

# Solution Overview Report for Scenario noalpha

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## 1 Introduction

This report gives an overview of the solution found for the Irish Constituency Reassignment problem, it also presents details of selected solutions. The problem, a model and the relevant data are described in a companion report.

This version of the analysis considers solutions for a fixed number of seats, and a variable  $\pm$  delta in the population per seat for each county.

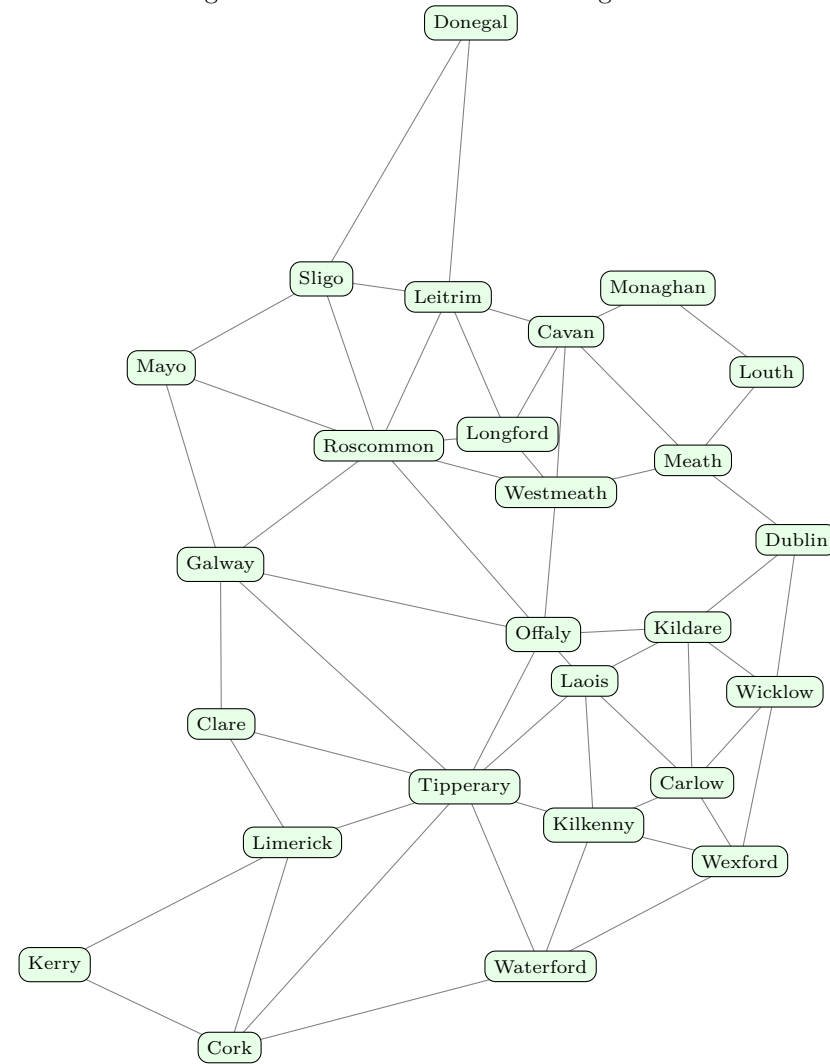
This scenario has 174 seats in total. The scenario does not assign a cost to the inter-county transfers, but does count the transferred population in the cost. This should results in many small transfers between counties.

Figure 1 shows a schematic map of the counties in Ireland, with lines indicating that two counties are neighbors, and a reassignment of population from one county to the neighbor can be considered. The positions of the county labels are based on the centroid point of the counties in the map of Ireland.

We also use this map layout in the visualization of the results. We draw two versions, one shows the number of seats allocated, and the number of constituencies of different types created. The nodes are colored by the number of seats given. Transfers between counties are marked by arrows, arrows colored in red indicate that the complete county is transferred to another county. Arrows in gray also show the percentage of the population of the 'from' county transferred to the 'to' county.

The second type of map shows the variation in the number of persons per seat, expressed as a percentage of the overall target average. A green color indicates that the number is below the average, a yellow color indicates that the value is above average. Counties for which the achieved variation is within 1 percent of the maximum delta allowed are outlined in red.

Figure 1: Ireland: Counties and Neighbors

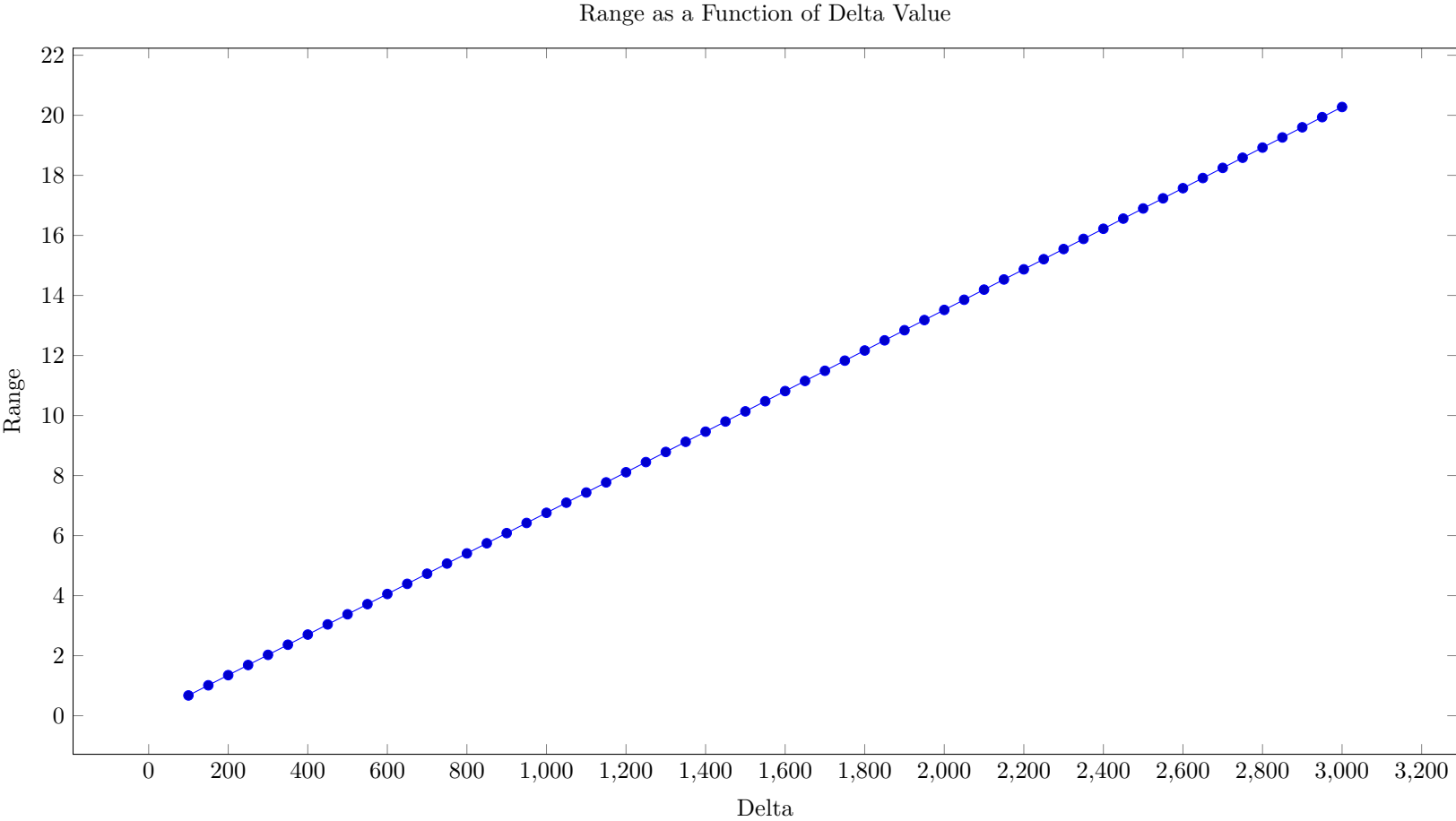


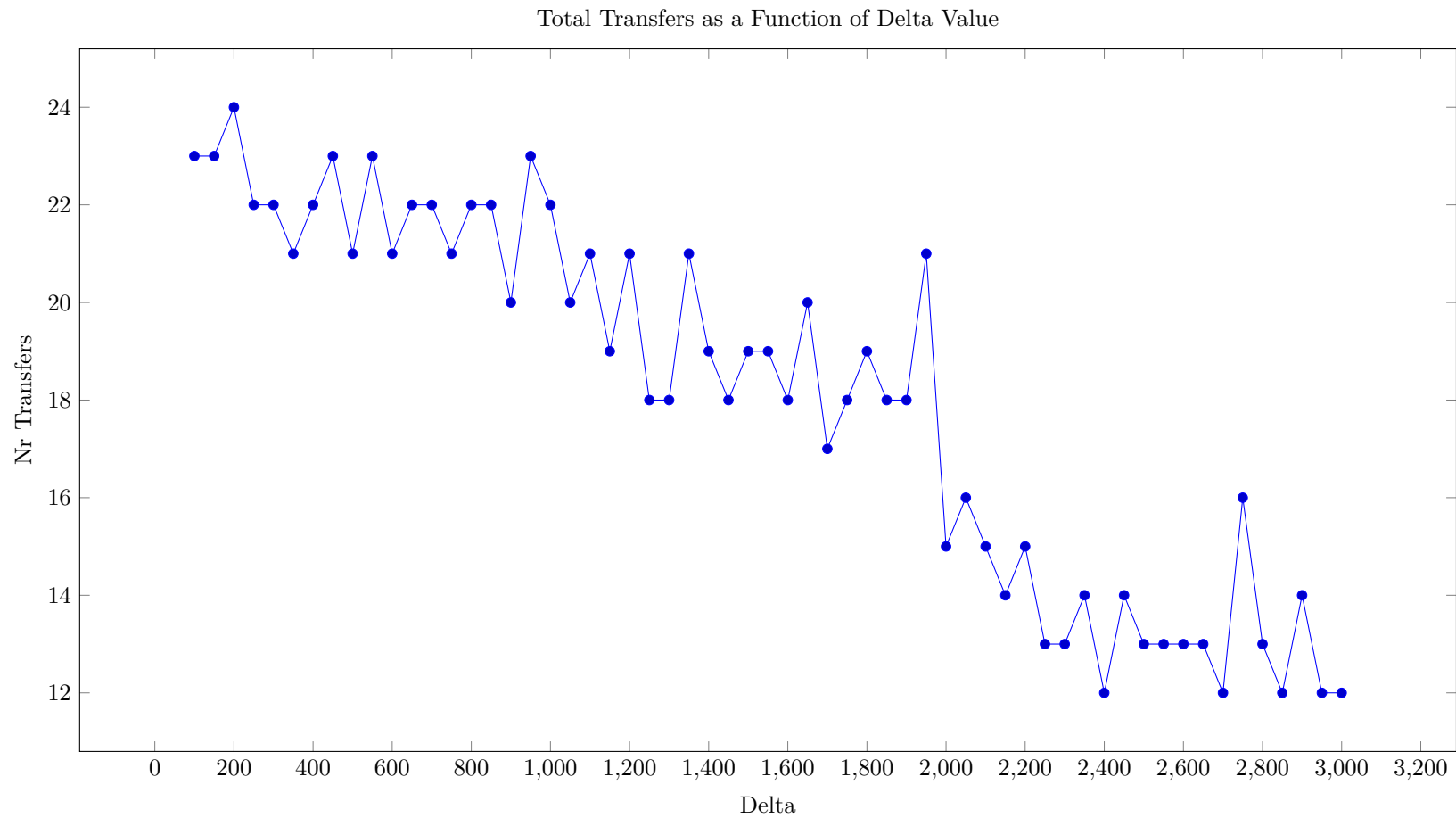
## Solution Overview

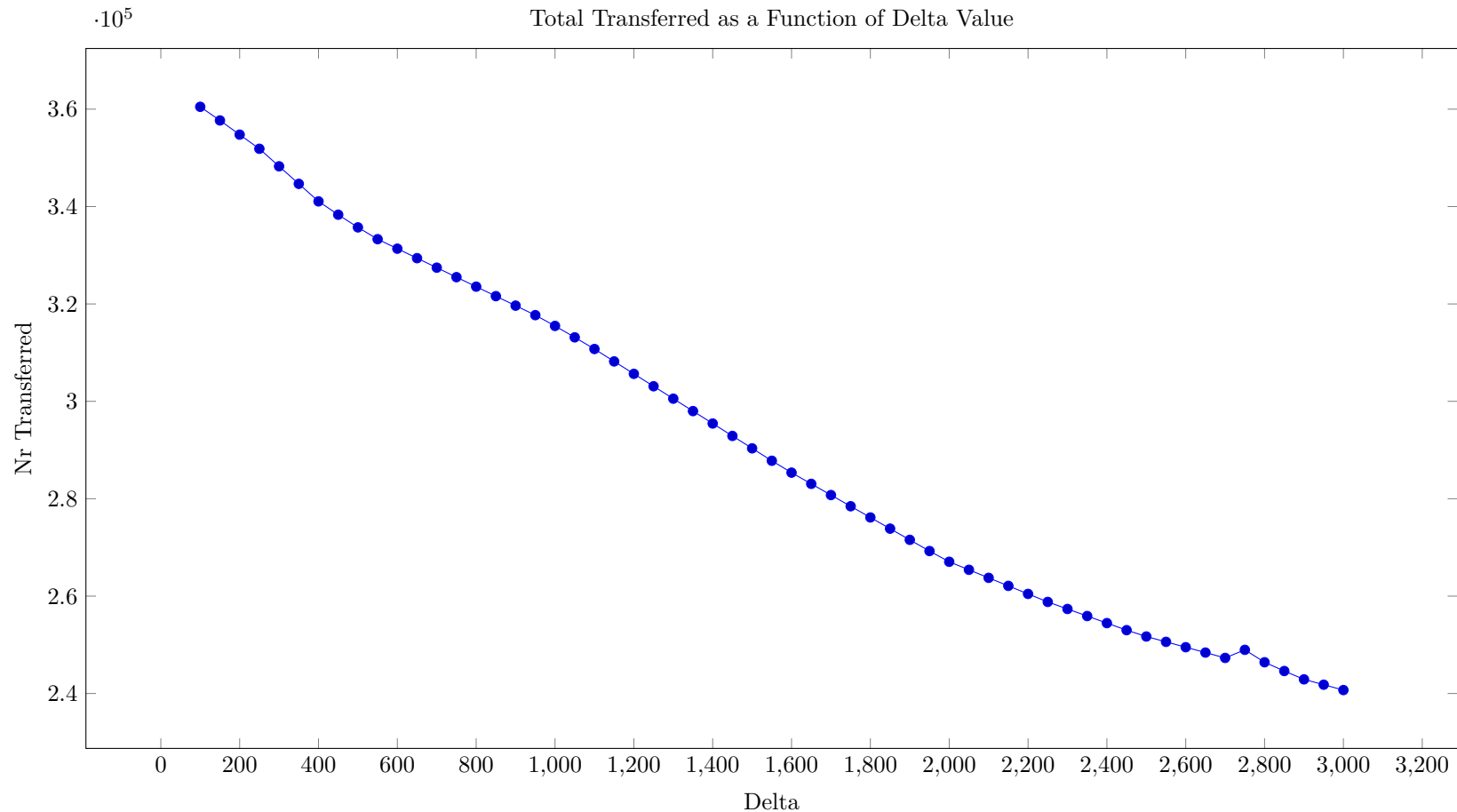
Table 1: Solutions

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol1	174	100	0.34	0.68	29,492.00	29,692.00	29,592.96	6,053.54	0.21	23	360,480	38	0/16/22	4.58	Optimal	0.45	0.0000
Sol2	174	150	0.51	1.01	29,442.00	29,742.00	29,593.21	13,586.49	0.31	23	357,680	38	0/16/22	4.58	Optimal	0.26	0.0084
Sol3	174	200	0.68	1.35	29,392.00	29,792.00	29,593.92	34,520.02	0.60	24	354,762	38	0/16/22	4.58	Optimal	0.19	0.0000
Sol4	174	250	0.84	1.69	29,342.00	29,842.00	29,594.10	39,930.91	0.54	22	351,861	38	0/16/22	4.58	Optimal	0.20	0.0017
Sol5	174	300	1.01	2.03	29,292.00	29,892.00	29,594.80	60,719.71	0.73	22	348,261	38	0/16/22	4.58	Optimal	0.22	0.0029
Sol6	174	350	1.18	2.37	29,242.00	29,942.00	29,595.15	70,896.70	0.69	21	344,661	38	0/16/22	4.58	Optimal	0.16	0.0066
Sol7	174	400	1.35	2.70	29,192.00	29,992.00	29,596.44	109,058.99	0.92	22	341,061	38	0/16/22	4.58	Optimal	0.20	0.0000
Sol8	174	450	1.52	3.04	29,142.00	30,042.00	29,597.29	134,272.49	1.01	23	338,323	38	0/16/22	4.58	Optimal	0.16	0.0000
Sol9	174	500	1.69	3.38	29,092.00	30,092.00	29,598.10	158,091.42	1.06	21	335,723	38	0/16/22	4.58	Optimal	0.26	0.0000
Sol10	174	550	1.86	3.72	29,042.00	30,142.00	29,599.47	198,847.05	1.22	23	333,298	38	0/16/22	4.58	Optimal	0.28	0.0000
Sol11	174	600	2.03	4.06	28,992.00	30,192.00	29,602.84	298,842.86	1.70	21	331,348	38	0/16/22	4.58	Optimal	0.15	0.0057
Sol12	174	650	2.20	4.39	28,942.00	30,242.00	29,601.37	255,196.34	1.36	22	329,398	38	0/16/22	4.58	Optimal	0.19	-0.0000
Sol13	174	700	2.37	4.73	28,892.00	30,292.00	29,602.22	280,326.02	1.41	22	327,448	38	0/16/22	4.58	Optimal	0.17	0.0060
Sol14	174	750	2.53	5.07	28,842.00	30,342.00	29,602.98	302,309.75	1.43	21	325,498	38	0/16/22	4.58	Optimal	0.18	0.0000
Sol15	174	800	2.70	5.41	28,792.00	30,392.00	29,610.47	524,360.23	2.25	22	323,548	38	0/16/22	4.58	Optimal	0.13	0.0006
Sol16	174	850	2.87	5.74	28,742.00	30,442.00	29,607.14	425,804.71	1.75	22	321,598	38	0/16/22	4.58	Optimal	0.14	0.0095
Sol17	174	900	3.04	6.08	28,692.00	30,492.00	29,611.96	566,067.66	2.32	20	319,648	38	0/16/22	4.58	Optimal	0.16	0.0025
Sol18	174	950	3.21	6.42	28,642.00	30,542.00	29,615.51	675,837.94	2.53	23	317,698	38	0/16/22	4.58	Optimal	0.18	0.0093
Sol19	174	1,000	3.38	6.76	28,592.00	30,592.00	29,615.23	663,835.57	2.24	22	315,488	38	0/16/22	4.58	Optimal	0.15	0.0098
Sol20	174	1,050	3.55	7.10	28,542.00	30,642.00	29,613.98	626,823.17	2.24	20	313,138	38	0/16/22	4.58	Optimal	0.15	0.0030
Sol21	174	1,100	3.72	7.43	28,492.00	30,692.00	29,615.06	658,320.25	2.08	21	310,745	38	0/16/22	4.58	Optimal	0.16	0.0067
Sol22	174	1,150	3.89	7.77	28,442.00	30,742.00	29,622.43	873,213.46	2.79	19	308,195	38	0/16/22	4.58	Optimal	0.20	0.0060
Sol23	174	1,200	4.06	8.11	28,392.00	30,792.00	29,618.61	762,080.80	2.26	21	305,645	38	0/16/22	4.58	Optimal	0.13	0.0048
Sol24	174	1,250	4.22	8.45	28,342.00	30,842.00	29,620.91	831,477.56	2.45	18	303,095	38	0/16/22	4.58	Optimal	0.14	0.0000
Sol25	174	1,300	4.39	8.79	28,292.00	30,892.00	29,622.15	866,531.21	2.45	18	300,545	38	0/16/22	4.58	Optimal	0.13	0.0066
Sol26	174	1,350	4.56	9.12	28,242.00	30,942.00	29,630.85	1,130,160.19	3.17	21	297,995	38	0/16/22	4.58	Optimal	0.16	0.0080
Sol27	174	1,400	4.73	9.46	28,192.00	30,992.00	29,628.22	1,045,563.89	2.67	19	295,445	38	0/16/22	4.58	Optimal	0.14	0.0089
Sol28	174	1,450	4.90	9.80	28,142.00	31,042.00	29,637.25	1,316,254.14	3.40	18	292,895	38	0/16/22	4.58	Optimal	0.14	0.0071
Sol29	174	1,500	5.07	10.14	28,092.00	31,092.00	29,640.22	1,408,665.62	3.50	19	290,345	38	0/16/22	4.58	Optimal	0.14	0.0099
Sol30	174	1,550	5.24	10.48	28,042.00	31,142.00	29,643.65	1,507,618.84	3.58	19	287,795	38	0/16/22	4.58	Optimal	0.12	0.0100
Sol31	174	1,600	5.41	10.81	27,992.00	31,192.00	29,642.14	1,460,994.98	3.48	18	285,354	38	0/16/22	4.58	Optimal	0.15	0.0088
Sol32	174	1,650	5.58	11.15	27,942.00	31,242.00	29,642.93	1,491,697.89	3.41	20	283,054	38	0/16/22	4.58	Optimal	0.13	0.0093
Sol33	174	1,700	5.74	11.49	27,892.00	31,292.00	29,648.32	1,628,877.03	3.75	17	280,754	38	0/16/22	4.58	Optimal	0.13	0.0000
Sol34	174	1,750	5.91	11.83	27,842.00	31,342.00	29,650.79	1,700,122.12	3.74	18	278,454	38	0/16/22	4.58	Optimal	0.14	0.0048
Sol35	174	1,800	6.08	12.17	27,792.00	31,392.00	29,660.07	1,985,190.72	4.12	19	276,154	38	0/16/22	4.58	Optimal	0.14	0.0094
Sol36	174	1,850	6.25	12.50	27,742.00	31,442.00	29,654.98	1,831,556.70	3.65	18	273,854	38	0/16/22	4.58	Optimal	0.13	0.0088
Sol37	174	1,900	6.42	12.84	27,692.00	31,492.00	29,662.72	2,054,199.17	4.11	18	271,554	38	0/16/22	4.58	Optimal	0.12	0.0094
Sol38	174	1,950	6.59	13.18	27,642.00	31,542.00	29,665.72	2,175,557.60	4.05	21	269,254	38	0/16/22	4.58	Optimal	0.11	0.0052
Sol39	174	2,000	6.76	13.52	27,592.00	31,592.00	29,661.54	2,022,059.30	3.66	15	267,054	38	0/16/22	4.58	Optimal	0.13	0.0094
Sol40	174	2,050	6.93	13.86	27,542.00	31,642.00	29,668.87	2,240,688.54	3.92	16	265,404	38	0/16/22	4.58	Optimal	0.17	0.0091
Sol41	174	2,100	7.10	14.19	27,492.00	31,692.00	29,674.92	2,400,901.32	4.38	15	263,754	38	0/16/22	4.58	Optimal	0.15	0.0033
Sol42	174	2,150	7.27	14.53	27,442.00	31,742.00	29,691.43	2,887,066.56	5.18	14	262,104	38	0/16/22	4.58	Optimal	0.16	0.0080
Sol43	174	2,200	7.43	14.87	27,392.00	31,792.00	29,668.97	2,241,595.20	3.72	15	260,454	38	0/16/22	4.58	Optimal	0.13	0.0069
Sol44	174	2,250	7.60	15.21	27,342.00	31,842.00	29,696.45	3,034,619.89	5.30	13	258,809	38	0/16/22	4.58	Optimal	0.13	0.0000
Sol45	174	2,300	7.77	15.54	27,292.00	31,892.00	29,673.72	2,364,784.84	4.26	13	257,359	38	0/16/22	4.58	Optimal	0.17	0.0082
Sol46	174	2,350	7.94	15.88	27,242.00	31,942.00	29,684.82	2,692,038.26	4.70	14	255,909	38	0/16/22	4.58	Optimal	0.10	0.0066

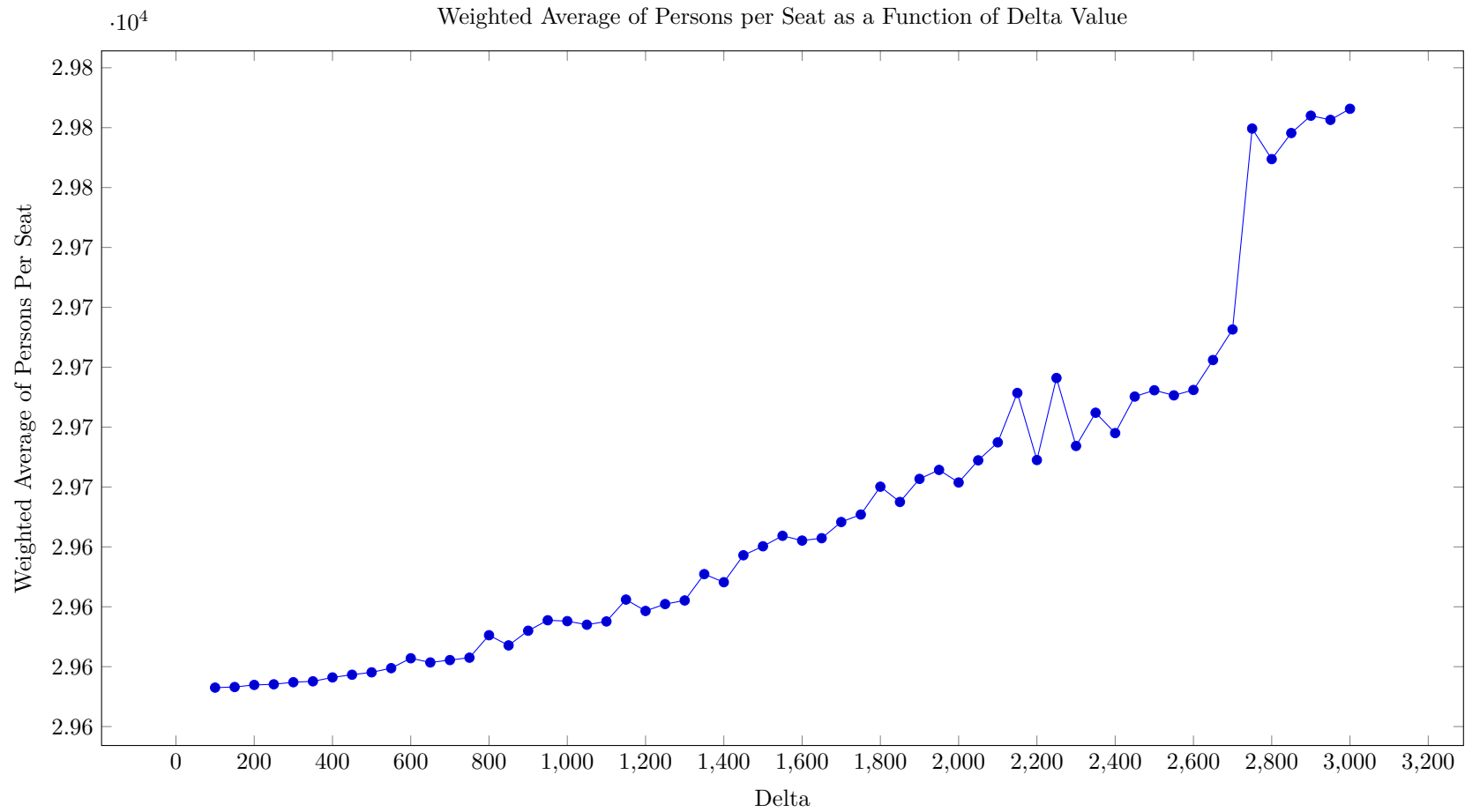
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol47	174	2,400	8.11	16.22	27,192.00	31,992.00	29,678.03	2,487,980.53	4.34	12	254,459	38	0/16/22	4.58	Optimal	0.13	0.0098
Sol48	174	2,450	8.28	16.56	27,142.00	32,042.00	29,690.24	2,886,429.19	4.41	14	253,009	38	0/16/22	4.58	Optimal	0.12	0.0025
Sol49	174	2,500	8.45	16.90	27,092.00	32,092.00	29,692.28	2,928,537.17	4.38	13	251,707	38	0/16/22	4.58	Optimal	0.13	0.0044
Sol50	174	2,550	8.62	17.23	27,042.00	32,142.00	29,690.58	2,885,264.66	4.31	13	250,607	38	0/16/22	4.58	Optimal	0.15	0.0100
Sol51	174	2,600	8.79	17.57	26,992.00	32,192.00	29,692.41	2,939,524.15	4.34	13	249,507	38	0/16/22	4.58	Optimal	0.13	0.0096
Sol52	174	2,650	8.96	17.91	26,942.00	32,242.00	29,702.36	3,211,016.99	5.07	13	248,407	38	0/16/22	4.58	Optimal	0.15	0.0092
Sol53	174	2,700	9.12	18.25	26,892.00	32,292.00	29,712.63	3,514,878.29	5.57	12	247,307	38	0/16/22	4.58	Optimal	0.15	0.0081
Sol54	174	2,750	9.29	18.59	26,842.00	32,342.00	29,779.70	5,510,340.08	7.19	16	248,971	37	0/11/26	4.70	Optimal	0.14	0.0060
Sol55	174	2,800	9.46	18.92	26,792.00	32,392.00	29,769.53	5,237,702.28	6.86	13	246,417	37	0/11/26	4.70	Optimal	0.14	0.0000
Sol56	174	2,850	9.63	19.26	26,742.00	32,442.00	29,778.19	5,492,929.79	7.10	12	244,617	37	0/11/26	4.70	Optimal	0.13	0.0000
Sol57	174	2,900	9.80	19.60	26,692.00	32,492.00	29,784.05	5,650,277.80	7.19	14	242,907	37	0/11/26	4.70	Optimal	0.11	0.0000
Sol58	174	2,950	9.97	19.94	26,642.00	32,542.00	29,782.59	5,616,135.44	7.16	12	241,807	37	0/11/26	4.70	Optimal	0.16	0.0000
Sol59	174	3,000	10.14	20.28	26,592.00	32,592.00	29,786.27	5,718,264.04	7.20	12	240,707	37	0/11/26	4.70	Optimal	0.14	0.0000

