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The regional dimension of taxes and public expenditure in Ireland

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Working Paper No. 195

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The Regional Dimension of Taxes and Public Expenditure in Ireland

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Abstract: In Ireland as in many other countries there has been an ongoing debate on the nature, degree and trends of regional imbalance, which has led to substantial research output. While much is now known about these trends, the degree to which they are ameliorated by existing public policies has not been systematically examined. This paper considers two aspects of public policy namely the fiscal system and public expenditure. In particular regional government accounts are constructed, which identify the level of taxation, subsidisation and public expenditure at the regional level. These are then used to identify the degree of regional re-distribution. That analysis confirms that the fiscal system does reduce relative income differences in Ireland. Dublin and the South-West contribute to a substantial resource transfer to other regions. In contrast to the findings for the UK, the level of transfers is found to be highly related to the state of development. In other words the fiscal system works in a progressive manner in relation to regional disparities. Nevertheless the better off regions receive an above average level of expenditure so that the system only partially equalises.

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The Regional Dimension of Taxes and Public Expenditure in Ireland

Introduction

In Ireland there has been an ongoing debate about regional disparities going back at least to the 1950's with the enactment of the Underdeveloped Areas Act in 1952¹. Despite or perhaps in spite of the recent strong growth performance there is a perception of growing regional disparities. This perception is supported by the data on output measures (see O'Leary, 2001 or Boyle, McCarthy and Walsh, 1999), but it is not supported by population and labour market trends (see Walsh, 2005). The debate about the existence and scale of regional disparities has been accompanied by a debate about appropriate regional policies and the appropriate allocation of resources across the regions, which however, has not been matched by rigorous analysis of existing policies. Exceptions to this are a number of papers on the effect of industrial policies and a recent contribution on the effect of a tax incentive scheme.

Killen and Ruane (1998) found that company and job survival rates in the foreign owned sector are higher overall than in the indigenous sector, and that survival rates are generally higher for foreign companies at the periphery and for indigenous companies at the cores. An econometric study found that 27 per cent of the job generation in the designated (lagging) areas over the relevant period could be explicitly linked to regional industrial policy (Meyler and Strobl, 2000). However, according to Barrios, S., H. Görg and E. Strobl (2006) the policy to disperse industry across all regions that was pursued in the 1970s was only effective in attracting low-tech firms to the disadvantaged areas. Furthermore, urbanisation economies were a more important locational determinant for high-tech firms than public investives.

In order to increase economic activity and promote growth in the Upper Shannon Region the Irish government introduced a Rural Renewal Tax Scheme consisted of special tax breaks in respect to construction developments, Keane and Garvey (2006) showed that while the scheme reduced unemployment, the costs associated with it were too high for the scheme to pass efficiency tests.

¹ See Bannon and Lombard (1996), Killen, L. and F. Ruane (1998) or Morgenroth (2003, 2006) for a review of the evolution of regional policy in Ireland.

Recently the issue of expenditure across regions has become the focus of debate. For example the Dublin Chamber of Commerce called for more investment in the Dublin region arguing that, “as a driver of economic growth, innovation and employment for the whole island, the needs of the Greater Dublin Area must be prioritised” (Dublin Chamber of Commerce, 2007). On the other hand residents of the less developed regions feel that they are not receiving enough attention particularly in relation to public investment. For example Senator Margaret Cox resigned from the largest government party (Fianna Fail) in early April 2007 because “failure of this Government to spend all the money we promised to invest, and to deliver the projects we committed to, is adversely impacting the daily life of people living in the West”².

This latter view is at least partially driven by the experience with the last National Development Plan 2000-2006, for which however data was only available for the two NUTS 2 regions. Fitz Gerald, McCarthy, Morgenroth and O’Connell (2003) showed that for all spending areas the Southern and Eastern Region was to receive a substantially larger allocation of resources than the Border, Midlands and Western (BMW) region, which of course reflects the different relative size of the regions in terms of population. In per capita terms, however, expenditure in the BMW region was planned to exceed that of the Southern and Eastern region, although the relative allocations within Operational Programmes vary in some cases. When it came to the actual progress the *MTE* showed that these differences were magnified in the outcome with expenditure significantly lower in the BMW region.

While this debate has been ongoing, little is known about the extent and effect of the fiscal system and government expenditure on regional disparities. Thus, the disparities might well be worse if current policies were not in place.

As Bradley and Morgenroth (1999) note the fact that the regional disparities in income are smaller than those in output may be due to the redistributive effect of the fiscal system. However, they did not carry out any analysis to back up this assertion. Since regional government accounts are not available for Ireland, which contrasts with the situation in many other countries, such an analysis is not straightforward.

Internationally, fiscal transfers and the distribution of government expenditure at the regional level have been a subject to substantial analysis and debate. For example in the case of the UK the Barnett formula, which is used to distribute resources across

² See <http://www.margaretcox.com/> for more details.

regions has been subject to substantial criticism (see McLean and McMillan, 2003). MacKay (2001) showed that total government expenditure exceeds what is expected in four regions namely London, South East, Scotland and Northern Ireland. However, Gripaos (2002) argued that some of this is related to defence expenditure, which has been particularly high in Northern Ireland due to the ‘Troubles’ and show that once one accounts for defence, expenditure is disproportional in London, the South East and the South West. A recent analysis using new data showed that there is no relationship between the levels of per capita public expenditure and per capita GDP in the UK (see Gripaos and Bishop, 2005). Likewise there has been a debate in Germany (Berthold, Drews and Thode, 2001), Canada (Rodriguez, 2006) and Portugal (Nogueira Ramos, 2000).

Despite the ongoing debate a robust analysis of these issues has not been possible in Ireland due to the lack of data. It is the purpose of this paper to construct a consistent dataset and analyse this with a view to identifying the level of cross regional transfers. As such it directly addresses some of the topics of the recent debate.

This paper is organised as follows. The next section provides a brief outline of the fiscal relations across counties, regions and central government. This is followed by an analysis of the impact of taxes and transfer on average income in each county. As this only covers a small part of the fiscal system, regional government accounts are constructed using existing data in conjunction with a number of strong assumptions. This data is then used to identify cross regional transfers.

A Brief Guide to the Irish Regions

There are eight NUTS 3 region, and these make up two NUTS 2 regions, namely the Border, Midlands and West region and the Southern and Eastern region. Table 1 illustrates some of the key characteristics in terms of size and economic development for the most recent years for which data is available. Firstly the table shows that the regions differ quite significantly in terms of size their populations and territory. While Dublin contains a population, which is almost five times the size of the population of the Midlands region it covers the smallest territory.

The table also shows the relative position for index of per capita Gross Value Added (GVA), which is expressed as a percentage of the national average. This shows

that there is a significant gap (67%) between the region with the highest GVA (Dublin) and that with the lowest (Midlands). What the table hides is that the dispersion of relative output measures has increased over time and once one amalgamates the Dublin and Mid-East regions which together form a functional region the gap has also increased substantially. As output variables are susceptible to biases due to commuting patterns and transfer pricing by multinational firms, it is also useful to consider an indicator of personal income. Immediately apparent is that gap between the ‘richest’ and ‘poorest’ region is substantially smaller at just 23.5%.

Finally, turning to labour market statistics the table shows the low rate of unemployment in Ireland as well as the relatively small regional variation. Furthermore the implied dependency rates of between 1 and 1.28 dependents per worker is also small with a relatively small gap.

