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WHY DO DRUG PRESCRIBING RATES DIFFER ACROSS IRISH REGIONS?

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Abstract

The General Medical Services (GMS), Drug Payment (DP) and Long-Term Illness (LTI) schemes[1] made up 98.6% of the 68.3m community drug items prescribed in 2010. Prescribing rates refer to the number of drug items prescribed per person and averaged 14.9 items in Ireland in 2010, ranging from 13.2 in the East region to 17.1 in the South-East. We examined why regional prescribing rates under the GMS, DP and LTI community drug schemes differ.

We constructed expected prescribing rates (EPRs) for each region and drug scheme by adjusting the *national* prescribing rates or norms *pro rata* with the comparative *regional* prevalence of the health conditions for which 6 main therapeutic group medicines were prescribed under GMS, DP and LTI schemes. We validated the EPR model and used it to perform simulations of the effects that changes in health status and scheme coverage rates have on prescribing frequencies.

We find that; (i) Regional EPRs largely explain regional actual prescribing rates (APRs) but (ii) the GMS prescribing rate in the North-West is around 25% less than expected: the North-West LTI prescribing rate in the North-West is around 55% more than expected (iii) a uniform 1% fall in the GMS population reduces prescribing by 1,351,182 items: a uniform 1% gain in health status reduces prescribing by 683,028 items (iv) the 683,028 item reduction is made up of Alimentary Tract & Metabolism (14%), Cardiovascular (25%), Central Nervous system (18%), Respiratory (7.5%) and 'Various' (3.5%) (iv) 'Other' (32%). Policy simulations are robust over short horizons: over longer horizons they are subject to variations in the size and composition of prescribing norms.

[1] Barry et al (2009), and Gorecki et al, (2012) give detailed accounts of these schemes.

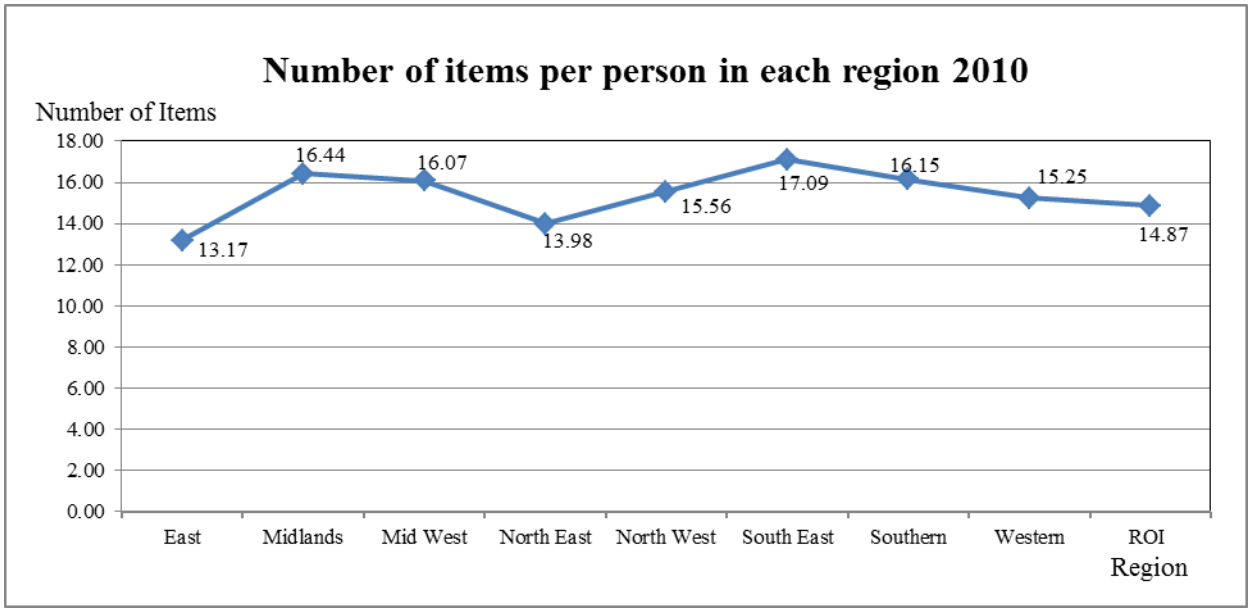
Introduction

The Irish Government has cumulatively reduced real public consumption by almost 16% since the onset of recession in 2008; a further small decline of 0.7% is estimated for 2013[2].