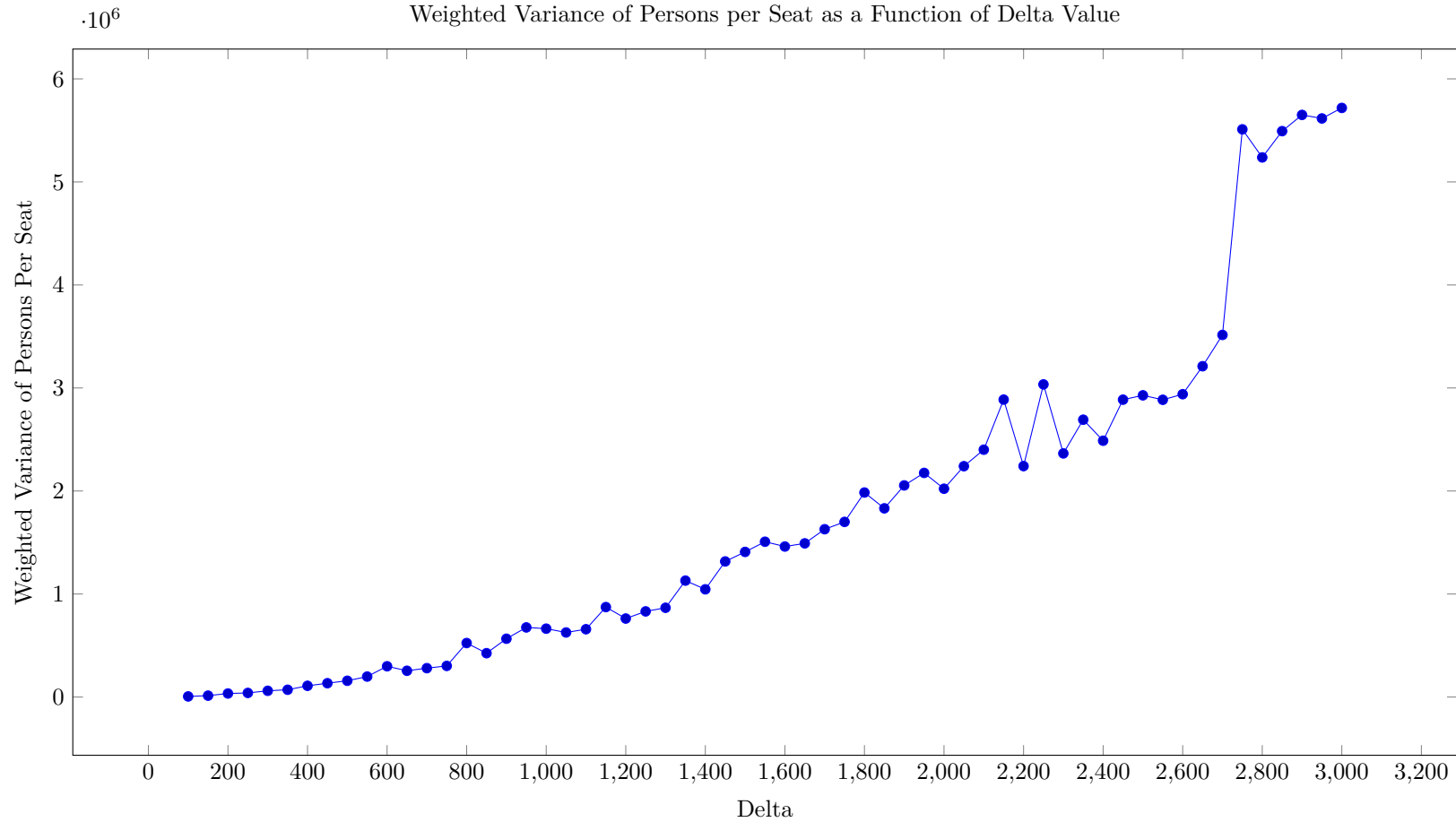


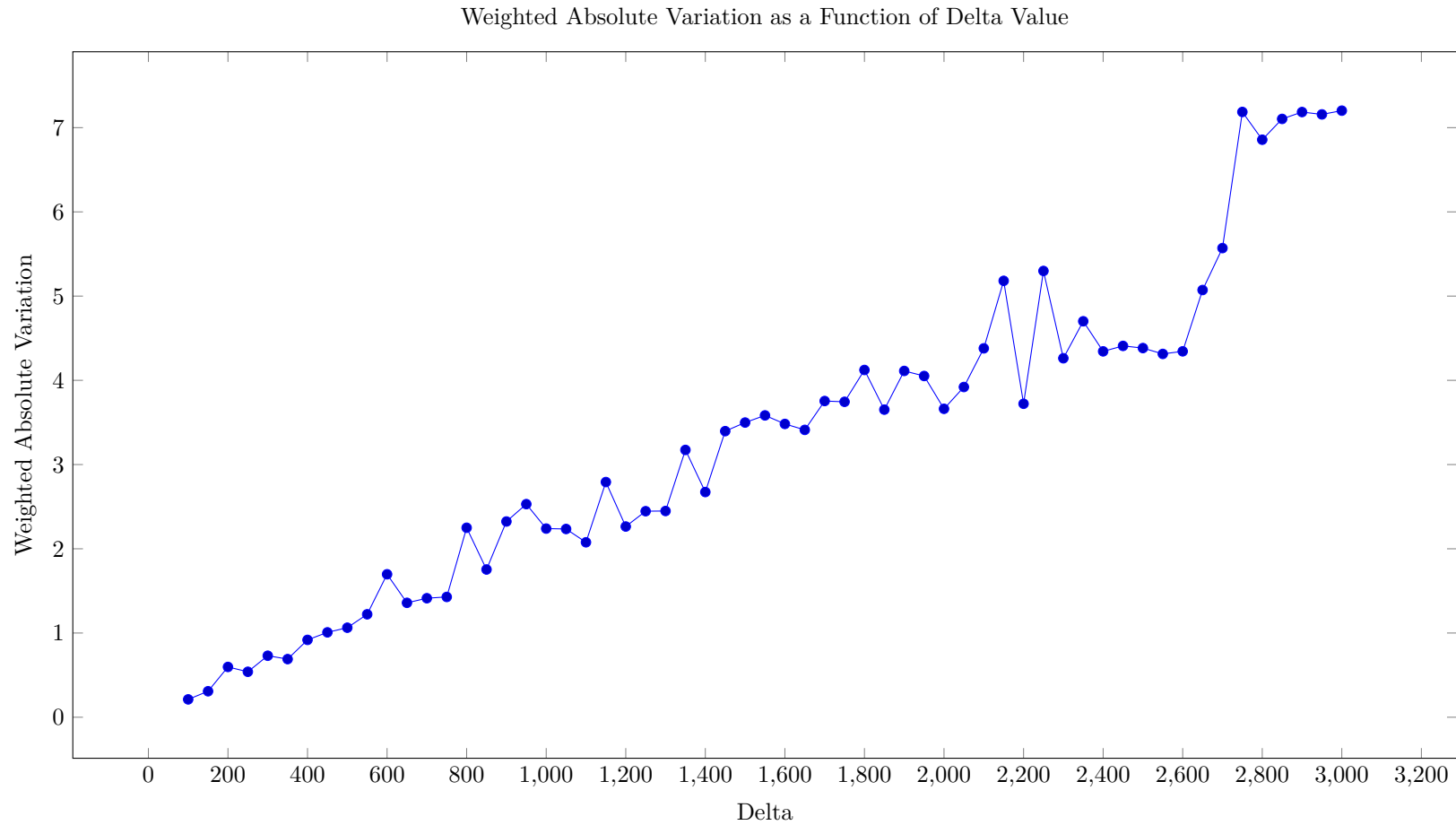












### 3 Details of Selected Solutions

### 3.1 Solution Sol1

Table 2: Solution 1

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol1	174	100	0.34	0.68	29,492.00	29,692.00	29,592.96	6,053.54	0.21	23	360,480	38	0/16/22	4.58	Optimal	0.45	0.0000

Table 3: Counties

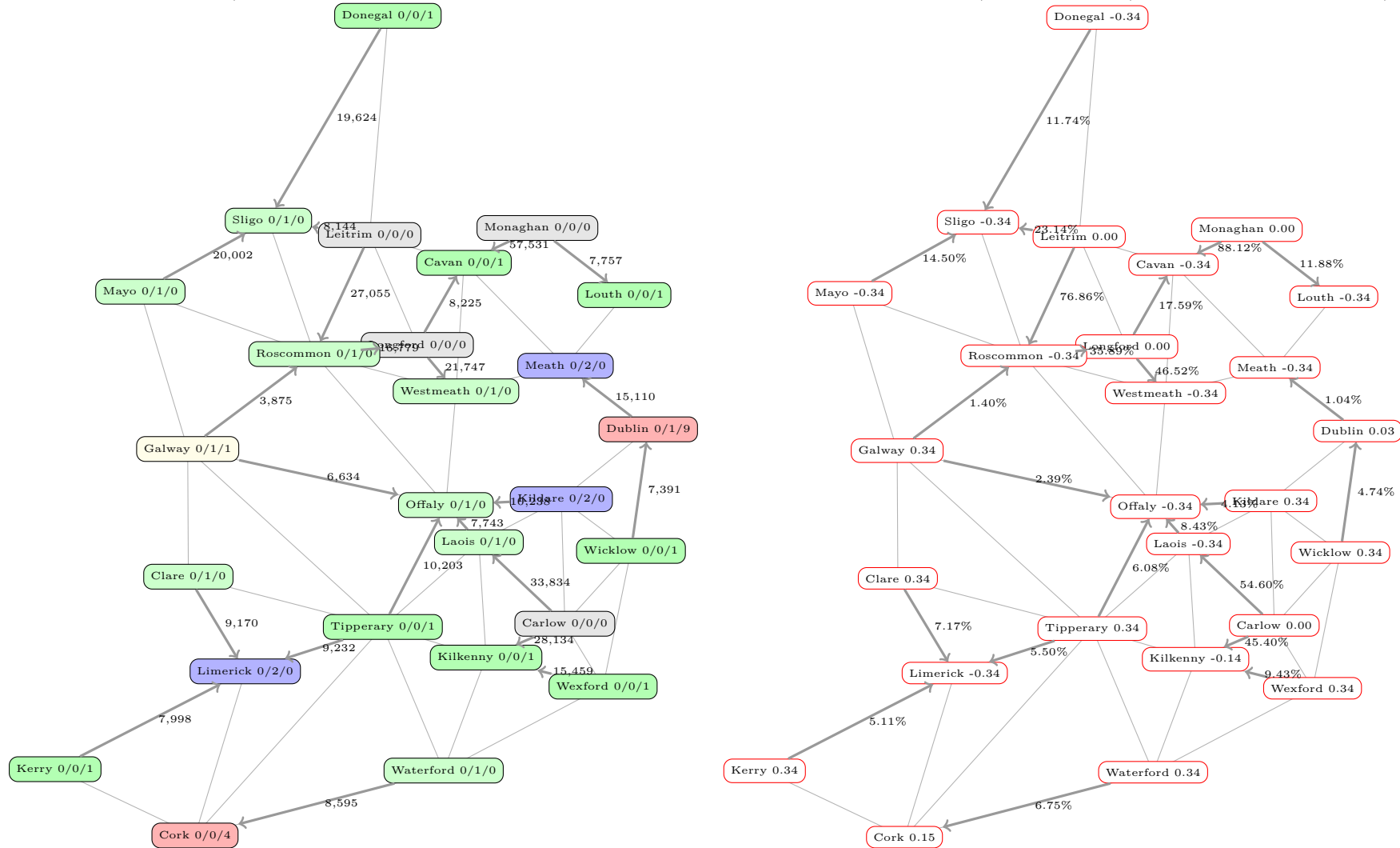
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,756	147,460	1	0/0/1	5	29,492.00	-0.34
Clare	127,938	4.32	9,170	0	118,768	1	0/1/0	4	29,692.00	0.34
Cork	584,156	19.74	0	8,595	592,751	4	0/0/4	20	29,637.55	0.15
Donegal	167,084	5.65	19,624	0	147,460	1	0/0/1	5	29,492.00	-0.34
Dublin	1,458,154	49.28	15,110	7,391	1,450,435	10	0/1/9	49	29,600.71	0.03
Galway	277,737	9.39	10,509	0	267,228	2	0/1/1	9	29,692.00	0.34
Kerry	156,458	5.29	7,998	0	148,460	1	0/0/1	5	29,692.00	0.34
Kildare	247,774	8.37	10,238	0	237,536	2	0/2/0	8	29,692.00	0.34
Kilkenny	104,160	3.52	0	43,593	147,753	1	0/0/1	5	29,550.60	-0.14
Laois	91,877	3.10	7,743	33,834	117,968	1	0/1/0	4	29,492.00	-0.34
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	26,400	235,936	2	0/2/0	8	29,492.00	-0.34
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	7,757	147,460	1	0/0/1	5	29,492.00	-0.34
Mayo	137,970	4.66	20,002	0	117,968	1	0/1/0	4	29,492.00	-0.34
Meath	220,826	7.46	0	15,110	235,936	2	0/2/0	8	29,492.00	-0.34
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	34,818	117,968	1	0/1/0	4	29,492.00	-0.34
Roscommon	70,259	2.37	0	47,709	117,968	1	0/1/0	4	29,492.00	-0.34
Sligo	70,198	2.37	0	47,770	117,968	1	0/1/0	4	29,492.00	-0.34
Tipperary	167,895	5.67	19,435	0	148,460	1	0/0/1	5	29,692.00	0.34
Waterford	127,363	4.30	8,595	0	118,768	1	0/1/0	4	29,692.00	0.34

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	21,747	117,968	1	0/1/0	4	29,492.00	-0.34
Wexford	163,919	5.54	15,459	0	148,460	1	0/0/1	5	29,692.00	0.34
Wicklow	155,851	5.27	7,391	0	148,460	1	0/0/1	5	29,692.00	0.34

Table 4: 23 Transfers (Total 360480)

From	To	Volume	Percent of From
Carlow	Kilkenny	28,134	45.40
Carlow	Laois	33,834	54.60
Dublin	Meath	15,110	1.04
Kildare	Offaly	10,238	4.13
Laois	Offaly	7,743	8.43
Longford	Westmeath	21,747	46.52
Longford	Roscommon	16,779	35.89
Longford	Cavan	8,225	17.59
Wexford	Kilkenny	15,459	9.43
Wicklow	Dublin	7,391	4.74
Clare	Limerick	9,170	7.17
Kerry	Limerick	7,998	5.11
Tipperary	Offaly	10,203	6.08
Tipperary	Limerick	9,232	5.50
Waterford	Cork	8,595	6.75
Galway	Offaly	6,634	2.39
Galway	Roscommon	3,875	1.40
Leitrim	Roscommon	27,055	76.86
Leitrim	Sligo	8,144	23.14
Mayo	Sligo	20,002	14.50
Donegal	Sligo	19,624	11.74
Monaghan	Louth	7,757	11.88
Monaghan	Cavan	57,531	88.12

Figure 2: Sol1 (174 seats, 38 constituencies, 23 transfers, 29,592.96 persons per TD,  $\Delta_{max}$  100 (0.34% of 29,592), weighted variation 0.21%)



### 3.2 Solution Sol2

Table 5: Solution 2

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol2	174	150	0.51	1.01	29,442.00	29,742.00	29,593.21	13,586.49	0.31	23	357,680	38	0/16/22	4.58	Optimal	0.26	0.0084

Table 6: Counties

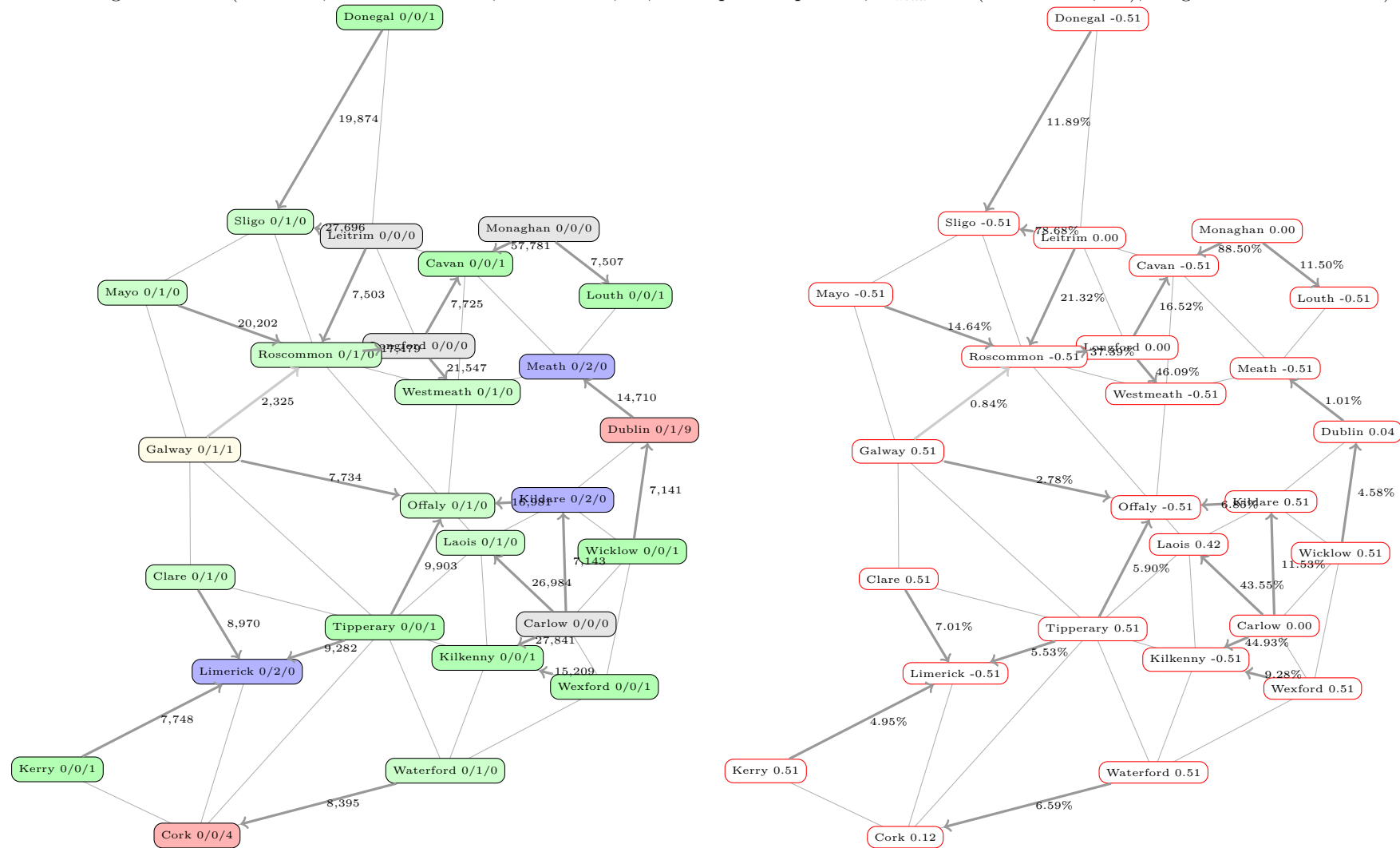
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,506	147,210	1	0/0/1	5	29,442.00	-0.51
Clare	127,938	4.32	8,970	0	118,968	1	0/1/0	4	29,742.00	0.51
Cork	584,156	19.74	0	8,395	592,551	4	0/0/4	20	29,627.55	0.12
Donegal	167,084	5.65	19,874	0	147,210	1	0/0/1	5	29,442.00	-0.51
Dublin	1,458,154	49.28	14,710	7,141	1,450,585	10	0/1/9	49	29,603.78	0.04
Galway	277,737	9.39	10,059	0	267,678	2	0/1/1	9	29,742.00	0.51
Kerry	156,458	5.29	7,748	0	148,710	1	0/0/1	5	29,742.00	0.51
Kildare	247,774	8.37	16,981	7,143	237,936	2	0/2/0	8	29,742.00	0.51
Kilkenny	104,160	3.52	0	43,050	147,210	1	0/0/1	5	29,442.00	-0.51
Laois	91,877	3.10	0	26,984	118,861	1	0/1/0	4	29,715.25	0.42
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	26,000	235,536	2	0/2/0	8	29,442.00	-0.51
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	7,507	147,210	1	0/0/1	5	29,442.00	-0.51
Mayo	137,970	4.66	20,202	0	117,768	1	0/1/0	4	29,442.00	-0.51
Meath	220,826	7.46	0	14,710	235,536	2	0/2/0	8	29,442.00	-0.51
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	34,618	117,768	1	0/1/0	4	29,442.00	-0.51
Roscommon	70,259	2.37	0	47,509	117,768	1	0/1/0	4	29,442.00	-0.51
Sligo	70,198	2.37	0	47,570	117,768	1	0/1/0	4	29,442.00	-0.51
Tipperary	167,895	5.67	19,185	0	148,710	1	0/0/1	5	29,742.00	0.51
Waterford	127,363	4.30	8,395	0	118,968	1	0/1/0	4	29,742.00	0.51

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	21,547	117,768	1	0/1/0	4	29,442.00	-0.51
Wexford	163,919	5.54	15,209	0	148,710	1	0/0/1	5	29,742.00	0.51
Wicklow	155,851	5.27	7,141	0	148,710	1	0/0/1	5	29,742.00	0.51

Table 7: 23 Transfers (Total 357680)

From	To	Volume	Percent of From
Carlow	Kildare	7,143	11.53
Carlow	Kilkenny	27,841	44.93
Carlow	Laois	26,984	43.55
Dublin	Meath	14,710	1.01
Kildare	Offaly	16,981	6.85
Longford	Westmeath	21,547	46.09
Longford	Roscommon	17,479	37.39
Longford	Cavan	7,725	16.52
Wexford	Kilkenny	15,209	9.28
Wicklow	Dublin	7,141	4.58
Clare	Limerick	8,970	7.01
Kerry	Limerick	7,748	4.95
Tipperary	Offaly	9,903	5.90
Tipperary	Limerick	9,282	5.53
Waterford	Cork	8,395	6.59
Galway	Offaly	7,734	2.78
Galway	Roscommon	2,325	0.84
Leitrim	Roscommon	7,503	21.32
Leitrim	Sligo	27,696	78.68
Mayo	Roscommon	20,202	14.64
Donegal	Sligo	19,874	11.89
Monaghan	Louth	7,507	11.50
Monaghan	Cavan	57,781	88.50



Figure 3: Sol2 (174 seats, 38 constituencies, 23 transfers, 29,593.21 persons per TD,  $\Delta_{max}$  150 (0.51% of 29,592), weighted variation 0.31%)

### 3.3 Solution Sol3

Table 8: Solution 3

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol3	174	200	0.68	1.35	29,392.00	29,792.00	29,593.92	34,520.02	0.60	24	354,762	38	0/16/22	4.58	Optimal	0.19	0.0000

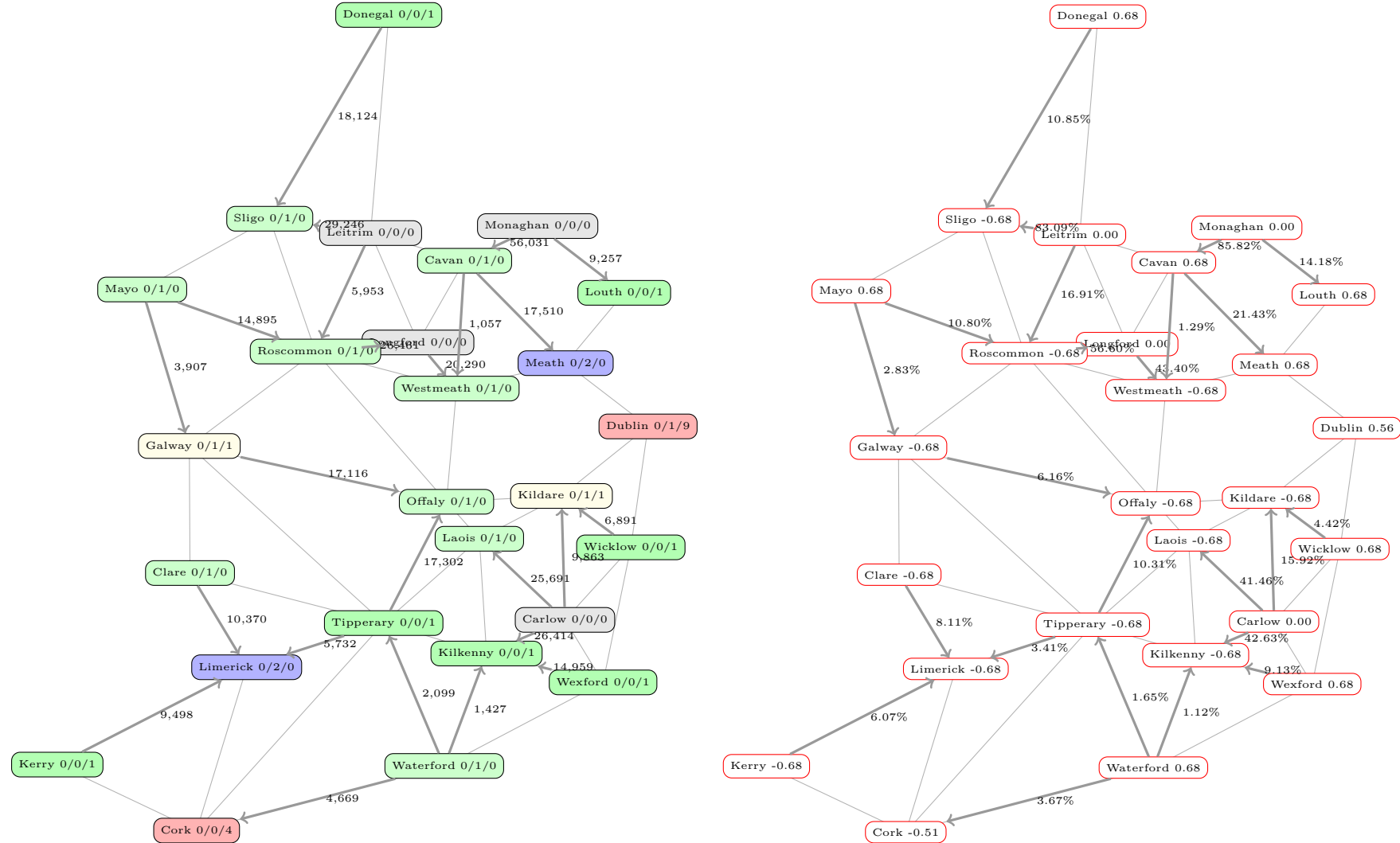
Table 9: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	18,567	56,031	119,168	1	0/1/0	4	29,792.00	0.68
Clare	127,938	4.32	10,370	0	117,568	1	0/1/0	4	29,392.00	-0.68
Cork	584,156	19.74	0	4,669	588,825	4	0/0/4	20	29,441.25	-0.51
Donegal	167,084	5.65	18,124	0	148,960	1	0/0/1	5	29,792.00	0.68
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	17,116	3,907	264,528	2	0/1/1	9	29,392.00	-0.68
Kerry	156,458	5.29	9,498	0	146,960	1	0/0/1	5	29,392.00	-0.68
Kildare	247,774	8.37	0	16,754	264,528	2	0/1/1	9	29,392.00	-0.68
Kilkenny	104,160	3.52	0	42,800	146,960	1	0/0/1	5	29,392.00	-0.68
Laois	91,877	3.10	0	25,691	117,568	1	0/1/0	4	29,392.00	-0.68
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	25,600	235,136	2	0/2/0	8	29,392.00	-0.68
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	9,257	148,960	1	0/0/1	5	29,792.00	0.68
Mayo	137,970	4.66	18,802	0	119,168	1	0/1/0	4	29,792.00	0.68
Meath	220,826	7.46	0	17,510	238,336	2	0/2/0	8	29,792.00	0.68
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	34,418	117,568	1	0/1/0	4	29,392.00	-0.68
Roscommon	70,259	2.37	0	47,309	117,568	1	0/1/0	4	29,392.00	-0.68
Sligo	70,198	2.37	0	47,370	117,568	1	0/1/0	4	29,392.00	-0.68
Tipperary	167,895	5.67	23,034	2,099	146,960	1	0/0/1	5	29,392.00	-0.68
Waterford	127,363	4.30	8,195	0	119,168	1	0/1/0	4	29,792.00	0.68

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	21,347	117,568	1	0/1/0	4	29,392.00	-0.68
Wexford	163,919	5.54	14,959	0	148,960	1	0/0/1	5	29,792.00	0.68
Wicklow	155,851	5.27	6,891	0	148,960	1	0/0/1	5	29,792.00	0.68

Table 10: 24 Transfers (Total 354762)

From	To	Volume	Percent of From
Carlow	Kildare	9,863	15.92
Carlow	Kilkenny	26,414	42.63
Carlow	Laois	25,691	41.46
Longford	Westmeath	20,290	43.40
Longford	Roscommon	26,461	56.60
Wexford	Kilkenny	14,959	9.13
Wicklow	Kildare	6,891	4.42
Clare	Limerick	10,370	8.11
Kerry	Limerick	9,498	6.07
Tipperary	Offaly	17,302	10.31
Tipperary	Limerick	5,732	3.41
Waterford	Kilkenny	1,427	1.12
Waterford	Cork	4,669	3.67
Waterford	Tipperary	2,099	1.65
Galway	Offaly	17,116	6.16
Leitrim	Roscommon	5,953	16.91
Leitrim	Sligo	29,246	83.09
Mayo	Galway	3,907	2.83
Mayo	Roscommon	14,895	10.80
Cavan	Meath	17,510	21.43
Cavan	Westmeath	1,057	1.29
Donegal	Sligo	18,124	10.85
Monaghan	Louth	9,257	14.18
Monaghan	Cavan	56,031	85.82

Figure 4: Sol3 (174 seats, 38 constituencies, 24 transfers, 29,593.92 persons per TD,  $\Delta_{max}$  200 (0.68% of 29,592), weighted variation 0.60%)

### 3.4 Solution Sol4

Table 11: Solution 4

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol4	174	250	0.84	1.69	29,342.00	29,842.00	29,594.10	39,930.91	0.54	22	351,861	38	0/16/22	4.58	Optimal	0.20	0.0017

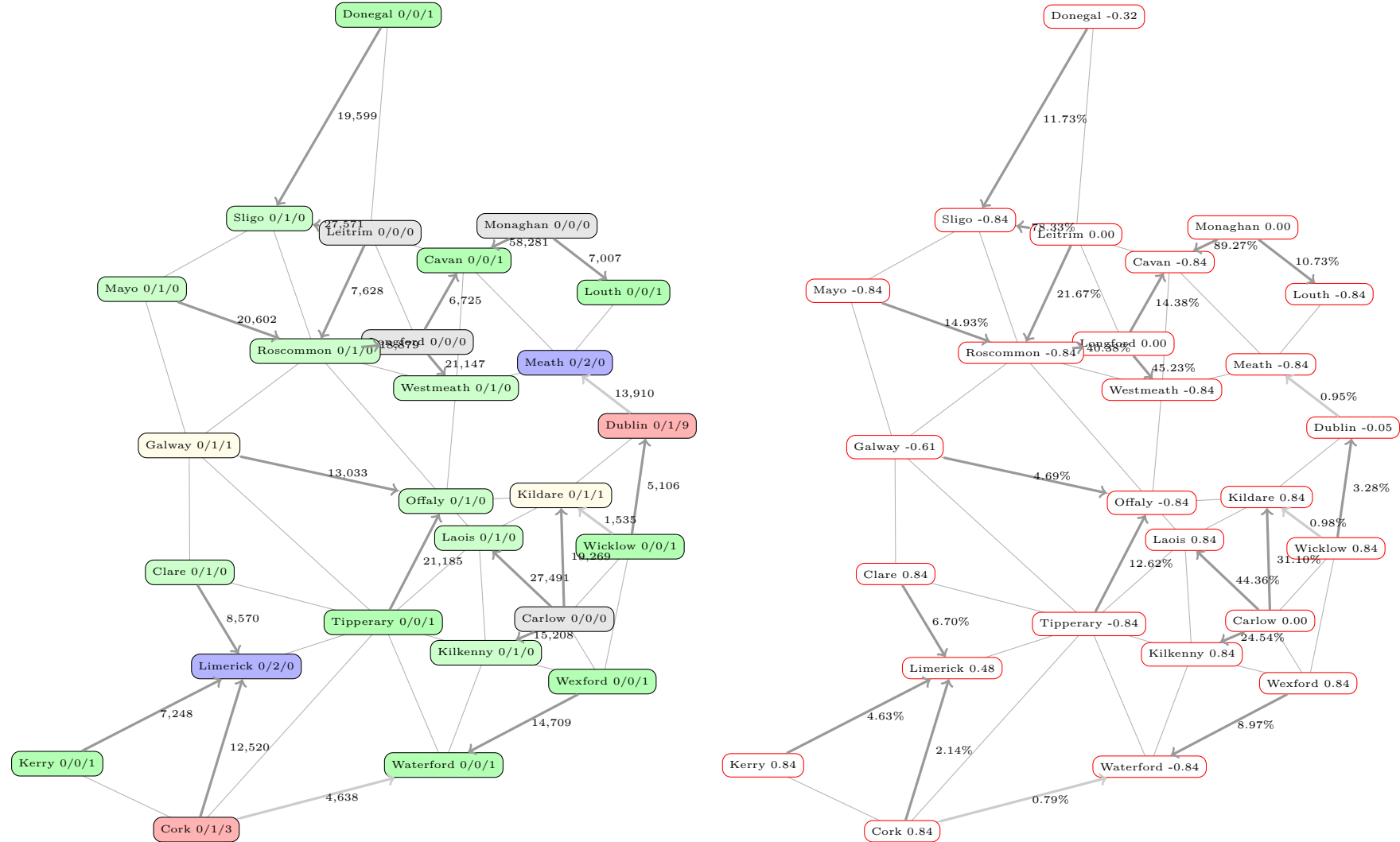
Table 12: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,006	146,710	1	0/0/1	5	29,342.00	-0.84
Clare	127,938	4.32	8,570	0	119,368	1	0/1/0	4	29,842.00	0.84
Cork	584,156	19.74	17,158	0	566,998	4	0/1/3	19	29,842.00	0.84
Donegal	167,084	5.65	19,599	0	147,485	1	0/0/1	5	29,497.00	-0.32
Dublin	1,458,154	49.28	13,910	5,106	1,449,350	10	0/1/9	49	29,578.57	-0.05
Galway	277,737	9.39	13,033	0	264,704	2	0/1/1	9	29,411.56	-0.61
Kerry	156,458	5.29	7,248	0	149,210	1	0/0/1	5	29,842.00	0.84
Kildare	247,774	8.37	0	20,804	268,578	2	0/1/1	9	29,842.00	0.84
Kilkenny	104,160	3.52	0	15,208	119,368	1	0/1/0	4	29,842.00	0.84
Laois	91,877	3.10	0	27,491	119,368	1	0/1/0	4	29,842.00	0.84
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	28,338	237,874	2	0/2/0	8	29,734.25	0.48
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	7,007	146,710	1	0/0/1	5	29,342.00	-0.84
Mayo	137,970	4.66	20,602	0	117,368	1	0/1/0	4	29,342.00	-0.84
Meath	220,826	7.46	0	13,910	234,736	2	0/2/0	8	29,342.00	-0.84
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	34,218	117,368	1	0/1/0	4	29,342.00	-0.84
Roscommon	70,259	2.37	0	47,109	117,368	1	0/1/0	4	29,342.00	-0.84
Sligo	70,198	2.37	0	47,170	117,368	1	0/1/0	4	29,342.00	-0.84
Tipperary	167,895	5.67	21,185	0	146,710	1	0/0/1	5	29,342.00	-0.84
Waterford	127,363	4.30	0	19,347	146,710	1	0/0/1	5	29,342.00	-0.84