Table 1. Summary Statistics on Key Variables on Regional Development

	Population (2006)	Area (km ²)	Per Capita Gross Value Added (% of National) (2004)	Per Capita Income (% of National) (2004)	Unemployment Rate (2006Q2)	Persons at Work (1000s) (2006Q2)
Border	468,375	1,234.6	74.3	91.6	5.0	205.2
Midlands	251,664	662.5	66.3	91.4	4.0	115.2
West	414,277	1,428.7	74.8	93.8	4.2	195.5
Dublin	1,187,176	92.1	133.3	113.0	4.8	595.4
Mid-East	475,360	606.134	73.8	98.9	3.3	225.6
Mid-West	361,028	824.9	93.2	100.5	3.9	174.2
South-East	460,838	945.2	81.6	89.5	5.0	213.6
South-West	621,130	1,224.2	122.3	97.4	3.7	292.3
State	4,239,848	7,018.2	100.0	100.0	4.3	2017.0

Source: CSO Census of Population, CSO County Incomes and Regional GDP, Quarterly National Household Survey.

The Structure of Fiscal Transfers in Ireland

Before we turn to the effect of the fiscal system on regional income differences and the degree of redistribution across regions it is useful to review the nature of local, regional and national government expenditure at the regional level³.

As highlighted in Morgenroth (1999) Ireland has a very centralised government structure. Regional governance is very weak even though two layers of regional government exist, namely the Regional Assemblies (NUTS 2) and the Regional Authorities (NUTS 3). The regional Assemblies are however the managing authorities

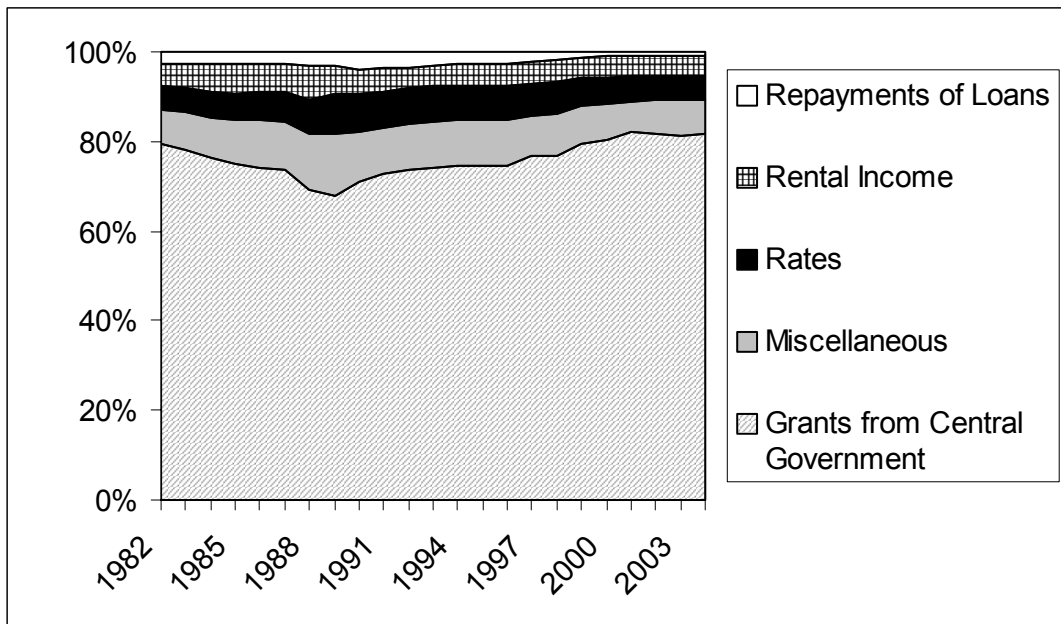
³ This issue has been dealt with in a number of studies such as Foundation for Fiscal Studies, (1990), Advisory Expert Committee, (1991) and INDECON (2005).

for the regional operational programmes of the National Development Plan (NDP) which includes the EU structural funds. Apart from this they along with the Regional Authorities are responsible for the production of regional development plans and the promotion of co-ordination among the local authorities and town councils. These have a number of functions social housing, water supply, sewerage, refuse, pollution, recreation, fire protection, roads (other than national) and planning. These roles involve the supply of local public goods such as fire protection, the supply of congestable public goods such as roads and the supply club goods such as recreation.

This centralised structure also implies that expenditure is highly centralised. Thus the regional assemblies (NUTS2) and regional authorities (NUTS3) have no tax raising powers while local authorities have very limited tax raising powers. There is no system of regional equalisation payments. Instead the Central Government gives grants to the local authorities. General taxes and subsidies (with the exception of commercial rates and user charges) are uniform throughout the State and thus these are not aimed to directly influence regional development.

The local authorities can raise revenue through commercial property rates. Furthermore, they receive all the vehicle registration taxes for vehicles registered in their local authority area. These are paid into the so-called General Fund, which is topped up by central government. In addition to this the central government gives State Grants to local authorities. Figure 1 shows the importance of the different revenue streams. Most noticeable is the very high importance of grants from central government, which on average was 76% of total current revenue. Interestingly this share has been increasing over recent years so that the dependence of local authorities on central government is increasing. Thus, rather than becoming less dependent on central government, through charges for services provided, local authorities are actually becoming more dependent on central government. The miscellaneous category, which includes receipts from the provision of goods and services, increased in importance over the 1980's but has been declining over the 1990's. This might suggest that in fact the privatisation of services is reducing the importance of independent revenue streams for local authorities. Capital revenue (not shown here) is also dominated by transfers from central government, which account for about 65% of capital receipts. Overall, just 8.9 percent of revenues to local and central government are collected by local authorities, while these are responsible for 40 per cent of total expenditure of local and central government.

Figure 1. Sources of Local Authority Current Revenue (% of Total Current Revenue)



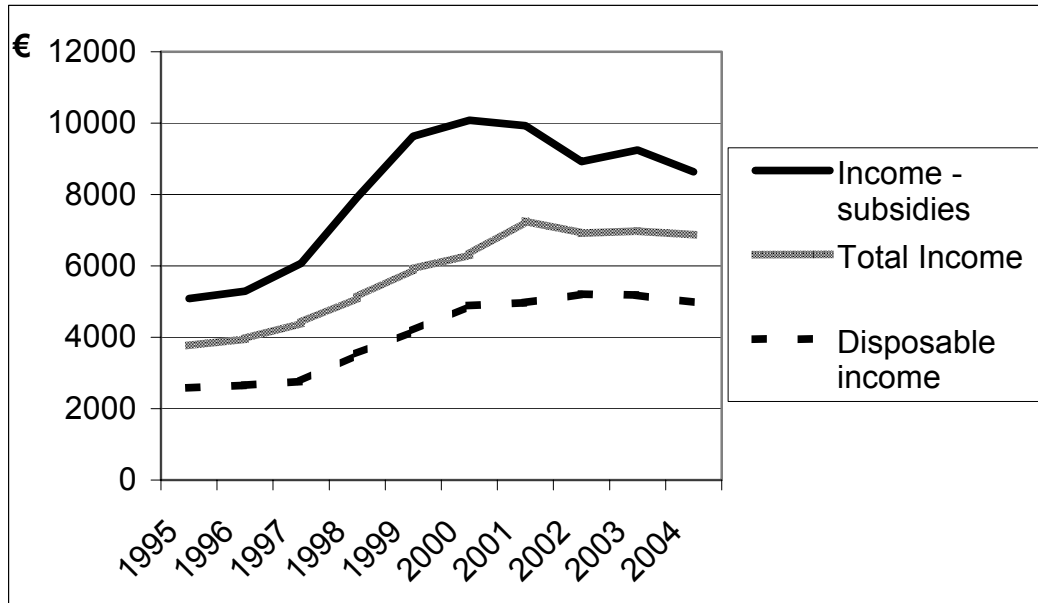
Source: CSO National Income and Expenditure, various issues.