Reducing non-capital public health spending (€13.3bn in 2012)[3] has been particularly difficult. Primary Care (Medical Card Services) Scheme spending was €2.5bn in 2012[4]. Despite the HSE negotiating an 11% reduction in the unit cost of scheme medicines between 2008 and 2010 recession swelled the number covered by the GMS scheme by 9%, eroding all but 2% of the negotiated cost saving[5].

In 2010 a total of 68.3m community drug scheme (GMS, DP and LTI) items were prescribed, averaging 14.87 items per person in Ireland. Regional APRs (average prescribing rates) per person covered ranged from 13.17 in the East to 17.09 in the South-East and display considerable regional variations (see Figure 1 and Table A1 in Appendix).

Figure 1



Prescribing rate variations impact the regional cost of public medicines. For example, in 2010 GMS medicines cost €625.85 per person covered in the North-West & Donegal but were over

[2] Central Bank Quarterly Bulletin Oct 2012, p6.
http://www.centralbank.ie/publications/Documents/Quarterly%20Bulletin%20Q4%202012.pdf
[3] Table 5.6. Estimated Non-Capital Health Expenditure. Statistical Yearbook of Ireland, 2012, p.83.
http://www.cso.ie/en/media/csoie/releasespublications/documents/statisticalyearbook/2012/fullbook.pdf
[4] Ibid.
[5] G. Buckley, M Kenneally & V. Walshe. 2013. *"Variations in the Average Cost of GMS Medicines in Ireland March* "Centre for Policy Studies Working Paper CPS-WP:13-008 give details.

a third more, €841.55, per person covered, in the Midlands. To date, these regional differences[6] have attracted little research attention.

This paper focuses solely on documenting the scale and tracing the sources of differences in regional *prescribing rates*[7], that is, on why, when suitably scaled, the size and composition of regional medicine baskets differ. We show how each region's mapped epidemiological health profile, its scheme coverage rates and national prescribing rate norms impact regional prescribing rates. We identify those regions whose scheme prescribing intensities differ significantly from national norms, having controlled for other factors.

Methods

In 2010 24 therapeutic main groups of medicines accounted for 80% of the 68.3m community drug (i.e. GMS, DP and LTI scheme) items prescribed in Ireland. We extracted the *national* prescribing rates (i.e. scheme items/scheme population) for these 24 groups from the PCRS database. We aggregated the 24 national prescribing rates into 6 main WHO/ATC[8] health categories - (i) Alimentary Tract and Metabolism (ii) Cardiovascular system (iii) Nervous system (iv) Respiratory system (v) Various and (vi) Other (i.e. the remaining 9 'official' ATC groups combined), as shown in Appendix Table A1.

Health indicators are quantitative measures that capture key dimensions of health: composite indicators combine different measures. The KL Composite Health Index[9] measures the *comparative prevalence* in each region of health conditions for which each of the 6 ATC therapeutic groups of drugs was prescribed in 2010.

We used KL regional health index values to construct *expected prescribing rates (*EPRs) for each ATC category in each region. We did this by adjusting the *national* per capita actual prescribing rate (APR) or national norm for each ATC category of drugs (given in Table A1) *pro rata* with each region's KL health index value, which measures the regional-to-national prevalence of the main health conditions for which that ATC therapeutic group of drugs was prescribed.

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[6] Sub-regional Local Health Office (LHO) cost variations are even more striking. The GMS medicines cost €1,600 per person covered in Dublin-South in 2011, 8 times more than the €200 cost per person covered in Dublin West. See Buckley et al., 2013.

[7] Although the HSE sets public medicine prices nationally regional cost per prescribed item still varies widely and contributes greatly to regional variations in GMS costs per person covered. (see Kenneally & Lynch 2014).

[8] See WHO's Collaborating Centre for Drugs Statistics Methodology http://www.whocc.no/

[9] See Kenneally and Lynch 2013 (a) for a detailed account of the KL Composite Health Index.