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	21,147	117,368	1	0/1/0	4	29,342.00	-0.84
Wexford	163,919	5.54	14,709	0	149,210	1	0/0/1	5	29,842.00	0.84
Wicklow	155,851	5.27	6,641	0	149,210	1	0/0/1	5	29,842.00	0.84

Table 13: 22 Transfers (Total 351861)

From	To	Volume	Percent of From
Carlow	Kildare	19,269	31.10
Carlow	Kilkenny	15,208	24.54
Carlow	Laois	27,491	44.36
Dublin	Meath	13,910	0.95
Longford	Westmeath	21,147	45.23
Longford	Roscommon	18,879	40.38
Longford	Cavan	6,725	14.38
Wexford	Waterford	14,709	8.97
Wicklow	Dublin	5,106	3.28
Wicklow	Kildare	1,535	0.98
Clare	Limerick	8,570	6.70
Cork	Limerick	12,520	2.14
Cork	Waterford	4,638	0.79
Kerry	Limerick	7,248	4.63
Tipperary	Offaly	21,185	12.62
Galway	Offaly	13,033	4.69
Leitrim	Roscommon	7,628	21.67
Leitrim	Sligo	27,571	78.33
Mayo	Roscommon	20,602	14.93
Donegal	Sligo	19,599	11.73
Monaghan	Louth	7,007	10.73
Monaghan	Cavan	58,281	89.27

Figure 5: Sol4 (174 seats, 38 constituencies, 22 transfers, 29,594.10 persons per TD,  $\Delta_{max}$  250 (0.84% of 29,592), weighted variation 0.54%)

### 3.5 Solution Sol5

Table 14: Solution 5

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol5	174	300	1.01	2.03	29,292.00	29,892.00	29,594.80	60,719.71	0.73	22	348,261	38	0/16/22	4.58	Optimal	0.22	0.0029

Table 15: Counties

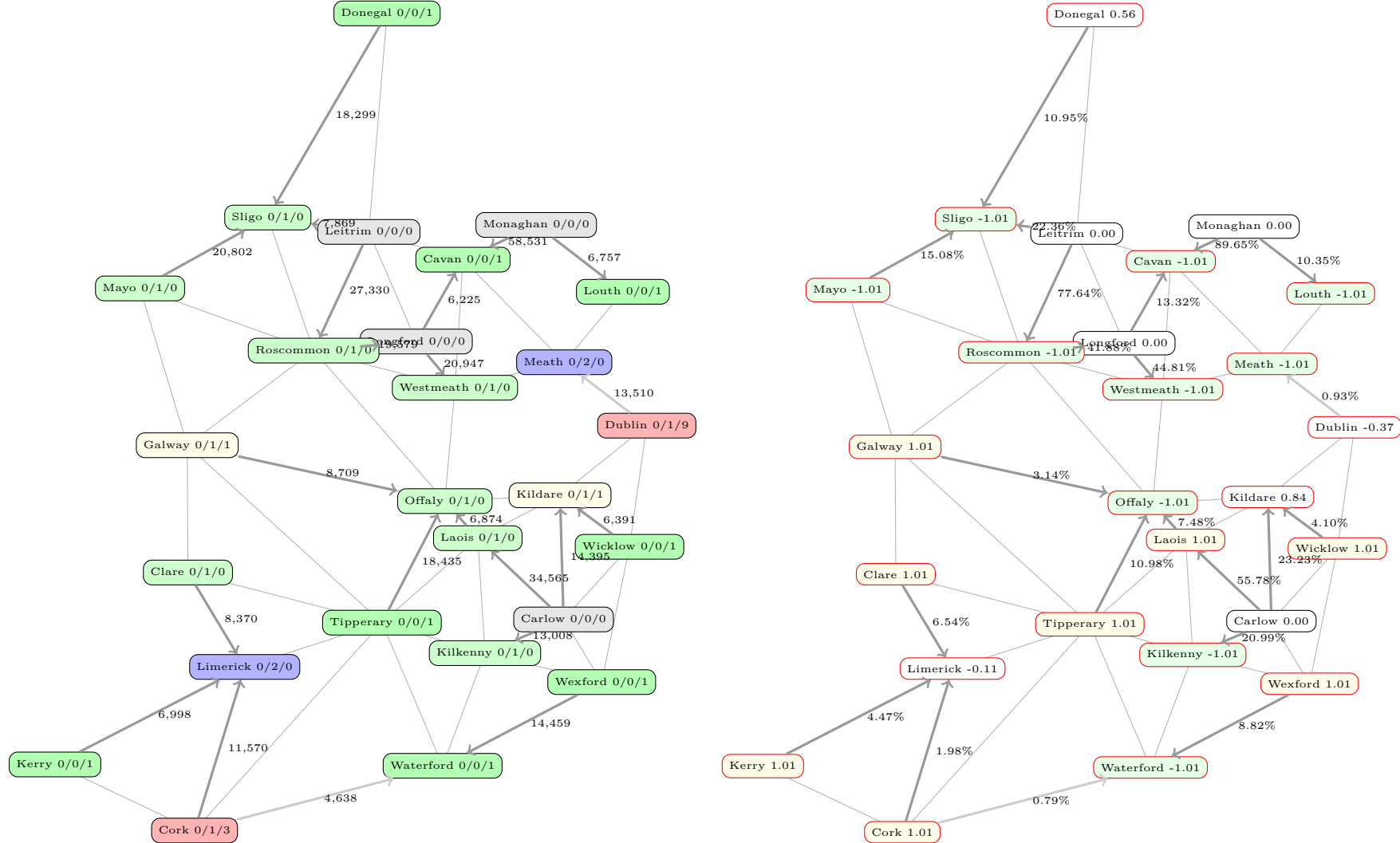
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	64,756	146,460	1	0/0/1	5	29,292.00	-1.01
Clare	127,938	4.32	8,370	0	119,568	1	0/1/0	4	29,892.00	1.01
Cork	584,156	19.74	16,208	0	567,948	4	0/1/3	19	29,892.00	1.01
Donegal	167,084	5.65	18,299	0	148,785	1	0/0/1	5	29,757.00	0.56
Dublin	1,458,154	49.28	13,510	0	1,444,644	10	0/1/9	49	29,482.53	-0.37
Galway	277,737	9.39	8,709	0	269,028	2	0/1/1	9	29,892.00	1.01
Kerry	156,458	5.29	6,998	0	149,460	1	0/0/1	5	29,892.00	1.01
Kildare	247,774	8.37	0	20,786	268,560	2	0/1/1	9	29,840.00	0.84
Kilkenny	104,160	3.52	0	13,008	117,168	1	0/1/0	4	29,292.00	-1.01
Laois	91,877	3.10	6,874	34,565	119,568	1	0/1/0	4	29,892.00	1.01
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	26,938	236,474	2	0/2/0	8	29,559.25	-0.11
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	6,757	146,460	1	0/0/1	5	29,292.00	-1.01
Mayo	137,970	4.66	20,802	0	117,168	1	0/1/0	4	29,292.00	-1.01
Meath	220,826	7.46	0	13,510	234,336	2	0/2/0	8	29,292.00	-1.01
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	34,018	117,168	1	0/1/0	4	29,292.00	-1.01
Roscommon	70,259	2.37	0	46,909	117,168	1	0/1/0	4	29,292.00	-1.01
Sligo	70,198	2.37	0	46,970	117,168	1	0/1/0	4	29,292.00	-1.01
Tipperary	167,895	5.67	18,435	0	149,460	1	0/0/1	5	29,892.00	1.01
Waterford	127,363	4.30	0	19,097	146,460	1	0/0/1	5	29,292.00	-1.01



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	20,947	117,168	1	0/1/0	4	29,292.00	-1.01
Wexford	163,919	5.54	14,459	0	149,460	1	0/0/1	5	29,892.00	1.01
Wicklow	155,851	5.27	6,391	0	149,460	1	0/0/1	5	29,892.00	1.01

Table 16: 22 Transfers (Total 348261)

From	To	Volume	Percent of From
Carlow	Kildare	14,395	23.23
Carlow	Kilkenny	13,008	20.99
Carlow	Laois	34,565	55.78
Dublin	Meath	13,510	0.93
Laois	Offaly	6,874	7.48
Longford	Westmeath	20,947	44.81
Longford	Roscommon	19,579	41.88
Longford	Cavan	6,225	13.32
Wexford	Waterford	14,459	8.82
Wicklow	Kildare	6,391	4.10
Clare	Limerick	8,370	6.54
Cork	Limerick	11,570	1.98
Cork	Waterford	4,638	0.79
Kerry	Limerick	6,998	4.47
Tipperary	Offaly	18,435	10.98
Galway	Offaly	8,709	3.14
Leitrim	Roscommon	27,330	77.64
Leitrim	Sligo	7,869	22.36
Mayo	Sligo	20,802	15.08
Donegal	Sligo	18,299	10.95
Monaghan	Louth	6,757	10.35
Monaghan	Cavan	58,531	89.65

Figure 6: Sol5 (174 seats, 38 constituencies, 22 transfers, 29,594.80 persons per TD,  $\Delta_{max}$  300 (1.01% of 29,592), weighted variation 0.73%)

### 3.6 Solution Sol6

Table 17: Solution 6

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol6	174	350	1.18	2.37	29,242.00	29,942.00	29,595.15	70,896.70	0.69	21	344,661	38	0/16/22	4.58	Optimal	0.16	0.0066

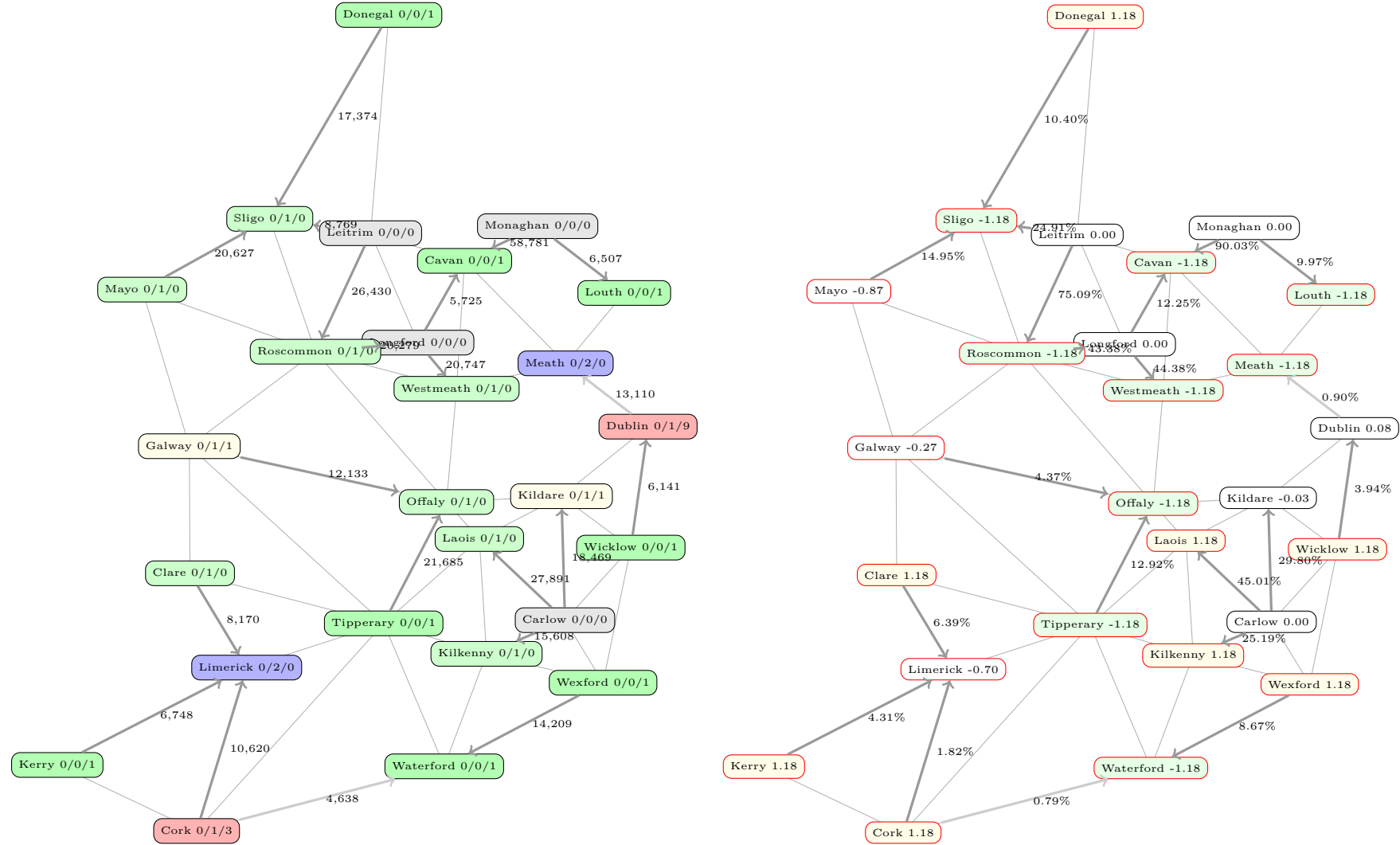
Table 18: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	64,506	146,210	1	0/0/1	5	29,242.00	-1.18
Clare	127,938	4.32	8,170	0	119,768	1	0/1/0	4	29,942.00	1.18
Cork	584,156	19.74	15,258	0	568,898	4	0/1/3	19	29,942.00	1.18
Donegal	167,084	5.65	17,374	0	149,710	1	0/0/1	5	29,942.00	1.18
Dublin	1,458,154	49.28	13,110	6,141	1,451,185	10	0/1/9	49	29,616.02	0.08
Galway	277,737	9.39	12,133	0	265,604	2	0/1/1	9	29,511.56	-0.27
Kerry	156,458	5.29	6,748	0	149,710	1	0/0/1	5	29,942.00	1.18
Kildare	247,774	8.37	0	18,469	266,243	2	0/1/1	9	29,582.56	-0.03
Kilkenny	104,160	3.52	0	15,608	119,768	1	0/1/0	4	29,942.00	1.18
Laois	91,877	3.10	0	27,891	119,768	1	0/1/0	4	29,942.00	1.18
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	25,538	235,074	2	0/2/0	8	29,384.25	-0.70
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	6,507	146,210	1	0/0/1	5	29,242.00	-1.18
Mayo	137,970	4.66	20,627	0	117,343	1	0/1/0	4	29,335.75	-0.87
Meath	220,826	7.46	0	13,110	233,936	2	0/2/0	8	29,242.00	-1.18
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	33,818	116,968	1	0/1/0	4	29,242.00	-1.18
Roscommon	70,259	2.37	0	46,709	116,968	1	0/1/0	4	29,242.00	-1.18
Sligo	70,198	2.37	0	46,770	116,968	1	0/1/0	4	29,242.00	-1.18
Tipperary	167,895	5.67	21,685	0	146,210	1	0/0/1	5	29,242.00	-1.18
Waterford	127,363	4.30	0	18,847	146,210	1	0/0/1	5	29,242.00	-1.18

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	20,747	116,968	1	0/1/0	4	29,242.00	-1.18
Wexford	163,919	5.54	14,209	0	149,710	1	0/0/1	5	29,942.00	1.18
Wicklow	155,851	5.27	6,141	0	149,710	1	0/0/1	5	29,942.00	1.18

Table 19: 21 Transfers (Total 344661)

From	To	Volume	Percent of From
Carlow	Kildare	18,469	29.80
Carlow	Kilkenny	15,608	25.19
Carlow	Laois	27,891	45.01
Dublin	Meath	13,110	0.90
Longford	Westmeath	20,747	44.38
Longford	Roscommon	20,279	43.38
Longford	Cavan	5,725	12.25
Wexford	Waterford	14,209	8.67
Wicklow	Dublin	6,141	3.94
Clare	Limerick	8,170	6.39
Cork	Limerick	10,620	1.82
Cork	Waterford	4,638	0.79
Kerry	Limerick	6,748	4.31
Tipperary	Offaly	21,685	12.92
Galway	Offaly	12,133	4.37
Leitrim	Roscommon	26,430	75.09
Leitrim	Sligo	8,769	24.91
Mayo	Sligo	20,627	14.95
Donegal	Sligo	17,374	10.40
Monaghan	Louth	6,507	9.97
Monaghan	Cavan	58,781	90.03

Figure 7: Sol6 (174 seats, 38 constituencies, 21 transfers, 29,595.15 persons per TD,  $\Delta_{max}$  350 (1.18% of 29,592), weighted variation 0.69%)

### 3.7 Solution Sol7

Table 20: Solution 7

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol7	174	400	1.35	2.70	29,192.00	29,992.00	29,596.44	109,058.99	0.92	22	341,061	38	0/16/22	4.58	Optimal	0.20	0.0000

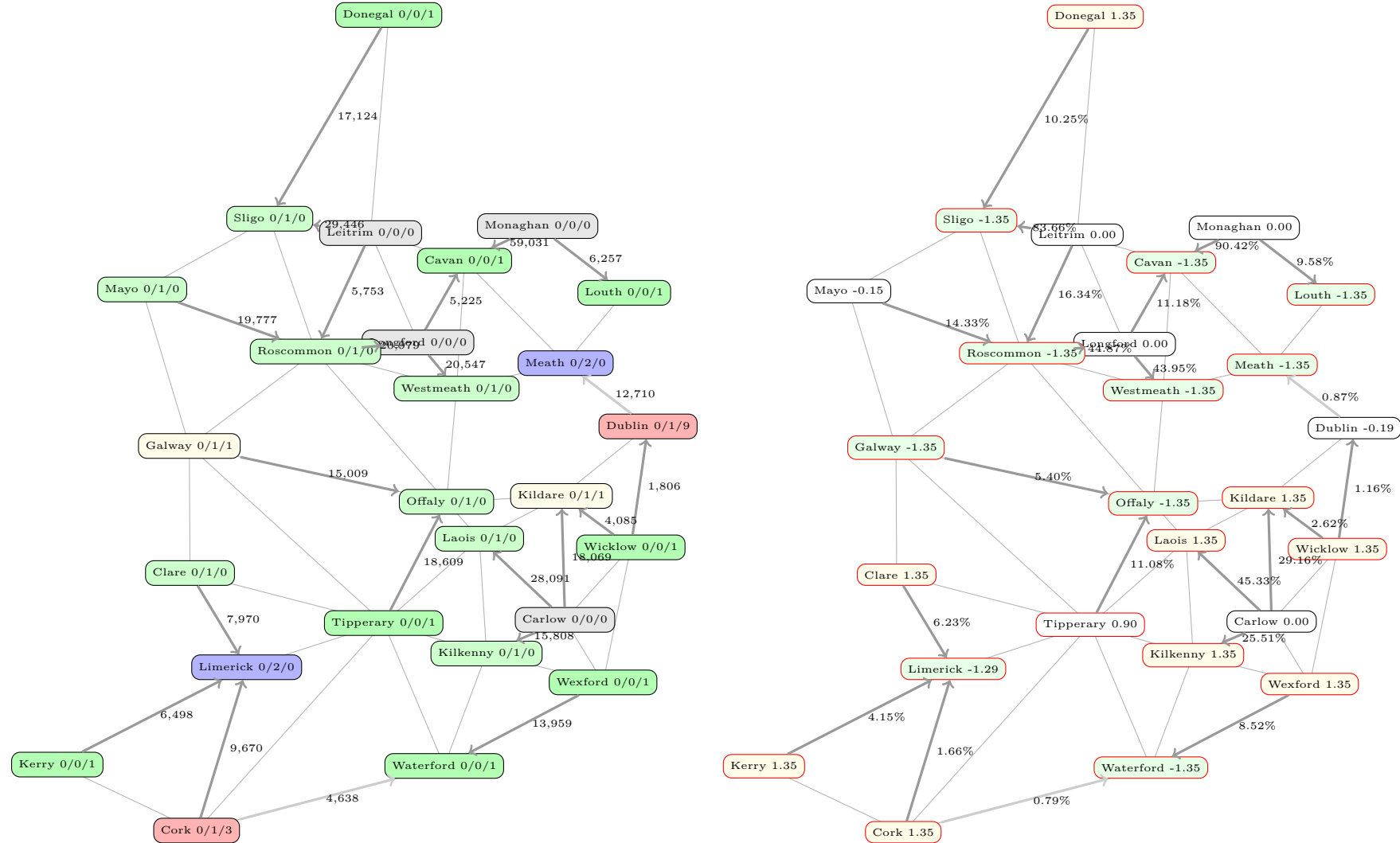
Table 21: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	64,256	145,960	1	0/0/1	5	29,192.00	-1.35
Clare	127,938	4.32	7,970	0	119,968	1	0/1/0	4	29,992.00	1.35
Cork	584,156	19.74	14,308	0	569,848	4	0/1/3	19	29,992.00	1.35
Donegal	167,084	5.65	17,124	0	149,960	1	0/0/1	5	29,992.00	1.35
Dublin	1,458,154	49.28	12,710	1,806	1,447,250	10	0/1/9	49	29,535.71	-0.19
Galway	277,737	9.39	15,009	0	262,728	2	0/1/1	9	29,192.00	-1.35
Kerry	156,458	5.29	6,498	0	149,960	1	0/0/1	5	29,992.00	1.35
Kildare	247,774	8.37	0	22,154	269,928	2	0/1/1	9	29,992.00	1.35
Kilkenny	104,160	3.52	0	15,808	119,968	1	0/1/0	4	29,992.00	1.35
Laois	91,877	3.10	0	28,091	119,968	1	0/1/0	4	29,992.00	1.35
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	24,138	233,674	2	0/2/0	8	29,209.25	-1.29
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	6,257	145,960	1	0/0/1	5	29,192.00	-1.35
Mayo	137,970	4.66	19,777	0	118,193	1	0/1/0	4	29,548.25	-0.15
Meath	220,826	7.46	0	12,710	233,536	2	0/2/0	8	29,192.00	-1.35
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	33,618	116,768	1	0/1/0	4	29,192.00	-1.35
Roscommon	70,259	2.37	0	46,509	116,768	1	0/1/0	4	29,192.00	-1.35
Sligo	70,198	2.37	0	46,570	116,768	1	0/1/0	4	29,192.00	-1.35
Tipperary	167,895	5.67	18,609	0	149,286	1	0/0/1	5	29,857.20	0.90
Waterford	127,363	4.30	0	18,597	145,960	1	0/0/1	5	29,192.00	-1.35

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	20,547	116,768	1	0/1/0	4	29,192.00	-1.35
Wexford	163,919	5.54	13,959	0	149,960	1	0/0/1	5	29,992.00	1.35
Wicklow	155,851	5.27	5,891	0	149,960	1	0/0/1	5	29,992.00	1.35

Table 22: 22 Transfers (Total 341061)

From	To	Volume	Percent of From
Carlow	Kildare	18,069	29.16
Carlow	Kilkenny	15,808	25.51
Carlow	Laois	28,091	45.33
Dublin	Meath	12,710	0.87
Longford	Westmeath	20,547	43.95
Longford	Roscommon	20,979	44.87
Longford	Cavan	5,225	11.18
Wexford	Waterford	13,959	8.52
Wicklow	Dublin	1,806	1.16
Wicklow	Kildare	4,085	2.62
Clare	Limerick	7,970	6.23
Cork	Limerick	9,670	1.66
Cork	Waterford	4,638	0.79
Kerry	Limerick	6,498	4.15
Tipperary	Offaly	18,609	11.08
Galway	Offaly	15,009	5.40
Leitrim	Roscommon	5,753	16.34
Leitrim	Sligo	29,446	83.66
Mayo	Roscommon	19,777	14.33
Donegal	Sligo	17,124	10.25
Monaghan	Louth	6,257	9.58
Monaghan	Cavan	59,031	90.42

Figure 8: Sol7 (174 seats, 38 constituencies, 22 transfers, 29,596.44 persons per TD,  $\Delta_{max}$  400 (1.35% of 29,592), weighted variation 0.92%)



### 3.8 Solution Sol8

Table 23: Solution 8

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol8	174	450	1.52	3.04	29,142.00	30,042.00	29,597.29	134,272.49	1.01	23	338,323	38	0/16/22	4.58	Optimal	0.16	0.0000

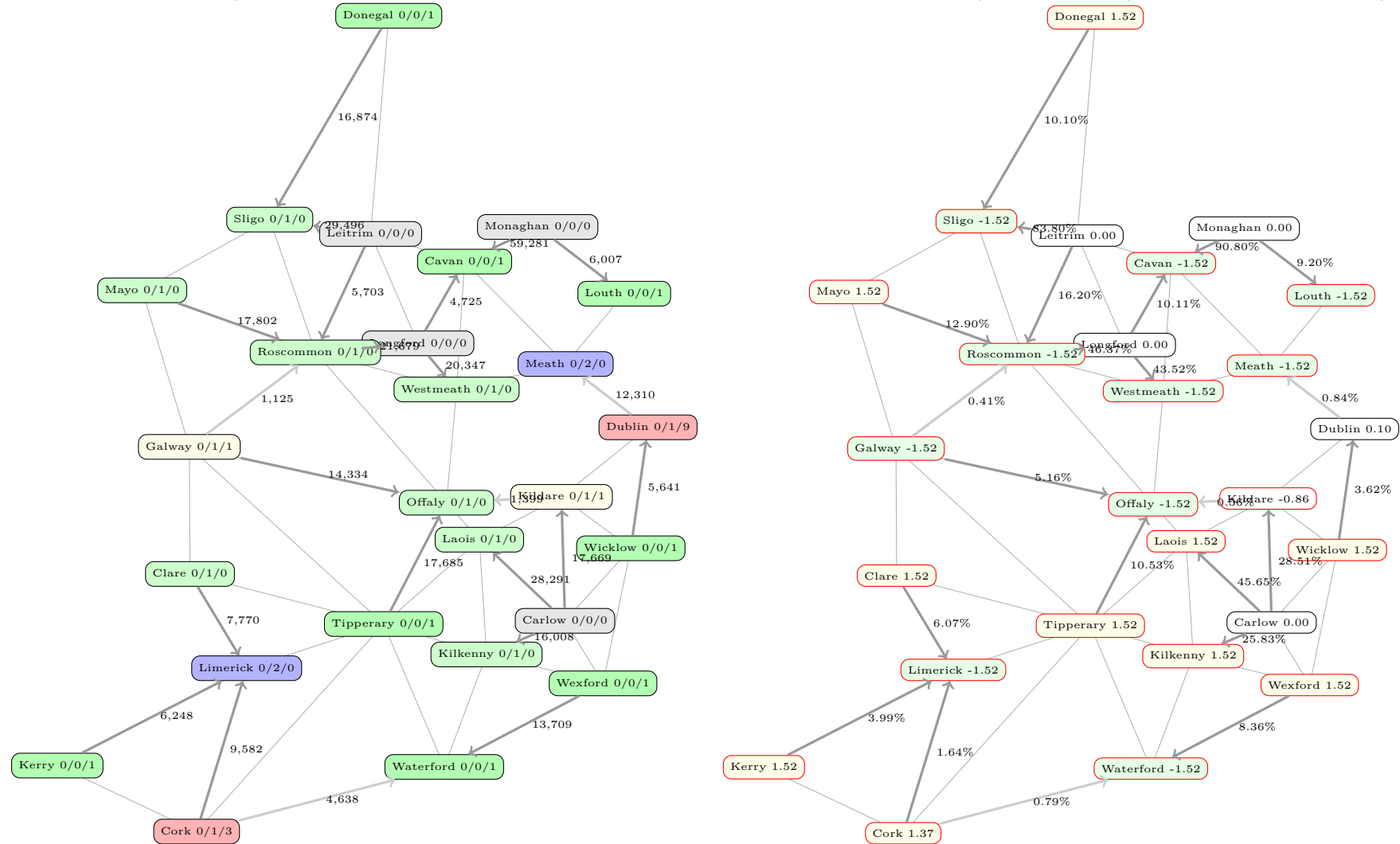
Table 24: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	64,006	145,710	1	0/0/1	5	29,142.00	-1.52
Clare	127,938	4.32	7,770	0	120,168	1	0/1/0	4	30,042.00	1.52
Cork	584,156	19.74	14,220	0	569,936	4	0/1/3	19	29,996.63	1.37
Donegal	167,084	5.65	16,874	0	150,210	1	0/0/1	5	30,042.00	1.52
Dublin	1,458,154	49.28	12,310	5,641	1,451,485	10	0/1/9	49	29,622.14	0.10
Galway	277,737	9.39	15,459	0	262,278	2	0/1/1	9	29,142.00	-1.52
Kerry	156,458	5.29	6,248	0	150,210	1	0/0/1	5	30,042.00	1.52
Kildare	247,774	8.37	1,399	17,669	264,044	2	0/1/1	9	29,338.22	-0.86
Kilkenny	104,160	3.52	0	16,008	120,168	1	0/1/0	4	30,042.00	1.52
Laois	91,877	3.10	0	28,291	120,168	1	0/1/0	4	30,042.00	1.52
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	23,600	233,136	2	0/2/0	8	29,142.00	-1.52
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	6,007	145,710	1	0/0/1	5	29,142.00	-1.52
Mayo	137,970	4.66	17,802	0	120,168	1	0/1/0	4	30,042.00	1.52
Meath	220,826	7.46	0	12,310	233,136	2	0/2/0	8	29,142.00	-1.52
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	33,418	116,568	1	0/1/0	4	29,142.00	-1.52
Roscommon	70,259	2.37	0	46,309	116,568	1	0/1/0	4	29,142.00	-1.52
Sligo	70,198	2.37	0	46,370	116,568	1	0/1/0	4	29,142.00	-1.52
Tipperary	167,895	5.67	17,685	0	150,210	1	0/0/1	5	30,042.00	1.52
Waterford	127,363	4.30	0	18,347	145,710	1	0/0/1	5	29,142.00	-1.52

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	20,347	116,568	1	0/1/0	4	29,142.00	-1.52
Wexford	163,919	5.54	13,709	0	150,210	1	0/0/1	5	30,042.00	1.52
Wicklow	155,851	5.27	5,641	0	150,210	1	0/0/1	5	30,042.00	1.52

Table 25: 23 Transfers (Total 338323)

From	To	Volume	Percent of From
Carlow	Kildare	17,669	28.51
Carlow	Kilkenny	16,008	25.83
Carlow	Laois	28,291	45.65
Dublin	Meath	12,310	0.84
Kildare	Offaly	1,399	0.56
Longford	Westmeath	20,347	43.52
Longford	Roscommon	21,679	46.37
Longford	Cavan	4,725	10.11
Wexford	Waterford	13,709	8.36
Wicklow	Dublin	5,641	3.62
Clare	Limerick	7,770	6.07
Cork	Limerick	9,582	1.64
Cork	Waterford	4,638	0.79
Kerry	Limerick	6,248	3.99
Tipperary	Offaly	17,685	10.53
Galway	Offaly	14,334	5.16
Galway	Roscommon	1,125	0.41
Leitrim	Roscommon	5,703	16.20
Leitrim	Sligo	29,496	83.80
Mayo	Roscommon	17,802	12.90
Donegal	Sligo	16,874	10.10
Monaghan	Louth	6,007	9.20
Monaghan	Cavan	59,281	90.80

