the discretion of the line ministries to define the functions to be "transferred" to the regions. This process by nature is a murky one and the commitment of the central government and the Parliament to transfer a meaningful degree of revenue and expenditure autonomy to the regional/local authorities remains unclear. The 2000 Reform did not clearly commit either to promoting private sector participation both in the financing and the provision of "public services" at the local level, especially on housing and education.

The restoration of tax effort incentives

The 2000 reform practically removed all positive incentives for local governments to increase their own tax effort.[6] However, there appears to be wide consensus on the need to restore positive incentives to revenue mobilisation at the local level. Fortunately, there is considerable room to improve local/regional revenue autonomy and revenue mobilisation in the Czech Republic, without negatively affecting the central government budget. An attractive possibility is to exploit the potential of the "property tax", by adequately defining and expanding its base and by providing local/regional authorities with limited discretion to establish their own tax rates. A second possibility is to introduce a regional/local proportional personal income tax piggybacking the national progressive personal income tax.

The equalisation of fiscal opportunities

Access to similar standards of public services by all citizens – regardless of location where they live in the country – is an explicit objective of the Czech government. However, the current decentralisation system may not deliver that objective because it lacks an explicit equalisation grant mechanism. The equal distribution in per capita terms of shared revenues among local governments, introduced by the 2000 reform, does not take into account the differential social and economic conditions and developments among regions, that is, local governments' specific expenditure needs and/or their distinct revenue capacities. The implementation of a true equalisation mechanism is still a major challenge for the government in the near future.

The gradual reform to define expenditure responsibilities will help guarantee sustainability to the fiscal decentralisation process. However, a tax sharing allocation mechanism alone can hardly satisfy multiple objectives. If tax sharing (on a derivation basis) targets incentives for tax effort, then a complementary instrument is necessary to address equity issues. This is the need for an equalisation grant mechanism.

Access to borrowing

Although from the information available the level of municipal debt does not appear to be excessively high, it has increased rapidly in recent times. The true figure for the municipal debt is still not entirely transparent, and it is exposed to several fiscal risks and guarantees experienced by the Czech Republic during transition. Excluding the implicit contingent liabilities, municipal debt grew to 24 percent and 53 percent in 1999, from 5 percent and 11 percent in 1993, respectively, as a proportion of municipal total revenues and tax revenues. Local government borrowing in the Czech Republic remains unregulated, and formally municipalities have free access to credit. However, in practice there are restrictions to local borrowing: (a) the Ministry of Finance controls supply through moral suasion over the financial system; (b) there is a perception that the Commercial Code still restricts the use of collaterals by municipalities, which affects creditworthiness; and (c) the lack of revenue capacity limits access to capital markets by smaller municipalities.

However, financial market discipline in a transition economy like the Czech Republic is still in the make. Therefore, a disciplined, regulated subnational government borrowing system would be a good insurance against potential financial instability created by irresponsible borrowing behavior at the subnational level.

[5] This could be achieved, for example, by delegating upwards most responsibilities now assigned to smaller communities to "designated" or "statutory" towns or to the new regions.

[6] The only exception is 30 percent of the un-incorporated income tax proceeds, which will continue to be allocated on a derivation basis.

The Czech government has been considering options for increasing municipalities' responsible access to capital markets as an alternative source for infrastructure financing. The pre-conditions include establishing regulations to increase transparency and competition, and preserving the right market incentives and hard budget constraints. These regulations should essentially cover: (a) explicit limits for the overall level of debt and debt service obligations; (b) stronger bank supervision and internationally recommended prudential rules; and (c) a bankruptcy law and/or a law on fiscal responsibility which includes municipalities/regions as a subject. Moreover, development of public and private institutions (including private credit rating agencies) should be encouraged in order to guarantee proper monitoring and to avoid moral hazard situations.

Autonomy, transparency and accountability.

During the transition, local governments have gained substantial discretion for making expenditure decisions. However, there is still little revenue autonomy, which limits local authorities' accountability. Predictability and transparency in budget preparation have been affected by: (a) the lack of de facto synchronisation with the State budget; (b) uncertainty on the basic budget parameters; and (c) insufficient information on guarantees and contingent liabilities. While there has been no major disruptions in budget execution, budget control and performance evaluation remain weak.

The improvement of transparency and accountability at the subnational level in the Czech Republic will require: (a) empowering local authorities to determine tax rates within a bandwidth for meaningful local taxes, such as the property tax; (b) lifting central control on rents and tariffs; (c) allowing more freedom for mixing factors of production in the most economical way; and (d) publicizing all (approved and executed) transfers and guarantees. Budget predictability at the subnational level could be substantially improved by setting the basic parameters (including tax-sharing ratios, transfer/grant formulas) in organic laws instead of in the ordinary annual budget laws. With the elimination of the districts, the oversight function over municipalities (including accounting audit) was left undefined. Addressing this issue may present an opportunity to expand the scope of the audit function over subnational governments beyond the legal and procedural aspects (the input approach) to also cover program performance evaluation (based on outcomes).

The path ahead

Joining the EU will place new challenges on intergovernmental finances in the Czech Republic. With EU membership will come an obligation for consolidating its public finances, including that of reducing and maintaining general government deficit within the limits of the EU's Stability and Growth Pact. The question then arises of the appropriate division of this responsibility between the national and subnational levels in meeting this aggregate fiscal objective. Consequently, the problem of developing new institutions for fiscal coordination among different levels of government has become critical for the Czech Republic.

There is a need to establish legal and procedural frameworks for ensuring subnational governments fiscal behavior that is consistent with the obligation of EU membership. In this regard, the Czech Republic can learn from other European countries, which had to develop different institutions and procedures to conform themselves to the EU. For example, Belgium adopted a mechanism based on multilateral negotiations, which resembles the German approach, and created a High Financial Council to supervise the budgetary policies of regions and communities. Spain, in the context of the convergence program, has relied on bilateral negotiations leading to a set of agreements between the central government and each individual subnational government, where targets are set for deficit and debt. Austria and Italy have instead used a policy based on statutory rules, where the law fixes for a period of time the criteria for distributing the limit set in the Maastricht Treaty of European Monetary Union on public deficit among levels of government.

Furthermore, the EU regional policy, including a number of programs such as the structural funds, will impose constraints and set directions for the Czech Republic's own regional policies. Interestingly enough, unlike in most other European countries, the new regions in the Czech Republic were not created along historical lines (e.g., Bohemia, Moravia), but instead following the EU's Territorial Statistical Units Nomenclature (NUTS). This may facilitate the mobilisation of EU pre-accession and structural funds, without sensitising traditional regional sentiments.

Environmental Taxes: A Comparison of French and Swedish Experience from Taxes on Industrial Air Pollution*

Katrin Millock, Céline Nauges and Thomas Sterner**

Introduction

Environmental taxes are used to quite a large extent in European countries. OECD data show that these taxes represent around 3 percent of GDP on average (OECD 2003). The coverage and levels of environmental taxes is highly variable between countries. For example, Sweden, Norway and Denmark charge a tax on sulphur emissions (measured as sulphur dioxide, SO_2) which is approximately EUR 1300/tonne in Denmark and EUR 1600/tonne in Sweden, whereas SO_2 taxes in Italy, France, Switzerland and Spain, for instance, are all less than EUR 50/tonne (Sterner 2002). Most often, though, such taxes are used as complements to existing command-and-control regulation by emission standards. In order to overcome political resistance to environmental taxes, some countries adopted a system of earmarking under which the revenues of the charge are returned to the aggregate population of taxed firms.

In Sweden, the charge on NOx emissions from industrial boilers is automatically and fully refunded to the industries that paid the tax on the basis of their energy use (Sterner and Höglund 2000). This has led to a large number of abatement investments, fuel switching and other measures that reduced emission coefficients by about 50 percent within just 5 years for the 190 large plants that were first targeted. These plants now have very low emissions by international standards. The French air pollution tax from 1985–1999 constitutes another example of such an earmarked environmental tax, of which the revenues were used to subsidize pollution-reducing investments (abatement) at tax-paying emission sources.

Here we present recent empirical evidence on the ex post efficiency of this environmental tax. The French tax on air pollution partly resembles the Swedish NOx charge in that revenues were rebated back to industry, although in a more indirect manner (the firms have to apply for subsidies for specific abatement investments). Also, in Sweden, the tax rates for SO_2 and NO_x emissions are almost 100 times higher than the French tax rates. Notwithstanding, the analysis is of some interest since we use unique panel data on plant characteristics in order to assess the ex post effect of the combined tax and subsidy.

The French tax on air pollution

The French tax on air pollution ("taxe parafiscale sur la pollution atmosphérique", la TPPA) that we evaluate here was introduced initially in 1985 for SO_2 emissions, and subsequently extended in 1990 to encompass NO_x[1] and hydrochloric acid (HCl) and then in 1995 also emissions of volatile organic compounds (VOC)[2]. From 1990 onwards, the tax was imposed on any entity that fulfilled either of two criteria: a maximum combustion capacity equal to or exceeding 20 MW or annual emissions of more than 150 tonnes of either SO_2, NO_x, HCl or VOC. Household waste incineration plants with a capacity exceeding 3 tonnes an hour were also subject to the tax. In 1990, the tax targeting SO_2, NO_x, and HCl emissions was set at a rate of approximately EUR 23/tonne. It was increased in 1995 to EUR 28/tonne, and again in 1998 to EUR 38/tonne for NO_x and VOC only. If the total tax due was less than EUR 153 for a unit, no tax was levied. This made for a total of tax-paying sources ranging from 1200 in 1990 to nearly 1500 in 1999. The system targeted air pollution from fixed sources only and did not comprise emissions from the transport sector.

The tax was administered by the French Agency for Environment and Energy Management

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[1] The tax is levied on the sum of nitrogen oxide (NO) and nitrogen dioxide (NO2), expressed in units of NO2, and nitrous oxide (N2O).

[2] The extension in 1995 also included small particulate matter, but at that date the tax rate was set at zero for those emissions. In the empirical analysis presented here, we concentrate on the three major pollutants: SO2, NOx and VOC.

(ADEME)[3] which received 6 percent of the tax revenues towards its administration costs. The system was based on self-reporting of emissions from the previous year, and ADEME reports a high level of enforcement: over 90 percent of taxes due were actually paid. The revenues from the tax were earmarked for subsidies to abatement investments or for research and development, corresponding to 75 percent of total tax revenues. Any plant subject to the TPPA could apply for a subsidy, which was awarded according to percentage rates of the additional fixed capital investment for emission reductions: 15 percent for standard abatement technologies, and 30 percent for particularly innovative technologies. There was also an additional 10 percent subsidy for small and medium-sized companies. A study of ADEME data shows that almost all applications were funded, and in this sense, there was to a certain extent an automatic refunding of the tax revenues to the aggregate population of companies. The distributional impact, however, depended on whether a plant took the initiative to ask for an abatement subsidy.

In the year 2000, the TPPA was replaced by a general pollution tax[4] levied by the customs authorities and no longer administered by ADEME, which nevertheless continues to handle requests for abatement subsidies paid out of the general government budget. Our analysis encompasses the period when the TPPA was an integrated earmarked tax system.

Applied analysis

The empirical analysis (Millock and Nauges 2003b) aims to explain the level of emissions by a plant, controlling for the tax rate, the characteristics of the plant in terms of its production process (maximum combustion capacity and energy consumption) and financial information available at the firm level (value added, self-financing capacity). We also control for technological change or equivalently for subsidies requested from ADEME by a plant willing to invest in an abatement technology. The choice of the plant to benefit from the system of subsidies, which may be endogenous in the model, is described as a function of the tax rate and firm level data, namely, the number of employees, self-financing capacity and value added. We do not observe any penalty in case of non-compliance but we use the average number of measurement points with at least one exceedance of an hour of the air quality standards as a proxy for the compliance level in the region where the plant is located.

Information regarding emissions, taxes, and subsidies were collected at ADEME for each plant subject to taxation according to French air pollution regulation over the period 1990-98. A search for plant ID numbers allowed us to match the existing plant-level emission data with firm-level data from the annual business survey made by the French Ministry of Industry. Finally, in order to include the effect of differences in compliance and enforcement of technology based standards, we have added data from IFEN, the French National Institute of the Environment, on exceedance of air quality standards.

The analysis focuses on three pollutants (SO_2, NO_x, VOC) and five industrial sectors (plastic and rubber, cars, iron and steel, coke, and chemistry). These sectors were chosen because of their large contribution to overall pollution and because of their high rate of subsidy requests for pollution abatement. The sector of plastic and rubber, and the car industry are VOC emitters, whereas the other three sectors primarily emit SO_2 and NO_x.

The main objective of the study was to evaluate the abatement elasticity with regard to the tax and the subsidy. Separate estimations were made for each of the five sectors. In general, the tax had a significant negative impact on VOC and SO_2 emissions, but not on NO_x emissions (for which abatement is technically more difficult). All else equal, the higher the tax rate, the higher the probability that the firm applied for an abatement subsidy. The effect of the subsidy, however, generally seemed to have increased emissions significantly and to an extent that dwarfed the negative impact of the tax. Finally, the impact of business data is often found significant but varies by sector. We describe below in more detail the impact of each group of variables.

Tax and subsidy

Table 1 sums up the main results regarding the impact of the tax and the subsidy on emissions by sector.

[3] Agence de l'Environnement et de la Maîtrise de l'Energie.
[4] La Taxe Générale sur les Activités Polluantes (TGAP).

Table 1

Impact of the tax and the subsidy on emissions by sector

	Plastic & rubber		Car industry		Iron & steel		Coke		Chemistry	
	Tax	Subs.	Tax	Subs.	Tax	Subs.	Tax	Subs.	Tax	Subs.
VOC em.	–	+	ns	+	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
NO_x em.	n.a.	n.a.	n.a.	n.a.	ns	–	ns	+	–	ns
SO_2 em.	n.a.	n.a.	n.a.	n.a.	–	ns	ns	+	–	+

Note: "ns" means that the tax/subsidy has a non-significant (at the 10% level of confidence) impact on emissions.

As far as VOC emissions are concerned, the tax had a negative effect on emissions but it is significant only for plants belonging to the sector of plastic and rubber. As there is no inter-firm variation in the tax rate, we may capture a general trend in addition to the direct effect of the tax. The data do not allow us to distinguish, e.g., a sharpening of technology standards. We thus have to caution that the results should be interpreted as an upper bound on the tax response.

Except for the model of the chemistry sector, the NO_x tax is not significant in any of the models even if it has the expected negative sign. We attribute this to the TPPA regulation's statutes for monitoring. Under the TPPA regulation, firms could choose between using direct emissions monitoring or using standardised emission factors to estimate emissions from fuel consumption data. For SO_2 emissions, the use of emission factors may proxy real emissions quite well. For NO_x emissions, on the contrary, accurate real emissions monitoring would have been more important since emissions vary strongly with fine-tuning of plant operations. The incentive effect of the tax thus seems to have been larger for SO_2 emissions than for NO_x emissions (as can be seen from Table 1), since an estimation of NO_x emissions gives weaker incentives for abatement investments. It is only in the sector of coke, which is an industry in decline, that the SO_2 tax had no significant impact on emissions.

Furthermore, we find that a higher tax rate did increase the probability to apply for a subsidy and to install new abatement equipment in the sectors of plastic and rubber, iron and steel, coke, and chemistry.

The effect of the rebating in the form of a subsidy towards abatement technology differs according to sector but in general the abatement subsidy appeared to have had a positive impact on emissions (except for the iron and steel industry). The most likely explanation of this result is a kind of output or "rebound" effect. The installation of an end-of-pipe abatement technology can have a rebound effect similar to what has been observed for energy efficiency improvements. Even if emission coefficients are reduced (as they are almost bound to be by a specific abatement subsidy) there may well have been increases in production that were sufficiently large to reverse this effect on absolute emission levels. Unfortunately, we did not have data on individual production that allowed us to quantify this effect.

Regulatory pressure

As concerns regulatory pressure, plants located in regions with a larger exceedance of air quality SO_2 standards invest more in abatement technology, all other things equal. Surprisingly, the opposite effect was found in the case of NO_x.