For example, in 2010 the KL cardiovascular health index value for the Midlands was 1.1503 ($I_C^{MID} = 1.1503$) indicating that (prescription-weighted) cardiovascular health conditions were, on average, 15.03% more prevalent in the Midlands than nationally. The 2010 GMS cardiovascular national prescribing norm was circa 8 items per GMS person covered (i.e. $APR_c^{GMS} = 8.09$): hence, the expected prescribing rate for cardiovascular drugs to the Midlands GMS population is 9.31 items, i.e. $(APR_c^{GMS} * I_C^{MIDLANDS} = 8.09 * 1.1503)$. EPRs were similarly constructed for the other 5 ATC drug groups and summed to yield the overall Midlands GMS EPR.

National prescribing norms vary widely between the different community drug schemes. For example, just one cardiac item (i.e. $APR_c^{DP} \approx 1$) was prescribed per DP-eligible person[10] in 2010 whereas 8 were prescribed per GMS-eligible person. For this reason separate EPRs were similarly constructed for the DP and LTI schemes in the Midlands.

The exercise was repeated for the remaining 7 regions, yielding 24 regional EPRs – one under each of the 3 community drug schemes in each of the 8 regions.

The Midlands GMS actual prescribing rate (APR) is the number of GMS items prescribed in the Midlands divided by its GMS population: APRs were similarly defined and computed for the DP and the LTI drug scheme. This exercise was also repeated in the remaining 7 regions, yielding 24 total APRs – one for each of the 3 community drug schemes in each of the 8 regions.

Coverage rates under the community drug scheme vary widely between regions (see Table A1). For example, just 28% of the East's population was GMS-eligible in 2010 compared to 49% in the North-West & Donegal.

Accordingly, we weighted region $r's$ scheme-specific expected prescribing rate, $EPR_{r,j}$, by the share, $s_{r,j}$ of its population covered by scheme j and then summed over the 3 schemes to obtain region $r's$ total expected prescribing rate,

1. $$EPR_r = \sum_{j=1}^{3} s_{r,j} * EPR_{r,j} = \sum_{i=1}^{6} \left[s_{r,GMS} * APR_i^{GMS} + s_{r,DP} * APR_i^{DP} + s_{r,LTI} * APR_i^{LTI} \right] * I_i^r$$

[10] Persons ineligible for the GMS the LTI schemes are eligible for the DP scheme. Some DP prescribing falls below the DP claims threshold and is not claimed. This imparts a slight downward bias to DP prescribing rates – but not to publicly sub-vented prescriptions.

Where (i) APR_i^j is the national prescribing rate or norm for ATC drug category i under scheme j (ii) $s_{r,j}$ is the coverage rate of scheme j in region r and (iii) I_i^r is region $r's$ ATC category i health index value.

We multiplied region $r's$ EPR_r by its population POP_r and summed over the 8 regions to obtain the expected total number of community drug items prescribed in Ireland, N,

2. $$N = \sum_{r=1}^{8} EPR_r * POP_r$$

Equation (1) identifies and separates the effects that changes in (i) national prescribing norms, APR_i^j (ii) regional scheme coverage rates, $s_{r,j}$ and (iii) regional health status I_i^r, in each ATC category have on region $r's$ expected prescribing rate, EPR_r. Equation (2) gives the expected total number N of community medicine items prescribed in Ireland.

We tested the EPR model by regressing APR on EPR, using ordinary least squares (OLS), that is,

3. $APR_r^j = \alpha + \beta EPR_r^j + u_r$ (u_r is a well behaved error term).

The regression R^2 measures how well the EPR model explains actual regional prescribing rates. Moreover, if $\alpha = 0$ and $\beta = 1$ then EPR is an unbiased estimator of APR.

We also ran augmented versions of equation (3) by including binary dummy variables to test if significant systematic departures of actual from expected prescribing rates occurred in specific regions or schemes.

Finally, we also tested whether regional health status *alone* could account for regional prescribing variations. We constructed *scheme-independent EPRs* for each of the r regions from the product of (i) the national prescribing rate and (ii) region $r's$ health index value (e.g. $EPR_c^r = APR_c^n * I_c^r$ and $EPR^r = \sum_{i=1}^{6} APR_i^n * I_i^r$). It follows that EPR^r is the same for the GMS, DP and LTI schemes in region r. This subsidiary regression of APRs on *scheme-independent EPRs* tests if health status alone explains prescribing rate variations.