Figure 9: Sol8 (174 seats, 38 constituencies, 23 transfers, 29,597.29 persons per TD,  $\Delta_{max}$  450 (1.52% of 29,592), weighted variation 1.01%)

### 3.9 Solution Sol9

Table 26: Solution 9

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol9	174	500	1.69	3.38	29,092.00	30,092.00	29,598.10	158,091.42	1.06	21	335,723	38	0/16/22	4.58	Optimal	0.26	0.0000

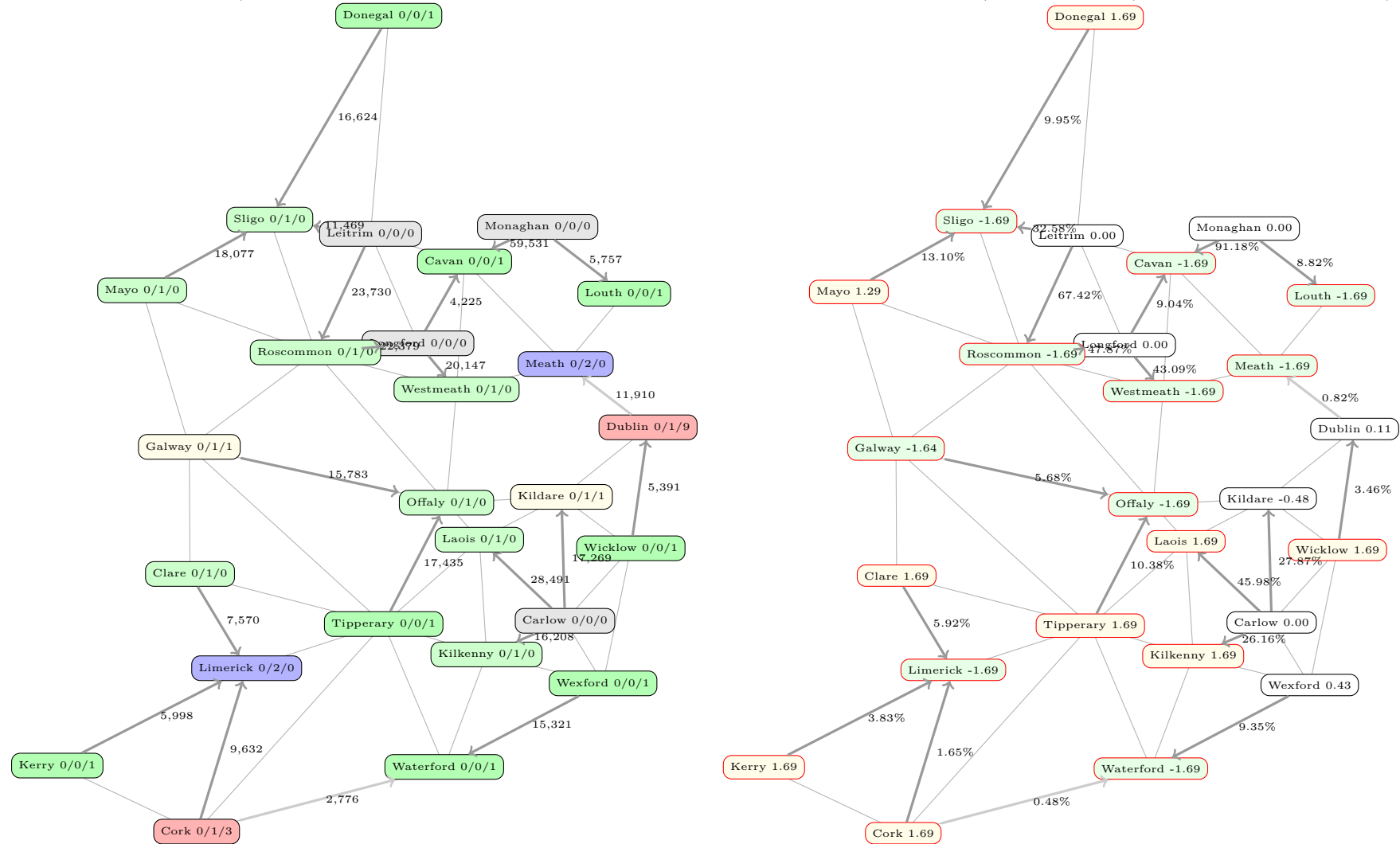
Table 27: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	63,756	145,460	1	0/0/1	5	29,092.00	-1.69
Clare	127,938	4.32	7,570	0	120,368	1	0/1/0	4	30,092.00	1.69
Cork	584,156	19.74	12,408	0	571,748	4	0/1/3	19	30,092.00	1.69
Donegal	167,084	5.65	16,624	0	150,460	1	0/0/1	5	30,092.00	1.69
Dublin	1,458,154	49.28	11,910	5,391	1,451,635	10	0/1/9	49	29,625.20	0.11
Galway	277,737	9.39	15,783	0	261,954	2	0/1/1	9	29,106.00	-1.64
Kerry	156,458	5.29	5,998	0	150,460	1	0/0/1	5	30,092.00	1.69
Kildare	247,774	8.37	0	17,269	265,043	2	0/1/1	9	29,449.22	-0.48
Kilkenny	104,160	3.52	0	16,208	120,368	1	0/1/0	4	30,092.00	1.69
Laois	91,877	3.10	0	28,491	120,368	1	0/1/0	4	30,092.00	1.69
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	23,200	232,736	2	0/2/0	8	29,092.00	-1.69
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	5,757	145,460	1	0/0/1	5	29,092.00	-1.69
Mayo	137,970	4.66	18,077	0	119,893	1	0/1/0	4	29,973.25	1.29
Meath	220,826	7.46	0	11,910	232,736	2	0/2/0	8	29,092.00	-1.69
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	33,218	116,368	1	0/1/0	4	29,092.00	-1.69
Roscommon	70,259	2.37	0	46,109	116,368	1	0/1/0	4	29,092.00	-1.69
Sligo	70,198	2.37	0	46,170	116,368	1	0/1/0	4	29,092.00	-1.69
Tipperary	167,895	5.67	17,435	0	150,460	1	0/0/1	5	30,092.00	1.69
Waterford	127,363	4.30	0	18,097	145,460	1	0/0/1	5	29,092.00	-1.69

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	20,147	116,368	1	0/1/0	4	29,092.00	-1.69
Wexford	163,919	5.54	15,321	0	148,598	1	0/0/1	5	29,719.60	0.43
Wicklow	155,851	5.27	5,391	0	150,460	1	0/0/1	5	30,092.00	1.69

Table 28: 21 Transfers (Total 335723)

From	To	Volume	Percent of From
Carlow	Kildare	17,269	27.87
Carlow	Kilkenny	16,208	26.16
Carlow	Laois	28,491	45.98
Dublin	Meath	11,910	0.82
Longford	Westmeath	20,147	43.09
Longford	Roscommon	22,379	47.87
Longford	Cavan	4,225	9.04
Wexford	Waterford	15,321	9.35
Wicklow	Dublin	5,391	3.46
Clare	Limerick	7,570	5.92
Cork	Limerick	9,632	1.65
Cork	Waterford	2,776	0.48
Kerry	Limerick	5,998	3.83
Tipperary	Offaly	17,435	10.38
Galway	Offaly	15,783	5.68
Leitrim	Roscommon	23,730	67.42
Leitrim	Sligo	11,469	32.58
Mayo	Sligo	18,077	13.10
Donegal	Sligo	16,624	9.95
Monaghan	Louth	5,757	8.82
Monaghan	Cavan	59,531	91.18

Figure 10: Sol9 (174 seats, 38 constituencies, 21 transfers, 29,598.10 persons per TD,  $\Delta_{max}$  500 (1.69% of 29,592), weighted variation 1.06%)

### 3.10 Solution Sol10

Table 29: Solution 10

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol10	174	550	1.86	3.72	29,042.00	30,142.00	29,599.47	198,847.05	1.22	23	333,298	38	0/16/22	4.58	Optimal	0.28	0.0000

Table 30: Counties

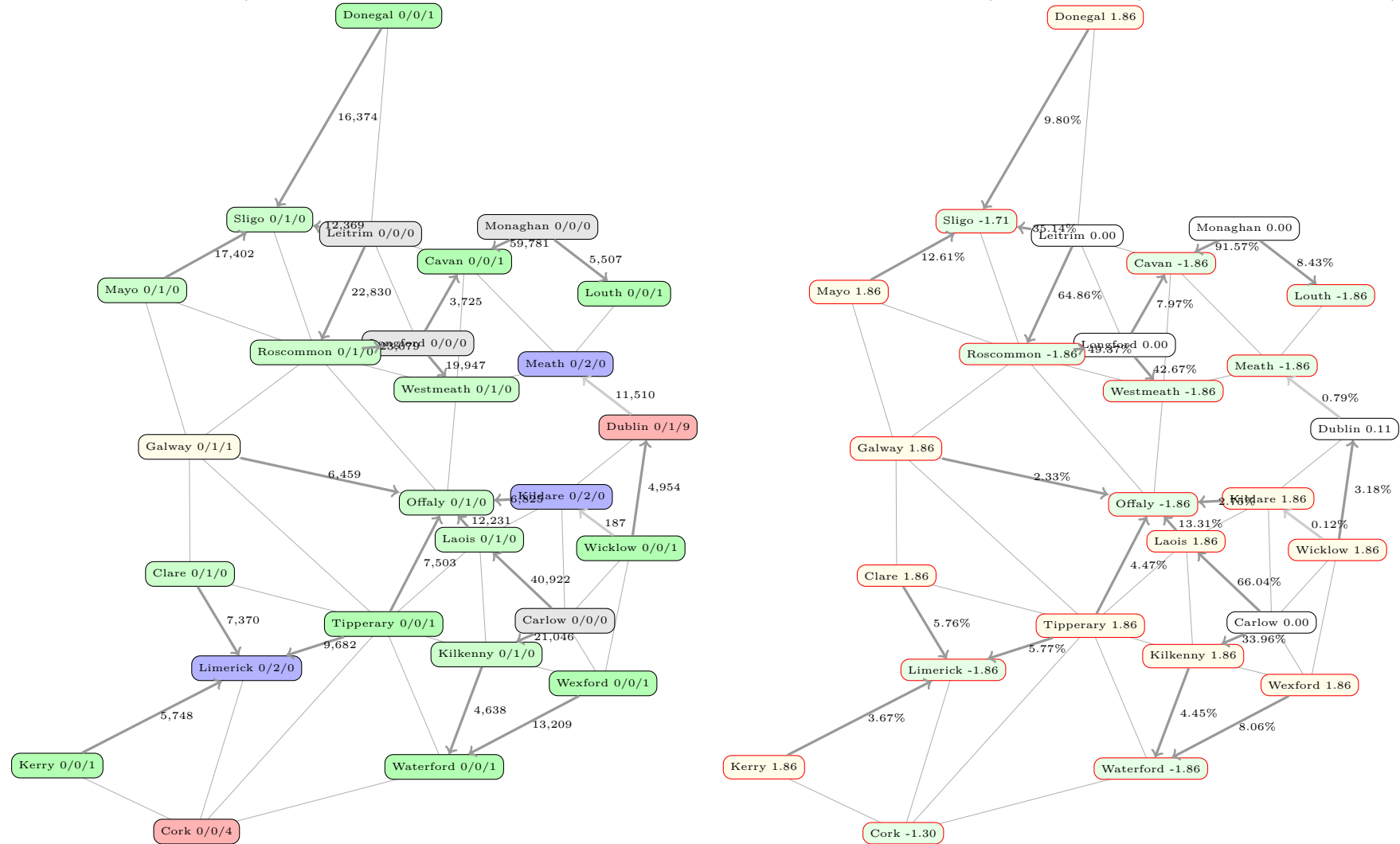
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	63,506	145,210	1	0/0/1	5	29,042.00	-1.86
Clare	127,938	4.32	7,370	0	120,568	1	0/1/0	4	30,142.00	1.86
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	16,374	0	150,710	1	0/0/1	5	30,142.00	1.86
Dublin	1,458,154	49.28	11,510	4,954	1,451,598	10	0/1/9	49	29,624.45	0.11
Galway	277,737	9.39	6,459	0	271,278	2	0/1/1	9	30,142.00	1.86
Kerry	156,458	5.29	5,748	0	150,710	1	0/0/1	5	30,142.00	1.86
Kildare	247,774	8.37	6,825	187	241,136	2	0/2/0	8	30,142.00	1.86
Kilkenny	104,160	3.52	4,638	21,046	120,568	1	0/1/0	4	30,142.00	1.86
Laois	91,877	3.10	12,231	40,922	120,568	1	0/1/0	4	30,142.00	1.86
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	22,800	232,336	2	0/2/0	8	29,042.00	-1.86
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	5,507	145,210	1	0/0/1	5	29,042.00	-1.86
Mayo	137,970	4.66	17,402	0	120,568	1	0/1/0	4	30,142.00	1.86
Meath	220,826	7.46	0	11,510	232,336	2	0/2/0	8	29,042.00	-1.86
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	33,018	116,168	1	0/1/0	4	29,042.00	-1.86
Roscommon	70,259	2.37	0	45,909	116,168	1	0/1/0	4	29,042.00	-1.86
Sligo	70,198	2.37	0	46,145	116,343	1	0/1/0	4	29,085.75	-1.71
Tipperary	167,895	5.67	17,185	0	150,710	1	0/0/1	5	30,142.00	1.86
Waterford	127,363	4.30	0	17,847	145,210	1	0/0/1	5	29,042.00	-1.86

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	19,947	116,168	1	0/1/0	4	29,042.00	-1.86
Wexford	163,919	5.54	13,209	0	150,710	1	0/0/1	5	30,142.00	1.86
Wicklow	155,851	5.27	5,141	0	150,710	1	0/0/1	5	30,142.00	1.86

Table 31: 23 Transfers (Total 333298)

From	To	Volume	Percent of From
Carlow	Kilkenny	21,046	33.96
Carlow	Laois	40,922	66.04
Dublin	Meath	11,510	0.79
Kildare	Offaly	6,825	2.75
Kilkenny	Waterford	4,638	4.45
Laois	Offaly	12,231	13.31
Longford	Westmeath	19,947	42.67
Longford	Roscommon	23,079	49.37
Longford	Cavan	3,725	7.97
Wexford	Waterford	13,209	8.06
Wicklow	Dublin	4,954	3.18
Wicklow	Kildare	187	0.12
Clare	Limerick	7,370	5.76
Kerry	Limerick	5,748	3.67
Tipperary	Offaly	7,503	4.47
Tipperary	Limerick	9,682	5.77
Galway	Offaly	6,459	2.33
Leitrim	Roscommon	22,830	64.86
Leitrim	Sligo	12,369	35.14
Mayo	Sligo	17,402	12.61
Donegal	Sligo	16,374	9.80
Monaghan	Louth	5,507	8.43
Monaghan	Cavan	59,781	91.57



Figure 11: Sol10 (174 seats, 38 constituencies, 23 transfers, 29,599.47 persons per TD,  $\Delta_{max}$  550 (1.86% of 29,592), weighted variation 1.22%)

### 3.11 Solution Sol11

Table 32: Solution 11

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol11	174	600	2.03	4.06	28,992.00	30,192.00	29,602.84	298,842.86	1.70	21	331,348	38	0/16/22	4.58	Optimal	0.15	0.0057

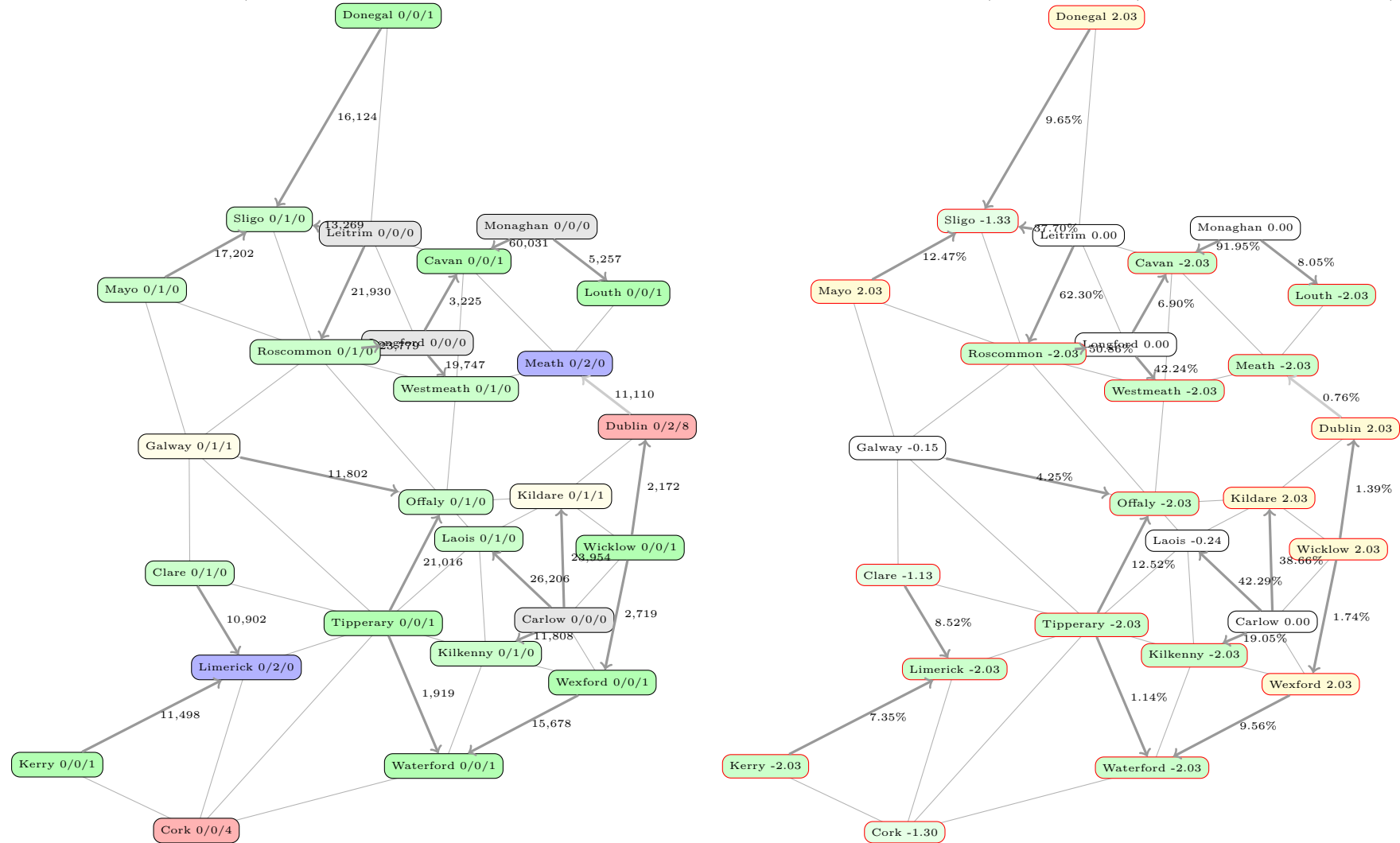
Table 33: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	63,256	144,960	1	0/0/1	5	28,992.00	-2.03
Clare	127,938	4.32	10,902	0	117,036	1	0/1/0	4	29,259.00	-1.13
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	16,124	0	150,960	1	0/0/1	5	30,192.00	2.03
Dublin	1,458,154	49.28	11,110	2,172	1,449,216	10	0/2/8	48	30,192.00	2.03
Galway	277,737	9.39	11,802	0	265,935	2	0/1/1	9	29,548.33	-0.15
Kerry	156,458	5.29	11,498	0	144,960	1	0/0/1	5	28,992.00	-2.03
Kildare	247,774	8.37	0	23,954	271,728	2	0/1/1	9	30,192.00	2.03
Kilkenny	104,160	3.52	0	11,808	115,968	1	0/1/0	4	28,992.00	-2.03
Laois	91,877	3.10	0	26,206	118,083	1	0/1/0	4	29,520.75	-0.24
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	22,400	231,936	2	0/2/0	8	28,992.00	-2.03
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	5,257	144,960	1	0/0/1	5	28,992.00	-2.03
Mayo	137,970	4.66	17,202	0	120,768	1	0/1/0	4	30,192.00	2.03
Meath	220,826	7.46	0	11,110	231,936	2	0/2/0	8	28,992.00	-2.03
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	32,818	115,968	1	0/1/0	4	28,992.00	-2.03
Roscommon	70,259	2.37	0	45,709	115,968	1	0/1/0	4	28,992.00	-2.03
Sligo	70,198	2.37	0	46,595	116,793	1	0/1/0	4	29,198.25	-1.33
Tipperary	167,895	5.67	22,935	0	144,960	1	0/0/1	5	28,992.00	-2.03
Waterford	127,363	4.30	0	17,597	144,960	1	0/0/1	5	28,992.00	-2.03

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	19,747	115,968	1	0/1/0	4	28,992.00	-2.03
Wexford	163,919	5.54	15,678	2,719	150,960	1	0/0/1	5	30,192.00	2.03
Wicklow	155,851	5.27	4,891	0	150,960	1	0/0/1	5	30,192.00	2.03

Table 34: 21 Transfers (Total 331348)

From	To	Volume	Percent of From
Carlow	Kildare	23,954	38.66
Carlow	Kilkenny	11,808	19.05
Carlow	Laois	26,206	42.29
Dublin	Meath	11,110	0.76
Longford	Westmeath	19,747	42.24
Longford	Roscommon	23,779	50.86
Longford	Cavan	3,225	6.90
Wexford	Waterford	15,678	9.56
Wicklow	Dublin	2,172	1.39
Wicklow	Wexford	2,719	1.74
Clare	Limerick	10,902	8.52
Kerry	Limerick	11,498	7.35
Tipperary	Offaly	21,016	12.52
Tipperary	Waterford	1,919	1.14
Galway	Offaly	11,802	4.25
Leitrim	Roscommon	21,930	62.30
Leitrim	Sligo	13,269	37.70
Mayo	Sligo	17,202	12.47
Donegal	Sligo	16,124	9.65
Monaghan	Louth	5,257	8.05
Monaghan	Cavan	60,031	91.95

Figure 12: Sol11 (174 seats, 38 constituencies, 21 transfers, 29,602.84 persons per TD,  $\Delta_{max}$  600 (2.03% of 29,592), weighted variation 1.70%)

### 3.12 Solution Sol12

Table 35: Solution 12

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol12	174	650	2.20	4.39	28,942.00	30,242.00	29,601.37	255,196.34	1.36	22	329,398	38	0/16/22	4.58	Optimal	0.19	-0.0000

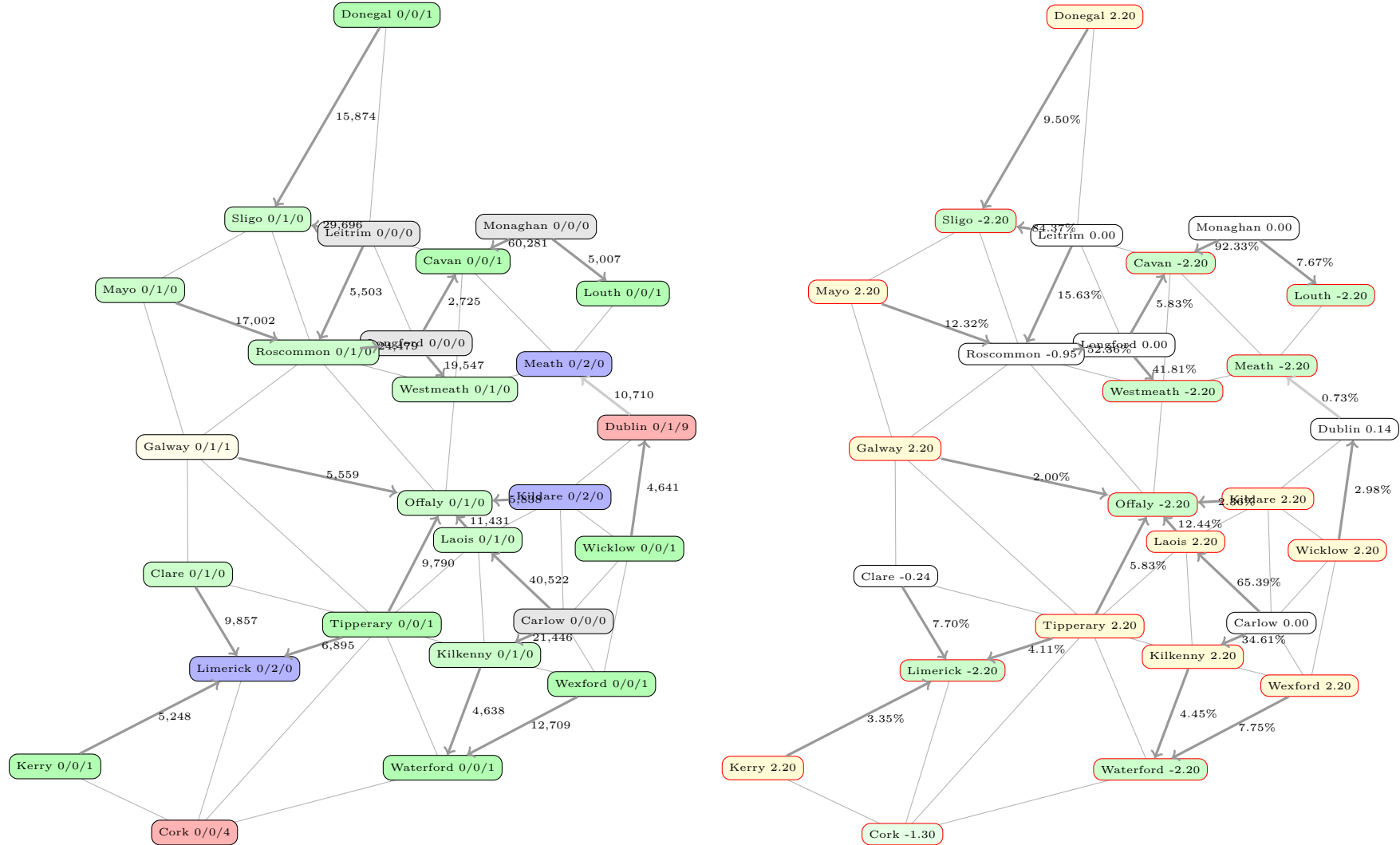
Table 36: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	63,006	144,710	1	0/0/1	5	28,942.00	-2.20
Clare	127,938	4.32	9,857	0	118,081	1	0/1/0	4	29,520.25	-0.24
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	15,874	0	151,210	1	0/0/1	5	30,242.00	2.20
Dublin	1,458,154	49.28	10,710	4,641	1,452,085	10	0/1/9	49	29,634.39	0.14
Galway	277,737	9.39	5,559	0	272,178	2	0/1/1	9	30,242.00	2.20
Kerry	156,458	5.29	5,248	0	151,210	1	0/0/1	5	30,242.00	2.20
Kildare	247,774	8.37	5,838	0	241,936	2	0/2/0	8	30,242.00	2.20
Kilkenny	104,160	3.52	4,638	21,446	120,968	1	0/1/0	4	30,242.00	2.20
Laois	91,877	3.10	11,431	40,522	120,968	1	0/1/0	4	30,242.00	2.20
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	22,000	231,536	2	0/2/0	8	28,942.00	-2.20
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	5,007	144,710	1	0/0/1	5	28,942.00	-2.20
Mayo	137,970	4.66	17,002	0	120,968	1	0/1/0	4	30,242.00	2.20
Meath	220,826	7.46	0	10,710	231,536	2	0/2/0	8	28,942.00	-2.20
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	32,618	115,768	1	0/1/0	4	28,942.00	-2.20
Roscommon	70,259	2.37	0	46,984	117,243	1	0/1/0	4	29,310.75	-0.95
Sligo	70,198	2.37	0	45,570	115,768	1	0/1/0	4	28,942.00	-2.20
Tipperary	167,895	5.67	16,685	0	151,210	1	0/0/1	5	30,242.00	2.20
Waterford	127,363	4.30	0	17,347	144,710	1	0/0/1	5	28,942.00	-2.20

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	19,547	115,768	1	0/1/0	4	28,942.00	-2.20
Wexford	163,919	5.54	12,709	0	151,210	1	0/0/1	5	30,242.00	2.20
Wicklow	155,851	5.27	4,641	0	151,210	1	0/0/1	5	30,242.00	2.20

Table 37: 22 Transfers (Total 329398)

From	To	Volume	Percent of From
Carlow	Kilkenny	21,446	34.61
Carlow	Laois	40,522	65.39
Dublin	Meath	10,710	0.73
Kildare	Offaly	5,838	2.36
Kilkenny	Waterford	4,638	4.45
Laois	Offaly	11,431	12.44
Longford	Westmeath	19,547	41.81
Longford	Roscommon	24,479	52.36
Longford	Cavan	2,725	5.83
Wexford	Waterford	12,709	7.75
Wicklow	Dublin	4,641	2.98
Clare	Limerick	9,857	7.70
Kerry	Limerick	5,248	3.35
Tipperary	Offaly	9,790	5.83
Tipperary	Limerick	6,895	4.11
Galway	Offaly	5,559	2.00
Leitrim	Roscommon	5,503	15.63
Leitrim	Sligo	29,696	84.37
Mayo	Roscommon	17,002	12.32
Donegal	Sligo	15,874	9.50
Monaghan	Louth	5,007	7.67
Monaghan	Cavan	60,281	92.33

Figure 13: Sol12 (174 seats, 38 constituencies, 22 transfers, 29,601.37 persons per TD,  $\Delta_{max}$  650 (2.20% of 29,592), weighted variation 1.36%)

### 3.13 Solution Sol13

Table 38: Solution 13

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol13	174	700	2.37	4.73	28,892.00	30,292.00	29,602.22	280,326.02	1.41	22	327,448	38	0/16/22	4.58	Optimal	0.17	0.0060