Business data

In general, large plants (measured as those with a high number of employees) were more likely to invest in a new abatement technology. Larger firms can be assumed to have better information about available subsidies and financing possibilities. The impact of self-financing capacity and value added on the investment decision vary by sector. Plants with a higher self-financing capacity and a lower valued added are more likely to invest in a new abatement technology in the sectors of iron and steel, and chemistry. In the coke sector, the opposite holds.

The Swedish Refunded Emission Payment on NO_x

There are several reasons behind Sweden's decision to refund emission taxes for NO_x. A crucial problem in this context is that a tax on all point sources of airborne NO_x emissions was impossible since monitoring was too expensive for small units. NO_x emissions are not like sulphur emissions which can easily be calculated based on the sulphur content of the fuel. NO_x emissions are largely due to the chemical reaction in the combustion chamber between nitrogen and oxygen from the air. The extent and speed of this reaction is highly nonlinear in temperature and other combustion parameters. This has two implications: Firstly it implies that there is a large scope for NO_x reduction through various technical measures. The environmental charge should therefore stimulate innovation in abatement technology. Secondly, physical measurements and monitoring are absolutely necessary. Experience from the Swedish program has shown that it is not just the abatement equipment but the fine-tuning of operation that leads to NO_x reduction. Actual monitoring is required both for outside inspectors and, indeed, for plant engineers to know emissions levels and therefore which measures are successful. If small units were to be excluded because of high measurement costs, a high tax levied only on large units would encourage the operation of small, and less efficient units. The politically feasible solution, which still allowed for a high charge level, was to impose the fee only on the large combustion furnaces but refund it to the same group of firms.

The fee (of SEK 40 per kg which is at current rates above 4,000 EUR/ton) initially applied to all boilers producing at least 50 GWh of energy per year. Roughly 200 plants were affected including not only the energy sector but also pulp and paper mills, food, metal and other manufacturing as well as waste incineration plants. In 1996 and 1997, the limits for eligibility were lowered to 40 and 25 GWh/year, respectively, bringing in about 170 new units into the scheme. The Swedish EPA manages the scheme at a small administrative cost amounting to 0.2–0.3 percent of revenues. The entire, remaining, revenue of about 600 million SEK (about € 70 million) per year is refunded. Table 2 shows that the refunded emission payment has indeed had some quite significant effects in reducing emission coefficients.

Table 2

The development of emission coefficients in the Swedish NO_x scheme – kg NO_x /MWh produced energy –

	1992	1995	1997	1999	2000
Min	0.13	0.10	0.08	0.07	0.06
Max	0.99	0.78	1.04	0.88	0.90
Median 190	0.39	0.23	0.21	0.19	0.19
Average	0.41	0.27	0.28	0.26	0.25

Note: Minimum (maximum) emission coefficients are average for the 10 best (worst) plants. Median 190 is the median coefficient for the 190 firms that were included throughout the period. The "average" also includes plants that were included as the scheme was enlarged to cover more (and smaller) units.

Conclusion

The results indicate that the overall effectiveness of a revenue rebating scheme where the rebate is tied to abatement subsidies like the French air pollution tax system during the 1990s can be questioned. In general, the tax had a significant negative impact on SO_2 and VOC emissions, but not on NO_x emissions. We attribute this difference in the impact to the French regulation's monitoring procedures for emissions. The lack of real emissions monitoring severed the link between the tax base and actual emissions and diluted the incentive effect of the tax for this particular pollutant. All else equal, the higher the tax rate, the higher the probability that the firm applied for an abatement subsidy. The combined subsidy, however, generally increased emissions significantly and to an extent that dwarfed the negative impact of the tax. Nevertheless, our results vary by sector and show the importance of a disaggregated analysis.

In addition to these results, we furthermore find that the combined tax/subsidy biased the technology adoption decision towards investing in end-of-pipe measures rather than clean technology in the sense of a reorganization of production, input use, etc. In fact, the proportion of end-of-pipe investments in our sample varies from 62 percent in the sector of plastic and rubber to almost 90 percent for SO_2 and NO_x emissions in the chemistry sector (ADEME). Part of the difference in the proportion of end-of-pipe investments between sectors is due to the fact that substitution and recycling of inputs may be more feasible for VOC emissions than for NO_x and SO_2 emissions. Nevertheless, the high prevalence of end-of-pipe investments is also due to the rules for granting a subsidy. Since subsidies were set as fixed percentages of the capital investment cost, this biased the incentives towards capital-intensive end-of-pipe measures.

So what policy advice might be given to improve upon the functioning of environmental taxes on air pollution, in particular? By comparison with Scandinavian environmental taxes, the French tax on air pollution was set at a relatively low level. It is likely that this level was too low to warrant most of the relevant and effective abatement technologies. This is a fundamental problem when it comes to NO_x emissions where abatement is fairly costly and the tax level thus needs to be very high in order to provide a real incentive for firms to abate. It implies that the political economy of the instrument chosen is very important. It appears that the automatic and full rebating of the Swedish tax made it politically easier to set a sufficiently high tax level and this may be a vital advantage of that form of rebating.

We would argue, however, that there are other fundamental institutional features of the tax that need to be addressed in order to improve the incentives effect of the tax. In the first place, monitoring of real emissions is a vital prerequisite to keep the link between the tax base and emissions, in particular for emissions of NO_x. It is instructive, in this regard, to compare the French tax on NO_x with the Swedish revenue-recycled charge on NO_x from industrial sources (Millock and Sterner 2004). The refunding of the revenue of the Swedish NO_x charge was motivated in part by the requirement to install costly monitoring equipment. The experience with the Swedish NO_x charge showed that it is not simply the installation of abatement equipment that matters but its fine-tuning and continued adjustment to the production process, in particular for NO_x emissions, where emissions depend not only on the fuel input but also on process factors such as the temperature and oxygen content of the combustion chamber. Precise monitoring equipment encourages the firm to continually minimize emissions. In the absence of real time monitoring, even the plant engineers themselves will not know which controls increase or decrease NO_x emissions, and they will thus be unable to fine tune them.

The other important design feature concerns the mechanism by which the tax revenues are refunded to the tax-payers. Under the French regulation, tax revenues were used to subsidize abatement investments and the selection of projects was made following an administrative procedure. Such a rule has at least three drawbacks. First, firms may receive subsidies for investments that they would have undertaken anyway. Second, there is no built-in check on the ex post efficiency or proper use of subsidized abatement equipment. By comparison, the revenues from the Swedish NO_x charge were refunded in relation to the amount of energy produced by the specific plant. An automatic refunding rule like that of the Swedish NO^x charge provides continuous incentives to firms to reduce emissions and become more efficient in terms of emissions per energy unit. Such a refunding rule can be envisaged in the case of emissions deriving from energy use, since a common measurement unit (energy) exists across different industrial sectors. It would be difficult for emissions such as VOC that derive from different kinds of solvents, however. Third, the calculation of subsidies as a percentage of capital costs seems likely to have created a bias towards end-of-pipe measures rather than towards production processes that recycles or substitutes polluting inputs.

In conclusion, refunded environmental taxes have a real potential to reduce emissions in an efficient manner, but as with all instruments, the institutional design of the tax system is crucial.

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A Note on Public Spending Efficiency

António Afonso *

Introduction

The adequate measurement of public sector efficiency, particularly when it concerns services provision, is a delicate empirical issue and the literature on it, particularly when it comes to aggregate and international data, is rather scarce. Even when public organisations are studied, this is seldom done in an international and more aggregate framework, and international comparisons of public spending performance and efficiency do not abound.[1]

In his analysis of public investment and growth Barro (1990) discusses the relevance of government expenditure in public infrastructure for economic growth, while Romer (1990) makes a point for the importance of research and development expenditure for growth. As mentioned by Feldstein (2002), a major change in the public finance literature in the last three decades is the inclusion of government spending as well as taxation as privileged topics of research. Furthermore, most authors tend to use the share of total expenditures of general government in GDP as a measure of the size of the public sector. These simple ratios by themselves give little information about the quality of the outcomes generated by public spending, and of the relative and absolute performance of the government as a provider of public goods.

Additionally, the literature has also been assessing the role of rules and institutions, and the scope for privatising public sector activities.[2] The majority of the studies conclude that public spending could be much smaller and more efficient than today. However, for this to happen, governments should try to implement better institutions and should reassign many non-core public sector activities to the private sector.

Public sector performance

In the context of the current fiscal framework of the European Union (EU), several challenges are presented to EU member countries, namely the need to ensure sustainable public finances in order to avoid undermining the role of the euro. Indeed, it is usually mentioned in several European forums that fiscal consolidation with emphasis on structural expenditure reform can strengthen confidence and support growth.

It is also worth recalling that under the Maastricht Treaty and the Stability and Growth Pact framework – primarily designed for maintaining fiscal discipline within adequate bounds of flexibility – public spending levels are paramount. Therefore, increased attention both to public expenditure performance and efficiency is welcomed and needed from policymakers and practitioners. This includes not only the level of government spending but also the composition of such expenditures.

The upward trend on public spending in most developed countries in the last decades, namely since the 1970s, recurrently poses the question of assessing the performance of such spending. Even allowing for the possibility that in some cases the costs of providing goods and services in the public sector rose more than in the private sector, the rise in public spending may become a worrisome issue for some countries. In this context, the availability of an indicator of public sector performance, which allows for international comparisons, would be rather useful. This might then be used to tentatively rank countries among themselves and also as a possible cross-country output measure of public spending.

In order to compute a composite indicator of public sector performance Afonso, Schuknecht and Tanzi (2003) use several sub-indicators of public performance that take into account, for instance, administrative, education, health and public infrastructure outcomes. They also look at several other indicators in order to incorporate information on the usually defined "Musgravian" functions of the government: macroeconomic stabilisation, income redistribution and efficient resource allocation.

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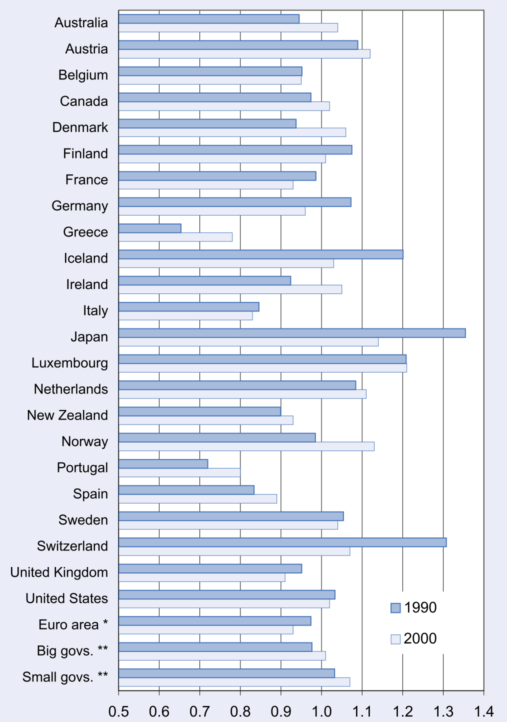
[1] Some examples are provided by Clements (2002) for education spending in Europe, by Gupta and Verhoeven (2001) for education and health in Africa, by Afonso, Schuknecht and Tanzi (2003) for public expenditure performance and efficiency in OECD countries, and by Afonso and St. Aubyn (2004) for health and education efficiency in OECD countries.

[2] See, for instance, Mueller (1997), Persson and Tabellini (2001), Strauch and Von Hagen (2000), and Tanzi and Schuknecht (2000).

INDEX OF PUBLIC SECTOR PERFORMANCE
(average = 1.0)



* Weighted average according to GDP ** Small governments: public spending < 40% of GDP; big governments: public spending > 50% of GDP
Source: Afonso, Schuknecht and Tanzi (2003).

The so-called performance indicators are compiled from various indices that each have an equal weight. For example, red tape, efficiency of the judiciary, corruption and size of the shadow economy each contribute 25 percent to the administrative performance sub-indicator, with the values for each country normalised in order to obtain an average of one. Figure 1 is based on the results presented by the authors for public sector performance in 1990 and 2000.

One can see some differences in public sector performance among countries and across time. For instance, countries such as Austria, Japan, Luxembourg, the Netherlands and Norway have the highest public sector performance indicator in 2000. Looking at country groups, small governments on balance report better economic performance than big governments (public spending above 50 percent of GDP) both in 1990 and in 2000. Japan and the US report above-average performance in this public sector performance index. By contrast, the euro area (weighted average) performs below average.

Additionally, some countries managed to deliver a relative improvement in public sector performance between 1990 and 2000, and other countries showed a decrease in public sector performance. Examples of the first group of countries are Greece, Portugal, Spain and Ireland. This development is probably related to the catching up that, in different degrees, those countries pursued towards the EU average living standards. Nevertheless, only Ireland succeeded in placing itself above the average of the 23-country sample.

Some countries seem to have experienced reductions in public sector performance. For instance, Japan and Switzerland saw their performance fall in 2000 compared to 1990. This is also true for the euro area as a whole. However, and as pointed out in the aforementioned study, progress in public sector performance made by the different countries over time is measured relative to other countries and not relative to its own past performance. Therefore, and one has naturally to stress this point concerning the author's results, any assessment of absolute performance changes must be done with great care.

Efficiency in education and health

Education and health expenditures are the programmes that in principle contribute most to improve the allocation of resources and tackle the issue of the provision of goods and services, which aim at correcting some market failures. Furthermore, spending in education, whether public or partly privately funded, is usually considered as more growth enhancing than some other expenditure items. For instance, public investment in education should increase the level of human capital and this can be seen as one of the main sources of long-run economic growth.

Normally, efficiency studies consider financial measures as the most relevant variable. Indeed, public expenditure, expressed as a share of GDP, can be assumed to reflect the opportunity costs of achieving the corresponding public sector performance. Looking at some descriptive figures, one can notice that public spending-to-GDP ratio in the OECD area declined moderately since the 1993 peak to remain somehow above 40 percent in 2002. Nevertheless, public expenditures differ considerably across countries. Average total spending in the 1990s ranged from around 35 percent of GDP in the US to 64 percent of GDP in Sweden.

Table 1
Education efficiency analysis, 2000

Country	Input efficiency score	Rank	Dominating producer
Australia	0.850	13	Korea
Belgium	0.689	18	Sweden
Czech Republic	0.931	7	Sweden
Denmark	0.912	10	Sweden
Finland	1.000	1	
France	0.832	14	Korea
Germany	0.961	6	Korea
Greece	0.758	16	Sweden
Hungary	0.801	15	Sweden
Italy	0.730	17	Sweden
Japan	1.000	1	
Korea	1.000	1	
Mexico	1.000	1	
New Zealand	0.914	9	Korea
Portugal	0.879	11	Sweden
Spain	0.876	12	Sweden
Sweden	1.000	1	
United Kingdom	0.922	8	Korea
Average	0.892		

FDH analysis, 2 inputs (hours per year in school, teachers per 100 students), and 1 output (PISA 2000 survey indicator).

Source: Afonso and St. Aubyn (2004).

These differences are mainly due to more or less extensive welfare programs. On the other hand, public spending on health and education differs much less strongly across countries.[3]

Most of the studies on (public) spending efficiency analysis use non-parametric approaches, such as the Free Disposable Hull (FDH) or Data Envelopment Analysis (DEA), and the inputs used are usually measured in monetary terms.[4] Some studies however, try to use, besides monetary inputs, also quantitative input measures.

For instance, Afonso and St. Aubyn (2004) assessed the efficiency in education and health in OECD countries in 2000 by looking at quantity measures of inputs used to reach the recorded outcome of secondary education and health performance. The authors used the OECD computed PISA indicator as the output measure and two quantity measures as inputs: the number of hours per year spent in school and the number of teachers per student. The results of the efficiency analysis are partially reproduced in Table 1 and are based on an FDH efficiency analysis.[5]

In Table 1, countries with an input efficiency score of one (maximum value, by construction) are located on the theoretical production possibility frontier. This means that for the available country sample, no other country reports a higher output level using the same or less input than the countries on the production frontier. In other words, the input efficiency score of a given country indicates how much less input this country could use to achieve the same level of output. For instance, on average, this sample of 18 OECD countries was able to attain the same level of output in education with a reduction in resources of around 10.2 percent (1–0.892).