Results

The model was estimated by OLS and the results are presented in Table 1,

Table 1. OLS Regression Results for Equation 3

Variables	Intercept	EPR_r^j	$\mathbf{DNW_{GMS}}$	$\mathbf{DS_{LTI}}$	Fit Stats $\bar{R}^2$	*F-Stat*
Scheme Dependent EPR Model					**0.9204**	**267.01**
Coefficient	0.8279	0.9755				
T-stat	(0.5971)	(16.34)				
Augmented Model					**0.9743**	**292.2**
Coefficient	0.0419	1.009	-8.562	11.5434		
T-stat	(0.0526)	(28.65)	(-3.939)	(5.5136)		
Scheme Independent EPR Model					**-0.0454**	**0.0011**
Coefficient	+21.985	-0.1285				
T-stat	(0.3797)	(-0.0337)				

DNW_{GMS} & DS_{LTI} are intercept dummies for GMS prescribing rate in the North West & LTI rate in the South region.

The scheme-dependent EPR model tracks the data well and explains 92% ($R^2 = 0.9204$) of the variation in regional per capita prescribing rates. The scheme-dependent EPR model intercept is insignificantly different from zero and its slope coefficient, $\hat{\beta} = 0.9755$ is well determined and is insignificantly different from 1. Hence, scheme dependent EPRs, in general, yield unbiased estimators that track regional APRs with high precision.

The model was augmented by adding scheme and region specific binary variables and re-estimated. The augmented model estimation results show that the GMS scheme prescribing rate in the North-West region is significantly less than expected, given its health status, its scheme coverage rates and national prescribing norms i.e. its GMS population was prescribed 8.56 fewer items than expected (about 25% fewer than the 33.68 item national GMS norm). In contrast the South region LTI population was, on average, prescribed 11.54 more items

than expected (about 55% more than the 20.81 item national LTI prescribing norm), given its health status, scheme coverage rates and national prescribing norms. The augmented model fit is $R^2 = 0.9743$: all model slope coefficients are significant at the 1% level and the estimated EPR coefficient is insignificantly different from 1.

The augmented model explains 97% of the deviations in regional and scheme prescribing rates. Actual prescribing rates variations are overwhelmingly systematic; less than 3% are idiosyncratic. EPRs explain most systematic prescribing rate variations, albeit with an exceptionally low GMS prescribing rate occurring in the North-West & Donegal and an exceptionally high LTI prescribing rate occurring in the South region.

Model fit collapsed ($R^2 = -0.045$) when we regressed APRs on the *scheme-independent EPRs*. This indicates that health status *alone* cannot explain prescribing rates. Community drug scheme (GMS, DP and LTI) coverage rates embed prescribing effects that cannot be purged when measuring EPRs without serious misspecification and virtual complete loss of explanatory power. Accordingly, we conclude that regional health status and regional drug scheme coverage *jointly* condition regional prescribing rates, with the two exceptions noted above.

Equation 1 measures each region's EPR, given its health status, scheme coverage rates and national prescribing norms. A region's total expected prescribing frequency is the product its EPR and its population (equation 2); hence, it allows us to simulate how the total number of prescribed items in each region and nationally is expected to respond to contemporaneous changes in health status and scheme coverage rates.

These simulations (see Table A3) indicate that a 1 percentage point gain in health status in each ATC category and in each region would reduce community drug prescriptions in Ireland by 683,028 items. In contrast, reducing the GMS population uniformly by 1 percentage point in each region (that is, by 16,158 persons or 1% of the 1,615,809 person GMS-eligible population in 2010) and increasing the DP population by the same number would reduce expected prescribing by approximately 1,350,000 items. Hence, the number of community drug items prescribed nationally responds twice as elastically to changes in GMS coverage vis-à-vis its response to changes in population health status.[11]

[11] We applied 2010 national prescribing norms in making the above estimates. However, as the regional data show, GMS prescribing rates tend to increase as GMS coverage falls. Hence, our estimates are conservative.