The Impact of Taxes and Transfers on Incomes

As mentioned above Bradley and Morgenroth (1999) pointed to the fact that the functioning of the welfare and tax system through their redistributive functions might be responsible for reducing the gap in incomes as compared to the gap between output measures across regions. While this requires a substantial amount of analysis, it turns out that it is relatively straightforward to identify the impact of transfers and taxes on incomes. This comparison is facilitated by the detailed breakdown of sources of income and taxes available in the published data available from the Central Statistics Office (CSO) as part of the County Incomes and Regional GDP statistical releases. This data is available at the county level, which identifies incomes in 27 counties. Figure 2 shows the gap between the county with the lowest per capita income and that with the highest per capita income using three different measures. These measures are income net of subsidies, total income and total income net of taxes (disposable income). The figure clearly shows that the gap is significantly lower once subsidies and taxes are taken into account proving that the operation of the tax and welfare system in Ireland does indeed reduce differences. Interestingly the gap increased for all measures until 2002 but the increase is particularly marked for income net of

subsidies. Again the differences show the effect of the fiscal system in reducing differences.

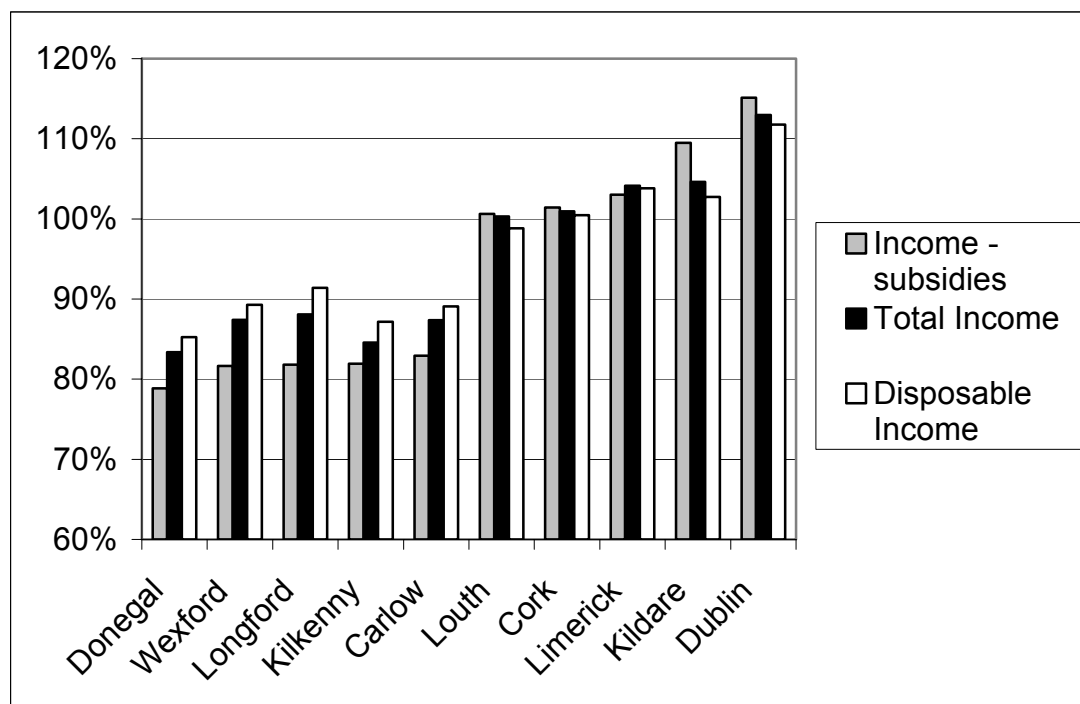
Figure 2. Gap between the ‘richest’ and ‘poorest’ counties in different income indicators accounting for fiscal impacts.



Source: Own calculations using CSO County Incomes and Regional GDP various issues.

In addition to the comparison of the level of gap between the counties with the lowest and highest incomes it is also interesting to consider the differences in each income measure for individual counties. Figure 3 provides such a comparison for the five counties with the lowest income and the five counties with the highest income. This graph clearly shows that the impact of the fiscal system improves the relative income of the poorer counties while dis-improving the relative position of the richer counties.

Figure 3. Relative Index of various income measures for the 'poorest' and 'richest' 5 counties (State=100%), 2004



Source: Own calculations using CSO County Incomes and Regional GDP various issues.

Construction of Regional Government Accounts

Of course personal taxes on personal income and personal subsidies are not the only fiscal transfers that take place, since government also provides services and invests in the regions. Consequently it is also useful to consider how wider government expenditure and taxes are distributed across regions. This analysis can however not readily be carried out since data on such flows is not published in a readily usable form, rather the data needs to be assembled into one comparable source. In particular some published data does not correspond to national accounts totals. For example total tax revenue for the state (local and central government) was €44.3 billion in 2004 while the figures from the regional accounts and county incomes add to only €37.6 billion, a difference of €6.7 billion. Furthermore, the Regional Accounts do not contain information on all major government activities such as public investment and expenditure on health and education. We therefore aim to produce a consistent set of regional government accounts that correspond to the national accounts total for the whole economy.

Given that only certain data series are available at the regional level it is not possible to construct accounts that are as comprehensive as those available at the

national level. However, using the data in conjunction with some strong assumptions it is possible to produce regional government accounts that contain the main components. For this purpose it is useful to first split the government accounts into a revenue (largely taxation) and expenditure side.

Within revenue and expenditure we can identify a number of subheadings for which we aim to construct data. For revenue these are taxes, transfers from abroad and other revenues. Taxes are further subdivided into household taxes, product taxes and other taxes. Since these do not add to the total taxes identified a further category of remaining taxes, which is constructed by apportioning the unaccounted remainder of taxes according to the regional shares of recorded taxes. Other revenues, which include investment income, rental income, loan repayments and borrowing and transfers from abroad are distributed across the regions according to population shares. In total these latter categories of revenue account for about 14% of total revenues and clearly using population shares to attribute these revenues results in more even revenue generation across regions. However, it appears reasonable for example to attribute the investment income and loan repayments (18% of other revenues), which derives from investment in public corporations and investments by the Central Bank of Ireland on a per capita basis. Likewise borrowing (16% of other revenues) is naturally distributed across the population. Thus, while this might introduce a bias into the analysis it is likely that the bias is negligible.

These calculations yield the following table for 2004 (Table 2) where the first three rows are taken directly from the County Incomes and Regional GDP statistical release and the remaining data at the county level being constructed as outlined. In the table the row totals for total tax revenue, transfers from abroad and other revenues match the corresponding entries in the National Income and Expenditure (NIE) accounts.

Table 2. Regional Revenues for 2004 (€ million).

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,762	933	1,547	5,997	1,980	1,555	1,607	2,574	17,955
Other taxes	135	57	99	540	89	91	133	218	1,362
product taxes	1,502	709	1,332	6,884	1,456	1,454	1,621	3,295	18,253
Tax revenue	3,399	1,699	2,978	13,421	3,525	3,100	3,361	6,087	37,570
Remaining taxes attributed	609	304	534	2,404	632	555	602	1,091	6,731
Total Tax Revenue	4,008	2,003	3,512	15,825	4,157	3,655	3,963	7,178	44,301
Transfers from abroad	73	39	65	188	72	57	72	98	663
Other revenues	738	390	649	1,884	720	569	725	983	6,658
Total revenues	4,819	2,432	4,225	17,897	4,948	4,281	4,760	8,259	51,622

Source: Own calculations using National Income and Expenditure 2005 and County Income and Regional GDP 2004.