According to the results and the discussion provided by the authors, Hungary, for example, is dominated by Sweden, which has a lower number of hours per year spent in school and a higher students-to-teachers ratio. Furthermore, both Japan and Sweden had a better performance in terms of the outcome than Hungary in the PISA education index. Additionally, Sweden and Finland come up as efficient since they have a students-per-teacher ratio not very different from the average, they are below average in terms of hours per year spent in school, and are above average concerning the PISA index ranking.

However, the main aspect seems to be that the use of quantity measures as inputs instead of financial measures provides a better balance of the relative importance of the inputs used by each country. Indeed, it seems natural that in more developed countries like Sweden and Finland the cost of resources is higher than in less developed countries like Hungary and Mexico.

Still in the same study, Afonso and St. Aubyn (2004) also address health efficiency using quantitatively measured inputs: number of doctors, nurses and hospital beds. The outcomes are infant mortality and life expectancy. Those results, on the basis of a DEA efficiency analysis, are partially reproduced in Table 2.

Efficient countries are Canada, Japan, Korea, Mexico, Spain, Sweden, Turkey and the United Kingdom. The authors provide some explanations for the relative positioning of the countries in

[3] See namely EC (2002) and OECD (2003).
[4] For the interested reader, Simar and Wilson (2003) provide a nice overview of these non-parametric methods.

[5] According to the authors, education expenditure is predominantly public, and particularly in European countries (92.4 percent of total educational expenditure is public in the European Union). Public expenditure in health is usually more than half of total expenditure, and it averaged 72.2 percent of total expenditure in the OECD.

Table 2

Health efficiency analysis, 2000

Country	Input efficiency score	Rank	Dominating producers
Australia	0.832	11	Canada, Japan, Spain, UK
Austria	0.703	21	Japan, Korea, Sweden
Canada	1.000	1	
Czech Republic	0.681	22	Japan, Korea, Sweden
Denmark	0.808	14	Korea, Mexico, Spain, Sweden
Finland	0.806	15	Japan, Korea, Sweden
France	0.835	10	Japan, Korea, Spain, Sweden, UK
Germany	0.604	24	Japan, Korea, Sweden
Greece	0.820	13	Korea, Mexico, Spain
Hungary	0.480	26	Korea, Mexico, Turkey, UK
Ireland	0.716	19	Japan, Korea, Sweden
Italy	0.798	16	Mexico, Spain, Sweden
Japan	1.000	1	
Korea	1.000	1	
Luxembourg	0.707	20	Japan, Korea, Spain, Sweden, UK
Mexico	1.000	1	
Netherlands	0.579	25	Canada, Japan, Korea, UK
New Zealand	0.830	12	Canada, Japan, Korea, UK
Norway	0.726	17	Japan, Korea, Sweden
Poland	0.679	23	Mexico, Turkey, UK
Portugal	0.844	9	Korea, Mexico, Spain, Sweden
Spain	1.000	1	
Sweden	1.000	1	
Turkey	1.000	1	
United Kingdom	1.000	1	
United States	0.725	18	Mexico, Sweden, UK
Average	0.814		

DEA analysis, 3 inputs (doctors, nurses and beds), and 2 outputs (infant mortality and life expectancy).

Source: Afonso and St. Aubyn (2004).

terms of rankings. For instance, some countries have few resources allocated to health with corresponding low results (Mexico, Turkey). Another group of countries attains better than average results with lower than average resources (e.g. the United Kingdom). Finally, there is a third group of countries that are very good performers (e.g. Canada, Japan and Sweden).

For this sample of 25 OECD countries, and according to the results reported by the aforementioned study, countries do not seem to perform thatpoorly, taking into account the available mix of quantitatively measured inputs. Nevertheless, some efficiency gains might be achieved since on average, countries could attain the same level of health related outcomes with 18.6 percent fewer resources (1–0.814).

Summary and conclusion

According to the two briefly surveyed studies in this note, there seems to be significant differences in public sector performance for industrialised countries. When looking at particular public sector functions such as education and health, the results available in the literature also point to some relevant differences among developed countries.

Countries with small public sectors seem to be able to report "better" overall public sector performance in 2000. On the other hand, countries like the US, or Japan, seem to be in a better relative position than, for instance, the euro area. Nevertheless, an important caveat to bear in mind, when reading the aforementioned results, relates to the fact that public spending measurement issues are quite relevant in drawing cross-country comparisons.

Some countries come up as rather efficient in education and health related outcomes, even if for different reasons: for instance, Japan, Korea, Sweden, Finland and Canada, in education and Japan, Korea, Spain, Sweden and UK in health. Again, another important word of warning is the fact that countries are different with respect to the mix of public and private funding of education and health, even if the majority is publicly funded. One possible source of inefficiency could derive from the interaction between these.

Therefore, one has to be careful when trying to derive policy conclusions from this sort of studies. Indeed, more important than to identify relative differences in the efficiency of public sectors among countries is the most difficult challenge, namely how to address the inefficiencies. This is particularly acute for countries that run high public deficits and where spending curtailing is necessarily in the pipeline, also as a need for ensuring long-run fiscal sustainability. Under such circumstances, an assessment of the quality of each euro or dollar spent by the government becomes more and more relevant.

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What Can be Learned from Continental Europe's Largest Privatisation Program? Italy 1993 to 2003

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In 1992, when a large-scale privatisation program was launched in the midst of a dramatic political, economic and financial crisis, the Italian public enterprise sector was larger than in other major OECD countries. Although state owned enterprises (SOEs) may have made a significant contribution to growth in the 1950s and early 1960s (Barca and Trento 1997), over time they increasingly became the source of production inefficiencies and misallocation of resources. Non-economic goals were imposed upon public managers, effective incentive systems and monitoring devices were lacking, and the response to changes in market and technological developments was slow due to the lack of competitive pressures in the sheltered markets where most of these enterprises were operating.

A complex legal framework, capped at least temporarily by the 1994 privatisation law, allowed successive governments to complete large sell-offs, increasing both stock market capitalisation and the number of shareholders and contributing substantially to the reduction of public debt and therefore to the convergence towards the Maastricht criteria. Quantitative results have been nothing short of outstanding: Italy has topped the OECD privatisation ranking each year in 1995–99 (from number 9 in 1992) before falling to the second place in 2000. Annual proceeds averaged some US$ 12 billion during 1992–2000, equivalent to 1.1 percent of 2000 GDP. Albeit only partial, the 1999 privatisation of ENEL, the electricity utility, was the world's largest initial public offer (IPO) ever at that time. IRI, the state-owned industrial holding that played such an important role not only in the country's post-war catch-up but was also a sort of model for policy-makers in many late-industrialising countries was liquidated; control over ENI, the oil and gas group, was transferred to the private sector; the state exited almost completely from a wide range of manufacturing sectors; and in telecommunications not only was the historical operator sold off, but control over Telecom Italia (TI) has changed hands twice since privatisation – an occurrence that is unheard of in the world history of utilities privatisation! Finally, there are good reasons to believe that, on account of credibility gains and improvements in the size and efficiency of financial markets, privatisation contributed to fiscal consolidation through positive effects on net debt service. This paper reviews the motives, methods, and results of Italian privatisations.

The institutional set-up

The 1992 framework document presented by the government to Parliament set out the four general goals of privatisation: i) to improve corporate efficiency; ii) to increase the degree of market competition; iii) to widen financial market and promote the internationalisation of the industrial system; and finally – and "residually", iv) to increase fiscal revenues and reduce public debt. The main normative actions concerning privatisation can be categorised under different, albeit obviously intertwined, headings:

- Corporatisation – i.e. the application of the rules of the civil code to SOEs – entrusted their single shareholder, the Treasury, and their managers with the same responsibilities and obligations faced by the owner of a private firm. This virtually eliminated activities run by administrative bodies, drastically reducing the number of legally-autonomous activities run under public law and simplifying the control structure. In addition, the so-called golden share granted the Treasury special powers in public enterprises operating in the areas of defence, transportation, telecommunications, and energy.
- Although the law imposed a cumbersome, 7-step procedure, de facto the Treasury – and in particular its privatisation division – has kept most of the powers, providing technical support to the inter-ministerial committee on privatisation and liaising with the management of the public enterprises. The privatisation process was also made more flexible than in other EU coun-

* OECD Development Centre (Paris). This is an abridged version of CESifo Working Paper no. 912, to which the interested reader is also directed for a more complete bibliography. The opinions expressed and arguments employed are my sole responsibility and do not necessarily reflect those of the OECD, the OECD Development Centre and their Members.

Table 1

Major privatisations in Italy since 1993

	Corporation (Group)	Method of sale	Percentage sold	Gross proceeds (EURm)
1993	Italgel	Private agreement	62.12	223
	Cirio-Bertolli-DeRica	Private agreement	62.12	160
	Credito Italiano (IRI)	Public offering	58.09	930
	SIV (EFIM)	Auction	100.00	108
	Total for year			1 422
1994	IMI – 1st tranche	Public offering	32.89	927
	COMIT (IRI)	Public offering	54.35	1 493
	Nuovo Pignone (ENI)	Auction	69.33	361
	INA – 1st tranche	Public offering	47.25	2 340
	Acciai Speciali Terni	Private agreement	100.00	322
	SME – 1st tranche	Private agreement	32.00	373
	Total for year			6 377
1995	Italtel	Auction	40.00	516
	Ilva Laminati Piani	Private agreement	100.00	1 298
	Enichem Augusta (ENI)	Auction	70.00	155
	IMI – 2nd tranche	Private agreement	19.03	472
	SME - 2nd tranche	Accept takeover bid	14.91	176
	INA - 2nd tranche	Private agreement	18.37	871
	ENI – 1st tranche	Public offering	15.00	3 253
	ISE	Auction	73.96	191
	Total for year			7 106
1996	Dalmine	Auction	84.08	156
	Nuova Tirrena	Auction	91.14	283
	SME – 2nd tranche	Accept takeover bid	15.21	62
	INA – 3rd tranche	Converted bond issue	31.08	2 169
	IMI – 3rd tranche	Public offering	6.94	259
	ENI - 2nd tranche	Public offering	15.82	4 582
	Total for year			7 742
1997	ENI - 3rd tranche	Public offering	17.60	6 833
	Aeroporti di Roma	Public offering	45.00	307
	Telecom Italia	Core investors + public offering	39.54	11 818
	SEAT editoria	Core investors + public offering	61.27	854
	Banca di Roma	Public offering + bond issue	36.50	980
	Total for year			20 940
1998	SAIPEM (ENI)	Public offering	18.75	589
	ENI – 4th tranche	Public offering	14.83	6 711
	BNL	Public offering	67.85	3 464
	Total for year			10 764
1999	ENEL	Public offering	31.70	16 550
	Autostrade	Auction + public offering	82.40	6 722
	Mediocredito Centrale	Auction	100.00	2 037
	Total for year			25 382
2000	Aeroporti di Roma	Direct sale	51.2	1 327
	Finmeccanica	Secondary public offer	43.7	5 505
	COFIRI	Direct sale	100.0	504
	Banco di Napoli	Tender share to takeover bid	16.2	493
	Total for year			7 933
2001	ENI – 5th tranche	Accelerated block building	5.0	2 721
	Total for year			2 907
2002	Telecom Italia	Placement with institutions	3.5	1 400
	Total for year			1 498
2003	ETI	Auction	100.0	2 325
	ENEL	Bought deal	6.6	2 170
	Total for year			4 556
	Total 1993-2000			100 033

Source: Ministero del Tesoro, Bilancio e Programmazione Economica (2000), Italy's Report on Economic Reform and other sources.

tries by the wide latitude given to the management of IRI and ENI over the day-to-day conduct of the restructuring process of their subholdings and subsidiaries. Finally, a special commission (Comitato permanente di consulenza globale e di garanzia), composed of the Treasury Director and four independent experts, was set up in June 1993.

- Beyond and above the intention stated by the government of making the greatest effort to achieve the Maastricht convergence criteria and ensure Italy's participation as founding member of the Economic and Monetary Union, external pressures to privatise took the form of two binding commitments with the European Commission. This stance was partly the result of pressures by the European Commission for policies consistent with article 90 of the Treaty of Rome and the EU-wide restructuring of the steel industry.
- Concerning methods, Law 474 made explicit the preference for public offers. In order to dilute ownership concentration and ensure a better representation of small shareholders, statutes were changed to put limits to the amount of shares owned by single investors and introduce proportional representation for the election of the boards of directors. The resort to mixed techniques, involving direct sale to long-term investors, was legalised in 1995.
- Finally, the privatisation law made the sale of public utilities conditional on the institution of independent regulatory authorities (IRAs) to fix tariffs and oversee compliance with quality standards (see infra 3.3).

Italian privatisation 1993- 2003: a synthesis

Although companies to be sold were identified as early as December 1992, privatisation properly started only in late 1993, when a precise timetable was established and the first private sales took place. This long period of gestation reflected the need to establish the legal and policy framework as much as the persistence of diverging views among political parties supporting the government on the aims and scope of state divestitures. In the seven months to June 1994, three major banks and INA, Italy's second-largest insurance company, were sold through public offers (Table 1). ENI pruned non-core activities through plant closures and widespread asset sales. EFIM received EUR 439m from the sale of its core assets (aluminium, glass, etc.) and transferred its subsidiaries in defence, aerospace, and rail equipment to Finmeccanica. IRI was liquidated on 28 June 2000 and the Treasury mandated the Comitato dei Liquidatori to finalize the sale of remaining assets by end-2003. Its shareholdings in Alitalia (53 percent) and RAI (99.5 percent) were transferred to the Treasury.

Sales can be categorised according to different classifications.

- In terms of timing, activity peaked in 1997–99 at roughly two thirds of the 1992–2000 total. In 1997, in particular, privatisation accounted for 45.9 percent of the total capital raised on the Milan Stock Exchange. The decline in activity in 2001 was due in part to unfavourable equity market conditions leading to postponement of planned transactions such as the sale of further stakes in ENEL. The only significant activity recorded in 2002 was the sale of the residual 3.5 percent Treasury stake in TI. In July 2003, a consortium led by British American Tobacco bought ETI, the tobacco monopoly, for EUR 2.3 million. In October 2003 a 6.6 stake in ENEL was sold to a bank in a bought deal.
- In terms of sequencing, as more than 80 percent of credit was state-controlled, it was paramount to privatise public banks first. This reflected both the danger that banks acquire shares of state-owned enterprises or convert debt of private non-financial enterprises into equity, and the fact that the so-called "banks of national interest" owned by IRI were among the most profitable and attractive state enterprises. Concerning manufacturing enterprises, the initial emphasis was on the food and heavy industries (steel and glass in particular). In fall 1993, in the face of mounting debt that was on the verge of wiping out net capital, IRI's sub-holding for iron and steel (Ilva) was liquidated, its industrial activities were transferred to two new companies that were privatised, and the giant Bagnoli plant was closed down. Not surprisingly, in peak years oil and utilities companies (including local ones) accounted for the largest share of receipts by far. Finally, the weight of the transport sector is minimal as railways, the ferry operator and the airline remain under state control.
- The choice of the sale technique has an obvious impact on the desired structure of property rights in privatised firms and ambiguity about

sale procedures indeed reflected conflicts within the government over what kind of private ownership structure was to be encouraged. Partisans of noyaux durs and people's capitalism, using the French and the British experiences as show-cases, entered into a heated cabinet dispute which eventually led to the resignation of a minister. Although a number of non-financial enterprises were initially sold to strategic investors through trade deals, by 1994 the government decisively showed its preference for public offers. Such placements proved especially successful in the late 1990s when companies such as TI, ENI and ENEL were put on the stock market. Mixed techniques, associating public offers and trade deals, have been used in a few cases, notably TI and Autostrade. On the other hand, management buyouts (MBOs) have been rare, the major instance being Esaote, a global leader in research, production and marketing of medical diagnostic equipment and related services.