The simulations (in Table A3) identity how much each region is affected by these policy changes which largely reflects its demographics, health status and scheme coverage rates. The populous East region is most affected: less populous regions are less affected, the precise amount varying with their elderly population share, initial health status and community drug scheme coverage rates.

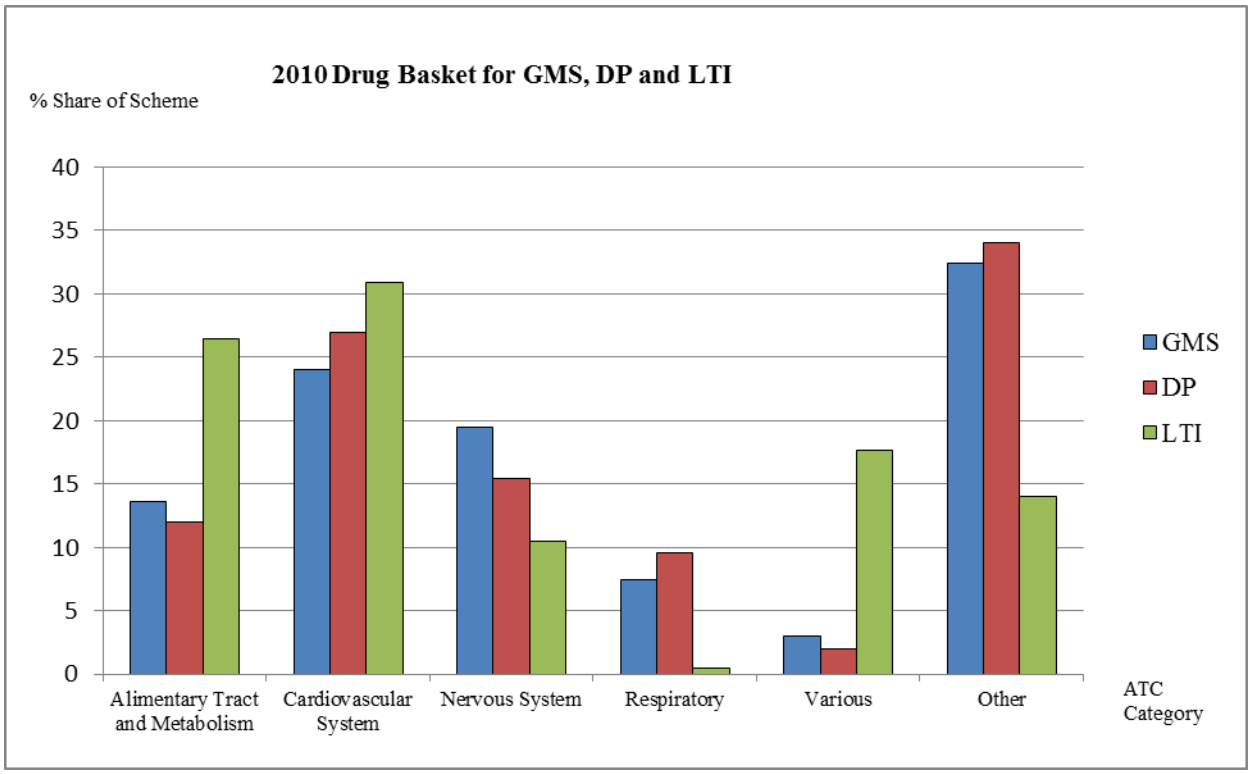
The simulations also identity which types of drugs are most affected by the policy changes. Cardiovascular and "Other"[12] ATC drugs make up around half of all drug scheme baskets (see Figure 2) and account for 387,206 items (56.69%) of the total 683,028 item reduction that follows a uniform 1 percentage point health gain. Table A3 breaks the 683,028 item reduction down by therapeutic drug group, giving its share in the total in brackets: Alimentary Tract and Metabolism 94,915 items (13.9%); Cardiovascular 169,341 items (25%), Central Nervous System 125,950 items (18%), Respiratory 51,386 items (7.5%), Various 23,572 items (3.5%) and 'Other 217,865 items '(32%).