As with taxes, some published data of transfers at the regional level are available from the County Incomes and Regional GDP, but again they do not add to the total in the NIE tables. In some years this case the total slightly exceeds that from the NIE so instead of adding a small amount is subtracted to align the data with NIE. As before the differences are attributed on the basis of the regional shares of recorded subsidies.

The wage bill, which forms part of expenditure on goods and services is calculated using the employment numbers from the Quarterly National Household Survey (QNHS) and the average wage (obtained from the ESRI Macroeconomic database⁴). For this calculation the data is disaggregated into health and education and public administration and defence. The wage bill does not cover other current expenditure, which is covered in NIE (e.g. stationery etc.). This is allocated according to the shares of public workers in the regions. Thus the total expenditure on goods and services is derived. Clearly this approach assumes that the mix of grades within the public service is equal across regions and it assumes that there is only limited commuting across regions, neither of which may hold in practice. However, alternative approaches are not readily available. At least in relation to commuting it is possible to consider the likely impact, and once one amalgamates the Dublin and Mid-East regions between which substantial commuting flows take place, a relatively modest level of commuting across regions is observed. Based on calculation using the 2002 Census of Population Commuting Micro-data, other than the Mid-East for which net commuting outflows account for about 32% of workers and Dublin where the net

⁴ http://www.esri.ie/irish_economy/databank/

inflow is about 16% only the Midlands region which has a net outflow of about 10% no other region records substantial cross regional commuting.

This leaves just two items, namely other expenditure, which includes loan repayment and redemption of securities etc. and Gross Physical Capital Formation. Other expenditure is simply allocated to the regions according to population shares, while it is possible to apportion the GPCF more precisely using the data from the Construction Industry Review and Outlook⁵. This is used to derive the shares for each type of investment, which goes to each region and using this, the total GFCF is derived. In many cases the total investments in the NIE are very similar to those in the Construction Industry Review and Outlook so the resulting regional totals should be quite robust.

Table 3. Regional Expenditure for 2004 (€ million).

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
Social transfers	1,766	870	1,533	4,634	1,398	1,390	1,733	2,285	15,609
Other Subsidies	92	39	100	55	29	54	49	76	494
Product Subsidies	174	82	154	796	168	168	187	381	2,110
Total Subsidies	2,032	991	1,787	5,485	1,595	1,612	1,969	2,742	18,213
attribution	104	51	91	281	82	83	101	140	932
Total Subsidies	2,136	1,042	1,878	5,766	1,677	1,695	2,070	2,882	19,145
wage bill	1,474	862	1,354	4,395	1,550	1,038	1,286	1,940	13,900
other exp on goods and services	829	459	763	2,381	830	592	713	1,092	7,658
expenditure on goods and services	2,303	1,321	2,117	6,777	2,380	1,630	2,000	3,031	21,558
Other Expenditure	606	320	533	1,547	591	467	595	807	5,467
Capital Expenditure									
Roads	175	180	155	369	377	140	168	267	1,832
Water & Sewerage	70	27	69	94	52	53	61	65	489
Health	37	46	34	165	43	25	36	97	482
Social Housing	100	45	55	374	61	53	81	103	871
Public Buildings	11	18	31	100	50	14	9	17	249
Education	21	12	16	94	18	26	15	60	264
Other	125	99	108	361	182	94	111	184	1,264
Total GFCF	539	426	467	1,556	784	406	480	794	5,451
Total Expenditure	5,501	3,082	4,880	15,854	5,463	4,175	5,155	7,511	51,622

Source: Own calculations using National Income and Expenditure 2005, County Income and Regional GDP 2004 and Construction Industry Review and Outlook.

⁵ The author would like to thank Annette Hughes of DKM Economic Consultants for help with Construction Industry Review and Outlook data.

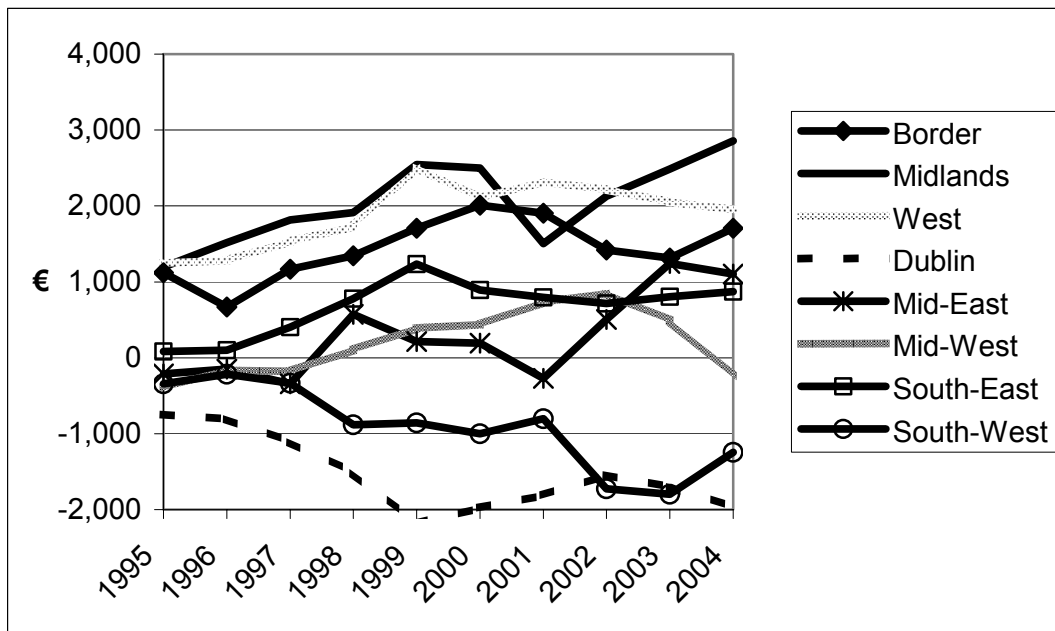
Analysis

Having constructed regional accounts in the manner outlined above it is possible to analyse trends in the various indicators. Firstly we consider the trends in real per capita resource transfers, that is the per capita excess of expenditure over revenue, which is shown in Figure 4. The figure clearly shows that the level of redistribution has increased over time, which implies that the gap between resource inflows and outflows has increased. This suggests that the Irish fiscal system despite not having explicit equalisation rules acts to reduce regional disparities. This is supported by correlation coefficients for the correlation between the implied transfer of resources and real per capita gross value added (GVA) which are negative and range from 0.86 (1996) to 0.99 (2003) and are all statistically significant (see Table 4). Thus the situation in the Republic of Ireland appears to contrast with that in the UK (see Gripaios and Bishop, 2005).

Overall, Dublin and the South-West region contribute substantially to regional transfers. For example in 2004 just over €2,000 per person were transferred across regions while in the same year the Midlands region received a transfer of just over €3000 per person. In absolute terms the level of transfers is also substantial. In 2004 just over €3 billion were transferred from the 'net surplus regions' Dublin, South-West and Mid-West to the other regions⁶. Overall the tax burden (including social contributions) averages at €11,000 per person in 2004 with a high for Dublin with almost €14,000 per person and a low of €8,500 per person in the Midlands.