Table 39: Counties

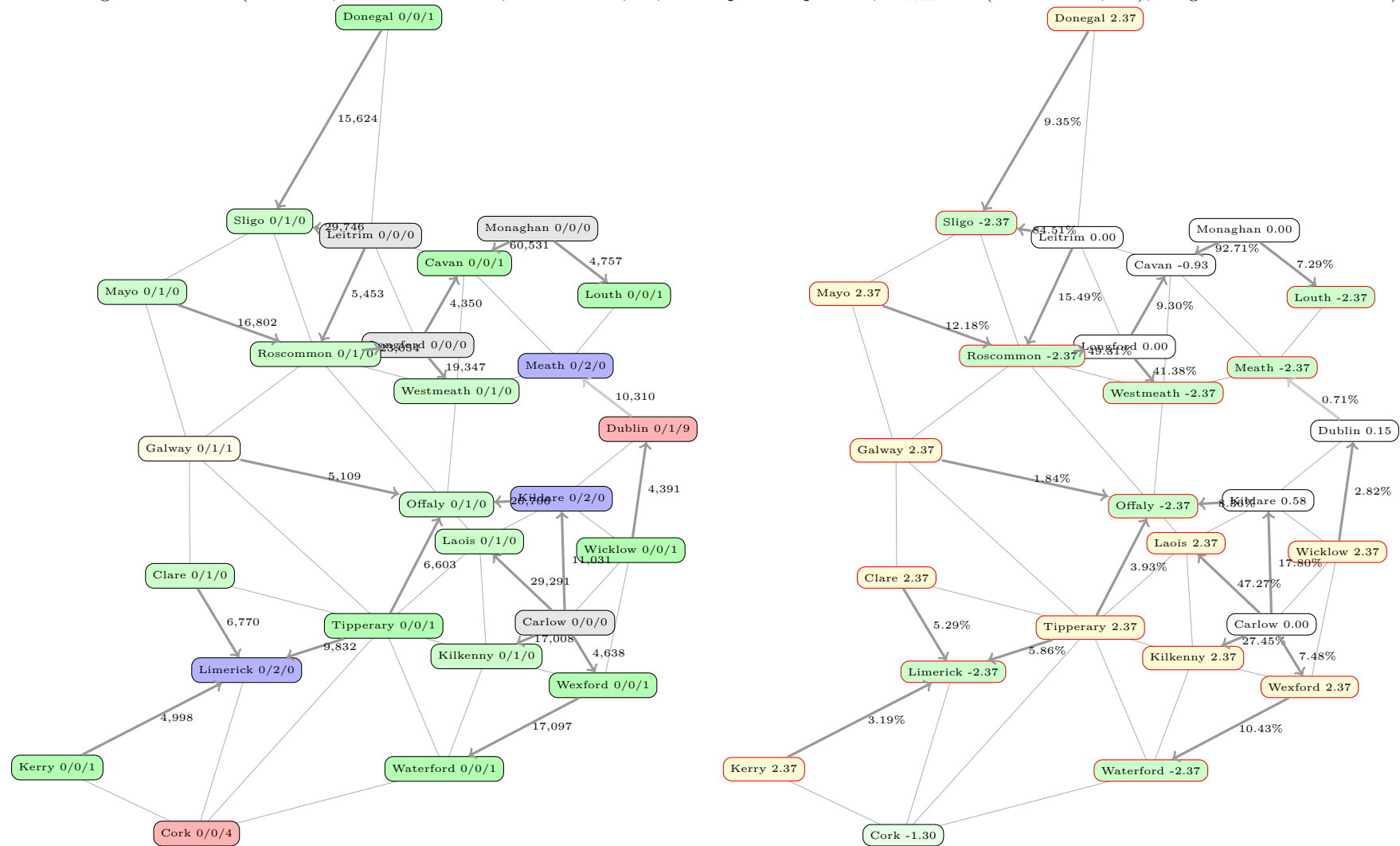
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	64,881	146,585	1	0/0/1	5	29,317.00	-0.93
Clare	127,938	4.32	6,770	0	121,168	1	0/1/0	4	30,292.00	2.37
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	15,624	0	151,460	1	0/0/1	5	30,292.00	2.37
Dublin	1,458,154	49.28	10,310	4,391	1,452,235	10	0/1/9	49	29,637.45	0.15
Galway	277,737	9.39	5,109	0	272,628	2	0/1/1	9	30,292.00	2.37
Kerry	156,458	5.29	4,998	0	151,460	1	0/0/1	5	30,292.00	2.37
Kildare	247,774	8.37	20,706	11,031	238,099	2	0/2/0	8	29,762.38	0.58
Kilkenny	104,160	3.52	0	17,008	121,168	1	0/1/0	4	30,292.00	2.37
Laois	91,877	3.10	0	29,291	121,168	1	0/1/0	4	30,292.00	2.37
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	21,600	231,136	2	0/2/0	8	28,892.00	-2.37
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	4,757	144,460	1	0/0/1	5	28,892.00	-2.37
Mayo	137,970	4.66	16,802	0	121,168	1	0/1/0	4	30,292.00	2.37
Meath	220,826	7.46	0	10,310	231,136	2	0/2/0	8	28,892.00	-2.37
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	32,418	115,568	1	0/1/0	4	28,892.00	-2.37
Roscommon	70,259	2.37	0	45,309	115,568	1	0/1/0	4	28,892.00	-2.37
Sligo	70,198	2.37	0	45,370	115,568	1	0/1/0	4	28,892.00	-2.37
Tipperary	167,895	5.67	16,435	0	151,460	1	0/0/1	5	30,292.00	2.37
Waterford	127,363	4.30	0	17,097	144,460	1	0/0/1	5	28,892.00	-2.37



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	19,347	115,568	1	0/1/0	4	28,892.00	-2.37
Wexford	163,919	5.54	17,097	4,638	151,460	1	0/0/1	5	30,292.00	2.37
Wicklow	155,851	5.27	4,391	0	151,460	1	0/0/1	5	30,292.00	2.37

Table 40: 22 Transfers (Total 327448)

From	To	Volume	Percent of From
Carlow	Kildare	11,031	17.80
Carlow	Kilkenny	17,008	27.45
Carlow	Laois	29,291	47.27
Carlow	Wexford	4,638	7.48
Dublin	Meath	10,310	0.71
Kildare	Offaly	20,706	8.36
Longford	Westmeath	19,347	41.38
Longford	Roscommon	23,054	49.31
Longford	Cavan	4,350	9.30
Wexford	Waterford	17,097	10.43
Wicklow	Dublin	4,391	2.82
Clare	Limerick	6,770	5.29
Kerry	Limerick	4,998	3.19
Tipperary	Offaly	6,603	3.93
Tipperary	Limerick	9,832	5.86
Galway	Offaly	5,109	1.84
Leitrim	Roscommon	5,453	15.49
Leitrim	Sligo	29,746	84.51
Mayo	Roscommon	16,802	12.18
Donegal	Sligo	15,624	9.35
Monaghan	Louth	4,757	7.29
Monaghan	Cavan	60,531	92.71

Figure 14: Sol13 (174 seats, 38 constituencies, 22 transfers, 29,602.22 persons per TD,  $\Delta_{max}$  700 (2.37% of 29,592), weighted variation 1.41%)

### 3.14 Solution Sol14

Table 41: Solution 14

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol14	174	750	2.53	5.07	28,842.00	30,342.00	29,602.98	302,309.75	1.43	21	325,498	38	0/16/22	4.58	Optimal	0.18	0.0000

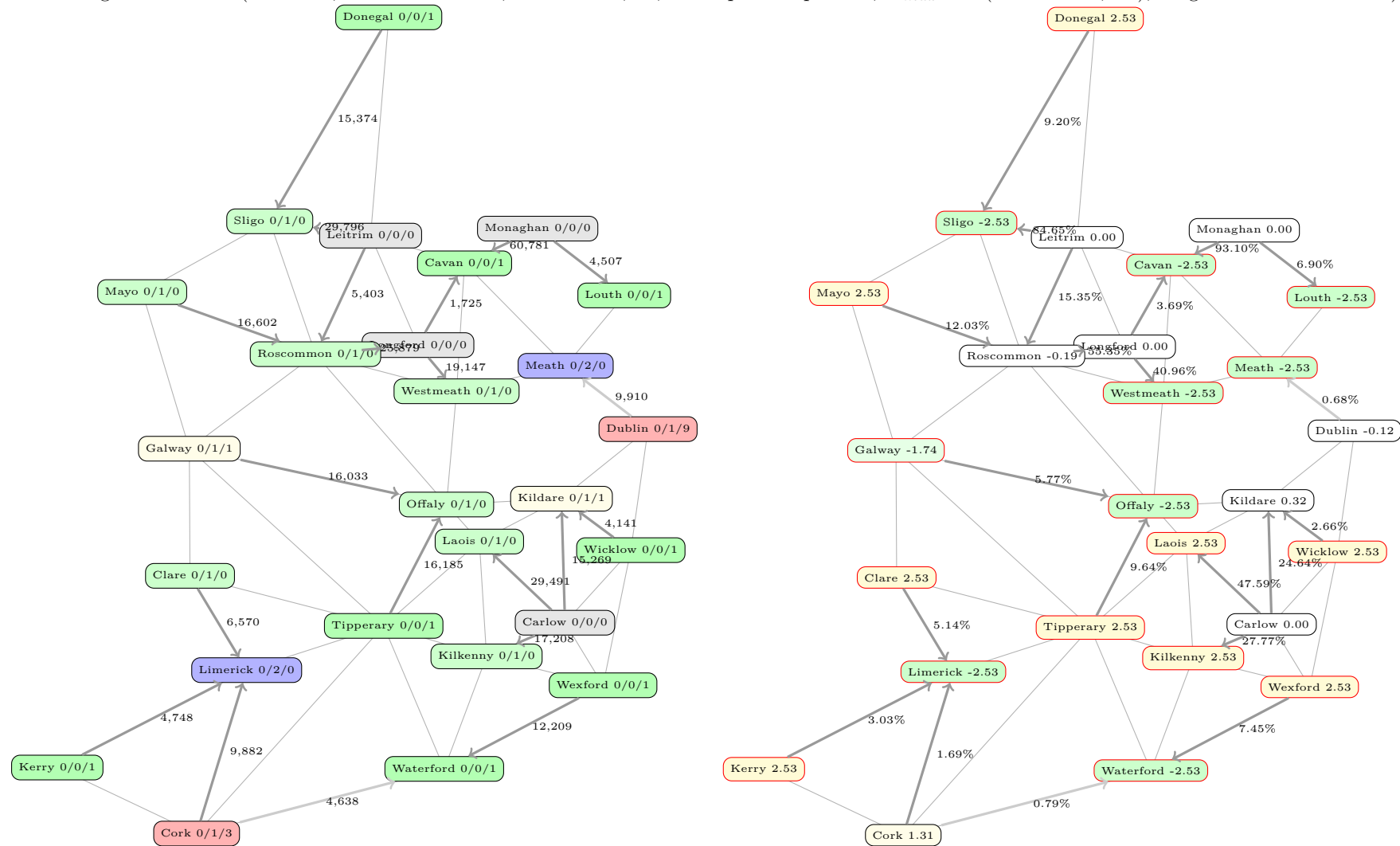
Table 42: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	62,506	144,210	1	0/0/1	5	28,842.00	-2.53
Clare	127,938	4.32	6,570	0	121,368	1	0/1/0	4	30,342.00	2.53
Cork	584,156	19.74	14,520	0	569,636	4	0/1/3	19	29,980.84	1.31
Donegal	167,084	5.65	15,374	0	151,710	1	0/0/1	5	30,342.00	2.53
Dublin	1,458,154	49.28	9,910	0	1,448,244	10	0/1/9	49	29,556.00	-0.12
Galway	277,737	9.39	16,033	0	261,704	2	0/1/1	9	29,078.22	-1.74
Kerry	156,458	5.29	4,748	0	151,710	1	0/0/1	5	30,342.00	2.53
Kildare	247,774	8.37	0	19,410	267,184	2	0/1/1	9	29,687.11	0.32
Kilkenny	104,160	3.52	0	17,208	121,368	1	0/1/0	4	30,342.00	2.53
Laois	91,877	3.10	0	29,491	121,368	1	0/1/0	4	30,342.00	2.53
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	21,200	230,736	2	0/2/0	8	28,842.00	-2.53
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	4,507	144,210	1	0/0/1	5	28,842.00	-2.53
Mayo	137,970	4.66	16,602	0	121,368	1	0/1/0	4	30,342.00	2.53
Meath	220,826	7.46	0	9,910	230,736	2	0/2/0	8	28,842.00	-2.53
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	32,218	115,368	1	0/1/0	4	28,842.00	-2.53
Roscommon	70,259	2.37	0	47,884	118,143	1	0/1/0	4	29,535.75	-0.19
Sligo	70,198	2.37	0	45,170	115,368	1	0/1/0	4	28,842.00	-2.53
Tipperary	167,895	5.67	16,185	0	151,710	1	0/0/1	5	30,342.00	2.53
Waterford	127,363	4.30	0	16,847	144,210	1	0/0/1	5	28,842.00	-2.53

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	19,147	115,368	1	0/1/0	4	28,842.00	-2.53
Wexford	163,919	5.54	12,209	0	151,710	1	0/0/1	5	30,342.00	2.53
Wicklow	155,851	5.27	4,141	0	151,710	1	0/0/1	5	30,342.00	2.53

Table 43: 21 Transfers (Total 325498)

From	To	Volume	Percent of From
Carlow	Kildare	15,269	24.64
Carlow	Kilkenny	17,208	27.77
Carlow	Laois	29,491	47.59
Dublin	Meath	9,910	0.68
Longford	Westmeath	19,147	40.96
Longford	Roscommon	25,879	55.35
Longford	Cavan	1,725	3.69
Wexford	Waterford	12,209	7.45
Wicklow	Kildare	4,141	2.66
Clare	Limerick	6,570	5.14
Cork	Limerick	9,882	1.69
Cork	Waterford	4,638	0.79
Kerry	Limerick	4,748	3.03
Tipperary	Offaly	16,185	9.64
Galway	Offaly	16,033	5.77
Leitrim	Roscommon	5,403	15.35
Leitrim	Sligo	29,796	84.65
Mayo	Roscommon	16,602	12.03
Donegal	Sligo	15,374	9.20
Monaghan	Louth	4,507	6.90
Monaghan	Cavan	60,781	93.10

Figure 15: Sol14 (174 seats, 38 constituencies, 21 transfers, 29,602.98 persons per TD,  $\Delta_{max}$  750 (2.53% of 29,592), weighted variation 1.43%)

### 3.15 Solution Sol15

Table 44: Solution 15

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol15	174	800	2.70	5.41	28,792.00	30,392.00	29,610.47	524,360.23	2.25	22	323,548	38	0/16/22	4.58	Optimal	0.13	0.0006

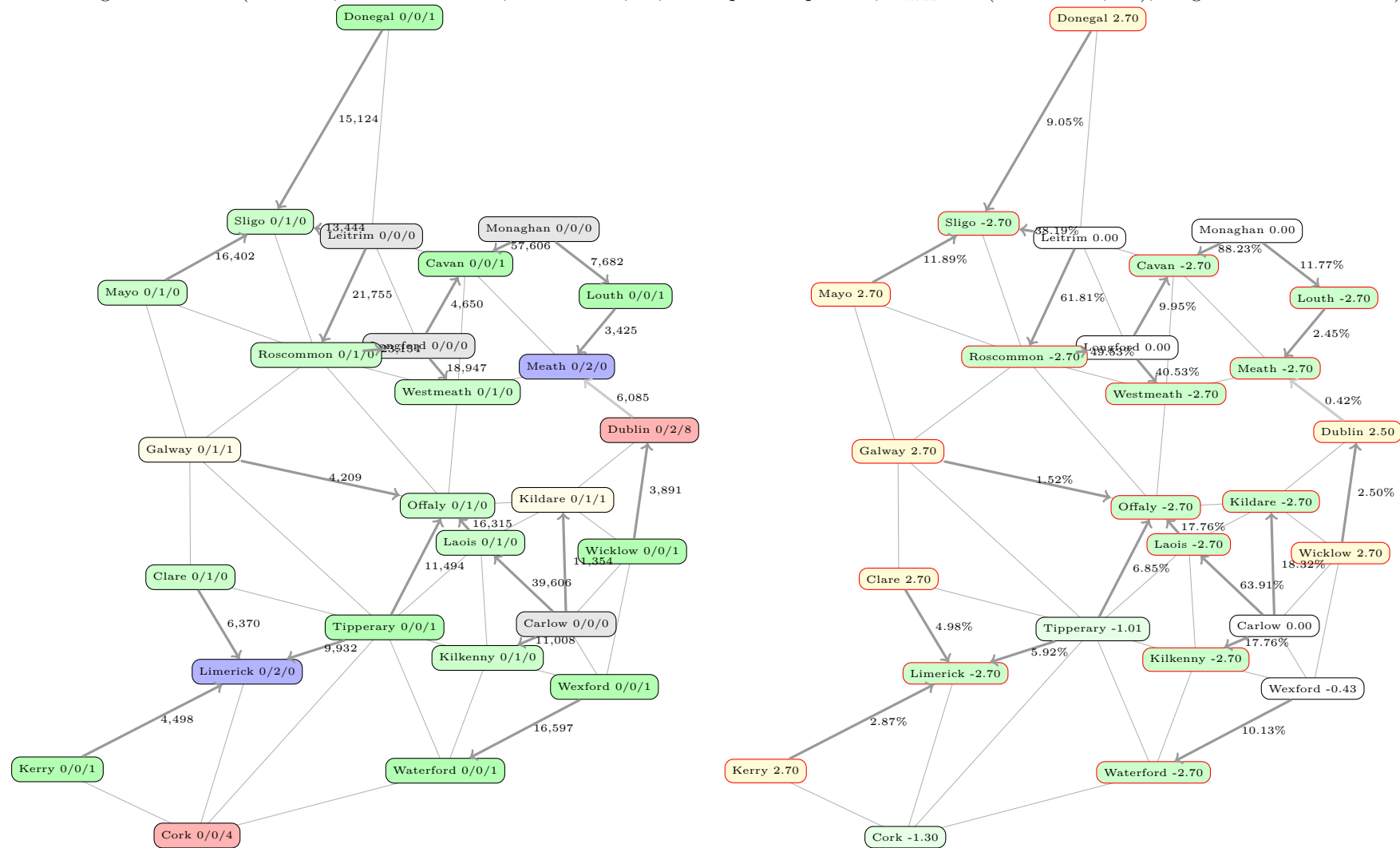
Table 45: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	62,256	143,960	1	0/0/1	5	28,792.00	-2.70
Clare	127,938	4.32	6,370	0	121,568	1	0/1/0	4	30,392.00	2.70
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	15,124	0	151,960	1	0/0/1	5	30,392.00	2.70
Dublin	1,458,154	49.28	6,085	3,891	1,455,960	10	0/2/8	48	30,332.50	2.50
Galway	277,737	9.39	4,209	0	273,528	2	0/1/1	9	30,392.00	2.70
Kerry	156,458	5.29	4,498	0	151,960	1	0/0/1	5	30,392.00	2.70
Kildare	247,774	8.37	0	11,354	259,128	2	0/1/1	9	28,792.00	-2.70
Kilkenny	104,160	3.52	0	11,008	115,168	1	0/1/0	4	28,792.00	-2.70
Laois	91,877	3.10	16,315	39,606	115,168	1	0/1/0	4	28,792.00	-2.70
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	20,800	230,336	2	0/2/0	8	28,792.00	-2.70
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	3,425	7,682	143,960	1	0/0/1	5	28,792.00	-2.70
Mayo	137,970	4.66	16,402	0	121,568	1	0/1/0	4	30,392.00	2.70
Meath	220,826	7.46	0	9,510	230,336	2	0/2/0	8	28,792.00	-2.70
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	32,018	115,168	1	0/1/0	4	28,792.00	-2.70
Roscommon	70,259	2.37	0	44,909	115,168	1	0/1/0	4	28,792.00	-2.70
Sligo	70,198	2.37	0	44,970	115,168	1	0/1/0	4	28,792.00	-2.70
Tipperary	167,895	5.67	21,426	0	146,469	1	0/0/1	5	29,293.80	-1.01
Waterford	127,363	4.30	0	16,597	143,960	1	0/0/1	5	28,792.00	-2.70

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	18,947	115,168	1	0/1/0	4	28,792.00	-2.70
Wexford	163,919	5.54	16,597	0	147,322	1	0/0/1	5	29,464.40	-0.43
Wicklow	155,851	5.27	3,891	0	151,960	1	0/0/1	5	30,392.00	2.70

Table 46: 22 Transfers (Total 323548)

From	To	Volume	Percent of From
Carlow	Kildare	11,354	18.32
Carlow	Kilkenny	11,008	17.76
Carlow	Laois	39,606	63.91
Dublin	Meath	6,085	0.42
Laois	Offaly	16,315	17.76
Longford	Westmeath	18,947	40.53
Longford	Roscommon	23,154	49.53
Longford	Cavan	4,650	9.95
Louth	Meath	3,425	2.45
Wexford	Waterford	16,597	10.13
Wicklow	Dublin	3,891	2.50
Clare	Limerick	6,370	4.98
Kerry	Limerick	4,498	2.87
Tipperary	Offaly	11,494	6.85
Tipperary	Limerick	9,932	5.92
Galway	Offaly	4,209	1.52
Leitrim	Roscommon	21,755	61.81
Leitrim	Sligo	13,444	38.19
Mayo	Sligo	16,402	11.89
Donegal	Sligo	15,124	9.05
Monaghan	Louth	7,682	11.77
Monaghan	Cavan	57,606	88.23

Figure 16: Sol15 (174 seats, 38 constituencies, 22 transfers, 29,610.47 persons per TD,  $\Delta_{max}$  800 (2.70% of 29,592), weighted variation 2.25%)



### 3.16 Solution Sol16

Table 47: Solution 16

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol16	174	850	2.87	5.74	28,742.00	30,442.00	29,607.14	425,804.71	1.75	22	321,598	38	0/16/22	4.58	Optimal	0.14	0.0095

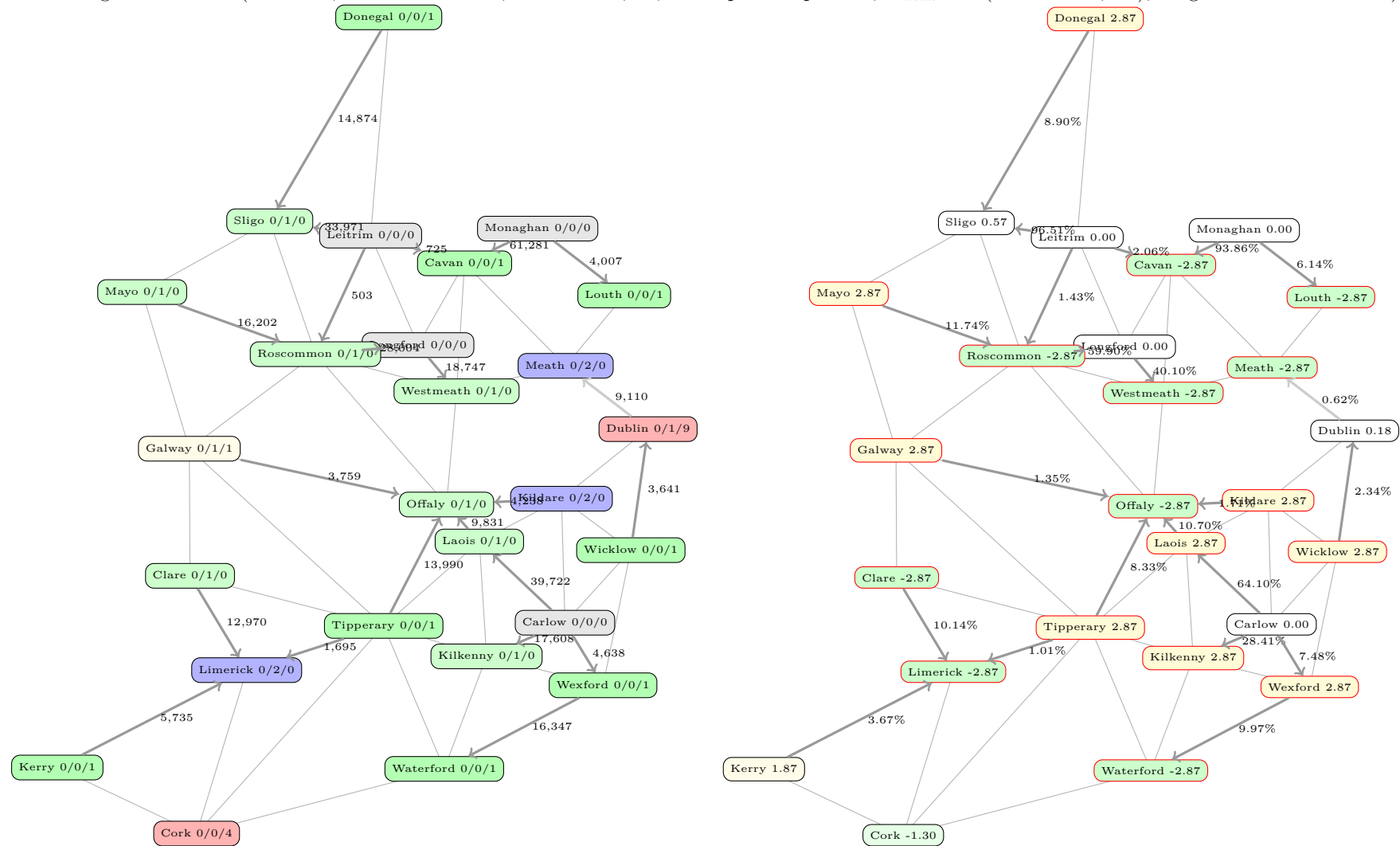
Table 48: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	62,006	143,710	1	0/0/1	5	28,742.00	-2.87
Clare	127,938	4.32	12,970	0	114,968	1	0/1/0	4	28,742.00	-2.87
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	14,874	0	152,210	1	0/0/1	5	30,442.00	2.87
Dublin	1,458,154	49.28	9,110	3,641	1,452,685	10	0/1/9	49	29,646.63	0.18
Galway	277,737	9.39	3,759	0	273,978	2	0/1/1	9	30,442.00	2.87
Kerry	156,458	5.29	5,735	0	150,723	1	0/0/1	5	30,144.60	1.87
Kildare	247,774	8.37	4,238	0	243,536	2	0/2/0	8	30,442.00	2.87
Kilkenny	104,160	3.52	0	17,608	121,768	1	0/1/0	4	30,442.00	2.87
Laois	91,877	3.10	9,831	39,722	121,768	1	0/1/0	4	30,442.00	2.87
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	20,400	229,936	2	0/2/0	8	28,742.00	-2.87
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	4,007	143,710	1	0/0/1	5	28,742.00	-2.87
Mayo	137,970	4.66	16,202	0	121,768	1	0/1/0	4	30,442.00	2.87
Meath	220,826	7.46	0	9,110	229,936	2	0/2/0	8	28,742.00	-2.87
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	31,818	114,968	1	0/1/0	4	28,742.00	-2.87
Roscommon	70,259	2.37	0	44,709	114,968	1	0/1/0	4	28,742.00	-2.87
Sligo	70,198	2.37	0	48,845	119,043	1	0/1/0	4	29,760.75	0.57
Tipperary	167,895	5.67	15,685	0	152,210	1	0/0/1	5	30,442.00	2.87
Waterford	127,363	4.30	0	16,347	143,710	1	0/0/1	5	28,742.00	-2.87

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	18,747	114,968	1	0/1/0	4	28,742.00	-2.87
Wexford	163,919	5.54	16,347	4,638	152,210	1	0/0/1	5	30,442.00	2.87
Wicklow	155,851	5.27	3,641	0	152,210	1	0/0/1	5	30,442.00	2.87

Table 49: 22 Transfers (Total 321598)

From	To	Volume	Percent of From
Carlow	Kilkenny	17,608	28.41
Carlow	Laois	39,722	64.10
Carlow	Wexford	4,638	7.48
Dublin	Meath	9,110	0.62
Kildare	Offaly	4,238	1.71
Laois	Offaly	9,831	10.70
Longford	Westmeath	18,747	40.10
Longford	Roscommon	28,004	59.90
Wexford	Waterford	16,347	9.97
Wicklow	Dublin	3,641	2.34
Clare	Limerick	12,970	10.14
Kerry	Limerick	5,735	3.67
Tipperary	Offaly	13,990	8.33
Tipperary	Limerick	1,695	1.01
Galway	Offaly	3,759	1.35
Leitrim	Roscommon	503	1.43
Leitrim	Sligo	33,971	96.51
Leitrim	Cavan	725	2.06
Mayo	Roscommon	16,202	11.74
Donegal	Sligo	14,874	8.90
Monaghan	Louth	4,007	6.14
Monaghan	Cavan	61,281	93.86

Figure 17: Sol16 (174 seats, 38 constituencies, 22 transfers, 29,607.14 persons per TD,  $\Delta_{max}$  850 (2.87% of 29,592), weighted variation 1.75%)

### 3.17 Solution Sol17

Table 50: Solution 17

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol17	174	900	3.04	6.08	28,692.00	30,492.00	29,611.96	566,067.66	2.32	20	319,648	38	0/16/22	4.58	Optimal	0.16	0.0025

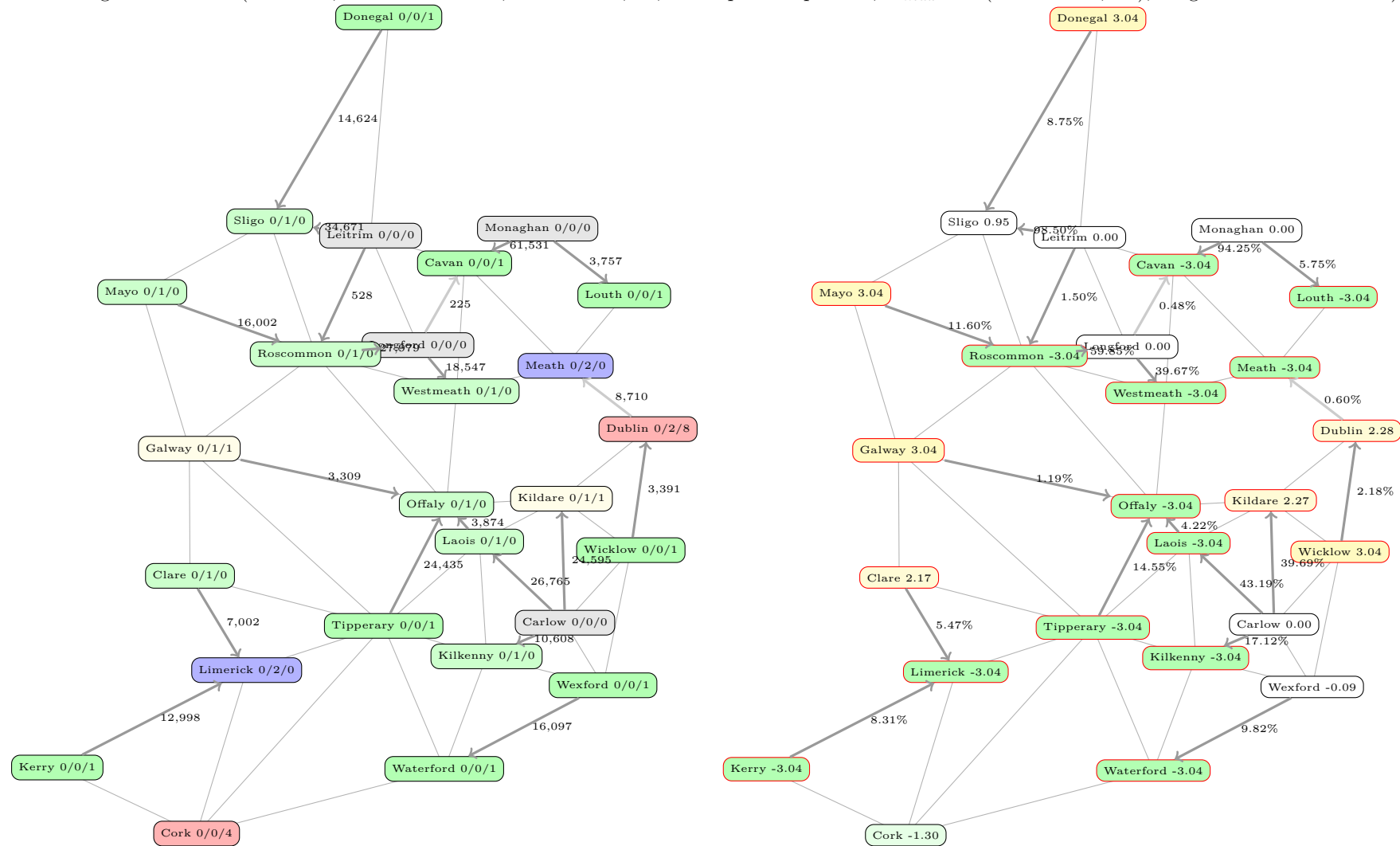
Table 51: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	61,756	143,460	1	0/0/1	5	28,692.00	-3.04
Clare	127,938	4.32	7,002	0	120,936	1	0/1/0	4	30,234.00	2.17
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	14,624	0	152,460	1	0/0/1	5	30,492.00	3.04
Dublin	1,458,154	49.28	8,710	3,391	1,452,835	10	0/2/8	48	30,267.40	2.28
Galway	277,737	9.39	3,309	0	274,428	2	0/1/1	9	30,492.00	3.04
Kerry	156,458	5.29	12,998	0	143,460	1	0/0/1	5	28,692.00	-3.04
Kildare	247,774	8.37	0	24,595	272,369	2	0/1/1	9	30,263.22	2.27
Kilkenny	104,160	3.52	0	10,608	114,768	1	0/1/0	4	28,692.00	-3.04
Laois	91,877	3.10	3,874	26,765	114,768	1	0/1/0	4	28,692.00	-3.04
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	20,000	229,536	2	0/2/0	8	28,692.00	-3.04
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	3,757	143,460	1	0/0/1	5	28,692.00	-3.04
Mayo	137,970	4.66	16,002	0	121,968	1	0/1/0	4	30,492.00	3.04
Meath	220,826	7.46	0	8,710	229,536	2	0/2/0	8	28,692.00	-3.04
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	31,618	114,768	1	0/1/0	4	28,692.00	-3.04
Roscommon	70,259	2.37	0	44,509	114,768	1	0/1/0	4	28,692.00	-3.04
Sligo	70,198	2.37	0	49,295	119,493	1	0/1/0	4	29,873.25	0.95
Tipperary	167,895	5.67	24,435	0	143,460	1	0/0/1	5	28,692.00	-3.04
Waterford	127,363	4.30	0	16,097	143,460	1	0/0/1	5	28,692.00	-3.04