The simulated outcomes from the 1 percentage point (that is, 16,158 person) reduction in GMS cardholders nets off the additional items they consume when they gain DP cover and it incorporates the minor compositional changes the DP scheme has on the therapeutic group items prescribed.

Figure 2 portrays the makeup of the various drugs baskets. The LTI basket has the highest proportion of Alimentary Tract & Metabolism, Cardiovascular and 'Various' items; the GMS basket has the highest proportion of 'Nervous System' items; the DP has the highest proportion of 'Other' items. These basket shares change over time but as Table A4 shows they change slowly and imply that simulations over short horizons are robust.

[12] which includes drugs for bone disease, anti-thrombotics, see Kenneally and Lynch (2013))

Figure 2



National prescribing norms are uniform across regions and cannot explain inter-regional prescribing variations but as norms change over time they scale up or down the inter-temporal prescribing effects[13]of policy actions. The GMS prescribing norm, for example, increased at an annualised rate of 7.57% in the decade to 2008 but fell by 2.8% between 2008 and 2010. The LTI norms show a similar pattern and the DP prescribing norm was even more cyclically sensitive during the recession: it increased at an annualised rate of 5.37% to 2008 before decreasing by 12.01% from 2008 to 2010 (see Table A5). Norms change with the stage of the business cycle and length of the simulation horizon. The fall in the GMS prescribing norm per person has been offset by the growth in the numbers eligible for the GMS scheme due to recessionary conditions

Prescribing frequency depends on scheme norms, scheme coverage and health status. KL health index is currently available for 2010 only which precludes time series analysis of the linkages between prescribing norms trends and changes in health status in each ATC category and region. Zabir, Perry, Critchley, O'Flaherty, Capewell and Bennett (2013) model the fall

[13] Norms may evolve by custom and practice be conditioned by Guidelines (see, for example, 'Guidelines for Antimicrobial Prescribing in Primary Care in Ireland http://www.antibioticprescribing.ie/

in CHD in Ireland which may underpin the falling share of cardiovascular items in Irish drug baskets.

Discussion and Conclusions

Regional health status, community drug scheme coverage rates and national prescribing norms jointly condition and explain around 92% of prescribing frequency variations in Irish regions and across Irish community drug schemes.

Having controlled for health status, scheme coverage rates and prescribing norms we find that the GMS prescribing rates in the North West is around 25% below the national GMS norm and the LTI prescribing rate in the Southern region is 55% above the national LTI prescribing norm.

We find that the semi-elasticity of the total number of community drug items prescribed nationally with respect to GMS coverage is twice as large as the semi-elasticity with respect to health status.

Our simulations also identify the therapeutic drug groups into which the simulated changes in prescribed items fall.

GMS, DP and LTI prescribing norms and drugs baskets (items per person covered) differ in size. The GMS basket is 62% larger than the LTI basket and it dwarfs the DP basket – it is 763% larger than it. That proportionality is broadly similar for different therapeutic drug groups and it changes slowly.[14] It follows that the size and composition of simulated policy outcomes are robust over short policy horizons. Prescribing norms do change over time and amplify or diminish the scale of simulated outcomes over longer policy horizons. The composition of drugs baskets also change slowly. For example, the cardiac share ranging between 24% and 31% in the 3 baskets in 2010 has been ceding ground[15] to the "Alimentary Tract & Metabolism" and "Nervous System" shares in the run-up to 2010. These changes are slow moving and have little short-term impact on the number and composition of prescribed items.

[14] The average GMS, LTI and DP drug baskets, for example, respectively, contain 8.09, 6.42 and 1.07 cardiac Items per person covered (see Table A1).

[15] Zabir, Perry Critchley, O'Flaherty, Capewell and Bennett (2013) model the rapid decline in CHD that may underline this trend.

The lack of regional PCRS data prevents us from constructing separate APRs for each of the 6 ATC categories in each of the 8 regions, which would scale up sample size up 6-fold and enable testing of how well the EPR model explains regional prescribing rates in **each** of the 6 ATC drug categories.