⁶ Since the per capita comparison may mask differences in dependency rates, the implied transfer per worker was also calculated but this yielded the identical pattern to that shown in Figure 4 (correlation coefficient of no less than 0.99).

Figure 4. Implied Real per capita Resource Transfers (2004 prices)



Source: Own calculations.

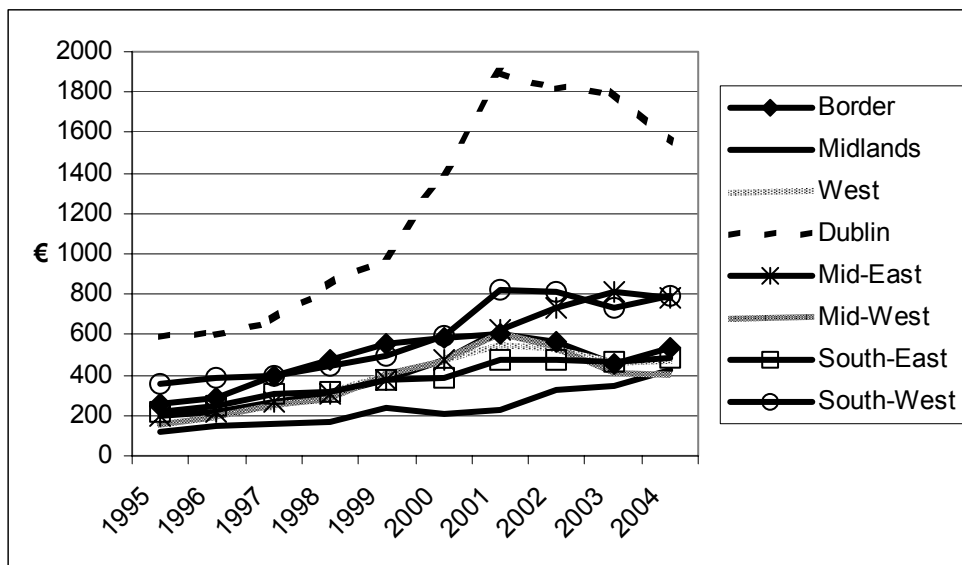
Table 4. Correlation Coefficients for the relationship between per capita real GVA and per capita real transfers

Year	Correlation Coefficient	P-value
1995	-0.88	0.004
1996	-0.86	0.006
1997	-0.89	0.003
1998	-0.96	0.000
1999	-0.96	0.000
2000	-0.95	0.000
2001	-0.90	0.002
2002	-0.98	0.000
2003	-0.99	0.000
2004	-0.96	0.000

Another interesting fact emerges when one considers the distribution of both total revenue and total expenditure across regions. While there is a transfer of resources largely from Dublin and the South-West to other regions which implies that these two regions account for a larger per capita revenue, expenditure in these regions is also above average but not to the same degree as revenue. For example over the period 1995 to 2004 Dublin accounted for 28.9% of the population, 35% of revenue and 31.4% of expenditure. The Midlands, which accounted for just 5.7% of the population and 4.6% of revenue accounted for 5.5% of public expenditure. Thus while being redistributive the fiscal system does not appear to unduly disadvantage the better off regions.

Given that the debate has been concentrating on expenditures and particularly investment it is particularly interesting to consider trends in real per capita public investment. As figure 5 clearly shows that in real terms the level of investment has increased substantially in all regions. However, the Dublin region received a disproportionate share of investment with the level of disproportionality increasing over time.

Figure 5. Real per capita Public Gross Fixed Capital Formation, (2004 prices)



Source: Own calculations. The deflator is taken from Construction Industry Review and Outlook

Conclusions

This paper attempts to bring some factual basis to the ongoing debate on regional government expenditure. As such it first considers the degree to which taxes and subsidies at the household level reduce the relative differences in average incomes across counties. That analysis confirms that the fiscal system does reduce relative income differences in Ireland. Since household taxes and subsidies are only a small component of the fiscal system and since the bulk of central and local government revenue is collected at the central level the paper also attempts an analysis of a wider set of regional government accounts, which given that such accounts are not readily available, are constructed in a consistent basis. This requires some strong assumptions, and clearly the estimates derived are dependent on the validity of these assumptions.

The data show some interesting results. Dublin and the South-West contribute to a substantial resource transfer to other regions. In contrast to the findings for the UK, the level of transfers is found to be highly related to the state of development. In other words the fiscal system works in a progressive manner in relation to regional disparities. Nevertheless the better off regions receive an above average level of expenditure so that the system only partially equalises. This is particularly pronounced in relation to public gross fixed capital formation, where Dublin gets a significantly larger share in per capita terms than other regions. The result that the tax and expenditure system is progressive across regions stands in contrast with the finding that in Ireland this system has only moderate redistributive qualities across individuals (see Nolan and Smeeding, 2005).

The debate about regional expenditure is implicitly a debate about the trade off between equity and efficiency. Thus poorer regions would argue that that they deserve a 'fair share' of the nation's wealth, while richer regions would argue that this wealth can only be created if there is sufficient investment in their regions. In as much as the analysis presented here can address this debate, the results would suggest that the Irish fiscal system does provide a mechanism to achieve more equity, while at the same time preserving a higher level of expenditure in the wealth generating regions. The finding that the system provides a significant degree of regional equity is largely the result of the centralised nature of revenue collection in conjunction with the aim to provide similar levels of service across the full range of government activities in all regions. In order to achieve a similar level of equity with a less centralised system would require a more sophisticated system of fiscal equalisation payments across regions. Thus, while many have argued that the Irish system is too centralised (see Morgenroth, 2000) this centrality turns out to be an asset in terms of achieving regional equity.

The conclusion that the system is indeed equitable is based on per capita levels of revenue and expenditure rather than an assessment of needs. However, while this issue was raised in the early 1990s (e.g. Ridge, 1992 and Ridge and Smith, 1992) since the year 2000 the level of transfers from Central to Local government through the General Purpose Local Authority Fund, which accounts for approximately 20 per cent of Local Authority revenue, has been allocated according to a needs and resource model which seeks to account for different needs (see INDECON, 2005).

Whether the levels of transfers provide an optimal balance between equity and efficiency can not be determined with the analysis provided here. However, at least some researchers have commented on an excessive bias towards equity. For example O'Leary (2002) argued that regional equity considerations may undermine efforts to increase productivity growth, which will be the main driver of future prosperity.

An important point to note is that the analysis could not account for regional price differences, which might well reduce real disparities since the price level in more urbanised regions tends to exceed that of poorer more rural regions. Thus the level of subsidisation may actually be understated. Indeed if one incorporated the differential costs of providing utilities such as electricity and telecommunications, which are provided to broadly the same standards throughout the country the level of cross regional subsidisation would be even greater. Of course the analysis here is only concerned with revenues and expenditures rather than the level and quality of service. Since some services are cheaper to provide in more densely populated areas and may be subject to scale effects the richer more urban areas may have require a lower expenditure to provide an equal service.