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	18,547	114,768	1	0/1/0	4	28,692.00	-3.04
Wexford	163,919	5.54	16,097	0	147,822	1	0/0/1	5	29,564.40	-0.09
Wicklow	155,851	5.27	3,391	0	152,460	1	0/0/1	5	30,492.00	3.04

Table 52: 20 Transfers (Total 319648)

From	To	Volume	Percent of From
Carlow	Kildare	24,595	39.69
Carlow	Kilkenny	10,608	17.12
Carlow	Laois	26,765	43.19
Dublin	Meath	8,710	0.60
Laois	Offaly	3,874	4.22
Longford	Westmeath	18,547	39.67
Longford	Roscommon	27,979	59.85
Longford	Cavan	225	0.48
Wexford	Waterford	16,097	9.82
Wicklow	Dublin	3,391	2.18
Clare	Limerick	7,002	5.47
Kerry	Limerick	12,998	8.31
Tipperary	Offaly	24,435	14.55
Galway	Offaly	3,309	1.19
Leitrim	Roscommon	528	1.50
Leitrim	Sligo	34,671	98.50
Mayo	Roscommon	16,002	11.60
Donegal	Sligo	14,624	8.75
Monaghan	Louth	3,757	5.75
Monaghan	Cavan	61,531	94.25

Figure 18: Sol17 (174 seats, 38 constituencies, 20 transfers, 29,611.96 persons per TD,  $\Delta_{max}$  900 (3.04% of 29,592), weighted variation 2.32%)

### 3.18 Solution Sol18

Table 53: Solution 18

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol18	174	950	3.21	6.42	28,642.00	30,542.00	29,615.51	675,837.94	2.53	23	317,698	38	0/16/22	4.58	Optimal	0.18	0.0093

Table 54: Counties

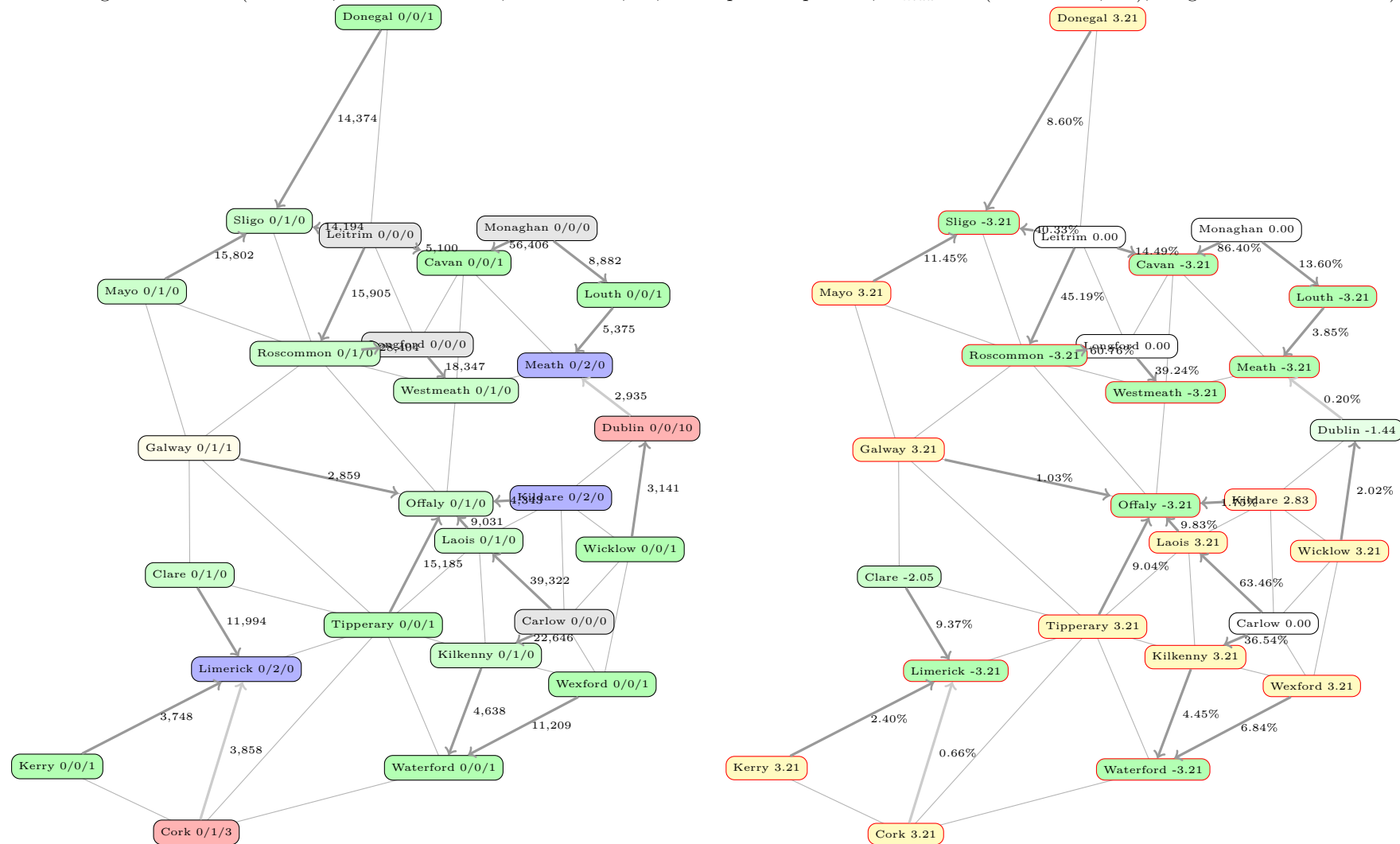
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	61,506	143,210	1	0/0/1	5	28,642.00	-3.21
Clare	127,938	4.32	11,994	0	115,944	1	0/1/0	4	28,986.00	-2.05
Cork	584,156	19.74	3,858	0	580,298	4	0/1/3	19	30,542.00	3.21
Donegal	167,084	5.65	14,374	0	152,710	1	0/0/1	5	30,542.00	3.21
Dublin	1,458,154	49.28	2,935	3,141	1,458,360	10	0/0/10	50	29,167.20	-1.44
Galway	277,737	9.39	2,859	0	274,878	2	0/1/1	9	30,542.00	3.21
Kerry	156,458	5.29	3,748	0	152,710	1	0/0/1	5	30,542.00	3.21
Kildare	247,774	8.37	4,343	0	243,431	2	0/2/0	8	30,428.88	2.83
Kilkenny	104,160	3.52	4,638	22,646	122,168	1	0/1/0	4	30,542.00	3.21
Laois	91,877	3.10	9,031	39,322	122,168	1	0/1/0	4	30,542.00	3.21
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	19,600	229,136	2	0/2/0	8	28,642.00	-3.21
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	5,375	8,882	143,210	1	0/0/1	5	28,642.00	-3.21
Mayo	137,970	4.66	15,802	0	122,168	1	0/1/0	4	30,542.00	3.21
Meath	220,826	7.46	0	8,310	229,136	2	0/2/0	8	28,642.00	-3.21
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	31,418	114,568	1	0/1/0	4	28,642.00	-3.21
Roscommon	70,259	2.37	0	44,309	114,568	1	0/1/0	4	28,642.00	-3.21
Sligo	70,198	2.37	0	44,370	114,568	1	0/1/0	4	28,642.00	-3.21
Tipperary	167,895	5.67	15,185	0	152,710	1	0/0/1	5	30,542.00	3.21
Waterford	127,363	4.30	0	15,847	143,210	1	0/0/1	5	28,642.00	-3.21

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	18,347	114,568	1	0/1/0	4	28,642.00	-3.21
Wexford	163,919	5.54	11,209	0	152,710	1	0/0/1	5	30,542.00	3.21
Wicklow	155,851	5.27	3,141	0	152,710	1	0/0/1	5	30,542.00	3.21

Table 55: 23 Transfers (Total 317698)

From	To	Volume	Percent of From
Carlow	Kilkenny	22,646	36.54
Carlow	Laois	39,322	63.46
Dublin	Meath	2,935	0.20
Kildare	Offaly	4,343	1.75
Kilkenny	Waterford	4,638	4.45
Laois	Offaly	9,031	9.83
Longford	Westmeath	18,347	39.24
Longford	Roscommon	28,404	60.76
Louth	Meath	5,375	3.85
Wexford	Waterford	11,209	6.84
Wicklow	Dublin	3,141	2.02
Clare	Limerick	11,994	9.37
Cork	Limerick	3,858	0.66
Kerry	Limerick	3,748	2.40
Tipperary	Offaly	15,185	9.04
Galway	Offaly	2,859	1.03
Leitrim	Roscommon	15,905	45.19
Leitrim	Sligo	14,194	40.33
Leitrim	Cavan	5,100	14.49
Mayo	Sligo	15,802	11.45
Donegal	Sligo	14,374	8.60
Monaghan	Louth	8,882	13.60
Monaghan	Cavan	56,406	86.40



Figure 19: Sol18 (174 seats, 38 constituencies, 23 transfers, 29,615.51 persons per TD,  $\Delta_{max}$  950 (3.21% of 29,592), weighted variation 2.53%)

### 3.19 Solution Sol19

Table 56: Solution 19

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol19	174	1,000	3.38	6.76	28,592.00	30,592.00	29,615.23	663,835.57	2.24	22	315,488	38	0/16/22	4.58	Optimal	0.15	0.0098

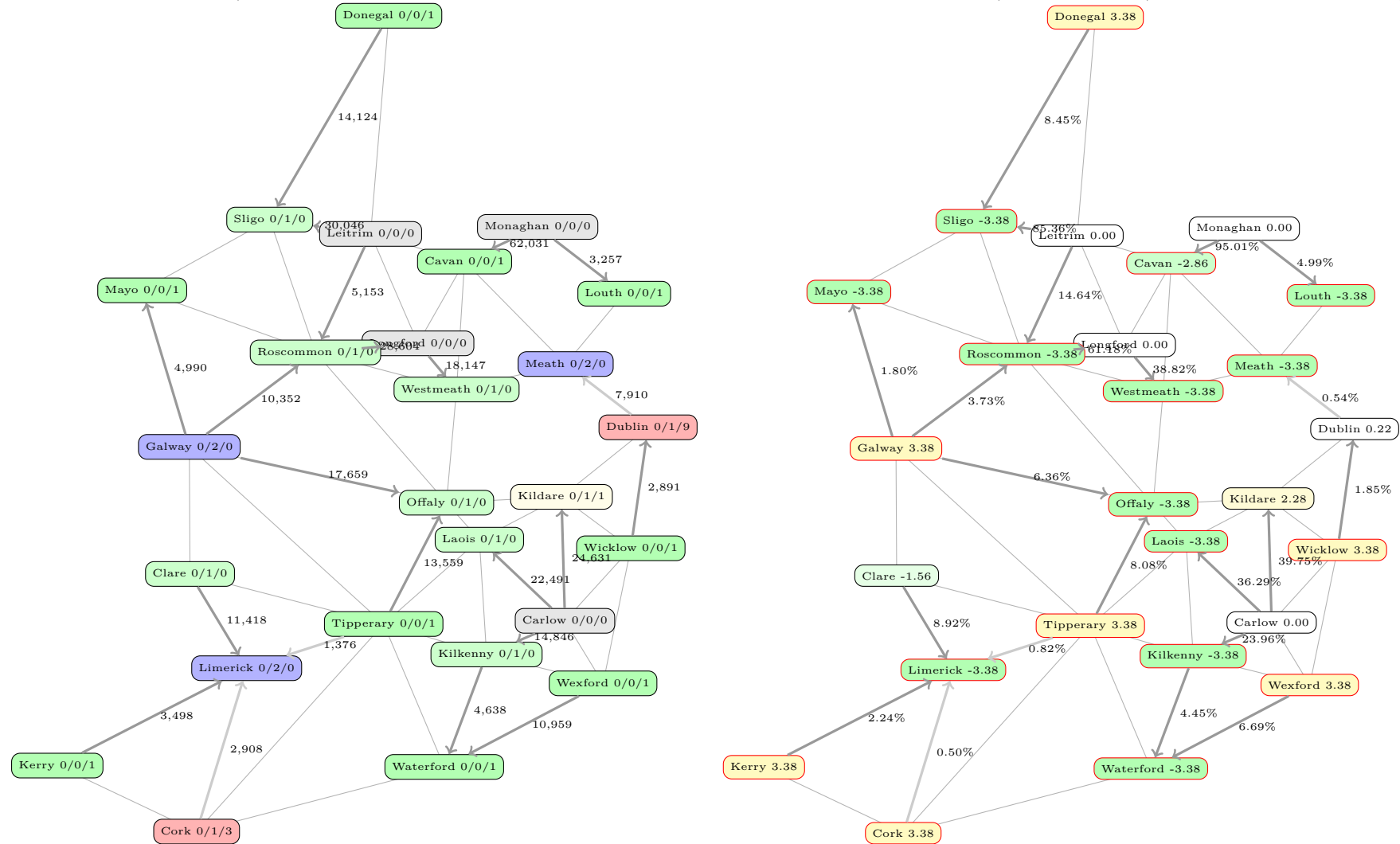
Table 57: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	62,031	143,735	1	0/0/1	5	28,747.00	-2.86
Clare	127,938	4.32	11,418	0	116,520	1	0/1/0	4	29,130.00	-1.56
Cork	584,156	19.74	2,908	0	581,248	4	0/1/3	19	30,592.00	3.38
Donegal	167,084	5.65	14,124	0	152,960	1	0/0/1	5	30,592.00	3.38
Dublin	1,458,154	49.28	7,910	2,891	1,453,135	10	0/1/9	49	29,655.82	0.22
Galway	277,737	9.39	33,001	0	244,736	2	0/2/0	8	30,592.00	3.38
Kerry	156,458	5.29	3,498	0	152,960	1	0/0/1	5	30,592.00	3.38
Kildare	247,774	8.37	0	24,631	272,405	2	0/1/1	9	30,267.22	2.28
Kilkenny	104,160	3.52	4,638	14,846	114,368	1	0/1/0	4	28,592.00	-3.38
Laois	91,877	3.10	0	22,491	114,368	1	0/1/0	4	28,592.00	-3.38
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	19,200	228,736	2	0/2/0	8	28,592.00	-3.38
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	3,257	142,960	1	0/0/1	5	28,592.00	-3.38
Mayo	137,970	4.66	0	4,990	142,960	1	0/0/1	5	28,592.00	-3.38
Meath	220,826	7.46	0	7,910	228,736	2	0/2/0	8	28,592.00	-3.38
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	31,218	114,368	1	0/1/0	4	28,592.00	-3.38
Roscommon	70,259	2.37	0	44,109	114,368	1	0/1/0	4	28,592.00	-3.38
Sligo	70,198	2.37	0	44,170	114,368	1	0/1/0	4	28,592.00	-3.38
Tipperary	167,895	5.67	14,935	0	152,960	1	0/0/1	5	30,592.00	3.38
Waterford	127,363	4.30	0	15,597	142,960	1	0/0/1	5	28,592.00	-3.38

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	18,147	114,368	1	0/1/0	4	28,592.00	-3.38
Wexford	163,919	5.54	10,959	0	152,960	1	0/0/1	5	30,592.00	3.38
Wicklow	155,851	5.27	2,891	0	152,960	1	0/0/1	5	30,592.00	3.38

Table 58: 22 Transfers (Total 315488)

From	To	Volume	Percent of From
Carlow	Kildare	24,631	39.75
Carlow	Kilkenny	14,846	23.96
Carlow	Laois	22,491	36.29
Dublin	Meath	7,910	0.54
Kilkenny	Waterford	4,638	4.45
Longford	Westmeath	18,147	38.82
Longford	Roscommon	28,604	61.18
Wexford	Waterford	10,959	6.69
Wicklow	Dublin	2,891	1.85
Clare	Limerick	11,418	8.92
Cork	Limerick	2,908	0.50
Kerry	Limerick	3,498	2.24
Tipperary	Offaly	13,559	8.08
Tipperary	Limerick	1,376	0.82
Galway	Offaly	17,659	6.36
Galway	Mayo	4,990	1.80
Galway	Roscommon	10,352	3.73
Leitrim	Roscommon	5,153	14.64
Leitrim	Sligo	30,046	85.36
Donegal	Sligo	14,124	8.45
Monaghan	Louth	3,257	4.99
Monaghan	Cavan	62,031	95.01

Figure 20: Sol19 (174 seats, 38 constituencies, 22 transfers, 29,615.23 persons per TD,  $\Delta_{max}$  1,000 (3.38% of 29,592), weighted variation 2.24%)

### 3.20 Solution Sol20

Table 59: Solution 20

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol20	174	1,050	3.55	7.10	28,542.00	30,642.00	29,613.98	626,823.17	2.24	20	313,138	38	0/16/22	4.58	Optimal	0.15	0.0030

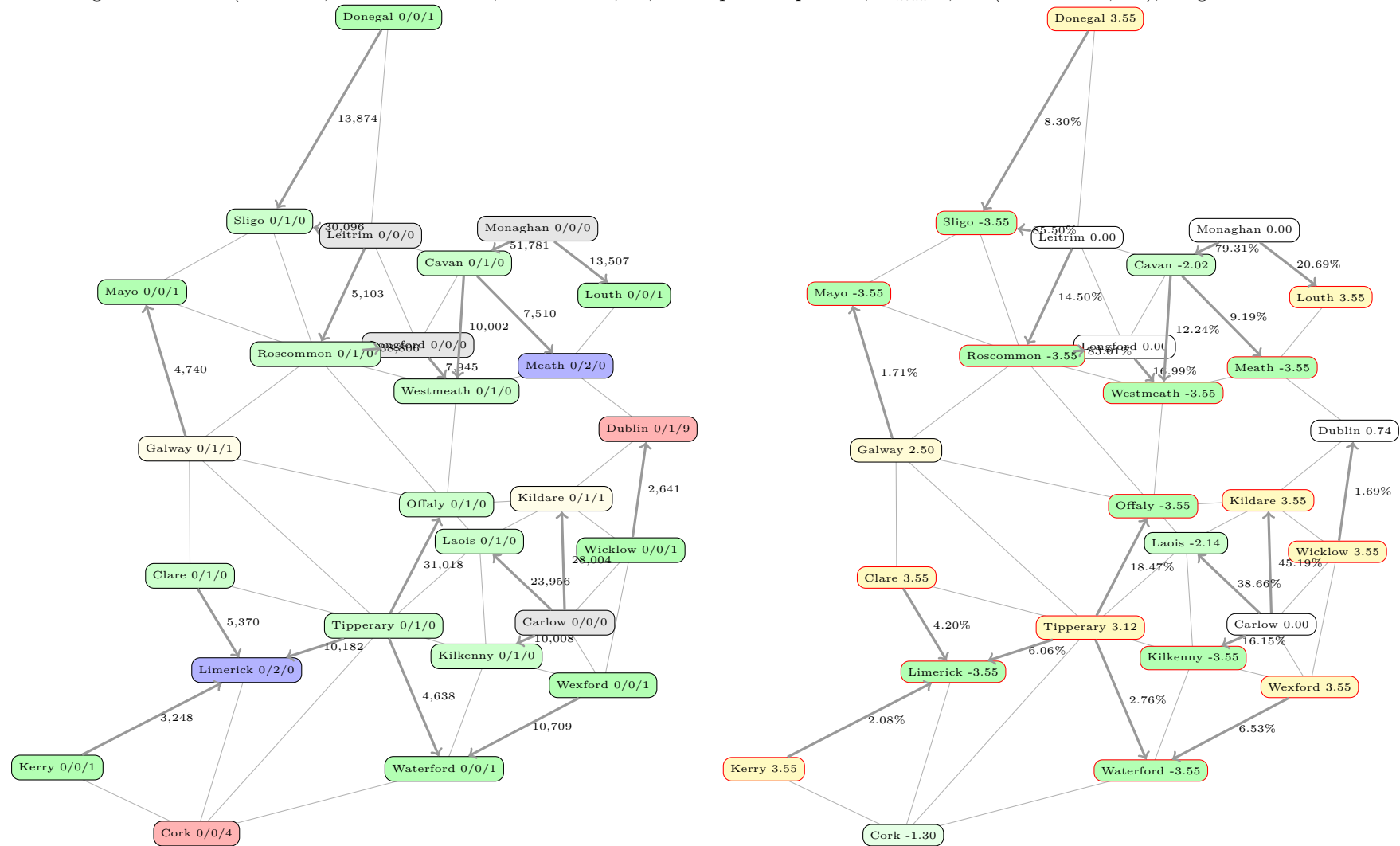
Table 60: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	17,512	51,781	115,973	1	0/1/0	4	28,993.25	-2.02
Clare	127,938	4.32	5,370	0	122,568	1	0/1/0	4	30,642.00	3.55
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	13,874	0	153,210	1	0/0/1	5	30,642.00	3.55
Dublin	1,458,154	49.28	0	2,641	1,460,795	10	0/1/9	49	29,812.14	0.74
Galway	277,737	9.39	4,740	0	272,997	2	0/1/1	9	30,333.00	2.50
Kerry	156,458	5.29	3,248	0	153,210	1	0/0/1	5	30,642.00	3.55
Kildare	247,774	8.37	0	28,004	275,778	2	0/1/1	9	30,642.00	3.55
Kilkenny	104,160	3.52	0	10,008	114,168	1	0/1/0	4	28,542.00	-3.55
Laois	91,877	3.10	0	23,956	115,833	1	0/1/0	4	28,958.25	-2.14
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	18,800	228,336	2	0/2/0	8	28,542.00	-3.55
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	13,507	153,210	1	0/0/1	5	30,642.00	3.55
Mayo	137,970	4.66	0	4,740	142,710	1	0/0/1	5	28,542.00	-3.55
Meath	220,826	7.46	0	7,510	228,336	2	0/2/0	8	28,542.00	-3.55
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	31,018	114,168	1	0/1/0	4	28,542.00	-3.55
Roscommon	70,259	2.37	0	43,909	114,168	1	0/1/0	4	28,542.00	-3.55
Sligo	70,198	2.37	0	43,970	114,168	1	0/1/0	4	28,542.00	-3.55
Tipperary	167,895	5.67	45,838	0	122,057	1	0/1/0	4	30,514.25	3.12
Waterford	127,363	4.30	0	15,347	142,710	1	0/0/1	5	28,542.00	-3.55

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	17,947	114,168	1	0/1/0	4	28,542.00	-3.55
Wexford	163,919	5.54	10,709	0	153,210	1	0/0/1	5	30,642.00	3.55
Wicklow	155,851	5.27	2,641	0	153,210	1	0/0/1	5	30,642.00	3.55

Table 61: 20 Transfers (Total 313138)

From	To	Volume	Percent of From
Carlow	Kildare	28,004	45.19
Carlow	Kilkenny	10,008	16.15
Carlow	Laois	23,956	38.66
Longford	Westmeath	7,945	16.99
Longford	Roscommon	38,806	83.01
Wexford	Waterford	10,709	6.53
Wicklow	Dublin	2,641	1.69
Clare	Limerick	5,370	4.20
Kerry	Limerick	3,248	2.08
Tipperary	Offaly	31,018	18.47
Tipperary	Limerick	10,182	6.06
Tipperary	Waterford	4,638	2.76
Galway	Mayo	4,740	1.71
Leitrim	Roscommon	5,103	14.50
Leitrim	Sligo	30,096	85.50
Cavan	Meath	7,510	9.19
Cavan	Westmeath	10,002	12.24
Donegal	Sligo	13,874	8.30
Monaghan	Louth	13,507	20.69
Monaghan	Cavan	51,781	79.31

Figure 21: Sol20 (174 seats, 38 constituencies, 20 transfers, 29,613.98 persons per TD,  $\Delta_{max}$  1,050 (3.55% of 29,592), weighted variation 2.24%)

### 3.21 Solution Sol21

Table 62: Solution 21

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol21	174	1,100	3.72	7.43	28,492.00	30,692.00	29,615.06	658,320.25	2.08	21	310,745	38	0/16/22	4.58	Optimal	0.16	0.0067

Table 63: Counties

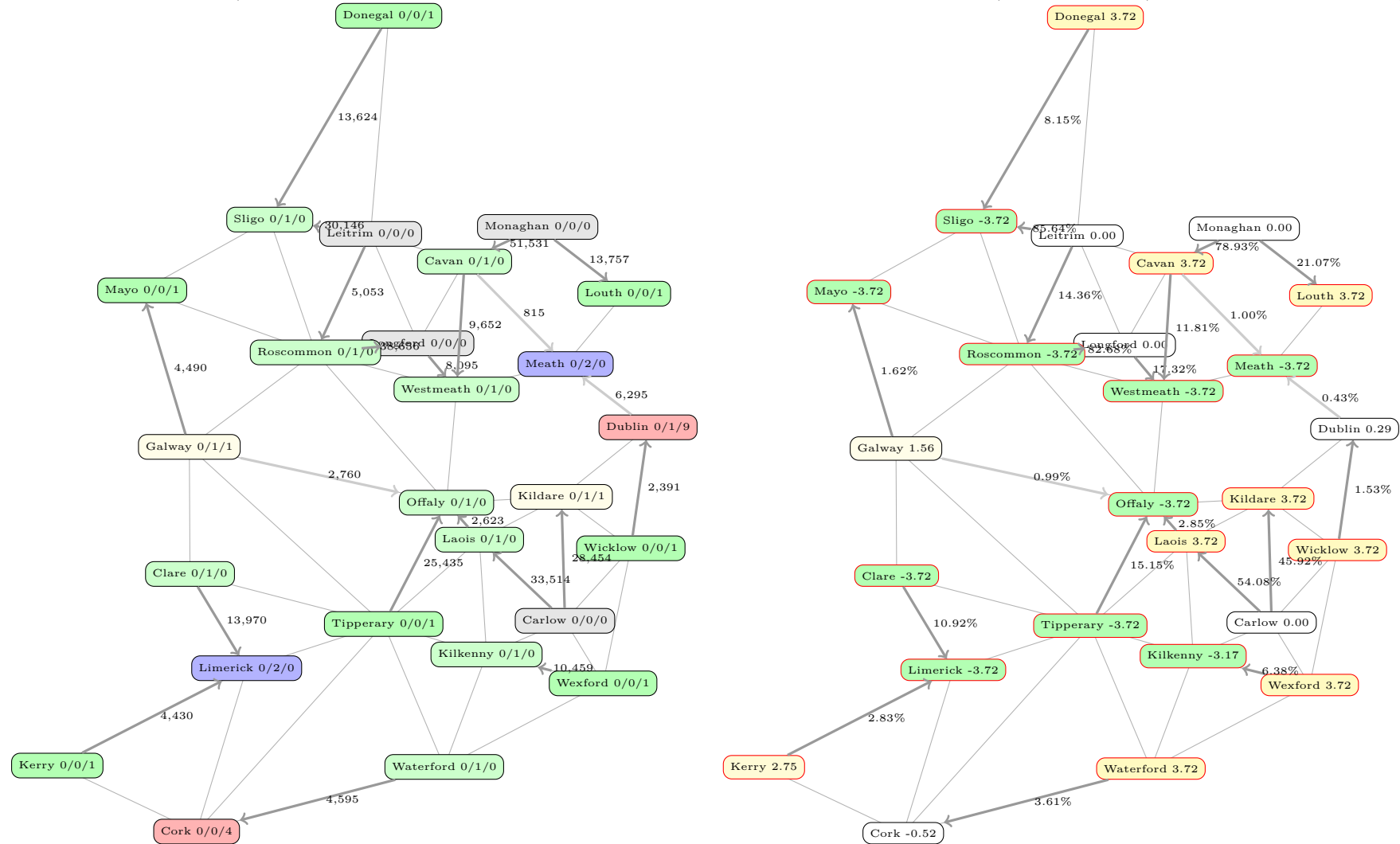
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	10,467	51,531	122,768	1	0/1/0	4	30,692.00	3.72
Clare	127,938	4.32	13,970	0	113,968	1	0/1/0	4	28,492.00	-3.72
Cork	584,156	19.74	0	4,595	588,751	4	0/0/4	20	29,437.55	-0.52
Donegal	167,084	5.65	13,624	0	153,460	1	0/0/1	5	30,692.00	3.72
Dublin	1,458,154	49.28	6,295	2,391	1,454,250	10	0/1/9	49	29,678.57	0.29
Galway	277,737	9.39	7,250	0	270,487	2	0/1/1	9	30,054.11	1.56
Kerry	156,458	5.29	4,430	0	152,028	1	0/0/1	5	30,405.60	2.75
Kildare	247,774	8.37	0	28,454	276,228	2	0/1/1	9	30,692.00	3.72
Kilkenny	104,160	3.52	0	10,459	114,619	1	0/1/0	4	28,654.75	-3.17
Laois	91,877	3.10	2,623	33,514	122,768	1	0/1/0	4	30,692.00	3.72
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	18,400	227,936	2	0/2/0	8	28,492.00	-3.72
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	13,757	153,460	1	0/0/1	5	30,692.00	3.72
Mayo	137,970	4.66	0	4,490	142,460	1	0/0/1	5	28,492.00	-3.72
Meath	220,826	7.46	0	7,110	227,936	2	0/2/0	8	28,492.00	-3.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	30,818	113,968	1	0/1/0	4	28,492.00	-3.72
Roscommon	70,259	2.37	0	43,709	113,968	1	0/1/0	4	28,492.00	-3.72
Sligo	70,198	2.37	0	43,770	113,968	1	0/1/0	4	28,492.00	-3.72
Tipperary	167,895	5.67	25,435	0	142,460	1	0/0/1	5	28,492.00	-3.72
Waterford	127,363	4.30	4,595	0	122,768	1	0/1/0	4	30,692.00	3.72



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	17,747	113,968	1	0/1/0	4	28,492.00	-3.72
Wexford	163,919	5.54	10,459	0	153,460	1	0/0/1	5	30,692.00	3.72
Wicklow	155,851	5.27	2,391	0	153,460	1	0/0/1	5	30,692.00	3.72

Table 64: 21 Transfers (Total 310745)

From	To	Volume	Percent of From
Carlow	Kildare	28,454	45.92
Carlow	Laois	33,514	54.08
Dublin	Meath	6,295	0.43
Laois	Offaly	2,623	2.85
Longford	Westmeath	8,095	17.32
Longford	Roscommon	38,656	82.68
Wexford	Kilkenny	10,459	6.38
Wicklow	Dublin	2,391	1.53
Clare	Limerick	13,970	10.92
Kerry	Limerick	4,430	2.83
Tipperary	Offaly	25,435	15.15
Waterford	Cork	4,595	3.61
Galway	Offaly	2,760	0.99
Galway	Mayo	4,490	1.62
Leitrim	Roscommon	5,053	14.36
Leitrim	Sligo	30,146	85.64
Cavan	Meath	815	1.00
Cavan	Westmeath	9,652	11.81
Donegal	Sligo	13,624	8.15
Monaghan	Louth	13,757	21.07
Monaghan	Cavan	51,531	78.93

Figure 22: Sol21 (174 seats, 38 constituencies, 21 transfers, 29,615.06 persons per TD,  $\Delta_{max}$  1,100 (3.72% of 29,592), weighted variation 2.08%)

### 3.22 Solution Sol22

Table 65: Solution 22

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol22	174	1,150	3.89	7.77	28,442.00	30,742.00	29,622.43	873,213.46	2.79	19	308,195	38	0/16/22	4.58	Optimal	0.20	0.0060