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APPENDIX

Table A1. Scheme Coverage Rates and National Prescribing Norms by Region in 2010

Region	Scheme Coverage Rates S_j					GMS+DP+LTI Schemes	
	GMS	DP*	LTI	HTD**	Total	2010 Total Items	2010 Items per Person
1. Eastern Area	0.28	0.67	0.04	0.01	1.00	21,597,381	13.17
2. Midlands	0.38	0.58	0.03	0.01	1.00	4,560,185	16.44
3. Mid-West	0.38	0.59	0.02	0.01	1.00	6,151,829	16.07
4. North-East	0.38	0.58	0.03	0.01	1.00	5,996,451	13.98
5. North-West	0.49	0.47	0.03	0.01	1.00	3,986,284	15.56
6. South-East	0.41	0.55	0.03	0.01	1.00	8,541,380	17.09
7. South	0.36	0.61	0.02	0.01	1.00	10,679,471	16.15
8. West	0.41	0.56	0.02	0.01	1.00	6,789,882	15.25
Ireland	0.35	0.61	0.03	0.01	1.00	**68,302,863**	**14.87**
Actual Prescribing Rates (APRs) or Norms: Items per person Covered by Anatomical Group and Scheme							
	GMS	**DP***	**LTI**	**HTD****	**Total**		
1. Alimentary Tract/ Metabolism	4.59	0.48	5.50	0.03	2.07		
2. Cardiovascular System	8.09	1.07	6.42	0.09	3.69		
3. Central Nervous System	6.55	0.61	2.19	0.04	2.74		
4. Respiratory System	2.52	0.38	0.10	0.08	1.12		
5. Various	1.02	0.08	3.67	0.02	0.51		
6. Other	10.91	1.35	2.93	6.88	4.83		
Total	**33.68**	**3.96**	**20.81**	**7.14**	**14.96**		

*Persons not covered by the GMS are covered by the DP scheme. We assigned covered but unregistered persons (i.e. those with medicines bills under €120/month entitlement threshold) to the DP scheme.

**We assigned the 54,974 HTD registered persons in 2010 (PCRS 2010 p.14) to each region in proportion to that region's share of HDT items prescribed (PCRS 2010 p.15).

Table A2. Prescribing Frequencies by Anatomical Group, Listed Therapeutic Group and Drug Scheme

Anatomical Therapeutic Chemical Classification (ATC)	Prescribing Frequency: % of Scheme Total in 2010			
	GMS	DP	LTI	Total
Alimentary Tract & Metabolism Total (of which)	**13.64**	**11.99**	**26.44**	**13.9%**
1. Drugs for Acid related Disorders	6.02	6.6	0.68	
2. Drugs for Diabetes	2.35	0.51	24.2	
3. Laxatives	1.4	0.67	0.26	
4. Mineral Supplements	1.93	2.01	0.24	
Cardiovascular System Total (of which)	**24.03**	**27.01**	**30.88**	**24.6%**
5.Lipid Modifying Agents	6.47	9.56	11.19	
6.Renin-Angiotensin Agents	5.85	7.27	10.68	
7.Calcium Channel Blockers	2.52	2.51	2.92	
8. Beta Blocking Agents	3.74	4.08	3.27	
9. Diuretics	3.11	1.81	1.51	
Nervous System Total (of which)	**19.44**	**15.47**	**10.52**	**18.4%**
10. Psychoanaleptics	4.59	4.64	0.55	
11. Psycholeptics	6.85	5.16	0.67	
12. Anti-epileptics	1.98	1.57	7.9	
13. Analgesics	4.76	3.42	0.26	
Respiratory System (of which)	**7.47**	**9.55**	**0.47**	**7.5%**
14. Drugs for Obstructive Airways	5.4	6.78	0.32	
15. Nasal Preparations	0.65	1.3	0.05	
16. Antihistomines	0.75	1.11	0.05	
Various Total (of which)	**3.02**	**1.98**	**17.64**	**3.5%**
17. Clinical Nutritional Products	1.1	0.96	1.26	
18. Other Non-Therapeutic Products	1.04	0.82	6.26	
19. Diagnostic Products	0.83	0.17	10.11	
Other Total (of which)	**32.4**	**34.00**	**14.05**	**31.9%**
20. Antithrombotics	6.9	6.86	9.72	
21. Urologicals	1.7	1.85	1.03	
22. Antibacterials for Systemic Use	4.64	4.2	0.52	
23. Drugs for Bone Disease	1.43	1.6	0.08	
24. Anti-inflammatory and Rheumatic	3.18	4.05	0.15	
Therapeutic Groups as a % of Total Prescribed Items	**79%**	**80%**	**94%**	**79.7%**
Total Prescribing Frequency for listed Therapeutic Groups	**43,127,161**	**8,813,726**	**2,638,371**	**54,579,258**
Total Items Prescribed for <u>all</u> (inc. unlisted) therapeutic	**54,424,660**	**11,070,446**	**2,807,757**	**68,302,863**
Persons Covered	**1,615,809**	**2,841,218**	**134,926**	**4,591,953**
Items prescribed per Person Covered	**33.68**	**3.90**	**20.81**	**14.87**