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Appendix

Table A1. Regional Government Accounts 1995 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	782	364	598	2,928	815	678	750	1,196	8,111
other taxes	52	28	51	250	46	73	55	106	661
product taxes	631	280	521	2,615	623	589	654	1,141	7,054
Tax revenue	1,465	672	1,170	5,793	1,484	1,340	1,459	2,443	15,826
Remaining taxes attributed	92	42	74	365	94	85	92	154	998
Total Tax Revenue	1,557	714	1,244	6,158	1,578	1,425	1,551	2,597	16,824
Transfers from abroad	112	56	96	288	95	87	108	150	992
Other revenues	883	442	754	2,264	745	684	846	1,180	7,797
Total revenues	2,552	1,213	2,093	8,710	2,418	2,195	2,505	3,927	25,614
Social transfers	833	381	715	2,230	557	627	728	1,064	7,135
Other Subsidies	49	31	53	64	30	40	41	53	361
Product Subsidies	155	69	128	644	153	145	161	281	1,736
Total Subsidies	1,037	481	896	2,938	740	812	930	1,398	9,232
attribution	-94	-44	-81	-266	-67	-74	-84	-127	-837
Total Subsidies	943	437	815	2,672	673	738	846	1,271	8,395
wage bill	586	286	455	1,905	552	386	455	738	5,364
other exp on goods and services	324	153	263	1,016	291	223	270	418	2,959
expenditure on goods and services	910	439	718	2,921	844	609	725	1,156	8,323
Other Expenditure	870	436	742	2,230	734	673	834	1,162	7,681
Roads	64	31	42	61	47	34	43	101	424
Water & Sewerage	21	6	26	43	19	9	17	20	160
Health	2	2	3	23	1	3	4	5	43
Social Housing	20	11	16	75	17	14	25	23	200
Public Buildings	3	4	3	47	3	2	3	5	69
Education	7	3	6	22	5	8	6	11	69
Other	30	15	25	70	24	18	25	43	251
Total GFCF	148	71	120	341	116	88	123	207	1,215
Total Expenditure	2,870	1,383	2,396	8,163	2,367	2,109	2,527	3,797	25,614
Balance	-318	-170	-302	547	51	86	-22	130	0

Table A2. Regional Government Accounts 1996 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	844	389	662	3,190	888	728	791	1,274	8,766
other taxes	80	25	42	314	48	51	59	108	727
product taxes	695	310	584	2,955	643	645	725	1,196	7,753
Tax revenue	1,619	724	1,288	6,459	1,579	1,424	1,575	2,578	17,246
Remaining taxes attributed	141	63	112	564	138	124	137	225	1,505
Total Tax Revenue	1,760	787	1,400	7,023	1,717	1,548	1,712	2,803	18,751
Transfers from abroad	107	54	92	278	91	83	103	143	952
Other revenues	1,212	612	1,049	3,149	1,034	944	1,165	1,627	10,791
Total revenues	3,079	1,453	2,541	10,450	2,842	2,575	2,980	4,573	30,494
Social transfers	877	407	747	2,401	604	671	772	1,126	7,605
Other Subsidies	58	37	65	74	33	52	49	62	430
Product Subsidies	193	86	162	819	178	179	201	331	2,149
Total Subsidies	1,128	530	974	3,294	815	902	1,022	1,519	10,184
attribution	-127	-60	-110	-372	-92	-102	-115	-172	-1,150
Total Subsidies	1,001	470	864	2,922	723	800	907	1,347	9,034
wage bill	535	306	484	2,123	569	408	461	759	5,645
other exp on goods and services	295	167	279	1,129	296	224	271	441	3,101
expenditure on goods and services	831	473	763	3,251	865	631	732	1,199	8,746
Other Expenditure	1,269	640	1,098	3,298	1,083	988	1,220	1,703	11,299
Roads	71	38	51	61	48	37	48	97	452
Water & Sewerage	25	7	24	37	17	12	24	26	172
Health	4	4	5	30	5	6	6	7	67
Social Housing	19	11	16	82	21	17	25	27	218
Public Buildings	3	4	3	37	6	3	1	4	61
Education	9	5	6	35	5	14	10	20	104
Other	41	22	33	89	32	28	36	57	339
Total GFCF	173	91	139	371	134	118	149	238	1,413
Total Expenditure	3,273	1,675	2,863	9,842	2,805	2,537	3,009	4,489	30,493
Balance	-194	-222	-322	608	37	38	-28	85	1

Table A3. Regional Government Accounts 1997 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	941	435	717	3,628	1,040	824	835	1,409	9,829
other taxes	80	26	43	304	50	51	61	112	727
product taxes	759	331	631	3,394	754	709	789	1,462	8,829
Tax revenue	1,780	792	1,391	7,326	1,844	1,584	1,685	2,983	19,385
Remaining taxes attributed	178	79	139	734	185	159	169	299	1,943
Total Tax Revenue	1,958	871	1,530	8,060	2,029	1,743	1,854	3,282	21,328
Transfers from abroad	122	62	106	320	108	95	117	164	1,093
Other revenues	1,176	601	1,020	3,089	1,040	916	1,133	1,582	10,556
Total revenues	3,256	1,534	2,656	11,469	3,177	2,753	3,104	5,027	32,977
Social transfers	940	441	866	2,576	666	730	838	1,243	8,300
Other Subsidies	72	45	86	70	35	59	53	70	490
Product Subsidies	166	72	138	743	165	155	173	320	1,932
Total Subsidies	1,178	558	1,090	3,389	866	944	1,064	1,633	10,722
attribution	-107	-51	-99	-307	-78	-85	-96	-148	-971
Total Subsidies	1,071	507	991	3,082	788	859	968	1,485	9,751
wage bill	619	341	475	2,338	626	414	493	872	6,179
other exp on goods and services	352	193	288	1,274	336	248	296	510	3,497
expenditure on goods and services	971	533	764	3,613	962	662	789	1,382	9,676
Other Expenditure	1,320	675	1,145	3,469	1,168	1,028	1,272	1,776	11,854
Roads	93	39	57	77	60	45	63	99	533
Water & Sewerage	49	14	19	51	21	26	36	22	239
Health	9	4	10	32	10	9	7	10	92
Social Housing	28	11	18	78	26	18	33	31	244
Public Buildings	2	4	11	56	4	5	4	8	94
Education	12	4	8	38	9	24	9	25	129
Other	53	21	34	91	36	35	42	54	366
Total GFCF	246	99	157	423	167	162	193	248	1,696
Total Expenditure	3,609	1,814	3,058	10,587	3,085	2,711	3,222	4,892	32,977
Balance	-353	-280	-402	882	92	42	-118	136	0

Table A4. Regional Government Accounts 1998 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,027	453	808	4,113	1,092	949	930	1,512	10,884
other taxes	87	26	48	322	52	53	65	117	770
product taxes	868	367	737	3,888	775	797	871	1,765	10,068
Tax revenue	1,982	846	1,593	8,323	1,919	1,799	1,866	3,394	21,722
Remaining taxes attributed	213	91	171	895	206	193	201	365	2,336
Total Tax Revenue	2,195	937	1,764	9,218	2,125	1,992	2,067	3,759	24,058
Transfers from abroad	126	65	109	331	113	99	122	169	1,133
Other revenues	865	445	750	2,278	779	678	840	1,167	7,802
Total revenues	3,186	1,446	2,623	11,827	3,017	2,769	3,029	5,095	32,993
Social transfers	1,004	471	880	2,702	710	780	900	1,303	8,750
Other Subsidies	82	48	101	67	37	64	57	77	533
Product Subsidies	166	72	138	743	165	155	173	320	1,932
Total Subsidies	1,252	591	1,119	3,512	912	999	1,130	1,700	11,215
attribution	-91	-43	-81	-256	-66	-73	-82	-124	-816
Total Subsidies	1,161	548	1,038	3,256	846	926	1,048	1,576	10,399
wage bill	658	342	558	2,431	723	508	580	837	6,636
other exp on goods and services	394	202	353	1,410	426	312	378	529	4,004
expenditure on goods and services	1,052	544	911	3,841	1,149	821	957	1,366	10,640
Other Expenditure	1,094	562	948	2,882	985	858	1,063	1,476	9,868
Roads	121	39	71	96	71	65	65	115	643
Water & Sewerage	56	16	33	55	25	27	31	29	273
Health	5	3	9	35	12	8	7	9	89
Social Housing	29	11	26	97	24	19	33	32	270
Public Buildings	3	7	8	75	7	4	5	10	119
Education	15	5	9	51	11	17	11	21	141
Other	83	29	56	147	54	51	55	78	552
Total GFCF	313	110	211	556	205	191	207	293	2,086
Total Expenditure	3,620	1,764	3,108	10,535	3,185	2,796	3,274	4,711	32,993
Balance	-434	-318	-485	1,292	-167	-27	-245	384	0