Table 66: Counties

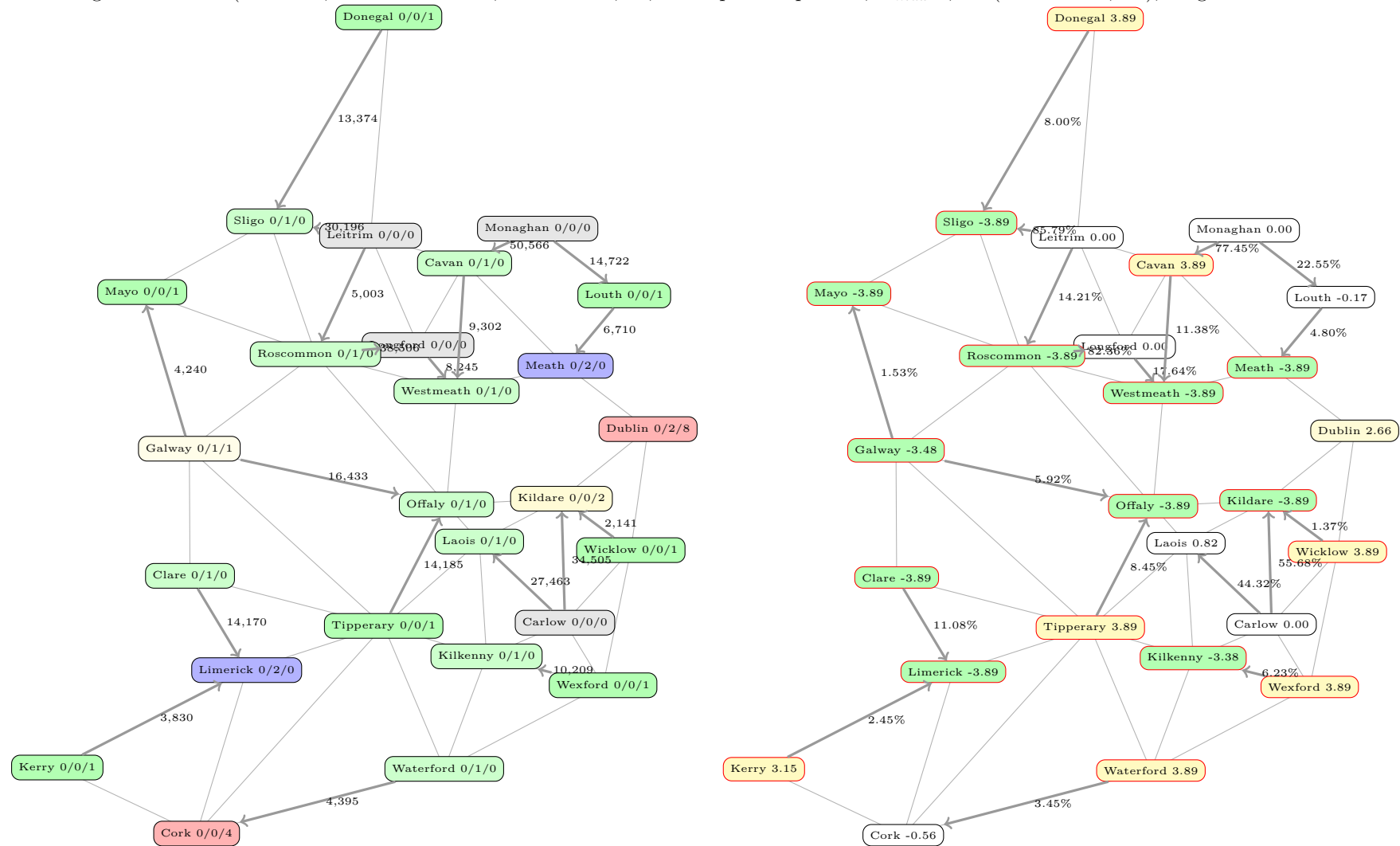
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	9,302	50,566	122,968	1	0/1/0	4	30,742.00	3.89
Clare	127,938	4.32	14,170	0	113,768	1	0/1/0	4	28,442.00	-3.89
Cork	584,156	19.74	0	4,395	588,551	4	0/0/4	20	29,427.55	-0.56
Donegal	167,084	5.65	13,374	0	153,710	1	0/0/1	5	30,742.00	3.89
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/2/8	48	30,378.21	2.66
Galway	277,737	9.39	20,673	0	257,064	2	0/1/1	9	28,562.67	-3.48
Kerry	156,458	5.29	3,830	0	152,628	1	0/0/1	5	30,525.60	3.15
Kildare	247,774	8.37	0	36,646	284,420	2	0/0/2	10	28,442.00	-3.89
Kilkenny	104,160	3.52	0	10,209	114,369	1	0/1/0	4	28,592.25	-3.38
Laois	91,877	3.10	0	27,463	119,340	1	0/1/0	4	29,835.00	0.82
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	18,000	227,536	2	0/2/0	8	28,442.00	-3.89
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	6,710	14,722	147,715	1	0/0/1	5	29,543.00	-0.17
Mayo	137,970	4.66	0	4,240	142,210	1	0/0/1	5	28,442.00	-3.89
Meath	220,826	7.46	0	6,710	227,536	2	0/2/0	8	28,442.00	-3.89
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	30,618	113,768	1	0/1/0	4	28,442.00	-3.89
Roscommon	70,259	2.37	0	43,509	113,768	1	0/1/0	4	28,442.00	-3.89
Sligo	70,198	2.37	0	43,570	113,768	1	0/1/0	4	28,442.00	-3.89
Tipperary	167,895	5.67	14,185	0	153,710	1	0/0/1	5	30,742.00	3.89
Waterford	127,363	4.30	4,395	0	122,968	1	0/1/0	4	30,742.00	3.89

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	17,547	113,768	1	0/1/0	4	28,442.00	-3.89
Wexford	163,919	5.54	10,209	0	153,710	1	0/0/1	5	30,742.00	3.89
Wicklow	155,851	5.27	2,141	0	153,710	1	0/0/1	5	30,742.00	3.89

Table 67: 19 Transfers (Total 308195)

From	To	Volume	Percent of From
Carlow	Kildare	34,505	55.68
Carlow	Laois	27,463	44.32
Longford	Westmeath	8,245	17.64
Longford	Roscommon	38,506	82.36
Louth	Meath	6,710	4.80
Wexford	Kilkenny	10,209	6.23
Wicklow	Kildare	2,141	1.37
Clare	Limerick	14,170	11.08
Kerry	Limerick	3,830	2.45
Tipperary	Offaly	14,185	8.45
Waterford	Cork	4,395	3.45
Galway	Offaly	16,433	5.92
Galway	Mayo	4,240	1.53
Leitrim	Roscommon	5,003	14.21
Leitrim	Sligo	30,196	85.79
Cavan	Westmeath	9,302	11.38
Donegal	Sligo	13,374	8.00
Monaghan	Louth	14,722	22.55
Monaghan	Cavan	50,566	77.45

Figure 23: Sol22 (174 seats, 38 constituencies, 19 transfers, 29,622.43 persons per TD,  $\Delta_{max}$  1,150 (3.89% of 29,592), weighted variation 2.79%)



### 3.23 Solution Sol23

Table 68: Solution 23

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol23	174	1,200	4.06	8.11	28,392.00	30,792.00	29,618.61	762,080.80	2.26	21	305,645	38	0/16/22	4.58	Optimal	0.13	0.0048

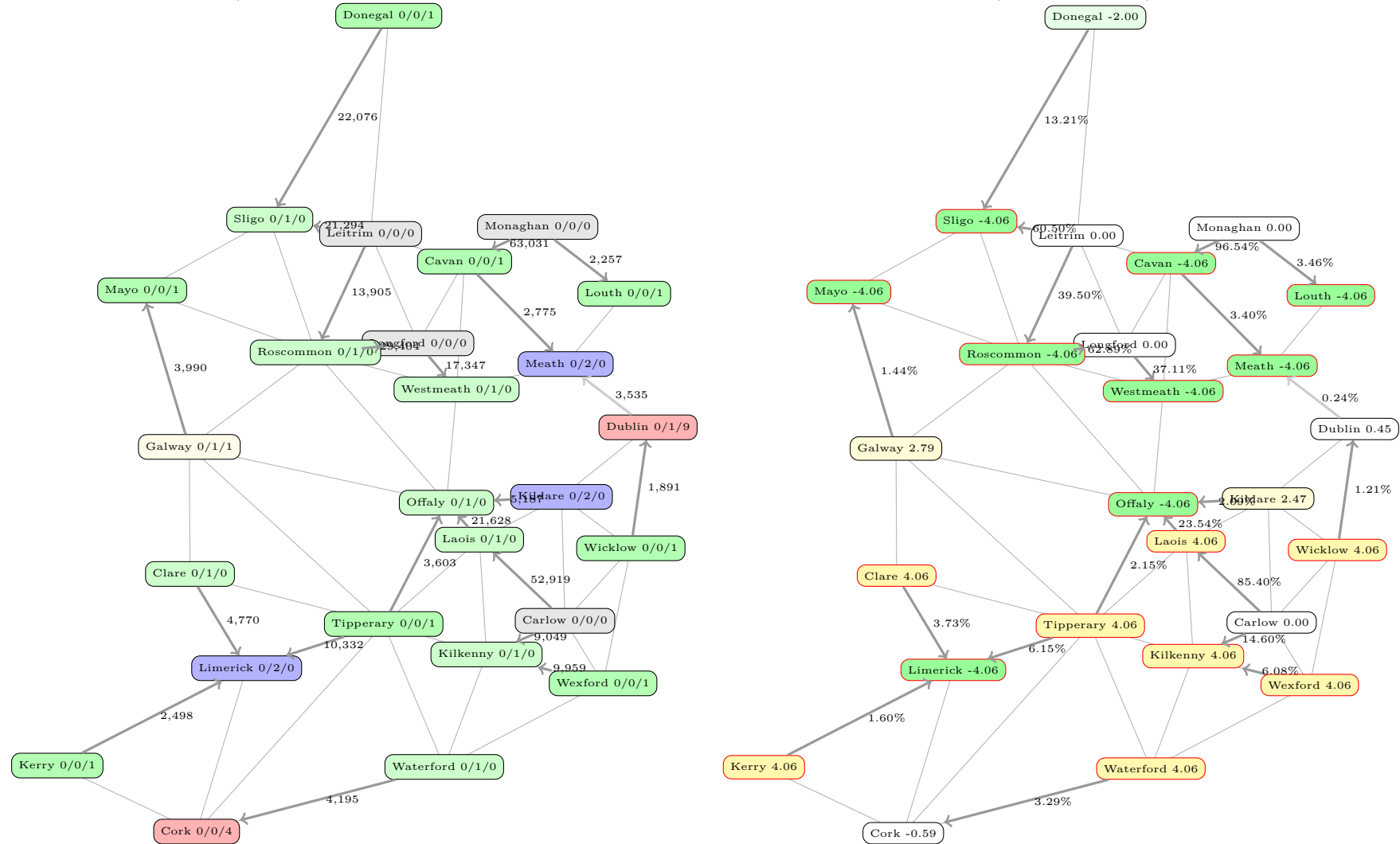
Table 69: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	2,775	63,031	141,960	1	0/0/1	5	28,392.00	-4.06
Clare	127,938	4.32	4,770	0	123,168	1	0/1/0	4	30,792.00	4.06
Cork	584,156	19.74	0	4,195	588,351	4	0/0/4	20	29,417.55	-0.59
Donegal	167,084	5.65	22,076	0	145,008	1	0/0/1	5	29,001.60	-2.00
Dublin	1,458,154	49.28	3,535	1,891	1,456,510	10	0/1/9	49	29,724.69	0.45
Galway	277,737	9.39	3,990	0	273,747	2	0/1/1	9	30,416.33	2.79
Kerry	156,458	5.29	2,498	0	153,960	1	0/0/1	5	30,792.00	4.06
Kildare	247,774	8.37	5,187	0	242,587	2	0/2/0	8	30,323.38	2.47
Kilkenny	104,160	3.52	0	19,008	123,168	1	0/1/0	4	30,792.00	4.06
Laois	91,877	3.10	21,628	52,919	123,168	1	0/1/0	4	30,792.00	4.06
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	17,600	227,136	2	0/2/0	8	28,392.00	-4.06
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	2,257	141,960	1	0/0/1	5	28,392.00	-4.06
Mayo	137,970	4.66	0	3,990	141,960	1	0/0/1	5	28,392.00	-4.06
Meath	220,826	7.46	0	6,310	227,136	2	0/2/0	8	28,392.00	-4.06
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	30,418	113,568	1	0/1/0	4	28,392.00	-4.06
Roscommon	70,259	2.37	0	43,309	113,568	1	0/1/0	4	28,392.00	-4.06
Sligo	70,198	2.37	0	43,370	113,568	1	0/1/0	4	28,392.00	-4.06
Tipperary	167,895	5.67	13,935	0	153,960	1	0/0/1	5	30,792.00	4.06
Waterford	127,363	4.30	4,195	0	123,168	1	0/1/0	4	30,792.00	4.06

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	17,347	113,568	1	0/1/0	4	28,392.00	-4.06
Wexford	163,919	5.54	9,959	0	153,960	1	0/0/1	5	30,792.00	4.06
Wicklow	155,851	5.27	1,891	0	153,960	1	0/0/1	5	30,792.00	4.06

Table 70: 21 Transfers (Total 305645)

From	To	Volume	Percent of From
Carlow	Kilkenny	9,049	14.60
Carlow	Laois	52,919	85.40
Dublin	Meath	3,535	0.24
Kildare	Offaly	5,187	2.09
Laois	Offaly	21,628	23.54
Longford	Westmeath	17,347	37.11
Longford	Roscommon	29,404	62.89
Wexford	Kilkenny	9,959	6.08
Wicklow	Dublin	1,891	1.21
Clare	Limerick	4,770	3.73
Kerry	Limerick	2,498	1.60
Tipperary	Offaly	3,603	2.15
Tipperary	Limerick	10,332	6.15
Waterford	Cork	4,195	3.29
Galway	Mayo	3,990	1.44
Leitrim	Roscommon	13,905	39.50
Leitrim	Sligo	21,294	60.50
Cavan	Meath	2,775	3.40
Donegal	Sligo	22,076	13.21
Monaghan	Louth	2,257	3.46
Monaghan	Cavan	63,031	96.54

Figure 24: Sol23 (174 seats, 38 constituencies, 21 transfers, 29,618.61 persons per TD,  $\Delta_{max}$  1,200 (4.06% of 29,592), weighted variation 2.26%)



### 3.24 Solution Sol24

Table 71: Solution 24

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol24	174	1,250	4.22	8.45	28,342.00	30,842.00	29,620.91	831,477.56	2.45	18	303,095	38	0/16/22	4.58	Optimal	0.14	0.0000

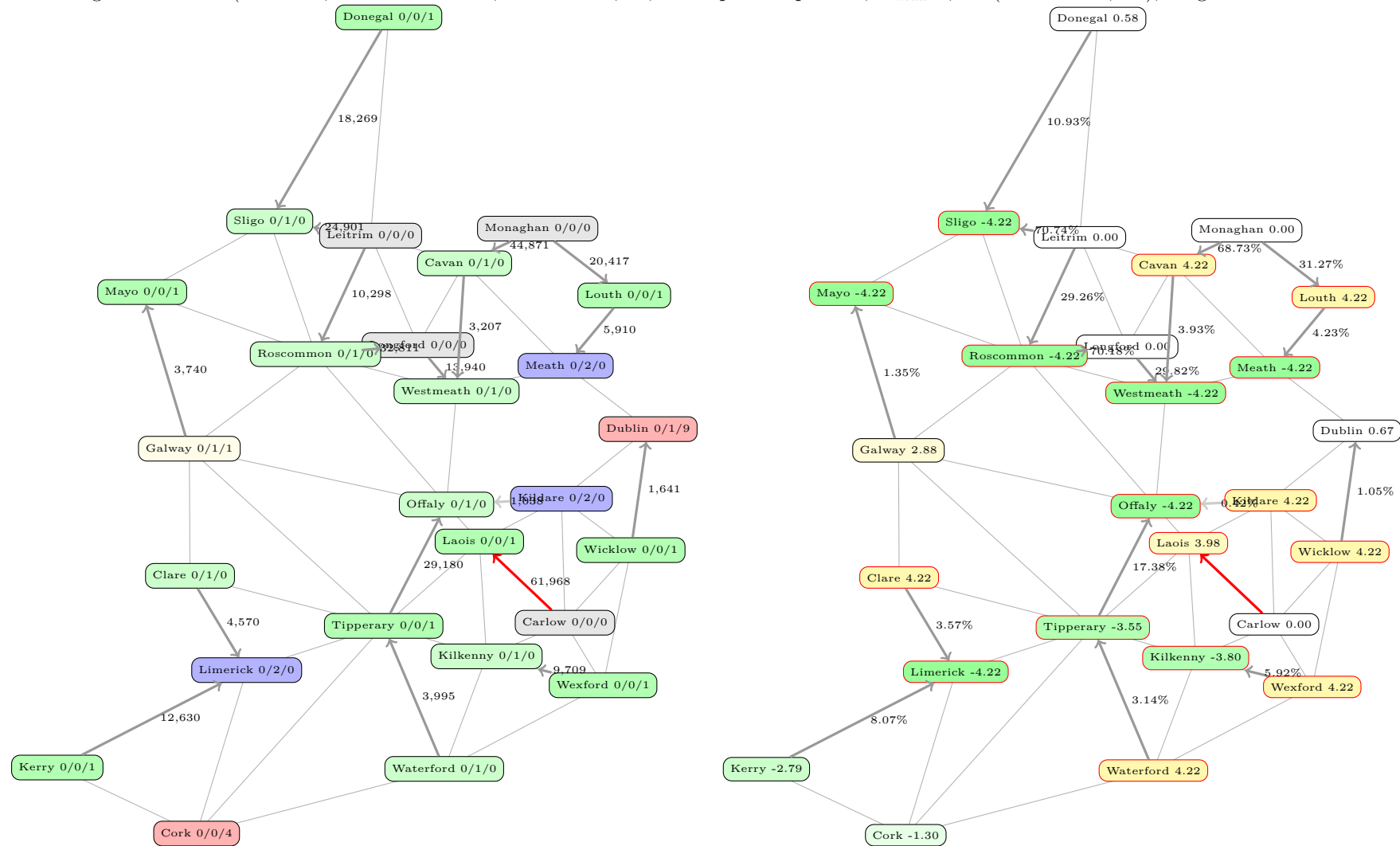
Table 72: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	3,207	44,871	123,368	1	0/1/0	4	30,842.00	4.22
Clare	127,938	4.32	4,570	0	123,368	1	0/1/0	4	30,842.00	4.22
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	18,269	0	148,815	1	0/0/1	5	29,763.00	0.58
Dublin	1,458,154	49.28	0	1,641	1,459,795	10	0/1/9	49	29,791.73	0.67
Galway	277,737	9.39	3,740	0	273,997	2	0/1/1	9	30,444.11	2.88
Kerry	156,458	5.29	12,630	0	143,828	1	0/0/1	5	28,765.60	-2.79
Kildare	247,774	8.37	1,038	0	246,736	2	0/2/0	8	30,842.00	4.22
Kilkenny	104,160	3.52	0	9,709	113,869	1	0/1/0	4	28,467.25	-3.80
Laois	91,877	3.10	0	61,968	153,845	1	0/0/1	5	30,769.00	3.98
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	17,200	226,736	2	0/2/0	8	28,342.00	-4.22
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	5,910	20,417	154,210	1	0/0/1	5	30,842.00	4.22
Mayo	137,970	4.66	0	3,740	141,710	1	0/0/1	5	28,342.00	-4.22
Meath	220,826	7.46	0	5,910	226,736	2	0/2/0	8	28,342.00	-4.22
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	30,218	113,368	1	0/1/0	4	28,342.00	-4.22
Roscommon	70,259	2.37	0	43,109	113,368	1	0/1/0	4	28,342.00	-4.22
Sligo	70,198	2.37	0	43,170	113,368	1	0/1/0	4	28,342.00	-4.22
Tipperary	167,895	5.67	29,180	3,995	142,710	1	0/0/1	5	28,542.00	-3.55
Waterford	127,363	4.30	3,995	0	123,368	1	0/1/0	4	30,842.00	4.22

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	17,147	113,368	1	0/1/0	4	28,342.00	-4.22
Wexford	163,919	5.54	9,709	0	154,210	1	0/0/1	5	30,842.00	4.22
Wicklow	155,851	5.27	1,641	0	154,210	1	0/0/1	5	30,842.00	4.22

Table 73: 18 Transfers (Total 303095)

From	To	Volume	Percent of From
Carlow	Laois	61,968	100.00
Kildare	Offaly	1,038	0.42
Longford	Westmeath	13,940	29.82
Longford	Roscommon	32,811	70.18
Louth	Meath	5,910	4.23
Wexford	Kilkenny	9,709	5.92
Wicklow	Dublin	1,641	1.05
Clare	Limerick	4,570	3.57
Kerry	Limerick	12,630	8.07
Tipperary	Offaly	29,180	17.38
Waterford	Tipperary	3,995	3.14
Galway	Mayo	3,740	1.35
Leitrim	Roscommon	10,298	29.26
Leitrim	Sligo	24,901	70.74
Cavan	Westmeath	3,207	3.93
Donegal	Sligo	18,269	10.93
Monaghan	Louth	20,417	31.27
Monaghan	Cavan	44,871	68.73

Figure 25: Sol24 (174 seats, 38 constituencies, 18 transfers, 29,620.91 persons per TD,  $\Delta_{max}$  1,250 (4.22% of 29,592), weighted variation 2.45%)

### 3.25 Solution Sol25

Table 74: Solution 25

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol25	174	1,300	4.39	8.79	28,292.00	30,892.00	29,622.15	866,531.21	2.45	18	300,545	38	0/16/22	4.58	Optimal	0.13	0.0066

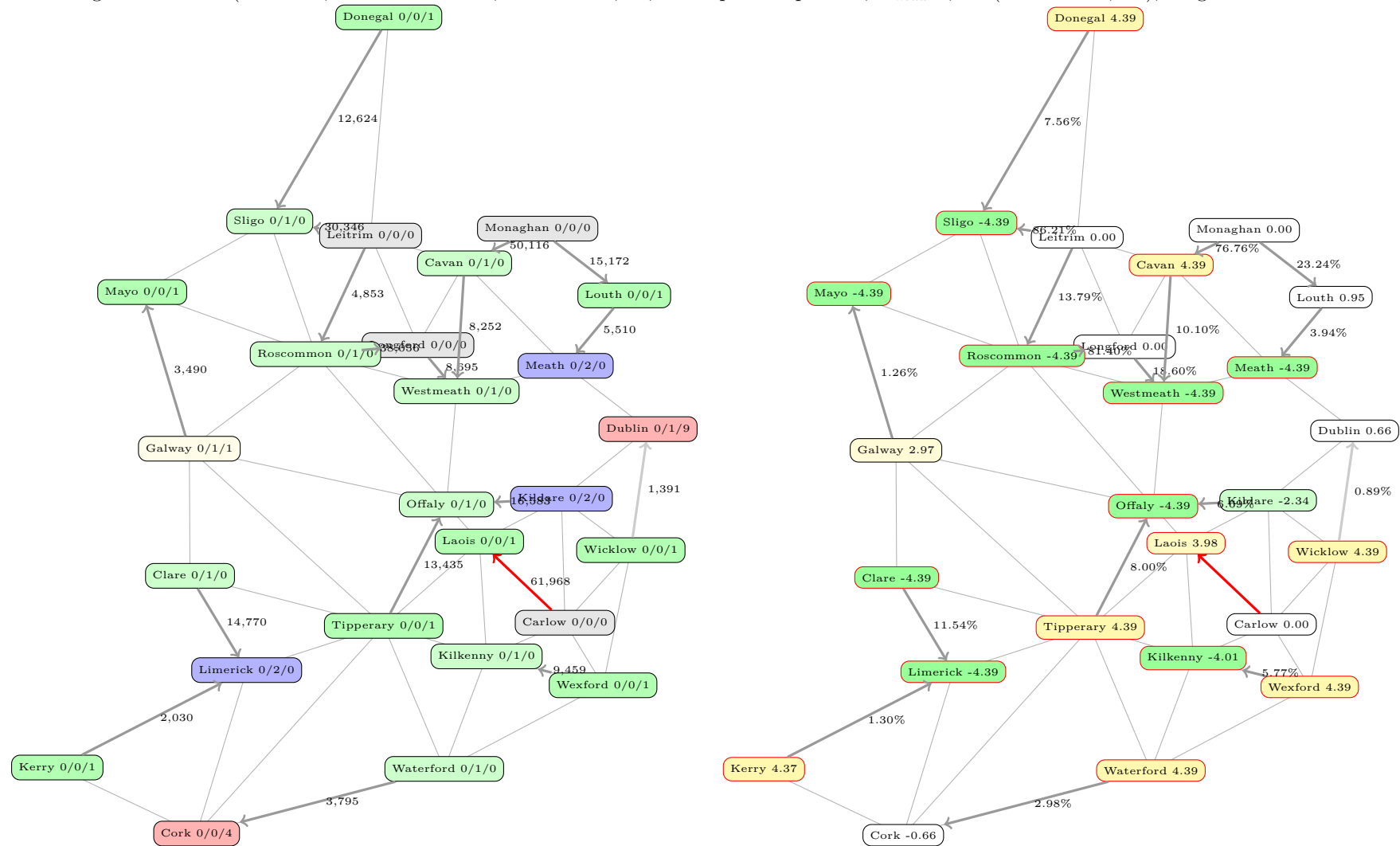
Table 75: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	8,252	50,116	123,568	1	0/1/0	4	30,892.00	4.39
Clare	127,938	4.32	14,770	0	113,168	1	0/1/0	4	28,292.00	-4.39
Cork	584,156	19.74	0	3,795	587,951	4	0/0/4	20	29,397.55	-0.66
Donegal	167,084	5.65	12,624	0	154,460	1	0/0/1	5	30,892.00	4.39
Dublin	1,458,154	49.28	0	1,391	1,459,545	10	0/1/9	49	29,786.63	0.66
Galway	277,737	9.39	3,490	0	274,247	2	0/1/1	9	30,471.89	2.97
Kerry	156,458	5.29	2,030	0	154,428	1	0/0/1	5	30,885.60	4.37
Kildare	247,774	8.37	16,583	0	231,191	2	0/2/0	8	28,898.88	-2.34
Kilkenny	104,160	3.52	0	9,459	113,619	1	0/1/0	4	28,404.75	-4.01
Laois	91,877	3.10	0	61,968	153,845	1	0/0/1	5	30,769.00	3.98
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	16,800	226,336	2	0/2/0	8	28,292.00	-4.39
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	5,510	15,172	149,365	1	0/0/1	5	29,873.00	0.95
Mayo	137,970	4.66	0	3,490	141,460	1	0/0/1	5	28,292.00	-4.39
Meath	220,826	7.46	0	5,510	226,336	2	0/2/0	8	28,292.00	-4.39
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	30,018	113,168	1	0/1/0	4	28,292.00	-4.39
Roscommon	70,259	2.37	0	42,909	113,168	1	0/1/0	4	28,292.00	-4.39
Sligo	70,198	2.37	0	42,970	113,168	1	0/1/0	4	28,292.00	-4.39
Tipperary	167,895	5.67	13,435	0	154,460	1	0/0/1	5	30,892.00	4.39
Waterford	127,363	4.30	3,795	0	123,568	1	0/1/0	4	30,892.00	4.39

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	16,947	113,168	1	0/1/0	4	28,292.00	-4.39
Wexford	163,919	5.54	9,459	0	154,460	1	0/0/1	5	30,892.00	4.39
Wicklow	155,851	5.27	1,391	0	154,460	1	0/0/1	5	30,892.00	4.39

Table 76: 18 Transfers (Total 300545)

From	To	Volume	Percent of From
Carlow	Laois	61,968	100.00
Kildare	Offaly	16,583	6.69
Longford	Westmeath	8,695	18.60
Longford	Roscommon	38,056	81.40
Louth	Meath	5,510	3.94
Wexford	Kilkenny	9,459	5.77
Wicklow	Dublin	1,391	0.89
Clare	Limerick	14,770	11.54
Kerry	Limerick	2,030	1.30
Tipperary	Offaly	13,435	8.00
Waterford	Cork	3,795	2.98
Galway	Mayo	3,490	1.26
Leitrim	Roscommon	4,853	13.79
Leitrim	Sligo	30,346	86.21
Cavan	Westmeath	8,252	10.10
Donegal	Sligo	12,624	7.56
Monaghan	Louth	15,172	23.24
Monaghan	Cavan	50,116	76.76

Figure 26: Sol25 (174 seats, 38 constituencies, 18 transfers, 29,622.15 persons per TD,  $\Delta_{max}$  1,300 (4.39% of 29,592), weighted variation 2.45%)

### 3.26 Solution Sol26

Table 77: Solution 26

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol26	174	1,350	4.56	9.12	28,242.00	30,942.00	29,630.85	1,130,160.19	3.17	21	297,995	38	0/16/22	4.58	Optimal	0.16	0.0080

Table 78: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	63,781	145,485	1	0/0/1	5	29,097.00	-1.67
Clare	127,938	4.32	4,170	0	123,768	1	0/1/0	4	30,942.00	4.56
Cork	584,156	19.74	3,604	0	580,552	4	0/1/3	19	30,555.37	3.26
Donegal	167,084	5.65	20,276	0	146,808	1	0/0/1	5	29,361.60	-0.78
Dublin	1,458,154	49.28	5,110	1,141	1,454,185	10	0/0/10	50	29,083.70	-1.72
Galway	277,737	9.39	3,240	0	274,497	2	0/1/1	9	30,499.67	3.07
Kerry	156,458	5.29	1,748	0	154,710	1	0/0/1	5	30,942.00	4.56
Kildare	247,774	8.37	23,511	23,273	247,536	2	0/2/0	8	30,942.00	4.56
Kilkenny	104,160	3.52	0	19,608	123,768	1	0/1/0	4	30,942.00	4.56
Laois	91,877	3.10	0	31,891	123,768	1	0/1/0	4	30,942.00	4.56
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	16,400	225,936	2	0/2/0	8	28,242.00	-4.56
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	1,507	141,210	1	0/0/1	5	28,242.00	-4.56
Mayo	137,970	4.66	0	3,240	141,210	1	0/0/1	5	28,242.00	-4.56
Meath	220,826	7.46	0	5,110	225,936	2	0/2/0	8	28,242.00	-4.56
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	29,818	112,968	1	0/1/0	4	28,242.00	-4.56
Roscommon	70,259	2.37	0	42,709	112,968	1	0/1/0	4	28,242.00	-4.56
Sligo	70,198	2.37	0	42,770	112,968	1	0/1/0	4	28,242.00	-4.56
Tipperary	167,895	5.67	13,185	0	154,710	1	0/0/1	5	30,942.00	4.56
Waterford	127,363	4.30	3,595	0	123,768	1	0/1/0	4	30,942.00	4.56