- Concerning fiscal treatment, a special public debt–redemption fund was created in 1993, in order to draw a clear line between transitory proceeds from asset sales and the deficit – reducing effects of other budgetary measures. This stands in contrast with the attitude of both the British government, which used proceeds to reduce the PSBR by almost one percent of GDP on average over the 1984–88 period, and the French government, which used proceeds to reduce the state sector deficit by three quarters of a percentage point in both 1993 and 1994. In any case, even if the totality of public enterprises were to be sold, with all privatisation proceeds used to redeem public debt, the impact would be limited, since their estimated value amounts to only 15 percent of public debt.
- Given the wide variety of techniques used, it is not easy to classify buyers in a clear and comprehensive manner. Suffice for our purposes to analyse public offers. Domestic retail investors have always represented the largest category of PO investors (with percentages ranging between 33 and 79) and accounted for 47.3 percent of the unweighted average (Table 2). International capital markets have also been very receptive, absorbing on (unweighted) average a third of the offers. The relative smaller role played by Italian institutions is not surprising in view of the infancy of the country's pension funds.
- While absolute figures are impressive by international standards, the picture is more controversial when only considering sell-offs that have led to control change. Out of total 1993–2001 proceedings of EUR 121.3 billion, the amount corresponding to a control transfer is considerably lower (EUR 50.4 billion). Considering then that Fondazioni – charitable foundations controlled by local authorities – have acquired assets for EUR 13.4 bn, "pure" privatisation receipts have been as low as EUR 37 bn (De Nardis 2001).

Privatisation and regulatory reform

In 1991, up to two thirds of IRI's workforce and up to 30 percent of ENI's employees produced goods and services in markets sheltered by legal monopolies, exclusive state concessions or dominant state demand. Exclusive state concessions were generally granted to state-controlled enterprises and the regulatory regime, based on direct management of public utilities or indirect control through IRI and ENI,

Table 2
Privatisation on the stock exchange by investors category

	Retail Italy	Institutions Italy	Institutions abroad		
			Cont. Europe	UK & Ireland	North America
IMI 1	42.9	11.4	29.7		16.0
INA 1	68.3	9.5	15.3		6.9
ENI 1	33.4	29.6	15.0		22.0
ENI 2	40.3	14.0	16.4	15.6	13.7
IMI 2	0.0	42.6	20.2	27.9	9.3
INA 3	0.0	50.0	50.0		
ENI 3	52.3	11.9	10.7	10.3	14.8
Telecom Italia	75.0	5.8	8.1	2.9	8.2
ENI 4	76.4	8.0	2.8	6.8	6.0
BNL	62.9	10.5	21.6		5.0
ENEL 1	36.6	25.7	37.7		
ENI 5					
Autostrade	79.1	10.7	10.2		
Finmeccanica					
Un-weighted average	47.3	19.1	33.6		

Source: Own elaboration on Ministero del Tesoro, del Bilancio e della Programmazione Economica (2001), Libro bianco sulle privatizzazioni, April.

blurred the relationship between the regulator and the producer, allowing a high degree of monopoly power. Moreover, the authority over concession, monitoring and regulation of public services was extremely fragmented among several ministries, local authorities, public companies and national committees. The exception was tariff-setting, which was the responsibility of a single government committee, the CIP (Comitato Interministeriale Prezzi), whose decisions were often subordinated to macroeconomic or social policy objectives, such as inflation control or equity considerations.

International experiences show how a combination of privatisation, liberalisation and better regulatory design holds the promise of large efficiency gains. Moreover, insofar as belated liberalisation may amount to a breach of commitments taken with shareholders, it is easier to open markets before, rather than after, privatisation. Unfortunately, measured with respect to its impact on competition, Italy's regulatory environment was in 1998 (the most recent year for which comparative cross-country data for product market regulations is available) much stricter than in the average European country or the United States (Nicoletti 2002, Figure 1). Although average telecom tariffs have significantly declined for both fixed and mobile calls (Cavaliere 2001), a variety of utility indicators shows that Italy is generally less competitive than other major EU countries, especially for business users (Table 3).

Structure regulation

Structural regulation involves break up of public utilities, functional separation of competitive and non-competitive activities and access liberalisation to networks. The public telecom operators were reorganised in view of their privatisation, with the unification of various IRI subsidiaries into a new holding, TI, the world's sixth largest telecoms operator. This decision was hardly optimal in view of the desirable liberalisation of telephone services. A better alternative would have been to privatise the subsidiaries separately, thereby injecting immediately elements of competition in the system. Given that financial markets usually discounts closed-end financial holdings relative to the cumulated value of their subsidiaries, selling Stet's operational companies separately could have also maximised revenue for the government. In 1994, a second mobile telephone services licence was awarded, and over the 1991–95 period the markets for telecommunications equipment, access to the public switched network and telecommunication services, except voice telephony, were liberalised.

Changes in the market environment of the electricity supply industry have been even more modest. Several proposals were advanced to open production and maintain an exclusive concession for grid operation in order to ensure co-ordination and safety of electricity supplies. Opinions diverged on whether to unbundle ENEL prior to sale, whether to liberalise electricity supply to large customers, and on the extent and the features of price regulation.[1] However, unbundling proposals met fierce opposition both within the government, wishing to avoid further delays and maximise proceeds from the sell-off, and from the managers and trade unions of the state company. In addition, disagreements at the EU level on the completion of the single market for energy have further weakened the momentum for reforms.

According to a timetable laid out in the so-called Bersani decree in 1999, no utility can produce or import more than half of total consumption by 2003. To reduce its market share to around 40 percent, ENEL has spun off three separate and independent generating companies, totalling 15,000 megawatts (MW) of gen-

Table 3
International comparison of public service prices (2001 data)

	France	Germany	Italy	Sweden	UK
Telecommunications					
Monthly spending (private)	83	74	100	60	79
Monthly spending (business)	79	78	100	52	97
Mobile services	78	74	100	76	79
Electricity					
Year consumption 600 kWh	177	255	100	266	221
Year consumption 7500 kWh	59	77	100	54	54

Source: Own elaboration on AEGG data (Il Sole-24 Ore, 5 December 2002), Oftel (2002), International benchmarking study of mobile services, and Wissenschaftliches Institut für Kommunikationsdienste (2002), Situation of the Swiss Telecommunications Market in an International Comparison.

[1] In principle, vertical unbundling is the only way to ensure competition in electricity generation and supply as well as free access to the network. At the same time, horizontal unbundling – involving the sale of production plants and distribution networks to several private (possibly regional) companies – could allow "yardstick" regulation based on the comparative performance of independent companies.

eration capacity and put them on sale by public auction. No company was allowed to acquire or hold stakes in more than one of the three companies, and no buyer can be more than 30 percent government-held. Elettrogen – the second largest, based in Rome and Piacenza – was sold in the summer of 2001; Eurogen – the largest company, based in Rome and Milan – was purchased by the Edipower consortium of utilities and financial institutions; and a consortium including Belgium's Electrabel and Rome's utility ACEA took the smallest company, Interpower, based in Naples and Rome. ENEL must also shed market share in power distribution to comply with the requirement of a unique distributor in each municipality. It has proved arduous for ENEL and the municipalities to agree on prices and only in August 2002 did ENEL transfer network capacity and clients to the Milano and Verona utilities. Concerning the transport and dispatch functions, these have been transferred to a new company (Gestore Rete Trasmissione Nazionale, GRTN) fully-owned by the Treasury. A number of transmission companies also exist, of which the largest is ENEL-owned Terna.

In the natural gas market, Italy has been less timid in incorporating the June 1998 EU Directive. In May 2000, the government directed that no single company can supply more than 50 percent of the natural gas sold to final users by 2003 and send more than 70 percent of natural gas put into the transmission system beginning in 2002 (reduced to 61 percent by 2009). The legislation also requires corporate separation of natural gas storage and transport activities, exceeding the EU obligation of accounting separation. SNAM retains control of the 30,000-kilometer grid, but ENI had to split SNAM's pipeline transport activities from commercial and sales activities. In late November 2001, 35 percent of SNAM Rete Gas Italia, the new company controlling the gas grid, was sold through an IPO, which was heavily oversubscribed. ENI's new gas distribution company, Italgas Più, was also launched in November 2001.

Conduct regulation

Limited progress in structure regulation has put an additional burden on conduct regulation to determine the permitted patterns of behaviour of regulated firms in the public interest. Conduct regulation can include both (product and access) price regulation and regulation of non–price behaviour such as service and product quality, quantity, investment and environmental impact.

In the case of telecommunications, recent decisions by the AGC (Autorità per le garanzie nelle comunicazioni) have introduced Flat Rate Internet Access Call Origination (FRIACO), levelled access conditions for other licensed operators (OLO) and Internet Service Providers, and regulated shared access, sub-loop unbundling, leased wholesale lines and wide bandwidth (DSL, CVP) (AGC 2002). Following a two-year investigation, the AGC also imposed TI stricter cost accountancy obligations so as to prevent the incumbent from using information provided by competitors as anti-competitive tools. Although the incumbent owns nearly all fixed access lines, it is not difficult to receive a fixed-line license as proved by the existence of 253 operators (AGC 2003). There are 4 GSM operators and five 3G licenses were also awarded in October 2000. New regional operators have begun forming but are still in the initial network build-out phases and will not be capable of offering alternative infrastructure to TI for several years. Unbundling is becoming an option for more operators now that TI has made 939 exchanges available (of 1,040 whose openings were required by competitors) which cover approximately half the total subscriber lines (AGC 2002). Some 35,000 lines have also been disaggregated, a level only surpassed by Germany in Europe. Carrier pre-selection began in January 2000, and by the end of August 2001 about 2 million subscribers used it. Number portability was available in 2001 for fixed users and almost two years later for mobile subscribers. The license fee was increased in 2001 and tariff rebalancing completed in 2002. TI's share of the fixed telephony market has been decreasing progressively and it stood at about 70.8 percent at the end of 2002, compared with 77 percent a year earlier. The mobile sector is the largest in Europe in terms of revenue and the highest in Europe (except for Luxembourg) in terms of penetration rate. This is reflected by the fact that mobile and fixed telephony services have equal shares of the total telecommunications market. In 2003, for the first time, TIM's market share fell below 50 percent.

ENEL enjoys a dominant position in the upstream market for electricity generation. This is shown by its share of the gross installed capacity (approximately 53 percent in 2000) and of the actual electricity produced in Italy (approximately 77 percent, excluding auto-generation, in 2000), as well as by the type of power plants at its disposal (base load, mid-merit and peak-load). Moreover, ENEL is dominant in the downstream, partly liberalised, Italian electricity supply market (37 percent in the first nine months of 2001), also because of its position in the upstream market where ENEL is vertically integrated. Price regulation is designed to impose a uniform tariff across Italy, thereby reducing the possible beneficial effect on consumers of the limited liberalisation of electricity generation. Meanwhile, red tape has held up applications to build new generating plants that might compete with ENEL. In February 2002 the Ministry for Productive Activities has intervened to speed things up by instituting a single, 180-day, "one-stop" centralised authorisation system for plants with capacity greater than 300 MW.

Competition for delivery and sale to actual and potential "eligible customers" (that is consuming less than 20 GWh per year) is still limited. The Electrical Power Exchange (Borsa Elettrica) that according to the Bersani decree was to be operative in January 2001 is still on the launching pad. The advantages of having an exchange include transparency (given that strategic behaviours would be detected) and the possibility to exert pressure on the dominant supplier through the aggregation of dispersed users. Successive late deadlines could not be met due to still unsolved issues such as the treatment of imports and subsidised production. Falling short of limiting ENEL's freedom of manoeuvre (and knowing that new generation capacity will not be fully operative before long) what is needed is the development of derivative instruments and mechanisms to "contractualise" generation capacity, such as those introduced in France on the Powernext market. The resistance has come from both large users, that currently benefit from cross-subsidies, and the government's insistence on inserting a clause to give the Ministry the power to correct prices in case of "excessive" volatility.

An outline of a draft law "Reform and reorganisation of the energy sector" was presented in July 2002. Its main provisions include transferring grid ownership from ENEL to GRTN; cancelling the fees provided for the "hydroelectric rent" (to compensate for the excess value that such plants have in a market system) while not acknowledging stranded costs for past investments: extending eligibility to all non-domestic clients before 2004 and allowing Italian firms, which cannot build nuclear power plants in Italy, to enter into joint ventures abroad. The intent seems more to control ENEL rather than to reduce its size and market power.

The Antitrust Authority (AGCM, Autorità garante della concorrenza e del mercato) has emerged as an effective "competition advocate" in the regulatory arena without assuming the regulatory portfolio itself. After complaints from several alternative fixed-line providers and the Italian Association of Internet Service Providers, the AGCM launched an investigation into TI's provision of access and found that the incumbent had taken advantage of its ownership of the PSTN (Public Switched Telephone Network) access network by refusing requests from alternative operators for wholesale DSL services, while at the same time offering its own DSL retail service. TI was fined EUR59 million for abusing its position as a carrier with significant market power. In the SNAM/Edison case the competition authority has dealt with refusal of access. In March 2002, the AGCM launched a full investigation into ENEL, alleging infringement of Article 82 in the liberalised market for supply of electricity to eligible clients, and surprise investigations have been carried out at ENEL's premises throughout Italy.

Regulatory governance

Key issues in regulation include the designation of independent regulatory authorities (IRAs), their de jure independence, the definition of their powers, their accountability and the role of the existing antitrust authority in monitoring access to networks and competition in the liberalised service markets. The 1994 law made the creation IRAs a prerequisite for the privatisation of public utilities. A much-delayed bill creating separate IRAs for electricity and gas (AEEG) and for telecommunications and media (AGC) was approved by Parliament in 1995 after no fewer than 180 hours of debates. IRAs regulate concessions and access to the market, ensure the universality and quality of services, supervise the operating companies' balance sheets, set service tariffs, investigate on possible misbehaviour of licensees (either independently or upon reports of customers) and rule the repeal of licences or pecuniary sanctions pending judiciary appeal by faulty companies.

Law 249 gave the AGC two overriding objectives: to introduce liberalisation, also on the basis of EU-wide choices, and to guarantee cultural, political and social pluralism in the media sector. In a country where half of the TV industry, the largest publishing house and various newspapers are controlled by the prime minister and his associates, the creation of a single IRA for both telecoms and media, while partly justified by technological convergence, was dictated by clear political considerations.[2] These found its reflection in the power granted to Parliament of appointing the regulators, in the lack of specific eligibility criteria, and in the excessive frequency of parliamentary hearings. Concerns have also emerged regarding the slowness of the decision-making process and its opacity – there are no public hearings and the AGC does not prepare position papers to guide the regulatory game. On the other hand, and despite the heavier burden brought about by the relative lack of progress in structural deregulation, the AEEG – which has fewer members (three rather than nine) appointed by the prime minister and is located in Milan – has been more successful in gaining credibility.

It is not easy to identify independent variables that explain such differences. That TI is fully private (bar the golden share, of course) while ENEL is still government-controlled has not made any significant difference in their approach to the regulatory game, which has been confrontational in both cases. Enforcement appears to be hampered by lengthy and cumbersome procedure, but also by the incumbents' practice of appealing systematically against the IRA decisions. While due process is a fundamental legal principle, IRAs need to put in place disincentives for excessive delaying measures (Nicoletti 2002).[3] Although hard to test, it is intuitively clear that, even in collegiate bodies such as the Italian IRAs, the personal qualities of the AEEG's president have played an important role.