Table A5. Regional Government Accounts 1999 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,062	441	819	4,761	1,343	1,026	969	1,644	12,065
other taxes	84	30	47	370	61	60	72	130	854
product taxes	994	420	843	4,451	888	913	997	2,021	11,527
Tax revenue	2,140	891	1,709	9,582	2,292	1,999	2,038	3,795	24,446
Remaining taxes attributed	303	126	242	1,357	324	283	289	537	3,461
Total Tax Revenue	2,443	1,017	1,951	10,939	2,616	2,282	2,327	4,332	27,907
Transfers from abroad	114	59	98	299	104	90	111	154	1,030
Other revenues	2,163	1,115	1,861	5,664	1,978	1,701	2,110	2,922	19,514
Total revenues	4,721	2,191	3,910	16,902	4,699	4,072	4,548	7,409	48,451
Social transfers	1,052	495	922	2,809	750	818	956	1,361	9,163
Other Subsidies	91	46	105	96	42	65	59	82	586
Product Subsidies	145	62	133	674	160	138	154	300	1,766
Total Subsidies	1,288	603	1,160	3,579	952	1,021	1,169	1,743	11,515
attribution	121	57	109	337	90	96	110	164	1,084
Total Subsidies	1,409	660	1,269	3,916	1,042	1,117	1,279	1,907	12,599
wage bill	703	374	648	2,612	813	566	677	958	7,351
other exp on goods and services	445	227	416	1,577	494	356	446	623	4,585
expenditure on goods and services	1,148	601	1,064	4,189	1,307	922	1,123	1,582	11,936
Other Expenditure	2,343	1,208	2,016	6,136	2,143	1,842	2,285	3,165	21,138
Roads	165	52	101	128	99	114	82	129	870
Water & Sewerage	66	17	45	79	46	31	45	50	379
Health	8	4	13	55	8	14	7	10	120
Social Housing	27	11	28	114	20	19	35	33	287
Public Buildings	5	31	6	67	8	3	4	9	134
Education	15	5	16	67	13	30	20	26	192
Other	115	49	84	205	78	85	77	104	797
Total GFCF	401	169	294	715	273	295	270	361	2,779
Total Expenditure	5,301	2,638	4,643	14,956	4,765	4,176	4,957	7,015	48,451
Balance	-580	-446	-733	1,946	-66	-104	-410	393	0

Table A6. Regional Government Accounts 2000 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,233	552	1,036	5,205	1,480	1,142	1,126	1,802	13,576
other taxes	92	38	48	370	62	63	73	139	885
product taxes	1,039	486	1,028	5,064	1,133	1,102	1,220	2,372	13,444
Tax revenue	2,364	1,076	2,112	10,639	2,675	2,307	2,419	4,313	27,905
Remaining taxes attributed	357	162	319	1,607	404	348	365	651	4,214
Total Tax Revenue	2,721	1,238	2,431	12,246	3,079	2,655	2,784	4,964	32,119
Transfers from abroad	77	40	66	200	71	60	75	103	692
Other revenues	310	160	267	809	287	243	301	416	2,793
Total revenues	3,108	1,438	2,764	13,255	3,437	2,959	3,160	5,484	35,604
Social transfers	1,162	547	1,019	3,070	826	910	1,075	1,480	10,089
Other Subsidies	89	43	102	92	36	64	54	77	557
Product Subsidies	142	66	140	692	155	151	167	324	1,837
Total Subsidies	1,393	656	1,261	3,854	1,017	1,125	1,296	1,881	12,483
attribution	-54	-26	-49	-151	-40	-44	-51	-74	-488
Total Subsidies	1,339	630	1,212	3,703	977	1,081	1,245	1,807	11,995
wage bill	814	464	749	2,931	935	654	750	1,081	8,378
other exp on goods and services	523	284	480	1,794	567	418	491	690	5,248
expenditure on goods and services	1,337	748	1,229	4,725	1,502	1,072	1,241	1,772	13,626
Other Expenditure	692	356	597	1,806	640	543	673	930	6,238
Roads	173	58	110	168	135	128	110	150	1,033
Water & Sewerage	74	22	82	129	51	62	34	68	522
Health	16	8	29	116	17	26	16	23	250
Social Housing	45	17	29	171	31	32	47	46	419
Public Buildings	13	11	11	145	20	7	4	15	225
Education	25	10	21	107	26	28	22	53	291
Other	127	46	103	307	103	104	85	130	1,005
Total GFCF	472	171	385	1,144	382	388	317	486	3,745
Total Expenditure	3,839	1,906	3,423	11,378	3,502	3,084	3,476	4,996	35,604
Balance	-731	-468	-659	1,876	-65	-125	-316	488	0

Table A7. Regional Government Accounts 2001 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,333	682	1,050	5,580	1,675	1,313	1,243	1,942	14,818
other taxes	97	45	51	419	68	69	79	148	976
product taxes	1,038	507	1,013	5,094	1,223	999	1,264	2,470	13,608
Tax revenue	2,468	1,234	2,114	11,093	2,966	2,381	2,586	4,560	29,402
Remaining taxes attributed	374	187	320	1,679	449	360	391	690	4,451
Total Tax Revenue	2,842	1,421	2,434	12,772	3,415	2,741	2,977	5,250	33,853
Transfers from abroad	85	44	74	222	80	67	84	115	772
Other revenues	662	343	574	1,726	625	522	649	891	5,991
Total revenues	3,589	1,808	3,082	14,720	4,120	3,331	3,710	6,256	40,616
Social transfers	1,290	615	1,124	3,407	938	1,016	1,210	1,667	11,267
Other Subsidies	105	46	107	72	37	69	55	94	585
Product Subsidies	150	73	147	737	177	145	183	357	1,969
Total Subsidies	1,545	734	1,378	4,216	1,152	1,230	1,448	2,118	13,821
attribution	72	34	64	197	54	58	68	99	647
Total Subsidies	1,617	768	1,442	4,413	1,206	1,288	1,516	2,217	14,468
wage bill	996	527	882	3,321	1,073	787	935	1,309	9,831
other exp on goods and services	619	323	556	2,007	658	488	592	827	6,070
expenditure on goods and services	1,614	849	1,439	5,328	1,731	1,275	1,528	2,137	15,900
Other Expenditure	564	292	489	1,469	532	445	552	759	5,101
Roads	165	63	134	352	211	173	135	202	1,435
Water & Sewerage	69	26	115	183	46	101	55	122	716
Health	18	10	36	133	19	33	16	26	289
Social Housing	97	29	54	304	70	50	80	102	787
Public Buildings	20	14	14	143	44	18	9	29	290
Education	37	13	23	167	31	43	24	72	411
Other	126	48	117	398	131	130	99	171	1,218
Total GFCF	533	201	492	1,680	552	548	417	724	5,147
Total Expenditure	4,328	2,111	3,862	12,891	4,021	3,555	4,012	5,836	40,616
Balance	-739	-302	-780	1,829	99	-224	-303	420	0