Table 20/ 20.1/20.2 PCRS 2010

Table A3. Community Prescriptions Reduction from a 1% gain is health status in each ATC category.

Region/ ATC Condition	Alimentary	Cardiovascular	Central Nervous System	Respiratory	Various	Other	TOTAL	1% Coverage Switch from GMS to DP
East	29,664	52,656	37,812	15,612	7,912	66,086	209,741	453,706
North-West	6,751	11,932	9,129	3,624	1,646	15,540	48,622	79,693
Midlands	6,037	10,750	8,051	3,264	1,491	13,875	43,467	87,889
South-East	11,541	20,505	15,473	6,231	2,833	26,556	83,139	151,320
Mid-West	8,188	14,659	11,024	4,491	1,974	19,027	59,363	113,437
South	13,354	24,148	18,208	7,504	3,096	31,577	97,887	193,806
North-East	9,297	16,606	12,480	5,071	2,260	21,518	67,233	123,188
West	10,083	18,085	13,772	5,588	2,360	23,686	73,575	135,414
IRELAND	94,915	169,341	125,950	51,386	23,572	217,865	**683,028**	**1,351,182**
%	(13.9%)	(24.79%)	(18.44%)	(7.5%)	(3.45%)	(31.9%)	**100%**	

Table A4. ATC percentage share of GMS, DP and LTI Schemes

	GENERAL MEDICAL SERVICES	Percentage Share of Scheme			
	Anatomical Therapeutic Category	**2010**	**2009**	**2005**	**2001**
A	Alimentary Tract and Metabolism	13.64	13.45	12.25	10.92
C	Cardiovascular System	24.03	24.29	24.97	22.28
N	Nervous System	19.44	19	19.17	21.09
R	Respiratory	7.47	7.39	7.31	8.63
V	Various	3.02	3.49	2.92	2.43
	Other	32.4	32.38	33.38	34.65
	TOTAL	**100**	**100**	**100**	**100**
	DRUG PAYMENT	**Percentage Share of Scheme**			
	Anatomical Therapeutic Category	**2010**	**2009**	**2005**	**2001**
A	Alimentary Tract and Metabolism	11.99	11.66	10.89	10.38
C	Cardiovascular System	27.01	26.94	25.36	23.15
N	Nervous System	15.47	14.97	15.05	17
R	Respiratory	9.55	9.58	10.27	11.37
V	Various	1.98	1.75	1.77	1.87
	Other	34.00	35.10	36.66	36.23
	TOTAL	**100**	**100**	**100**	**100**
	LONG TERM ILLNESS	**Percentage Share of Scheme**			
	Anatomical Therapeutic Category	**2010**	**2009**	**2005**	**2003**
A	Alimentary Tract and Metabolism	26.44	25.93	26.59	28.37
C	Cardiovascular System	30.88	29.83	26.37	21.68
N	Nervous System	10.52	10.82	13.11	15.95
R	Respiratory	0.47	0.56	0.71	0.9
V	Various	17.64	17.82	19.51	22.19
	Other	14.05	15.04	13.71	10.91
	TOTAL	**100**	**100**	**100**	**100**

Table A5. Growth Rates in Prescribing Norms (items per person covered)

	Compound Annual Growth Rate (2001-2008)	Compound Annual Growth Rate (2008-2010)
GMS	7.57%	-2.81%
DP	5.37%	-12.02%
LTI	7.59%	-2.64%