The 1990s have seen a general proliferation of delegation to non-representative institutions around Europe, and Italy has been no exception. One may indeed argue that the traditional weakness of ministerial bureaucracy has strengthened the process even more than in other EU members. There is a perception that IRAs have on some occasions filled the void left by executive inaction and converted in law-making bodies (e.g., De Nicola 2001). For this reason, the on-going political debate on reforming IRAs is welcome, provided of course the principle of safeguarding investors and consumers against the risk of undue interference remains overriding. The bicameral commission for Constitutional reform debated the possibility of giving selected IRAs a constitutional ranking. The current majority has acknowledged the need to preserve independence and autonomy, but argued that "political organs must proceed in fine-tuning the instruments that are necessary to carry out the functions that should remain under their control, especially as concerns the IRAs' decisions of highest social and economic impact" (Camera dei Deputati 2002). The instrument to implement this function is identified in the Documento di programmazione economica e finanziaria, hence making Parliament responsible for ensuring the fulfilment of the government's guidelines.[4] The majority proposal currently in front of Parliament considers merging AEEG and AGC into a single regulator – an issue on which the international debate is far from settled – but unfortunately also suggests that its members should be appointed by the government, hence reducing their independence and credibility.

Finally, a brief mention should be made of the consequences of the 2001 reform of the Constitution (Title V of the Second Part). This includes at article 117 the decentralisation of the authority over transport and cabotage networks, the organisation of the telecommunications and media sectors, as well as energy generation, transport and domestic distribution. In accordance with the subsidiarity principle, regions and local authorities already have broad competencies in the energy domain. Insofar as this is a sector where benefits (and interdependencies) are national, whereas negative externalities are often local, co-operation among

[2] In the 1997 Green Paper, the EC put forward as one proposition for a future regulatory model the creation of a new horizontal regulatory model to cover the whole range of existing and new services in the communications sector. Nevertheless, not many institutional changes have been made to take into account convergence between telecommunications and broadcasting. Along with the political difficulty to integrate separate regulatory institutions, the special role played by media and content policy in some countries makes the merging of broadcasting and telecommunications regulatory institutions a delicate issue.

[3] An interesting parallel can be made with New Zealand, where the absence of a regulator provided the incumbent operator, Telecom New Zealand, with the competitive weapon of most use to an incumbent: the ability to delay. Instead of being obliged to interconnect on specific terms by law, Telecom New Zealand was able to convert disputes into full-blown litigation, with numerous appeal stages throughout the legal system.

[4] In September 2002, the government decided to freeze utility and public transport prices to help contain a pick-up in inflationary pressures and defuse a growing political dispute over Italy's true inflation rate.

different levels of government is required. Early evidence, unfortunately, shows that the governance game is characterised by strong animosity. Regions have challenged the 2002 decree to speed up new generation projects, claiming that grid ownership should be allocated between local governments by voltage. The AEEG has also expressed concern for the decision by Sicily to delay to 2010 the liberalisation of the gas retail market that at the national level is foreseen for 2003. A further problem is that the text of the July 2002 draft law is vague as to what principles are fundamental and henceforth reserved to the State.

Conclusions

This paper has summarised the often momentous vicissitudes of Western Europe's largest privatisation program in the 1990s and provided evidence on the effects on productivity, quality and prices. No ex post analysis can forget how deep and widespread was scepticism surrounding its quantitative and qualitative goals at launch. In this sense, the pace and the extent of privatisations in the midst of the worst political and economic crisis in post-war Italy has been nothing short of surprising. Successful solutions were found in a number of areas, including the sequencing of sales, the use of privatisation proceeds, and the creation of a wide audience of investors attracted by state divestitures. Italy has shown a higher degree of transparency in the conduct of private sales than France and has been, partly out of necessity, far more open towards foreign investors than both France and the UK, where authorities used special powers (such as special voting rights) to prevent large foreign investments. Foreigners, lured by the lira devaluation, were also reassured by the fact that Italian authorities did not use proceeds to reduce fiscal deficits. Domestic financial markets proved far more adequate than previously expected in absorbing large amounts of new shares. Partly due to the simultaneous reduction of yields on government bonds, oversubscription has been generally larger than elsewhere in the EU, even with lower underpricing.

However, the policy drive also suffered from several unsettled issues, which limited its beneficial effects. First, a sizeable share of privatisation activity has been non-controlling stakes in SOEs. This means that capital market discipline through both monitoring by private agents and the threat of take-over cannot function properly. Second, despite the spreading out of shareholdings and attempts at limiting single equity stakes, public companies have not emerged and the stock market does not allocate corporate control. Such a market for corporate control will remain quiescent as long as the respect of minority shareholders' rights is lax, the application of existing laws (such as those concerning take-over bids and insider trading) is feeble and the role of institutional investors is subdued. Third, in public utilities opportunities have been lost to use divestiture as a Trojan horse to introduce more competition, in particular throughout the vertical separation of hitherto public-sector monopolists and more audacious forms of asymmetric regulation. This problem is particularly severe in electricity and (to a lesser degree) natural gas. Fourth, uncertainties abound concerning the conditions for privatising the air, railways, post office and tobacco companies as well as many smaller energy and water utilities owned by local authorities. And finally, public sector bodies maintain control over companies that operate in competitive sectors. This happens despite the lack of a clear vision on the limits to the process of state retrenchment – despite policy statements to the effect that the entire country should be managed like the private sector – and with poor guarantees that the management of public sector assets will maximise collective welfare. A telling example in this sense is the role of non-profit Fondazioni in the banking sector.

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Employment Pacts in Italy 1992 to 2002

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In Italy the 1990s were characterised by major changes and even turmoil on the political stage. In early 1992, investigations into political corruption led to the overthrow of the political class. At the same time, the signing of the December 1991 Treaty on European Union determined that member states had to meet five convergence criteria for membership in the single currency union. Italy was far from meeting the Maastricht criteria, and it was clear that it would have to struggle hard to enter EMU.

The events of the early 1990s also had a strong impact on industrial relations in Italy. The 1990s saw quite a number of employment pacts, all of which aimed at increasing the flexibility of the Italian labour market. In this paper, we provide a description and an assessment of the major agreements in 1992, 1993, 1996, 1998 and 2002.

The Italian economy in the 1990s

Italy is one of the leading economies of the world. At the same time it shows one of the highest regional disparities worldwide. The central and northern part of Italy is characterised by more flexible modes of production, high labour mobility and relatively low unemployment rates. By contrast, the south of Italy (Mezzogiorno) is marked by insufficient wage differentiation, lack of infrastructure, low quality of public services and the presence of organised crime.

The following table shows some indicators of regional differentials in 1995 and 2001.

These regional disparities make support for the south one of the central issues in all negotiations about employment pacts.

A further characteristic of the Italian labour market is its high youth unemployment rate (27 percent in 2001). Furthermore, long-duration unemployment (12 months and over) as a percentage of total unemployment was 63.4 percent in 2001 (see OECD, 2003, Table 24).

Italy has a very high percentage of small and medium sized firms which are considered the motor of the Italian economy.[1] Until the early 1990s Italy's industrial relations were characterised by a very low degree of coordination. The employment pacts described below (in particular the 1993 agreement) led to a complete restructuring of industrial relations.

The social parties

Trade unions

In Italy, there are three main associations of trade unions:

1) The CGIL (Confederazione Generale Italiana del Lavoro), the General Confederation of Italian Labour, has close ties with the Democratic Party of the Left (Democrazia di Sinistra). It was formerly dominated by the Italian Communist Party (Partito Comunista Italiano).
2) The CISL (Confederazione Italiana Sindacati Lavoratori), the Italian Confederation of Labour Unions, has links with the Italian Popular Party (Partito Popolare Italiano), for-

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[1] In 1999, 49.1 percent of all workers in the manufacturing sector in Italy were working in firms with less than 50 employees, which is by far the highest percentage in major economies, see OECD Statistical Database on Enterprises(2002).

	Italy		Centre-North		Mezzogiorno	
	1995	2001	1995	2001	1995	2001
GDP at market prices (shares)	100.0	100.0	75.8	75.6	24.2	24.4
GDP per capita	100.0	100.0	119.2	118.0	66.4	67.8
Productivity (GDP per worker)	100.0	100.0	105.3	104.9	86.3	87.2
Employment rate	57.4	61.0	60.9	65.3	51.1	53.2
Unemployment rate	11.6	9.1	7.6	4.8	20.4	18.6

Note: Latest labour data refer to January 2003.
Source: OECD Economic Surveys: Italy (2003), Table 3.

merly with the Catholic Christian Democrat Party (Democrazia Cristiana).

3) The UIL (Unione Italiana del Lavoro), the Italian Confederation of Labour, is associated with the socialists.

In 1994, CGIL had 5.2 million members (2.7 million retired), CISL 3.7 million (1.5 million retired), UIL 1.7 million (0.5 million retired). This compares to a workforce of around 22.5 million.

There is very little information on membership outside the three main trade union confederations in Italy. Several so-called "autonomous" unions and confederations exist, but little is known about their internal organization, functions, status and strength. Most of them operate in the public sector. These organizations are rarely involved in collective bargaining.

Each of the Italian union confederations includes large numbers of retired workers and also unemployed workers, in particular those unemployed workers who held regular jobs in the official economy. In the Italian layoff system (the so-called Cassa Integrazione Guadagni) a worker's employment contract with the former employer is retained, and he will probably maintain his links to the union in case he was a member.

On 1 March 1991 CGIL, CISL and UIL agreed on the so-called rappresentanze sindacali unitarie, the unified union representation, which was supposed to enable unions to speak with one voice and to give them more bargaining power by joining their forces.

Employers' associations

On the employers' side, the main actor is the employers' association Confindustria, which has 105 territorial associations and 110 branch associations, totalling 107,000 firms with 4.1 million employees. The CONFAPI (Confederazione Italiana della Piccola e Media Industria) represents 65,000 small and medium-sized private enterprises employing about a million workers.

Major agreements in the 1990s and early 2000s

Political and institutional background in the 1990s

The negotiations of 1992 and 1993 have to be seen in light of the overthrow of the political class resulting from the investigations into political corruption in early 1992. The operation Mani Pulite (Clean Hands) revealed a complex web of corruption linking political parties, local authorities and business. It became clear that most political parties had long been involved in an institutionalised system of bribes which had "milked" state companies for political purposes and extracted huge sums from businessmen in return for public-sector contracts. When parliament was dissolved in January 1994, over one third of its members were under investigation. These events are also commonly associated with the end of the First Republic.

From April 1992 to March 1994 the political parties left the task of reform to governments mainly made up of tecnici (non-party academics, managers or senior civil servants). They managed to carry through major reforms, including the toughest budget since the Second World War and the abolition of the old inflationary system of wage indexation, the scala mobile, which had been introduced in 1946.

The 1992 agreement

The 10 years following the first Italian experience of co-determination (concertazione sociale) (the agreements of 23 January 1983 and 14 February 1984) were marked by a large number of partial agreements that were characterised by their weak stability and ineffectiveness, due to both the fragility of the trade union environment and the weakness of the governments and, finally, due to the temporary nature of the measures agreed upon. Still, the central aim of these agreements was the reduction of the sliding wage scale (scala mobile) and of the cost of labour.

The agreement of 31 July 1992 between social parties was the first step towards the major agreement of 23 July 1993. For the first time, it brought forward the idea of changing to a system of wage determination without automatic wage adjustments. It proposed national contracts of 3-year duration based on the projected inflation rates for the following three years. At the end of each year of this three-year period, wages should be readjusted if the difference between projected and actual inflation rates is too high. However, this first step towards the abandonment of the scala mobile was not stated clearly enough and gave way to contesting. The restructuring of the bargaining system (both in the private and in the public sector) was postponed to a second period of negotiations, the start of which was considered insecure and controversial.

The most controversial practical result was the agreement to increase earnings by LIR 20.000 per month (about EUR 10) in exchange for the "temporary" suspension of the scala mobile for two years and the renouncement of any firm level agreements in the same period. While the CISL celebrated the agreement to be the only way to save the welfare state and as a first step towards the reshaping of industrial relations in particular, including true union participation, the other unions and left-wing newspapers saw it as an agreement forced upon them by the economic and political circumstances. The Amato government threatened to resign and even left-wing newspapers commented that this was not a purely theatrical gesture but a real threat stressing how much the economic and financial future lay in the hands of the workers and of the unions (L'Unità, 2 August 1992).

The long-lasting re-negotiations about the cost of labour and the reform of collective bargaining between government and social parties started in autumn 1992, and they almost ended prematurely due to two government changes. The whole process has to been seen against the background of the biggest political and institutional crisis after the Second World War (described above), which was supposed to lead to the "Second Republic". The endless negotiations were thus also due to the extreme instability of Italian politics during that period and in particular caused by the weakness of the third involved party in the negotiations, the government.

The 1993 agreement

The final agreement of 1993, also known as the Ciampi Protocol, was reached after three-party negotiations (intese triangolari), bilateral agreements between trade unions and employers' associations and bilateral arrangements between trade unions and the government, some of which were followed by laws, thus constituting a whole mosaic of accords. It was signed by the government and 22 employer and employee organizations with the exception of agricultural organizations. After 3 July 1993 the 3 major unions CGIL-CSIL-UIL consulted for the first time all their members for their support in this matter. 67.05 percent voted in favour. Union leaders regarded this vote as a "real democratic success for the union movement" and "as a reference method also for the future" (L'Unità, 24 July 1993).

The first element of the agreement is the removal of the scala mobile system. The only remaining element of wage indexation was the introduction of an indexation system to compensate for delays in contract renewals in the private as well as in the public sector (equal to 30 percent of the projected inflation rate for delays up to 3 months, 50 percent% for longer delays).

The Protocollo sulla politica dei redditi e dell'occupazione, sugli assetti contrattuali, sulle politiche del lavoro e sul sotegno al sistema produttivo (Incomes Policy Agreement), agreed upon on 3 July 1993 and ultimately signed by the social parties on 23 July 1993, was received as a historical agreement with constitutional character because it reshaped industrial relations in Italy. Indeed, the principal content of this agreement consists of new bargaining rules at all levels, in particular trade union participation at all levels with the aim of creating more stable relationships between social partners.

The agreement is characterised by a new attitude on both sides of industry (parti sociali): former agreements always consisted of advantages and sacrifices for all social partners while the 1993 agreement stresses "common objectives".

The reform of the collective bargaining system is considered the most important piece of the agreement. The agreement provides for a two-tier bargaining system (doppio livello contrattuale) with specific indications for the relationship and functioning between them: a national collective labour contract (contratto collettivo nazionale di lavoro) and a second bargaining level (secondo livello di contrattazione) on a firm basis or on a regional basis. The national sectoral contracts provide for normative standards and minimum wages. The contracts at the second bargaining level can determine further wage increases and provide for more specific contract conditions. Put differently, the national contracts are aimed at keeping up purchasing power while the second level can distribute gains reached through higher productivity.

While in the 1992 agreement some unions (with the positive exception of the CISL) still considered their role to be passive and wage adjustments to be a fair reaction to past price increases, they now acknowledge that wage increases are also a cause of price increases and that therefore the unions' role is a more comprehensive one which has to take into account the whole economic framework.

Firm-specific wage increases are made possible within the framework of the second bargaining level. Decentralised bargaining (secondo livello contrattuale) only takes place if agreed upon in the national contracts. Thus, the second bargaining level is no must and also no "right" in itself. Still, the passage referring to "the specific situation of the sector" paves the way to a more decentralised bargaining model, taking account of the individual firm's ability to pay.

The pact stipulates new rules for employment and training contracts for young job seekers and paves the way for the introduction of temporary work agencies. These two measures were the first taken towards facilitating integrating young workers into the labour market.

The 1993 agreement also institutionalises the rappresentanze sindacali unitarie. In all firms with more than 15 employees a single body representing employees is elected from a list of candidates presented by the trade union associations. These special union representatives are authorized to negotiate, at the firm level – together with the regional union organizations – all issues in connection with the national contracts.

To sustain this political change, the parties involved have planned a large number of initiatives devoted to the promotion of research and innovation, human capital formation and the creation of business and employment and supported by large private and public investment programs. All parties agreed that with public finances in better shape all these tasks could be accomplished more easily.

The Employment pact (1996)

On 24 September 1996, the Accordo interconfederale was agreed upon by the government and the social partners. It is better known as the Patto per il lavoro, the Employment Pact. It added the missing piece to the 1993 agreement by providing measures of implementation for labour market policy, in particular for fighting unemployment among youth, women, in the south and long-term unemployment. The government promised to provide "fresh resources" for the years 1997–1999 amounting to LIR 15,000 billion (approx. EUR 7.5 billion), to be financed by fighting tax evasion and privatizing state-owned firms.