Table A8. Regional Government Accounts 2002 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,423	748	1,203	5,266	1,670	1,283	1,332	2,120	15,046
other taxes	108	52	65	463	77	76	94	171	1,106
product taxes	1,191	542	1,020	5,518	1,289	1,084	1,461	2,979	15,084
Tax revenue	2,722	1,342	2,288	11,247	3,036	2,443	2,887	5,270	31,236
Remaining taxes attributed	442	218	372	1,828	493	397	469	856	5,076
Total Tax Revenue	3,164	1,560	2,660	13,074	3,530	2,840	3,356	6,127	36,312
Transfers from abroad	86	45	75	222	82	67	84	115	776
Other revenues	1,920	1,000	1,688	4,984	1,831	1,507	1,880	2,576	17,386
Total revenues	5,170	2,605	4,423	18,280	5,443	4,415	5,320	8,818	54,474
Social transfers	1,525	748	1,341	3,954	1,193	1,212	1,456	1,964	13,392
Other Subsidies	102	45	113	61	35	65	50	95	566
Product Subsidies	171	78	146	791	185	155	209	427	2,162
Total Subsidies	1,798	871	1,600	4,806	1,413	1,432	1,715	2,486	16,120
attribution	9	4	8	23	7	7	8	12	76
Total Subsidies	1,806	875	1,608	4,829	1,419	1,439	1,723	2,497	16,196
wage bill	1,111	650	1,041	3,645	1,242	913	1,144	1,487	11,233
other exp on goods and services	703	395	668	2,252	760	567	722	950	7,017
expenditure on goods and services	1,815	1,044	1,709	5,898	2,001	1,480	1,866	2,438	18,250
Other Expenditure	1,609	838	1,415	4,178	1,535	1,263	1,576	2,159	14,574
Roads	162	93	151	412	324	182	126	275	1,726
Water & Sewerage	72	28	103	132	45	103	60	103	647
Health	25	31	36	145	22	10	27	39	336
Social Housing	107	62	63	347	77	63	94	114	926
Public Buildings	9	11	8	145	37	13	17	16	257
Education	33	13	24	145	25	21	20	43	323
Other	120	70	113	390	156	115	101	174	1,239
Total GFCF	528	307	499	1,716	687	507	445	764	5,454
Total Expenditure	5,758	3,065	5,230	16,620	5,643	4,689	5,610	7,858	54,474
Balance	-588	-459	-807	1,660	-200	-275	-290	959	-1

Table A9. Regional Government Accounts 2003 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,525	793	1,305	5,405	1,710	1,293	1,389	2,270	15,690
other taxes	128	63	82	517	83	86	120	187	1,266
product taxes	1,327	621	1,117	6,124	1,299	1,250	1,507	3,099	16,344
Tax revenue	2,980	1,477	2,504	12,046	3,092	2,629	3,016	5,556	33,300
Remaining taxes attributed	562	279	472	2,273	583	496	569	1,048	6,283
Total Tax Revenue	3,542	1,756	2,976	14,319	3,675	3,125	3,585	6,604	39,583
Transfers from abroad	62	33	55	160	60	48	61	83	563
Other revenues	864	453	764	2,232	837	674	850	1,158	7,831
Total revenues	4,468	2,242	3,795	16,711	4,572	3,847	4,496	7,846	47,977
Social transfers	1,650	809	1,434	4,266	1,286	1,291	1,598	2,120	14,454
Other Subsidies	93	41	101	66	31	56	51	82	521
Product Subsidies	177	83	149	818	174	167	201	414	2,183
Total Subsidies	1,920	933	1,684	5,150	1,491	1,514	1,850	2,616	17,158
attribution	67	32	59	179	52	53	64	91	597
Total Subsidies	1,987	966	1,743	5,329	1,543	1,567	1,914	2,707	17,755
wage bill	1,279	775	1,180	3,984	1,415	1,008	1,204	1,647	12,492
other exp on goods and services	748	430	694	2,272	789	587	701	971	7,192
expenditure on goods and services	2,026	1,205	1,874	6,256	2,204	1,595	1,905	2,618	19,684
Other Expenditure	579	304	512	1,496	561	451	569	776	5,249
Roads	127	98	147	499	355	145	160	243	1,774
Water & Sewerage	65	30	76	115	73	50	54	81	545
Health	27	34	34	185	33	24	20	59	416
Social Housing	93	59	55	318	48	50	77	93	793
Public Buildings	11	16	19	113	62	15	16	14	265
Education	18	15	15	107	33	23	18	54	284
Other	101	76	103	398	180	91	103	162	1,213
Total GFCF	442	330	449	1,735	783	398	447	706	5,289
Total Expenditure	5,034	2,804	4,577	14,816	5,091	4,012	4,836	6,807	47,977
Balance	-566	-562	-782	1,895	-519	-165	-341	1,039	0

Table A10. Regional Government Accounts 2004 (million €)

	Border	Midlands	West	Dublin	Mid-East	Mid-West	South-East	South-West	State
household taxes	1,762	933	1,547	5,997	1,980	1,555	1,607	2,574	17,955
other taxes	135	57	99	540	89	91	133	218	1,362
product taxes	1,502	709	1,332	6,884	1,456	1,454	1,621	3,295	18,253
Tax revenue	3,399	1,699	2,978	13,421	3,525	3,100	3,361	6,087	37,570
Remaining taxes attributed	609	304	534	2,404	632	555	602	1,091	6,731
Total Tax Revenue	4,008	2,003	3,512	15,825	4,157	3,655	3,963	7,178	44,301
Transfers from abroad	73	39	65	188	72	57	72	98	663
Other revenues	738	390	649	1,884	720	569	725	983	6,658
Total revenues	4,819	2,432	4,225	17,897	4,948	4,281	4,760	8,259	51,622
Social transfers	1,766	870	1,533	4,634	1,398	1,390	1,733	2,285	15,609
Other Subsidies	92	39	100	55	29	54	49	76	494
Product Subsidies	174	82	154	796	168	168	187	381	2,110
Total Subsidies	2,032	991	1,787	5,485	1,595	1,612	1,969	2,742	18,213
attribution	104	51	91	281	82	83	101	140	932
Total Subsidies	2,136	1,042	1,878	5,766	1,677	1,695	2,070	2,882	19,145
wage bill	1,474	862	1,354	4,395	1,550	1,038	1,286	1,940	13,900
other exp on goods and services	829	459	763	2,381	830	592	713	1,092	7,658
expenditure on goods and services	2,303	1,321	2,117	6,777	2,380	1,630	2,000	3,031	21,558
Other Expenditure	606	320	533	1,547	591	467	595	807	5,467
Roads	175	180	155	369	377	140	168	267	1,832
Water & Sewerage	70	27	69	94	52	53	61	65	489
Health	37	46	34	165	43	25	36	97	482
Social Housing	100	45	55	374	61	53	81	103	871
Public Buildings	11	18	31	100	50	14	9	17	249
Education	21	12	16	94	18	26	15	60	264
Other	125	99	108	361	182	94	111	184	1,264
Total GFCF	539	426	467	1,556	784	406	480	794	5,451
Total Expenditure	5,583	3,109	4,995	15,646	5,431	4,198	5,145	7,515	51,622
Balance	-764	-677	-769	2,251	-483	83	-385	744	0

Year	Number	Title/Author(s) <i>ESRI Authors/Co-authors Italicised</i>
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