The ambitious aim was to halve the unemployment rate by the end of the century. In particular, 1.7 million persons between the age of 15 and 29 were unemployed at that time and half of them were unemployed for more than 2 years.

In order to promote employment, the parties agreed on:

- Raising the maximum qualifying age for apprenticeships from 20 to 24 years, with a preferential clause for the south (26 years)
- Gradually introducing a dual system of apprenticeship, redefined as a relationship combining vocational training and working (following the German model). The apprenticeship contracts are subject to low entry wages and low social security contributions
- Investing 0.3% of the total labour income in continuous formation
- Partial tax deductibility of training costs incurred by the worker
- Introduction of manpower/part-time work agencies (by authorization of the labour ministry) which employ (formerly unemployed) workers and lease them to other firms
- Providing incentives for part-time work (up to 24 hours of work per week) by adjusting social contributions for new entrants and re-entrants into the labour force
- Favouring business start-ups by providing easier credit access

As for working hours, the government supported an "orientation" towards a legal maximum of 40 hours per week instead of 48 hours.

So-called area contracts (contratti d'area) are targeted at economically depressed regions which are identified by a government agency from time to time. Under these agreements, local authorities and social partners collaborate to co-ordinate job-creating efforts in specific sectors while introducing simplified administrative procedures. The intention of these agreements is also to allow for more wage differentiation across geographical areas.

Complementing those labour market measures are agreements dealing with improving professional training and fostering scientific research. All these measures were to be accompanied by reviving public investment projects –- focussing on the transportation and the energy sector – which were frozen in the wake of the corruption scandal.

While all union leaders praised the employment pact as "good", "very important", "innovative", the leader of Confindustria, Giorgio Fossa, added some scepticism: "It is an important step forward, but is certainly not yet the solution to all problems". He underlined the necessity of reducing the cost of labour by 1.2 percent by relieving employers from the duty of paying workers' health coverage by transferring it to the 1997 budget. (La Repubblica, 25 September 1996).

Social pact for development and employment (1998)

On 22 December 1998, the Social Pact for Development and Employment (Patto sociale per lo sviluppo e l'occupazione) was agreed upon by 33 parties including the government, Confindustria and the three major parent unions, CIGL, CISL and UIL.

The 1998 agreement provides for several measures that alleviate the tax burden of both firms and workers and for the extension of new types of contracts. The major issues of the 1998 agreement were the following:

- Labour costs will go down by 1.2 percent before the year 2003 by transferring employers' contributions for maternity leave and family allowances to the general budget. In addition employers' contributions for safe working are reduced and the state financing program for social security contributions in the south will be extended.
- Income tax is reduced by 1 percentage point in the second tax interval (from 27 to 26 percent); this step is to be by financed by fighting tax evasion.
- The dual income tax (DIT) hitherto comprised two different tax rates for firms: a lower one for those gains that were reinvested and a higher one for the gains used for dividends. The lower tax rate shall be extended to all capital accounts; this step will lead to a tax relief of LIR 6,000 billion (approx. EUR 3 billion) in the two years following investments.
- Co-determination is now extended also to local authorities whose representatives have signed the agreement.
- To fight illegal work, adjustment contracts (contratti di realleamenti) should be more widely used; these contracts regularise black-market activities by treating underground employment as new visible employment, which will give rise to preferential tax treatment.
- Professional training is supported by LIR 1,600 billion (approx. EUR 800 million) in three years and allocation of resources is handed over to the regions.
- Streamlining the administrative procedures for public investment projects.

Furthermore, a minor change was made to the two-tier bargaining system: the quota of the production premium on which the firms do not have to pay contributions was increased from 2 to 3 percent.

The pact for Italy (2002)

After its election in October 2001, the new center-right government led by Silvio Berlusconi pressed for reforms of the labour market, the tax system and the pension system. It appointed a group of experts which drafted a White Paper setting out the main lines of its reform policies. After several general strikes and the murder of the labour law consultant and one of the authors of the White Paper, Marco Biagi, by the Red Brigades in spring 2002, negotiations between the social partners were concluded. On 5 July 2002, the Italian government, employers' organizations and trade unions - with the notable exception of the Cgil union - signed the "Pact for Italy"'. An interesting side-aspect of the agreement is that the government explicitly recognises the importance of active cooperation between social partners and the success of the 1992 and 1993 agreements in allowing Italy to join EMU.

The agreement covers three main issues: incomes policy and social cohesion; "welfare to work" (including labour market matters); and investment and employment in the Mezzogiorno regions.

First, the agreement envisages a tax reform, in particular income tax reductions for families earning up to EUR 25,000 per year as well as a reduction and simplification of company taxation.

Second, under the heading "welfare to work", a long list of instruments aimed at encouraging and assisting workers in entering or re-entering the labour market was agreed on. Most prominently, those measures included the institution of public employment services, promotion of education and training for employability and income support measures for unemployed people. The latter involved an increase in unemployment benefits together with an increased monitoring of search activities of the unemployed. Income support schemes for the poor were to be introduced. Those measures were aimed at increasing both support, and the famous articolo 18, the article of the Workers' Statute providing additional employment protection for workers employed in firms with more 15 employees (which the government wanted to abolish) was only marginally altered in the end, following strong opposition by all trade unions.

Third, investment and employment in the Mezzogiorno was to be boosted by increasing public expenditure and simplifying procedures to provide businesses with credit.

Not much can be said about the success of this latest employment pact so far. The only action taken so far is the passing of a "proxy law", DDL 848bis including labour market reforms, in early 2003.

Ten years of employment pacts in Italy

Sine 1992, Italy has seen quite a number of important agreements between labour market parties and the government. These employment pacts led to a complete overhaul of the Italian system of industrial relations. Did these changes have any impact on Italy's employment performance? To answer this question, in the next section we will present the results of a unique study on the flexibility of the Italian labour market following the 1992 and 1993 employment pacts.

While it is clear that many of the measures agreed on will only have an effect on employment in the long run, it is instructive to see the immediate effects of increased flexibility, in particular on new entrants into the labour market.

Finally, we will then briefly summarise the state of affairs nowadays and give an outlook on what might be the long-run effects of the Italian labour market reforms.

Some evidence for the increased flexibility of the labour market

In 1997 the ISTAT, the National Statistical Office, commissioned a study on the flexibility of the labour market following the 1993 agreement.[2] It interviewed 8,000 firms in the production and service sector with more than 10 employees. In particular, all firms with more than 500 employees were interviewed. Firms were asked to give information on the main forms of contractual flexibility at the firm level. This study is an important confirmation of a change. The number of atypical contracts has increased considerably and the system of incentives (output premiums) has undergone huge changes. In the sequel; we will describe some of the main results from the Istat study and provide corroborative evidence from other sources.

- Firm-level negotiations

In 1995–96, 9.9 percent of firms with more than 10 employees, equivalent to 38.8 percent of the all workers, were involved in firm-level negotiations within the two-tier bargaining system agreed upon in the 1993 agreement. There is a strong relationship between firm size and propensity to negotiate at the firm-level: the percentage of firms involved in firm-level negotiations goes from 3.3 percent of the firms with 10-19 employees, 15.7 percent of those with 20-49 employees, up to 61.1 percent in the class of firms with more than 500 employees. This pattern applies to both industrial and service sector and holds across all geographical areas. However, firm-level negotiations are more common in the industry than in the service sector. Also, they are more common in the north than in the south: while 44.4 percent of all workers in the North-West are involved in firm-level negotiations, it is only 34% in the centre and in the south.

- Flexible compensation schemes

The 1993 agreement also suggested new schemes of remuneration, in particular different sorts of performance-related pay. Thereafter piece-rate

[2] See ISTAT (1999). Unfortunately, there is no follow-up study with more recent data.

pay, una tantum pay (i.e. bonuses from time to time), bonuses for team performance, so-called flexibility bonuses, bonuses for regular presence and premiums based on the economic performance of the whole firm were introduced in a large number of firms. In particular, premiums based on economic performance were introduced in 58.6 percent of the firms with new firm-level contracts, followed by bonuses for team performance, which were instituted in 32.2 percent of those firms.

Additional empirical evidence by Casadio and D'Aurizio (2000) for the manufacturing sector shows that the adoption of flexible wage premiums is complementary to working time flexibilities. Both types of flexibility together may favour efficiency.

Casadio (1999) and Rossi and Sestito (2001) suggest three main effects of firm level wage agreements on wage differentials: Because paid bonuses are fairly homogeneous across workers within the same firm, the first effect is to reduce wage dispersion inside the firm. The second effect is the enlargement of the wage differentials among similar qualifications, but in different firms, with high or low productivity and profitability. The last effect, only partly induced by the previous two, is a small increase of regional wage differentials between firm located in the north or in the south of Italy.

• Contract lengths

To evaluate the degree of flexibility in the labour market, it is important to have information on the distribution of different types of contracts. At the beginning of 1996, 92 percent of all those employed had an unlimited contract. This reveals a high degree of rigidity in the stock of workers in 1996. However, among those that started working on a new contract during the year 1996, only 45.3 percent were offered a contract of undetermined length. Thus, a remarkable 54.7 percent were offered contracts with limited length.

Conclusion and outlook

The precious section showed that the Italian labour market has started to become more flexible. The increased number of limited-term contracts (see also Frey and Pappada 2002) for new hires is going to change the turnover patterns in the Italian labour market in the long run, as the fraction of workers on those contracts increases. The more decentralised bargaining system will lead to increased efficiency as worker compensation will follow their productivity more closely.

The latest employment figures for Italy are encouraging (see Table 1): employment rates have increased, unemployment has declined. The most recent OECD Economic Survey on Italy (OECD 2003) states that Italy's strong employment performance is "a clear result of the greater flexibility" of the labour market following the reforms of the 1990s. However, the employment and unemployment gap between the north and the south of Italy has not been diminished.

The agreements reached were a necessary and overdue step to pave the way for Italy's economy in the new century. In particular, they were crucial in allowing Italy to enter EMU. While first results of the reforms in the 1990s are quite encouraging, Italy still has some way ahead in order meet one of the main goals of the Lisbon European Council, namely to raise the overall EU employment rate to 70 percent by 2010.

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Macroeconomic Management of Decentralised Fiscal Decisions

Sub-national public spending as a percentage of total government spending differs widely between countries (Table 1), ranging between 5 percent (Greece) and 57.8 percent (Denmark). A relatively low level of sub-national spending can be observed, apart from Greece, also in Portugal, Luxembourg and France. All other countries spend at least a quarter of public expenditures at the sub-national level (United Kingdom: 25.9 percent). Interestingly, some countries with unitary governmental systems (Denmark, Japan and Sweden) spend even more at sub-national levels than the average of the federally organised countries, which stands at 39.0 percent. Thus, in most countries sub-national public spending accounts for a considerable part of total government spending. This leads to the question of how macroeconomic management is performed in order to secure overall fiscal discipline.

The design of rules to control the fiscal behaviour of sub-national government levels in order to make them comply with the overall macroeconomic policy shows large differences between countries (Table 2, col. 2). The general type of co-ordination ranges from "limited fiscal autonomy" (i.e., no need for co-ordination), to "no formal co-ordination" (i.e., with a substantial degree of fiscal autonomy), to a "balanced-budget rule" and finally to a "co-operative approach".

In some countries, such as Sweden and Finland, it appears sufficient to prescribe the balanced budget rule (with a certain leeway to carry-over deficits and surpluses) and to pose no explicit restrictions on borrowing. A co-operative approach is followed by three federal countries (Germany, Belgium, Austria) and by two unitary countries (Denmark and the Netherlands). In most cases, such an approach means that a domestic stability pact is established. No formal co-ordination can only be observed in federal states, while several of the unitary countries provide their sub-national levels only with limited fiscal autonomy, evading the problem that sub-national levels might disturb national macroeconomic targets.

If the sub-national fiscal autonomy is limited, there is no great need for rules of borrowing (Table 2, col. 3); "ministerial approval" is then quite simply the rule. In most other countries, such rules are regarded as necessary. Most often the "golden rule" is prescribed, which means that borrowing is allowed up to the level of public investment undertaken in that period. But in several countries no such restrictions exist (e.g., Canada for the provinces and the territories, U.S., Norway, the Netherlands).

Compliance with overall macroeconomic policy or, at least, securing sub-national financial stability and sustainability must be enforced in some way (Table 2, col. 4). Fiscal behaviour might be disciplined by market forces (interest rate and rating of the bonds issued), which can be additionally strengthened by the national level giving no guarantees for sub-national borrowing (Canada, U.S., Sweden, Finland). An alternative is to put administrative or financial sanctions on the sub-national unit that misbehaves. This instrument is used by most countries to enforce compliance. A third way of enforcement is the so-called "peer pressure" which means that countries have incentives to orientate their fiscal behaviour on fellow sub-national units that have better balanced budgets or at least correspond to the average of the others' bud-

Table 1
Sub-national public spending as a percent of general government spending, 2001

Federal countries	
Canada	56.5
United States	40.0
Germany	36,1
Belgium	34.0
Austria	28.5
Average	39.0
Unitary countries	
Denmark	57.8
Sweden	43.4
Japan	40.7
Norway	38.8
Finland	35.5
Netherlands	34.2
Spain	32.2
Italy	29.7
Ireland	29.5
United Kingdom	25.9
France	18.6
Portugal	12.8
Luxembourg	12.8
Greece	5.0
Average	29.8

Source: OECD, Economic Outlook, 74, 2/2003, p. 145 (adapted).

Table 2

Macroeconomic management of sub-national fiscal behaviour

Country	Type of co-ordination	Rules for borrowing	Enforcement
Federal countries			
Canada	No formal co-ordination, but balanced-budget constraints	No restrictions for provinces and territories; golden rule for municipalities; carry-over of surpluses to next year	Market discipline; administrative sanctions; no government guarantee
United States	No formal co-ordination, but balanced budget constraints	No restrictions	Market discipline; no government guarantee
Germany	Co-operative approach; domestic stability pact	Golden rule for most Länder and municipalities	Peer pressure exerted by the Financial Planning Council
Belgium	Co-operative approach; targets for expenditure growth	On approval by central government	Peer pressure and administrative sanctions
Austria	Co-operative approach; domestic stability pact	No restrictions for Länder; municipal borrowing regulated by the Länder.	Peer pressure and financial sanctions (fines)
Unitary countries			
Denmark	Co-operative approach, formal co-operation between levels	Ceiling for long-term borrowing; Golden rule for municipalities	Peer pressure and financial sanctions
Sweden	Balanced-budget-rule with two-year carry-over	No restrictions	No sanctions
Japan	Limited fiscal autonomy	Defined by annual Local Government Fiscal Plan	Administrative sanctions
Norway	Ex-ante operating deficits not allowed; carry-over of ex-post deficits for two years	No restrictions	Administrative sanctions
Finland	Balanced-budget constraint over the medium term	No explicit restrictions, no guarantee	No sanctions
Netherlands	Co-operative approach; balance-budget rule on accrual basis	No restrictions	Administrative sanctions
Spain	Balanced-budget constraint for all levels	Golden rule	Administrative sanctions
Italy	Domestic Stability Pact sets ceilings on primary deficit	Golden rule	Peer pressure and financial sanctions
Irleand	Limited fiscal autonomy; balanced-budget constraint	Ministerial approval	Administrative sanctions
United Kingdom	Limited fiscal autonomy	Ministerial approval	n.a.
France	Operating deficits not allowed	Golden rule	Administrative sanctions
Portugal	n.a.	n.a.	n.a.
Luxembourg	Limited fiscal autonomy; operating deficits not allowed for municipalities	Ministerial approval for loans above a threshold	Administrative sanctions
Greece	Limited fiscal autonomy	Ministerial approval	n.a.
Source: OECD, Economic Outlook, 74, 2/2003, p. 157–8 (adapted).			

gets. It is typically the countries with a co-operative approach who use the peer pressure mechanism. However, peer pressure is generally combined with some type of sanction.

Compliance with overall macroeconomic targets might, more often than not, mean that sub-national expenditure and borrowing must be constrained. But sometimes, for example, during a business-cycle downswing, the contrary might be desirable. But there is a difficulty to design the rules of sub-national fiscal behaviour in a way that they induce the correct responses in each possible situation. The balanced-budget regulations in place in many countries seem to bear the danger of pro-cyclicality. This leads some national governments in times of need to adjust the expenditure possibility of sub-national units by additional or reduced grants and transfers.

R. O.

INDIVIDUAL LEARNING ACCOUNTS

Individual learning accounts (ILAs) emerged in the late 1990s. ILAs are savings accounts that can be opened by individuals for the purpose of funding future learning activities. Third parties (employers and government) may also contribute to the account while individuals generally retain freedom of choice concerning the type and timing of training, training provider and amount invested. The philosophy underlying these initiatives is to "empower" individuals in education and training markets by encouraging them to take responsibility in an asset-building process.

In a review of recent experience with ILAs, the OECD and the European Learning Account Network identified ILA initiatives in five OECD countries: Canada, the Netherlands, the Basque region of Spain, the United Kingdom and the United States. Another special scheme has been established in Sweden by Skandia, a private insurance company. Most of these schemes have been set up on a trial basis to test the feasibility of a savings-based approach to increase training. They differ significantly with respect to their purposes and the details of their structure and administration, but conform to the broad framework described above.

The main differences between such schemes are the objectives and, as a consequence, their financial scale. The approach adopted most often is to establish accounts to help defray the direct costs of education and training, including course fees, instructional materials, and transportation. In this case, contributions by third parties are relatively low. Only few cases of ILA initiatives are intended to replace income for individuals who pursue full-time learning activities.

In the case of ILAs, accountability issues have been problematic, due to pressure to put large innovations into place quickly and the concern of ensuring their "user-friendliness", since the aim of these schemes is to reach persons who do not typically participate in learning activities. Where direct contributions have been involved, the most common approach to preserve accountability has been for the co-financing partner (government or employer) to match individual contributions at the time of a transaction to purchase education or training services. However, this has not always prevented that either individual's or co-finance partners' funds were spent on activities that were not allowable.

Unfortunately, despite this recent burst of interest in ILAs, there is little evidence on their impact on learning behaviour and subsequent labour market outcomes. Estimating impacts is made difficult by the newness of most of the initiatives and the fact that most of them (with the exception of the British national ILA schemes) are small-scale initiatives. However, the available evidence suggests that ILA schemes have been popular among individuals, even those who usually do not participate in training. In most cases they have managed to reach middle-aged poorly qualified people of both genders, although young and older workers have been under-represented. Evidence from evaluations of the US Individual Development Accounts suggests that such schemes may have a positive impact on economic self-sufficiency, self-esteem, credit-worthiness, and savings behaviour, as well as the likelihood of establishing educational plans.

W.O.

Reference

OECD Employment Outlook 2003, ch. 5.

Individual learning accounts in OECD countries

Country	Targeted worker groups	Funding shares	Use of funds	Other conditions
Canada LearnSave (pilot project)	Egilibility conditions: (i) adults aged 21 to 65 years or 18 to 21 years who have been out of school for at least two years; (ii) adults who are not full-time student; iii) households with pre-tax income below a specific threshold (e.g. CAD 19,930 for one-person families); iv) adults who have liquid savings less than 10% of their annual income	- The fund contributes CAD 3 for every CAD 1 saved by the participants - Participants have up to three years to save a maximum of CAD 1,500 – i.e. the maximum value of the financial asset at the end of the period is CAD 6,000	- Purchase of education or training services - Setting up own business	- Participation should save at least 12 months before they can withdraw matched saving credits (up to three years) - The matched contributions are never paid directly to the participant but instead are paid directly to the supplier of the good or service being purchased
Netherlands (eight pilot projects)	Low-educated workers	- The government contributes up to EUR 454 - In two projects, participants are asked for a contribution - In seven projects, the government contribution is supplemented by contributions by the employer or by sectoral training funds	Only direct costs of training in most of cases	
Spain (the Basque region) IKASTXEKIN (pilot projects)	Vocational training teachers	Credit accounts cover 75% of the direct learning expenses, while the remaining 25% is borne by individuals	Direct learning expenses	- The beneficiaries must take training courses provided by officially approved training centres - The credit accounts must be used in a given period which cannot exceed two years
Sweden (Skandia)	Company-based schemes (with priority given to low-skilled workers)	- Both the employee and the employer pay one half - The contribution share is $^1/_4$ and $^3/_4$, respectively, for the low-paid employees - Up to 10% of annual salary per year (20% for low-skilled and-low-paid employees)	- Direct training costs - Living expenses during the training	
United Kingdom Nation-wide programmes (suspended)	- Any individual older than 19 can open an ILA - Public contribution is allowed only to workers who are not enrolled in full-time training or education that is already publicly supported	- Public contribution of GBP 150 against individuals' contribution of at least GBP 25 for the first million ILA holders - 20% discount on standard rate courses (up to GBP 100 per year) - 80% discount on higher rate courses (up to GBP 200 per year) - Employers' contributions are voluntary and subject to tax relief	Direct training costs or some associated costs (e.g. assessment fees)	The balance in the account should be used during the first year
United States[a)] (Arkansas)	Employed persons who have a household income less than 180% of the poverty line and no more than US$ 10,000 assets other than a house and a car are eligible	The government pays US$ 3 for every US$ 1 saved by the individual	Home-ownership, post-secondary education, starting-up a small business	Account holder must take six classes in economic literacy

[a)] For the United States, ILAs exist under various forms depending on the state. The case of Arkansas is taken only as an example.

Source: OECD, Employment Outlook 2003, p. 270.

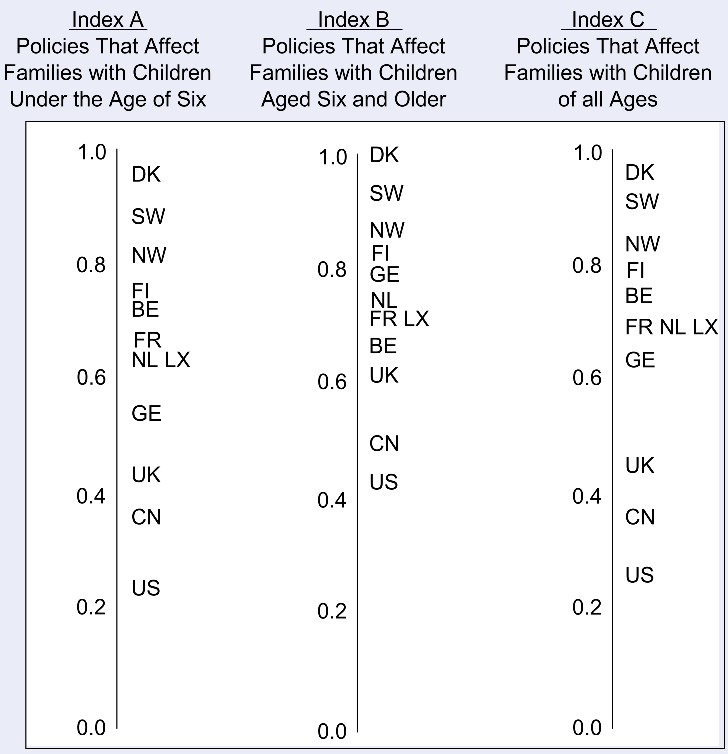
Index of Performance of Family Related Policies

Gornick and Meyers have constructed an index of the relative performance of family related policies in different countries. They consider policies in two groups: those potentially affecting families with children from birth to the age of five and those affecting families with school-age children (aged six and above in most countries). The figure illustrates a comparison of country performance on each of these indexes and on a combined index that sums the two.

Index A, for the younger children, includes indicators of public early childhood education and care (ECEC) provision (entitlements, levels of provision, cost burden assumed by government, tax provisions, and quality features), family leave policy (length of leave, provisions for fathers, generosity of benefits, and provisions for sick-child leave), and working-time regulation (affecting weekly hours and vacation time). The Nordic countries of Denmark, Sweden, and Norway provide the most supportive total package of policies. The Continental European countries occupy a second tier. The United States and the other English-speaking countries fare poorly in this comparison. These countries provide much more limited paid family leave and no rights to paid sick-child days. Working-time protections are generally weak and vacation days lag behind those granted all across Europe. On ECEC policies, their highly privatised systems fail to guarantee either child care or preschool enrollment, leave families with a high cost burden, and they rely on markets to set staff qualification and compensation levels, which are generally low.

Index B of policies affecting older children includes indicators of school schedules (primary-school starting age, hours and weeks of school operation, and continuity of the school day), relevant leave policies (sick-child leave), and working-time regulation (regulation of weekly hours and vacation time). Denmark, Sweden, and Norway again rank the highest among our comparison countries, reflecting their generous entitlements to sick-child leave; standard workweeks in the range of thirty-seven to thirty-nine hours and twenty-one to twenty-five days of paid vacation annually; and school schedules that keep schools open many hours a week and many weeks a year. Most of the Continental European countries cluster together at a lower rank, despite strong working-time regulations, primarily because school schedules provide supervision for relatively few hours of the day and fewer weeks of the year, often with lunchtime breaks and part-day sessions. The English-speaking countries lag behind the European countries on this index as well, although the gap is not so great. Provisions for sick-child leave are weak, as are working-time

Index of Performance of Policies Regulating Family Leave, Working Time, Early Childhood Education and Care, and School Scheduling



Note: BE = Belgium; CN = Canada; DK = Denmark; FI = Finland; FR = France; GE = Germany; LX = Luxembourg; NL = Netherlands; NW = Norway; SW = Sweden; UK = United Kingdom; US = United States.

Source: Gornick and Meyers (2003), p. 258.

protections, especially in the United States and Canada; school schedules are continuous and moderately long in terms of weekly hours but average to short in weeks of the school year, particularly in the United States.

W.O.

Reference

Gornick, J.C. and M.K. Meyers, Families that Work, Policies for Reconciling Parenthood and Employment, New York 2003.

Capital Income Taxation in Europe

Capital income occurs in three forms and goes to two types of tax payers. The forms are interest payments, dividends and retained profits, and the tax payers are enterprises and natural persons. From the point of view of taxation of capital income there exist two important problems. The first one relates to detecting this type of income in order to fully execute the rules of – personal and corporate – income taxation. What one wants, moreover, is a low cost solution to the problem of detection. The difficulty as such, including the search for low administrative costs, appears with any economic activity or result of it which is subject to taxation. (Defraudation or "avoidance" of turnover tax is a specific problem in Europe, see Ifo Institute, 2004.) But capital income taxation may pose specific problems, not least due to the three forms and two addressees of capital income.

The second basic problem with taxation of capital income relates to the incentives induced by taxation. Also this problem is not unique with capital income taxation because it occurs with any type of taxation. However, undesirable effects of capital income taxation may be grave. Beside illegal defraudation on capital income taxes, there is the possibility of legal evasion. This latter behaviour can take two forms: first, enterprises may settle where taxes on corporate income are lower, and, second, people may save less. Moreover, if tax rates on capital income for natural persons and enterprises differ too much, the decision about retaining or distributing profits might be – undesirably – influenced by taxation.

Thus, the problem is to find a solution which – at the same time – detects capital income at low administrative costs, makes it subject to the given rules of personal and corporate income taxation, avoids double taxation, gets around of too high tax rates and does not make the difference of tax rates for corporate and for personal capital income too large.

The solutions for this complex problem differ from country to country and have changed over time. Moreover, even the attempts to classify the solutions differ. One classification is described in Table 1.

Most countries employ a system with reduced tariffs ("classical system", type I). However, neither the EU nor Europe is undivided in this respect. Of the 15 present EU countries it is 8 countries who use the classical system of type I, while the remaining 7 other EU countries employ one of the other four systems.

For an assessment of the economic effects of capital income taxation it is the effective tax rates which matter, not so much the statutory rates, i.e., those of the tax code. Moreover, one should employ a dynamic perspective (e.g., as Sinn, 1987, does). For a calculation of effective rates many factors have to be taken into account, e.g.: definition of the tax base, depreciation allowances, valuation of inventories, investment reliefs, treatment of reserves, social security contributions, pension savings etc. These factors might – and do, more often than not – differ between countries. Even if all these factors are (could be) accounted for, there are different methods which can be used to calculate effective capital income tax rates. Gorter and Mooij (2001) report the results of six different approaches.

Table 1

Systems of treatment of capital income in personal income taxation (2003)

Classification of systems	Countries	Systemic characteristics
System with reduced tariffs (Classical system I)	Austria, Belgium, Czech Republic, Denmark, Germany, Hungary, Lithuania, Luxembourg, Netherlands, Poland, Portugal, Slovakia, Slovenia, Sweden; Cyprus, USA	In most cases: reduced tariffs are at 15%; or: 50% of the dividend is tax free
System without reduced tariffs (Classical system II)	Ireland, Switzerland (Zurich)	Income tax tariffs not reduced but low for capital income.
System with full imputation	Finland, Italy, Malta, Norway	In most cases: tax voucher
System with partly imputation	France, Spain, UK; Canada (Ontario), Japan	In most cases: Imputation of between 10 and 50% of the distributed dividend and tax voucher
System with tax relief	Estonia, Greece, Livland	No taxation of capital incomes on the side of the shareholder
Source: German Federal Ministry of Finance (2003), p. 13 –15, adapted.		

Table 2

Capital income tax rates in EU countries, 1990, 2000, 2003

	Interest			Dividends						Retained profits			
	Personal tax rate			Corporate tax rate			Personal tax rate			Corporate tax rate		Personal tax rate	
	1990(a)	2000(a)	2003(b)	1990(a)	2000(a)	2003(b)	1990(a)	2000(a)	2003(b)	1990(a)	2000(a)	1990(a)	2000(a)
Austria	50	25	25	30	34	34	25	25	25	30	34	50	0
Belgium	25	55	15	41	39	34	25	55	25	41	39	0	0
Denmark	40	15	–	40	32	30	25	40	28	40	32	40	0
Finland	30	29	29	25	29	29	5	0	–	25	29	43	29
France	56,8	54	25	37	33,33	35,4	35,2	31	–	37	33	56,8	54
Germany	53	51	31,65	36	30	27,9	26,6	30	21,1	50	40	53	51
Great Britain	40	40	20	35	30	30	20	25	–	35	30	40	40
Greece	50	15	15	46	40	25/35	0	0,5	–	46	40	50	45
Ireland	56	24	20	43	24	12,5	5	46	–	43	24	60	20
Italy	50	27	12,5/27	36	37	34	34,4	13,5	12,5	36	37	50	45
Luxembourg	56	46	–	34	30	22,9	56	23	20	34	30	56	46
Netherlands	60	60	–	35	35	34,5	60	60	25	35	35	0	0
Portugal	40	40	20	36,5	32	30	33,1	23,1	15	36,5	32	10	10
Spain	56	39,6	15	40	35	35	56,1	15,4	15	40	35	56	39,6
Sweden	25	30	30	40	28	28	25	30	30	40	28	25	30
Average (c)	45,9	36,7	22,3	37,0	32,6	29,8	28,8	27,8	21,7	37,9	33,2	39,3	27,3
Standard dev. (c)	11,8	14,5	6,2	5,2	4,3	6,1	18,2	17,3	6,0	6,1	4,6	20,7	20,5

Sources: (a) Gorter, J., de Mooij, R. (2001). - b) German Federal Ministry of Finance (2003). – c) own calculations.

However, also the statutory rates of capital income taxation are informative. Table 2 presents the development of the tax rates in the (present) EU countries from 1990 to 2000 and 2003. Over the period considered, in most countries the tax rates have been reduced. This can be seen from the average rates most of which are considerably lower now than they have been in 1990 or 2000. A specifically strong reduction from 2000 to 2003 has happened with the personal tax rates on interest and dividends.

The spread of the tax rates – measured by the standard deviation –, however, has developed less uniformly. The spread (comparing 2003 with 1990) has become (much) lower for the personal tax rate on interest payments, but is even higher now for corporate taxation of dividends.

There can be no question that the changing rates (and changing systems, not shown here) of capital income taxation are also a reaction to what other countries do. In a sense, there is a "race" of declining tax rates. However, to fear a "race to the bottom", i.e. to zero rates, is most probably unjustified, because what countries at least will charge the owners of capital are the additional costs, e.g. in terms of infrastructure, which are caused by the presence of capital.

R.O.

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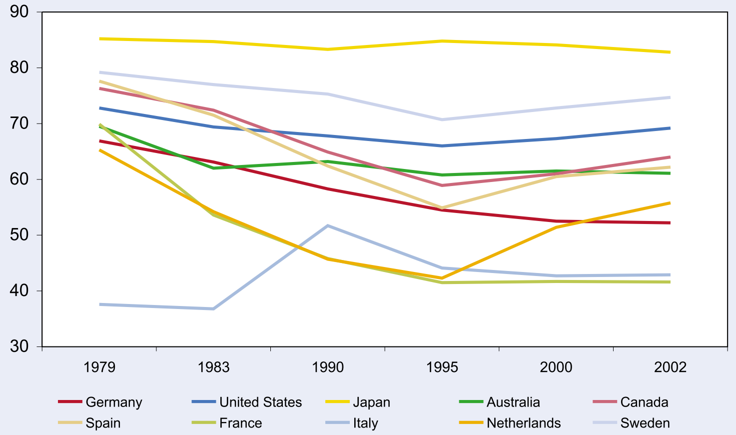
The Early Retirement Burden in OECD Countries

Despite substantial increases in longevity in OECD countries, the average age of retirement has steadily fallen throughout most of the twentieth century. In most OECD countries, labour force participation of 55 to 64 year-old males fell considerably between 1979 and 2002, whereas participation rate for females increased slightly.

Labour market participation rates differ significantly across countries. As can be seen from the figure, Japan and Sweden have the highest labour force participation for men, whereas France and Italy have the lowest. Moreover, the development of the participation rate is quite different between countries, i.e., the male labour force participation rates have stayed relatively stable over the last twenty-three years in Italy, Japan and the US, while they have fallen about 28 percentage points in France. Furthermore, the dispersion of the rates increased dramatically in the 1980s and the 1990s. This divergence illustrates that participation depends on a wide variety of country-specific factors. In the past few years, labour force participation of men 55 to 64 has increased in some countries. Between 1999 and 2002 the rate increased in the Netherlands by seven percentage points, in Spain by four and in Canada by three percentage points.

The economic cost of low labour market participation in terms of lost output, benefit payments, and lower tax base is substantial. The costs of early retirement have been examined using an equilibrium model. The costs associated with early retirement have risen for the average of OECD countries from 5.3 percent of output (1980) to 7.1 percent of output (2000). Some countries experienced a stronger increase of these costs. In Germany, the costs increased by 5.4 percentage points, in France by 4.1 percentage points, and in the Netherlands by 3.1 percentage points (table). The rise in costs over the past twenty years was primarily due to lower labour force participation of older workers.

Labour Force Participation Rates for Men 55 - 64 in Selected OECD Countries



Source: OECD, Employment Outlook, var. years.

Cost of early retirement in the OECD as a share of potential GDP

Country	1980	1990	2000	2010	Country	1980	1990	2000	2010
Hungary	–	–	16.5	19.4	Ireland	4.6	6.9	6.8	8.9
Belgium	–	15.2	14.1	17.9	Australia	7.5	7.5	8.1	11.1
Luxembourg	–	12.5	12.6	15.1	Canada	5.5	6.7	7.2	10.5
Austria	–	–	14.4	15.9	Sweden	5.9	4.7	5.2	7.5
Germany	7.8	9.5	13.2	12.6	USA	5.6	5.4	5.7	8.1
Greece	–	10.4	10.7	11.2	New Zealand	–	7.9	7.8	11.6
Czech Rep.	–	–	11.1	15.2	Turkey	–	5.0	4.0	5.1
France	6.2	11.2	10.3	15.1	Japan	2.8	4.3	5.4	7.5
Netherlands	8.1	10.5	11.2	15.9	Norway	5.0	4.9	5.2	8.1
Poland	–	–	7.7	11.1	Switzerland	–	2.9	6.7	9.3
Finland	8.2	9.6	10.6	15.8	Korea	–	2.2	3.7	5.0
Spain	4.8	9.7	9.3	11.1	Mexico	–	2.1	1.8	3.7
Portugal	6.0	9.1	8.6	9.4	Iceland	–	0.5	1.6	2.2
Denmark	–	6.9	8.2	11.3					
U.K.	–	7.5	7.2	10.1	OECD Average	5.3	6.7	7.1	9.1

Source: Herbertsson and Orszag (2003), p. 10.

The costs associated with early retirement are projected to rise considerably in the next ten years from 7.1 percent of output in 2000 to 9.1 percent of output in 2010. This projected rise in the costs of early retirement of the current decade is larger than the percentage point rise in the costs of early retirement over the twenty year period from 1980 to 2000. The projected rise in costs over the course of this decade is largely due to population ageing. To keep the costs of early retirement at current levels for men in 2010, for instance, male labour force participation rates would need to rise to an average 70 percent in 2010 from an average 66 percent in 2003. While this is not implausible, it does highlight the need for continued emphasis on behavioural adjustments.

W.O.

Reference:

Herbertsson, T. T. and M. J. Orszag, "The Early Retirement Burden: Assessing the Costs of the Continued Prevalence of Early Retirement of OECD Countries", IZA Discussion Paper No. 816.

Two Waves of Pension Reforms in Eastern Europe

When the Central and Eastern European countries started the transformation of their economies to a market based system, their pension systems were generally characterised by features such as relatively generous benefits, no differentiated targeting or needs testing, privileges for several groups, and (very) early retirement. The general system was of a pay-as-you-go type. Institutionally, pension funds were often integral parts of the central state budget. However, there was no indexation to inflation. This systemic design proved quickly to be both socially unbearable and financially unsustain-

Table 1

Pension Reforms in Middle-Eastern Europe and Russia: The First Wave

	Retirement age	Replacement rates / benefit levels	Other	Voluntary second pillar reforms
Czech Republic	1990-1992: Abolition of preferences; 1995: phased increase in retirement ages for men and women.	1990-1997: Many pension adjustments for inflation.	1993: Premiums introduced, separate from taxation system; 1996: introduction of a special pension account.	1994: Supplementary pension insurance, with individual contributions.
Estonia	1994: Phased increase in pension ages for men and women; 2000: early retirement actuarially reduced pensions.	2000: National pensions.	1993-2000: Law on State Allowances; 2000: Law on state Pension Insurance.	1998: Legal framework for voluntary private pensions.
Hungary	1996: Gradual increase in retirement age to 62 for men and women; reductions for early retirement and some increase for delays.	1991: Indexation to net wages (real cuts); move towards benefits based on lifetime earnings; valorisation of past earnings reduced.	1992: Independent Pension Insurance Fund.	1993: Introduction of voluntary private pension funds.
Latvia	1996: NDC scheme; phased increase in retirement abolished from 2005.	1996: Introduction of minimum pension; 1997-1998: real pension increases.	Creation of State Social Insurance Agency; transfer of collections from SIA to Revenue Service.	1997 – Legal framework for regulation of private funds.
Lithuania	1995: Abolition of early retirement privileges and increase for men and women.	1995: Introduction of flat-rate pension, with earnings-related supplement.	1991: Social Insurance Fund separated from State Budget.	2000 – Regulation of private pension funds (no funds established).
Poland	1999: Withdrawal of early retirement privileges in new NDC system, effecting from 2009.	1991: Recalculation (increase) in pensions; 1995: change in indexation (cuts).	–	–
Russia	–	1998: Minimum pension.	1990: Independent Pension Fund.	1992 – Law on non-state pension funds.
Slovakia	1999: Abolition of early retirement.	1991: Indexation provisions.	1999: Contributions from working pensioners.	1996: Regulation of supplementary insurance of employees.
Slovenia	1999: Penalties for early retirement and bonuses for later retirement; increase in pension age for women.	1999: Decreased accrual rates; new valorisation formula reduced replacement rates; introduction of state pension.	1992: Tighter eligibility rules.	Allowed from 1992.

Abbreviations: NDC: Notional defined contributions.

Source: OECD, Reforming Public Pensions: Sharing the experiences of transition and OECD countries, 2004, p. 19–20.

able when production broke down and unemployment and inflation rates reached previously unknown levels.

The first wave of reforms, which started in most countries already in 1991, tried to rectify the system mainly by what is technically referred to as "parametric" reforms, i.e. by reforms which change important parameters of the system more than the system itself. Table 1 summarises these reforms. Privileges have been eliminated, retirement ages increased, inflation indexation has been introduced, and eligibility rules have been tightened. The reforms of a more systemic nature were limited mainly to a formal separation of the pension fund from the state budget and to the introduction of a voluntary, capital-funded second pillar.

In the end of 1990s, most Central and Eastern European countries initiated a second wave of reforms, which mainly consisted of the introduction of an obligatory second pillar. Table 2 summarises these second-wave reforms. Hungary and Poland were the first countries to initiate these reforms (1998 and 1999, respectively). Latvia, Estonia and Russia followed. In other countries the second-pillar reforms are under discussion or partly decided but not yet enacted.

Generally, only a small share of wages has to be paid as a contribution for the second pillar. Some countries start with 2 percent only and will increase it to 6 percent , 7 percent or 9 percent. However, the portion of the workforce already enrolled in the second pillar is quite substantial and, according to estimates for 2003, ranges between 45 percent (Hungary) and 72 percent (Latvia).

R.O.

Table 2

Pension Reforms in Middle-Eastern Europe and Russia: The Second Wave

	Reform starting date	First pillar	Second pillar as a share of payroll	Projected pension fund assets in 2020 (in % of GDP)	Workforce in funded pillar in 2003 (in %)	Switching strategy
Czech Republic	–	PAYG DB	–	–	–	–
Estonia	July 2002	PAYG DB	6%	20	60	Voluntary (opt out + 2%)
Hungary	January 1998	PAYG DB	6%	31	45	Mandatory new entrants; voluntary others
Latvia	July 2001	NDC	2% increasing to 9%	20	72	Mandatory <30; voluntary 30-50
Lithuania	Reforms proposed to take effect from 2003; but not enacted	PAYG DB	–	–	–	–
Poland	January 1999	NDC	7.2%	33	70	Mandatory <30; voluntary 30-50 others
Russia	January 2002	NDC	2% (<35) 6% (35-60)	–	–	Mandatory <50
Slovakia	2000; Concept of Soc. Ins. reform approved by Government, but no implementation	PAYG DB	–	–	–	–
Slovenia	–	PAYG DB	–	–	–	–

Abbreviations: PAYG: Pay-as-you-go; DB: Defined benefits; NDC: Notional defined contributions.

Source: OECD, Reforming Public Pensions: Sharing the experiences of transition and OECD countries, 2004, p. 19–20.

Recent New Entries to the DICE Database

In the first quarter of 2004 the DICE Database (www.cesifo.de/DICE) received about 60 new entries which partly consisted of actualisations of existing entries and partly of new topics. Some topics are mentioned below:

- Out of Pockets Payments for Health Care
- Direct Collective Bargaining Coverage
- Fiscal Treatment of Families
- Financial Markets Liberalisation Dates
- Ratio of Students to Teaching Staff
- Educational Attainment
- Capital Income Tax Rates

Conferences

Hold-up of Reforms in Europe?
22 April 2004, in Berlin

This is the 67th scientific conference of the working committee of German economic research institutes. It is jointly organised by the Hamburg Economic Resarch Institute (HWWA) and the Centre for European Policy Studies (CEPS).

Public Sector Economics
From 7 to 9 May 2004, in Munich

This CESifo Area Conference gives an overview of the current research undertaken by members of CESifo's Public Sector Economics area network. It is intended to stimulate the interaction and co-operation between area members.
Scientific organiser: Frederick van der Ploeg.

Fiscal Federalism
From 20 to 22 May 2004, in Munich

CESifo jointly with the National Bureau of Economic Research (NBER) will sponsor the next Trans-Atlantic Public Economics Seminar. It will focus on the implications of differences in tax and expenditure programs across jurisdictions for the location of real and financial activity, as well as the implications of migration and mobility for government behaviour.

Scientific organisers: Hans-Werner Sinn and Roger Gordon.

Understanding the Digital Economy
From 2 to 3 June 2004, in Munich

In this CESifo conference the economic aspects of the digital economy are analysed, i.a.: copyright legislation, internet auctions, pricing policies and public finance aspects of on-line sales.

Scientific organisers: Gerhard Illing, Martin Peitz.

Designing the New EU (part II)
From 4 to 5 June 2004, in Delphi

The CESifo Delphi Conference employs a two stage process for selecting the contributions. After a first meeting in Munich in November 2003, the final conference will be held in Delphi in June 2004.

Scientific organisers: Helge Berger and Thomas Moutos.

Employment and Social Protection
From 11 to 12 June 2004, in Munich

The purpose of this CESifo Area Conference is to bring together CESifo members to present and discuss their ongoing research. All CESifo research network members are invited to submit their papers, which may deal with any topic within the broad domain of employment determination, labour market institutions and social policy.

Scientific organiser: Jonas Agell.

Institutional Analysis
From 25 to 26 June 2004, in Barcelona

The International Society for New Institutional Economics (ISNIE) holds its 5th Workshop. The program will consist of invited and contributed papers.

Fiscal and Regulatory Competition
From 23 to 26 August 2004, in Milan

The Annual Conference of the International Institute of Public Finance (IIPF) will focus on the above mentioned topic, but also other themes of the field of public economics might be treated. There will be invited and contributed papers.

Schooling and Human Capital Formation in the Global Economy
From 3 to 4 September 2004, in Munich

This conference is jointly organised by CESifo and the Program on Education Policy and Governance (PEPG) of the Harvard University. It will focus on the possible equity-efficiency trade-off in education and will analyse the role of school systems for human capital formation in the global economy. Invited papers will be presented by Eric Hanushek (Stanford), Stephen Machin (LSE), Thomas Nechyba (Duke), and Hessel Oosterbeek (Amsterdam).

Scientific organisers: Ludger Woessmann and Paul E. Peterson.

Risks and Market Economy
From 28 September to 1 October 2004, in Dresden

Annual Conference of the Verein fuer Socialpolitik. Invited papers will treat the above mentioned topic. Contributed papers are not subject to any restriction of theme.

Institutions and Economic and Political Behaviour
From 30 September to 3 October 2004, in Tucson, Arizona

The International Society for New Institutional Economics (ISNIE) holds its Annual Conference. There will be sessions with invited and contributed papers.

Sustainability of Public Debt
From 22 to 23 October 2004, in Munich

The purpose of this CESifo conference is to take stock of the theoretical and empirical knowledge on public debt and budget deficits. Particular emphasis will be placed on comparing public debt and budget deficits in different countries by means of selected country studies.

Scientific organisers: Robert Holzmann, Reinhard Neck and Jan-Egbert Sturm.

DICE

Database for Institutional Comparisons in Europe

www.cesifo.de/DICE

The database DICE was created to stimulate the political and academic discussion on institutional and economic policy reforms. For this purpose, DICE provides country-comparative information on institutions, regulations and the conduct of economic policy.

To date, the following main topics are covered: Labour Market, Public Finances, Social Policy, Pensions, Health, Business Environment, Capital Market and Education. Information about Basic Macro Indicators is added for the convenience of the user.

The information provided comes mainly in the form of tables – with countries as the first column –, but DICE contains also several graphs and short reports.

In most tables all 15 EU and some important non-EU countries are covered. Many topics already contain information on the EU accession countries.

DICE consists mainly of information which is – in principle – also available elsewhere. But we think that the access we provide is very convenient for the user, the presentation is systematic and the main focus is truly on institutions, regulations and economic policy conduct. However, some tables are based on empirical institutional research by ifo and CESifo colleagues as well as the DICE staff.

DICE is a free access database.

Critical remarks and recommendations are always welcome.
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CESifo World Economic Survey

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