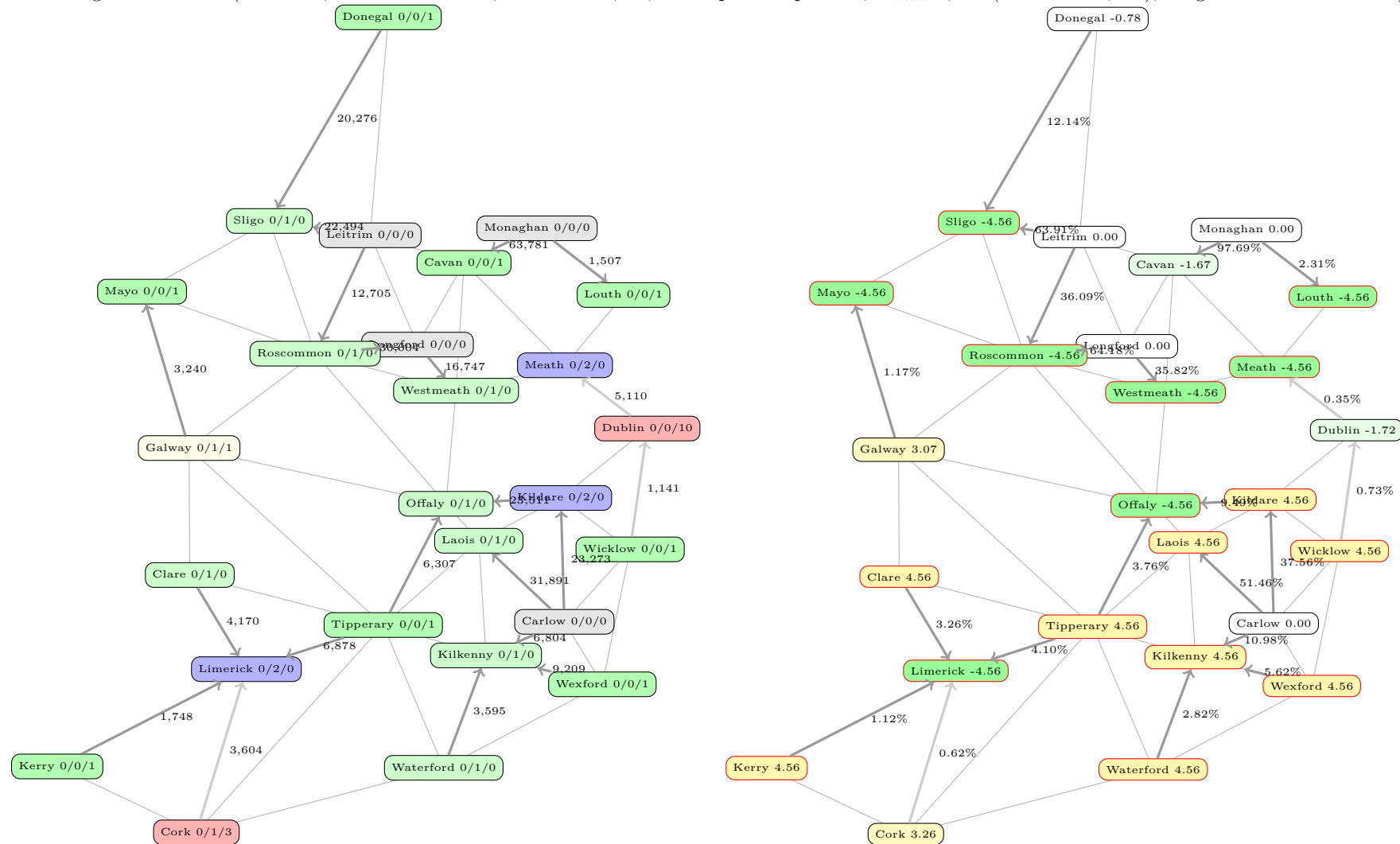
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	16,747	112,968	1	0/1/0	4	28,242.00	-4.56
Wexford	163,919	5.54	9,209	0	154,710	1	0/0/1	5	30,942.00	4.56
Wicklow	155,851	5.27	1,141	0	154,710	1	0/0/1	5	30,942.00	4.56

Table 79: 21 Transfers (Total 297995)

From	To	Volume	Percent of From
Carlow	Kildare	23,273	37.56
Carlow	Kilkenny	6,804	10.98
Carlow	Laois	31,891	51.46
Dublin	Meath	5,110	0.35
Kildare	Offaly	23,511	9.49
Longford	Westmeath	16,747	35.82
Longford	Roscommon	30,004	64.18
Wexford	Kilkenny	9,209	5.62
Wicklow	Dublin	1,141	0.73
Clare	Limerick	4,170	3.26
Cork	Limerick	3,604	0.62
Kerry	Limerick	1,748	1.12
Tipperary	Offaly	6,307	3.76
Tipperary	Limerick	6,878	4.10
Waterford	Kilkenny	3,595	2.82
Galway	Mayo	3,240	1.17
Leitrim	Roscommon	12,705	36.09
Leitrim	Sligo	22,494	63.91
Donegal	Sligo	20,276	12.14
Monaghan	Louth	1,507	2.31
Monaghan	Cavan	63,781	97.69



Figure 27: Sol26 (174 seats, 38 constituencies, 21 transfers, 29,630.85 persons per TD,  $\Delta_{max}$  1,350 (4.56% of 29,592), weighted variation 3.17%)



### 3.27 Solution Sol27

Table 80: Solution 27

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol27	174	1,400	4.73	9.46	28,192.00	30,992.00	29,628.22	1,045,563.89	2.67	19	295,445	38	0/16/22	4.58	Optimal	0.14	0.0089

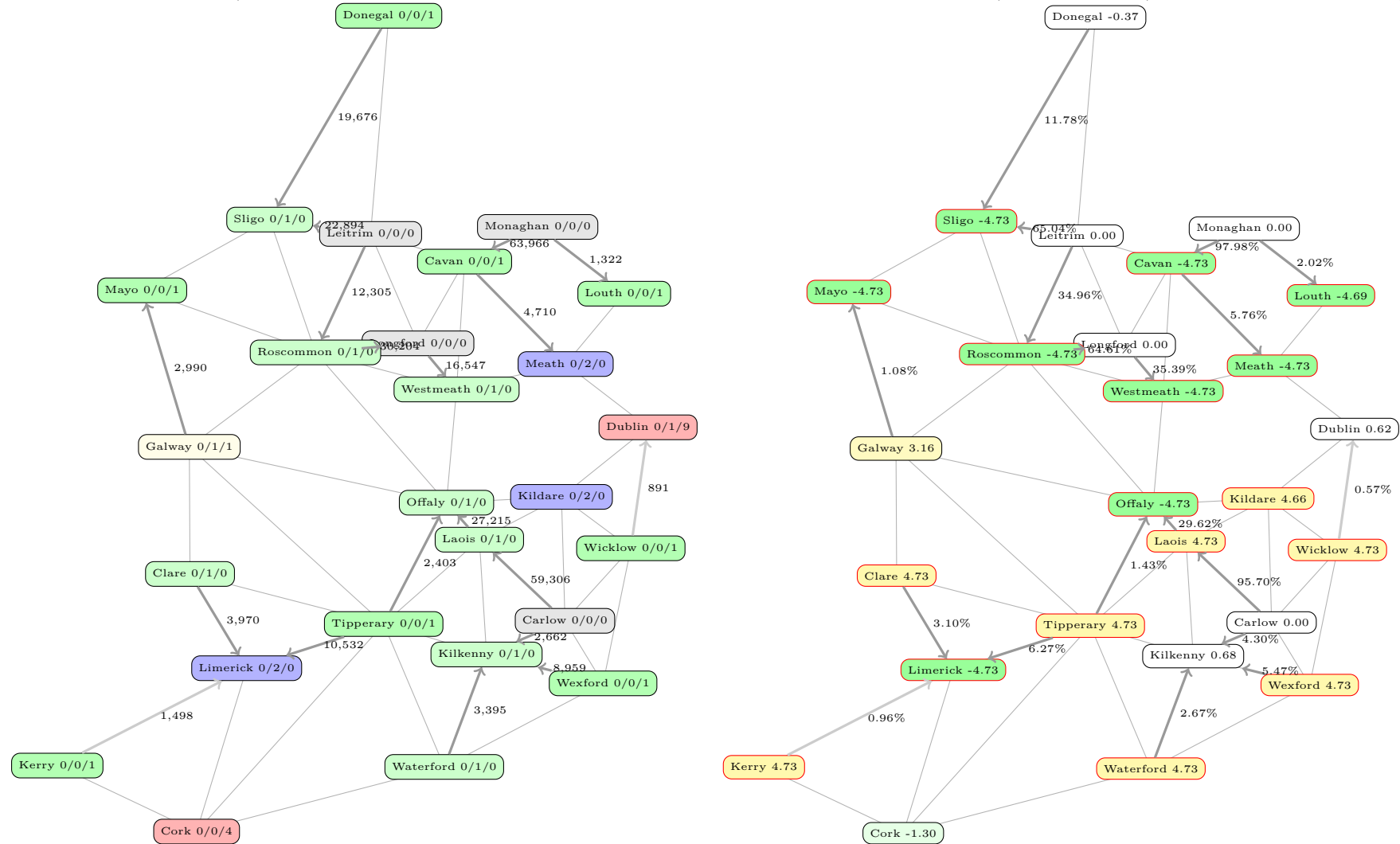
Table 81: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	4,710	63,966	140,960	1	0/0/1	5	28,192.00	-4.73
Clare	127,938	4.32	3,970	0	123,968	1	0/1/0	4	30,992.00	4.73
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	19,676	0	147,408	1	0/0/1	5	29,481.60	-0.37
Dublin	1,458,154	49.28	0	891	1,459,045	10	0/1/9	49	29,776.43	0.62
Galway	277,737	9.39	2,990	0	274,747	2	0/1/1	9	30,527.44	3.16
Kerry	156,458	5.29	1,498	0	154,960	1	0/0/1	5	30,992.00	4.73
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	15,016	119,176	1	0/1/0	4	29,794.00	0.68
Laois	91,877	3.10	27,215	59,306	123,968	1	0/1/0	4	30,992.00	4.73
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	16,000	225,536	2	0/2/0	8	28,192.00	-4.73
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	1,322	141,025	1	0/0/1	5	28,205.00	-4.69
Mayo	137,970	4.66	0	2,990	140,960	1	0/0/1	5	28,192.00	-4.73
Meath	220,826	7.46	0	4,710	225,536	2	0/2/0	8	28,192.00	-4.73
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	29,618	112,768	1	0/1/0	4	28,192.00	-4.73
Roscommon	70,259	2.37	0	42,509	112,768	1	0/1/0	4	28,192.00	-4.73
Sligo	70,198	2.37	0	42,570	112,768	1	0/1/0	4	28,192.00	-4.73
Tipperary	167,895	5.67	12,935	0	154,960	1	0/0/1	5	30,992.00	4.73
Waterford	127,363	4.30	3,395	0	123,968	1	0/1/0	4	30,992.00	4.73

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	16,547	112,768	1	0/1/0	4	28,192.00	-4.73
Wexford	163,919	5.54	8,959	0	154,960	1	0/0/1	5	30,992.00	4.73
Wicklow	155,851	5.27	891	0	154,960	1	0/0/1	5	30,992.00	4.73

Table 82: 19 Transfers (Total 295445)

From	To	Volume	Percent of From
Carlow	Kilkenny	2,662	4.30
Carlow	Laois	59,306	95.70
Laois	Offaly	27,215	29.62
Longford	Westmeath	16,547	35.39
Longford	Roscommon	30,204	64.61
Wexford	Kilkenny	8,959	5.47
Wicklow	Dublin	891	0.57
Clare	Limerick	3,970	3.10
Kerry	Limerick	1,498	0.96
Tipperary	Offaly	2,403	1.43
Tipperary	Limerick	10,532	6.27
Waterford	Kilkenny	3,395	2.67
Galway	Mayo	2,990	1.08
Leitrim	Roscommon	12,305	34.96
Leitrim	Sligo	22,894	65.04
Cavan	Meath	4,710	5.76
Donegal	Sligo	19,676	11.78
Monaghan	Louth	1,322	2.02
Monaghan	Cavan	63,966	97.98

Figure 28: Sol27 (174 seats, 38 constituencies, 19 transfers, 29,628.22 persons per TD,  $\Delta_{max}$  1,400 (4.73% of 29,592), weighted variation 2.67%)

### 3.28 Solution Sol28

Table 83: Solution 28

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol28	174	1,450	4.90	9.80	28,142.00	31,042.00	29,637.25	1,316,254.14	3.40	18	292,895	38	0/16/22	4.58	Optimal	0.14	0.0071

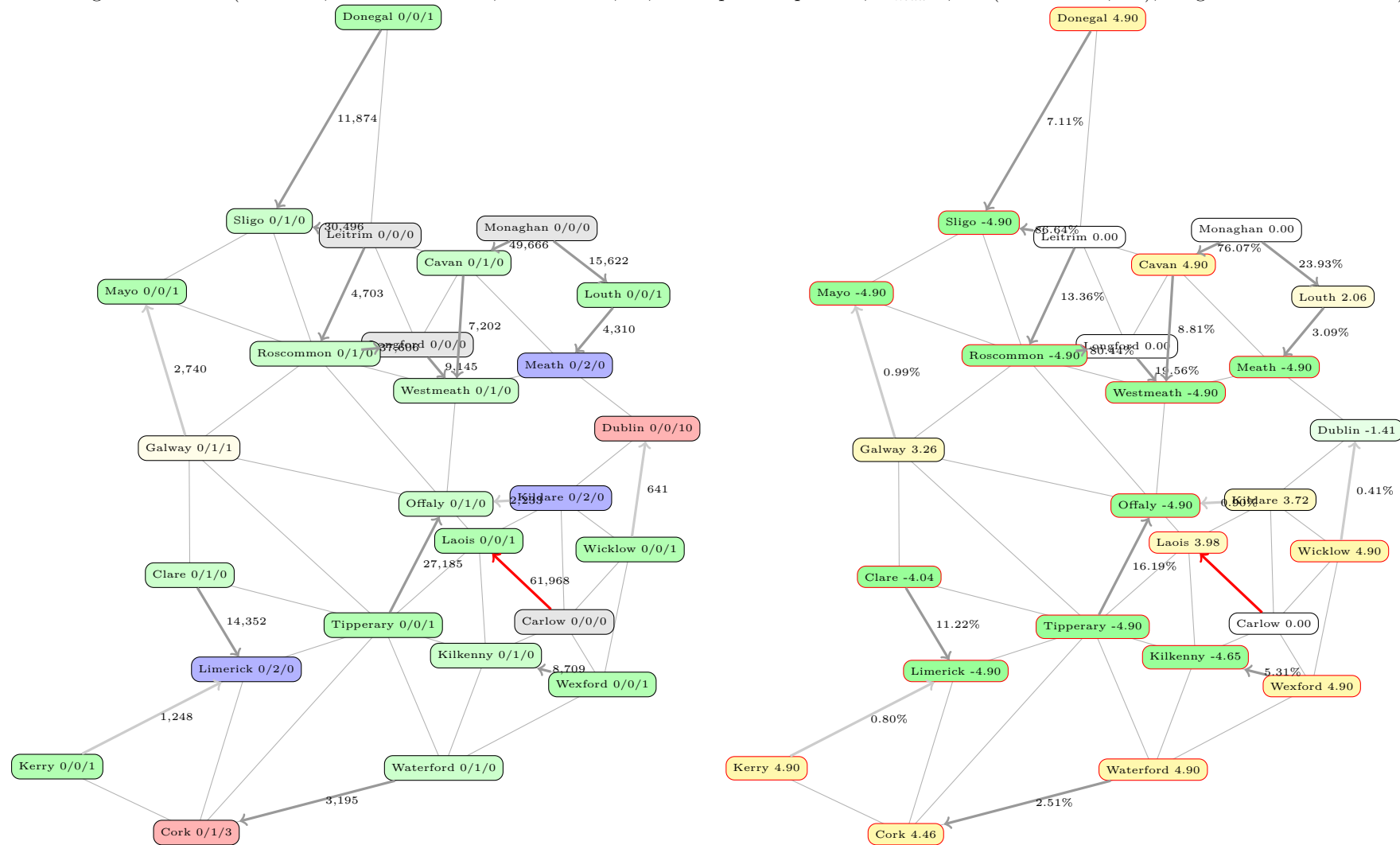
Table 84: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	7,202	49,666	124,168	1	0/1/0	4	31,042.00	4.90
Clare	127,938	4.32	14,352	0	113,586	1	0/1/0	4	28,396.50	-4.04
Cork	584,156	19.74	0	3,195	587,351	4	0/1/3	19	30,913.21	4.46
Donegal	167,084	5.65	11,874	0	155,210	1	0/0/1	5	31,042.00	4.90
Dublin	1,458,154	49.28	0	641	1,458,795	10	0/0/10	50	29,175.90	-1.41
Galway	277,737	9.39	2,740	0	274,997	2	0/1/1	9	30,555.22	3.26
Kerry	156,458	5.29	1,248	0	155,210	1	0/0/1	5	31,042.00	4.90
Kildare	247,774	8.37	2,233	0	245,541	2	0/2/0	8	30,692.63	3.72
Kilkenny	104,160	3.52	0	8,709	112,869	1	0/1/0	4	28,217.25	-4.65
Laois	91,877	3.10	0	61,968	153,845	1	0/0/1	5	30,769.00	3.98
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	15,600	225,136	2	0/2/0	8	28,142.00	-4.90
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	4,310	15,622	151,015	1	0/0/1	5	30,203.00	2.06
Mayo	137,970	4.66	0	2,740	140,710	1	0/0/1	5	28,142.00	-4.90
Meath	220,826	7.46	0	4,310	225,136	2	0/2/0	8	28,142.00	-4.90
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	29,418	112,568	1	0/1/0	4	28,142.00	-4.90
Roscommon	70,259	2.37	0	42,309	112,568	1	0/1/0	4	28,142.00	-4.90
Sligo	70,198	2.37	0	42,370	112,568	1	0/1/0	4	28,142.00	-4.90
Tipperary	167,895	5.67	27,185	0	140,710	1	0/0/1	5	28,142.00	-4.90
Waterford	127,363	4.30	3,195	0	124,168	1	0/1/0	4	31,042.00	4.90

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	16,347	112,568	1	0/1/0	4	28,142.00	-4.90
Wexford	163,919	5.54	8,709	0	155,210	1	0/0/1	5	31,042.00	4.90
Wicklow	155,851	5.27	641	0	155,210	1	0/0/1	5	31,042.00	4.90

Table 85: 18 Transfers (Total 292895)

From	To	Volume	Percent of From
Carlow	Laois	61,968	100.00
Kildare	Offaly	2,233	0.90
Longford	Westmeath	9,145	19.56
Longford	Roscommon	37,606	80.44
Louth	Meath	4,310	3.09
Wexford	Kilkenny	8,709	5.31
Wicklow	Dublin	641	0.41
Clare	Limerick	14,352	11.22
Kerry	Limerick	1,248	0.80
Tipperary	Offaly	27,185	16.19
Waterford	Cork	3,195	2.51
Galway	Mayo	2,740	0.99
Leitrim	Roscommon	4,703	13.36
Leitrim	Sligo	30,496	86.64
Cavan	Westmeath	7,202	8.81
Donegal	Sligo	11,874	7.11
Monaghan	Louth	15,622	23.93
Monaghan	Cavan	49,666	76.07

Figure 29: Sol28 (174 seats, 38 constituencies, 18 transfers, 29,637.25 persons per TD,  $\Delta_{max}$  1,450 (4.90% of 29,592), weighted variation 3.40%)

### 3.29 Solution Sol29

Table 86: Solution 29

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol29	174	1,500	5.07	10.14	28,092.00	31,092.00	29,640.22	1,408,665.62	3.50	19	290,345	38	0/16/22	4.58	Optimal	0.14	0.0099

Table 87: Counties

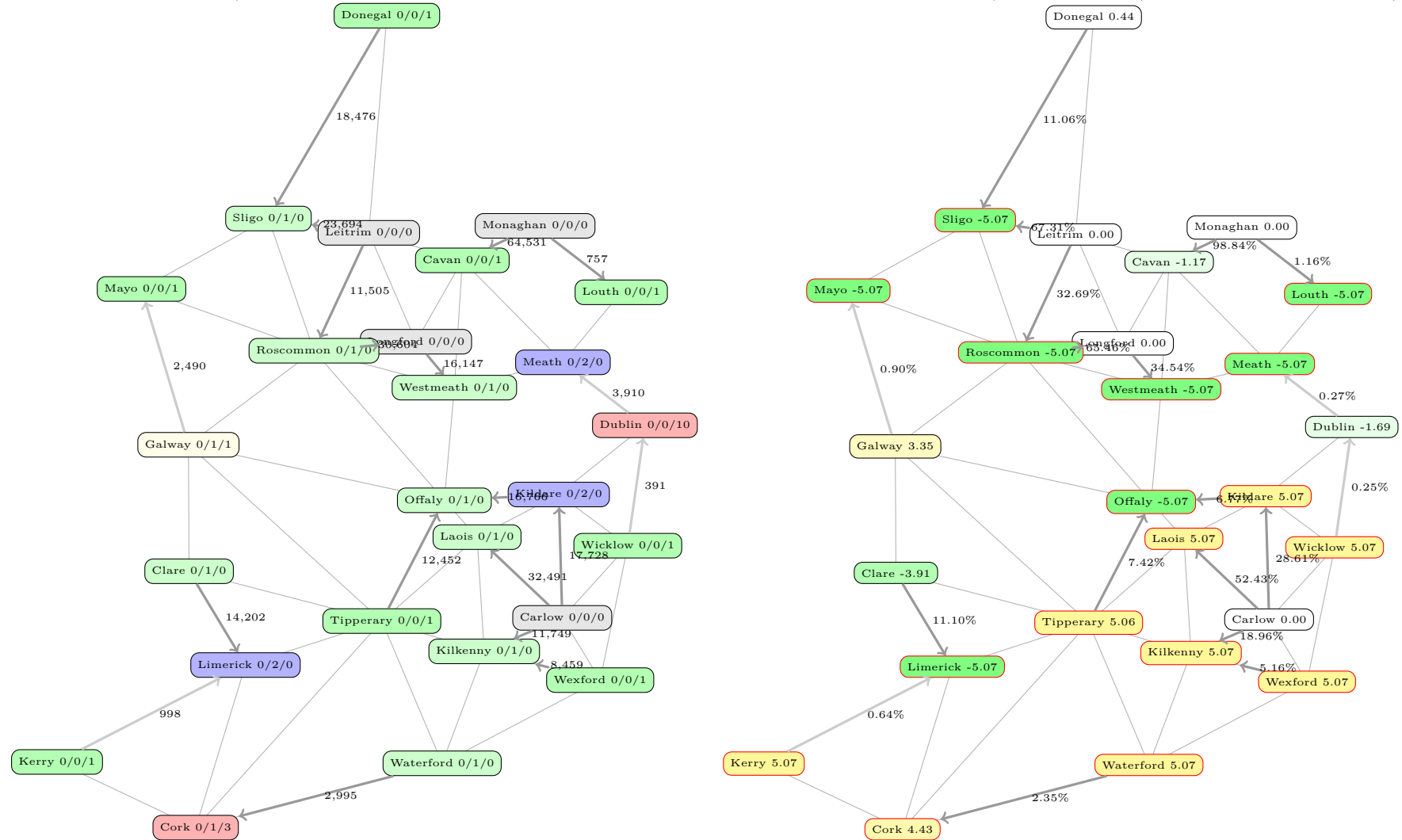
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	64,531	146,235	1	0/0/1	5	29,247.00	-1.17
Clare	127,938	4.32	14,202	0	113,736	1	0/1/0	4	28,434.00	-3.91
Cork	584,156	19.74	0	2,995	587,151	4	0/1/3	19	30,902.68	4.43
Donegal	167,084	5.65	18,476	0	148,608	1	0/0/1	5	29,721.60	0.44
Dublin	1,458,154	49.28	3,910	391	1,454,635	10	0/0/10	50	29,092.70	-1.69
Galway	277,737	9.39	2,490	0	275,247	2	0/1/1	9	30,583.00	3.35
Kerry	156,458	5.29	998	0	155,460	1	0/0/1	5	31,092.00	5.07
Kildare	247,774	8.37	16,766	17,728	248,736	2	0/2/0	8	31,092.00	5.07
Kilkenny	104,160	3.52	0	20,208	124,368	1	0/1/0	4	31,092.00	5.07
Laois	91,877	3.10	0	32,491	124,368	1	0/1/0	4	31,092.00	5.07
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	15,200	224,736	2	0/2/0	8	28,092.00	-5.07
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	757	140,460	1	0/0/1	5	28,092.00	-5.07
Mayo	137,970	4.66	0	2,490	140,460	1	0/0/1	5	28,092.00	-5.07
Meath	220,826	7.46	0	3,910	224,736	2	0/2/0	8	28,092.00	-5.07
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	29,218	112,368	1	0/1/0	4	28,092.00	-5.07
Roscommon	70,259	2.37	0	42,109	112,368	1	0/1/0	4	28,092.00	-5.07
Sligo	70,198	2.37	0	42,170	112,368	1	0/1/0	4	28,092.00	-5.07
Tipperary	167,895	5.67	12,452	0	155,443	1	0/0/1	5	31,088.60	5.06
Waterford	127,363	4.30	2,995	0	124,368	1	0/1/0	4	31,092.00	5.07



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	16,147	112,368	1	0/1/0	4	28,092.00	-5.07
Wexford	163,919	5.54	8,459	0	155,460	1	0/0/1	5	31,092.00	5.07
Wicklow	155,851	5.27	391	0	155,460	1	0/0/1	5	31,092.00	5.07

Table 88: 19 Transfers (Total 290345)

From	To	Volume	Percent of From
Carlow	Kildare	17,728	28.61
Carlow	Kilkenny	11,749	18.96
Carlow	Laois	32,491	52.43
Dublin	Meath	3,910	0.27
Kildare	Offaly	16,766	6.77
Longford	Westmeath	16,147	34.54
Longford	Roscommon	30,604	65.46
Wexford	Kilkenny	8,459	5.16
Wicklow	Dublin	391	0.25
Clare	Limerick	14,202	11.10
Kerry	Limerick	998	0.64
Tipperary	Offaly	12,452	7.42
Waterford	Cork	2,995	2.35
Galway	Mayo	2,490	0.90
Leitrim	Roscommon	11,505	32.69
Leitrim	Sligo	23,694	67.31
Donegal	Sligo	18,476	11.06
Monaghan	Louth	757	1.16
Monaghan	Cavan	64,531	98.84

Figure 30: Sol29 (174 seats, 38 constituencies, 19 transfers, 29,640.22 persons per TD,  $\Delta_{max}$  1,500 (5.07% of 29,592), weighted variation 3.50%)

### 3.30 Solution Sol30

Table 89: Solution 30

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol30	174	1,550	5.24	10.48	28,042.00	31,142.00	29,643.65	1,507,618.84	3.58	19	287,795	38	0/16/22	4.58	Optimal	0.12	0.0100

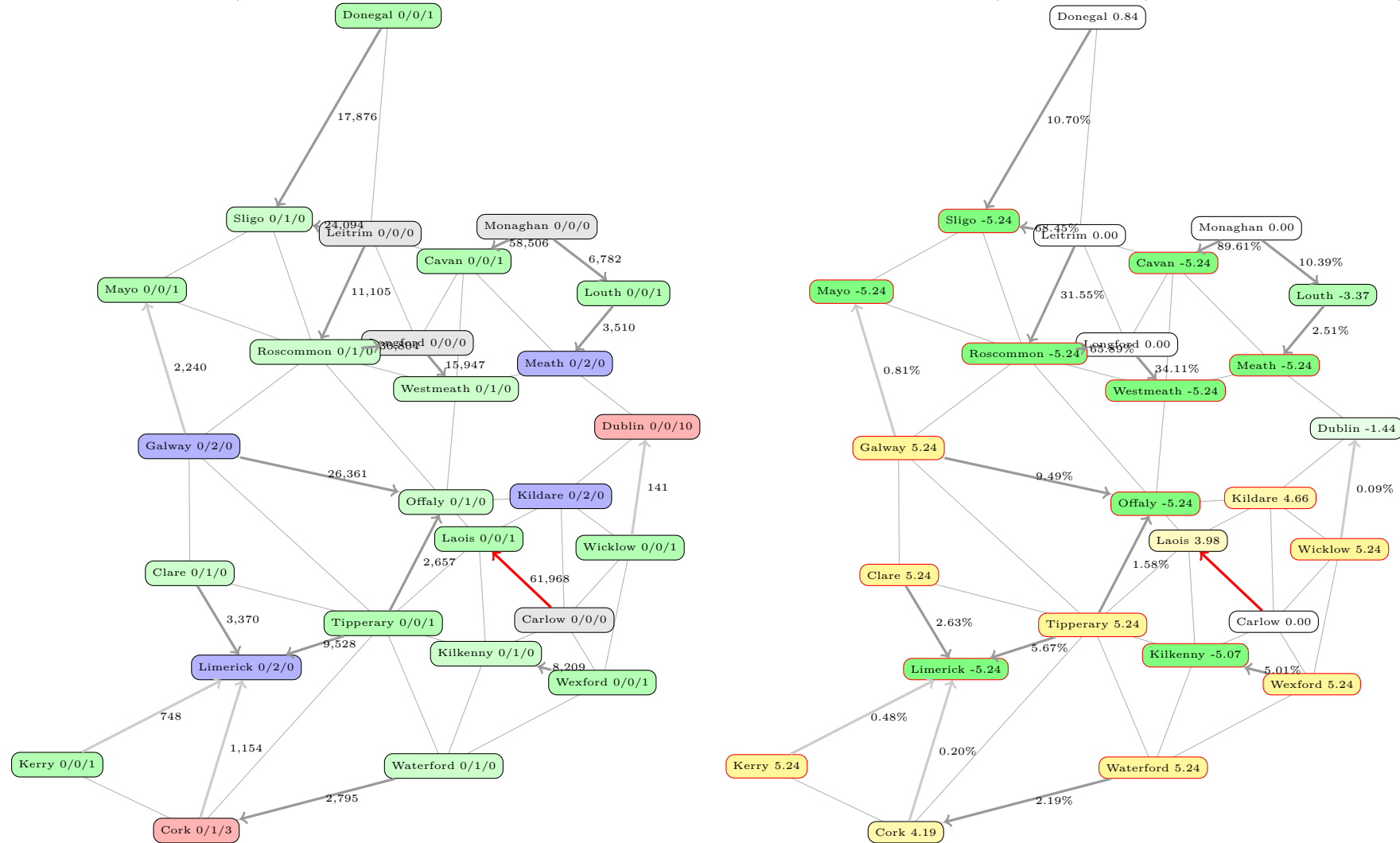
Table 90: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	58,506	140,210	1	0/0/1	5	28,042.00	-5.24
Clare	127,938	4.32	3,370	0	124,568	1	0/1/0	4	31,142.00	5.24
Cork	584,156	19.74	1,154	2,795	585,797	4	0/1/3	19	30,831.42	4.19
Donegal	167,084	5.65	17,876	0	149,208	1	0/0/1	5	29,841.60	0.84
Dublin	1,458,154	49.28	0	141	1,458,295	10	0/0/10	50	29,165.90	-1.44
Galway	277,737	9.39	28,601	0	249,136	2	0/2/0	8	31,142.00	5.24
Kerry	156,458	5.29	748	0	155,710	1	0/0/1	5	31,142.00	5.24
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	8,209	112,369	1	0/1/0	4	28,092.25	-5.07
Laois	91,877	3.10	0	61,968	153,845	1	0/0/1	5	30,769.00	3.98
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	14,800	224,336	2	0/2/0	8	28,042.00	-5.24
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	3,510	6,782	142,975	1	0/0/1	5	28,595.00	-3.37
Mayo	137,970	4.66	0	2,240	140,210	1	0/0/1	5	28,042.00	-5.24
Meath	220,826	7.46	0	3,510	224,336	2	0/2/0	8	28,042.00	-5.24
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	29,018	112,168	1	0/1/0	4	28,042.00	-5.24
Roscommon	70,259	2.37	0	41,909	112,168	1	0/1/0	4	28,042.00	-5.24
Sligo	70,198	2.37	0	41,970	112,168	1	0/1/0	4	28,042.00	-5.24
Tipperary	167,895	5.67	12,185	0	155,710	1	0/0/1	5	31,142.00	5.24
Waterford	127,363	4.30	2,795	0	124,568	1	0/1/0	4	31,142.00	5.24

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	15,947	112,168	1	0/1/0	4	28,042.00	-5.24
Wexford	163,919	5.54	8,209	0	155,710	1	0/0/1	5	31,142.00	5.24
Wicklow	155,851	5.27	141	0	155,710	1	0/0/1	5	31,142.00	5.24

Table 91: 19 Transfers (Total 287795)

From	To	Volume	Percent of From
Carlow	Laois	61,968	100.00
Longford	Westmeath	15,947	34.11
Longford	Roscommon	30,804	65.89
Louth	Meath	3,510	2.51
Wexford	Kilkenny	8,209	5.01
Wicklow	Dublin	141	0.09
Clare	Limerick	3,370	2.63
Cork	Limerick	1,154	0.20
Kerry	Limerick	748	0.48
Tipperary	Offaly	2,657	1.58
Tipperary	Limerick	9,528	5.67
Waterford	Cork	2,795	2.19
Galway	Offaly	26,361	9.49
Galway	Mayo	2,240	0.81
Leitrim	Roscommon	11,105	31.55
Leitrim	Sligo	24,094	68.45
Donegal	Sligo	17,876	10.70
Monaghan	Louth	6,782	10.39
Monaghan	Cavan	58,506	89.61

Figure 31: Sol30 (174 seats, 38 constituencies, 19 transfers, 29,643.65 persons per TD,  $\Delta_{max}$  1,550 (5.24% of 29,592), weighted variation 3.58%)

### 3.31 Solution Sol31

Table 92: Solution 31

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol31	174	1,600	5.41	10.81	27,992.00	31,192.00	29,642.14	1,460,994.98	3.48	18	285,354	38	0/16/22	4.58	Optimal	0.15	0.0088

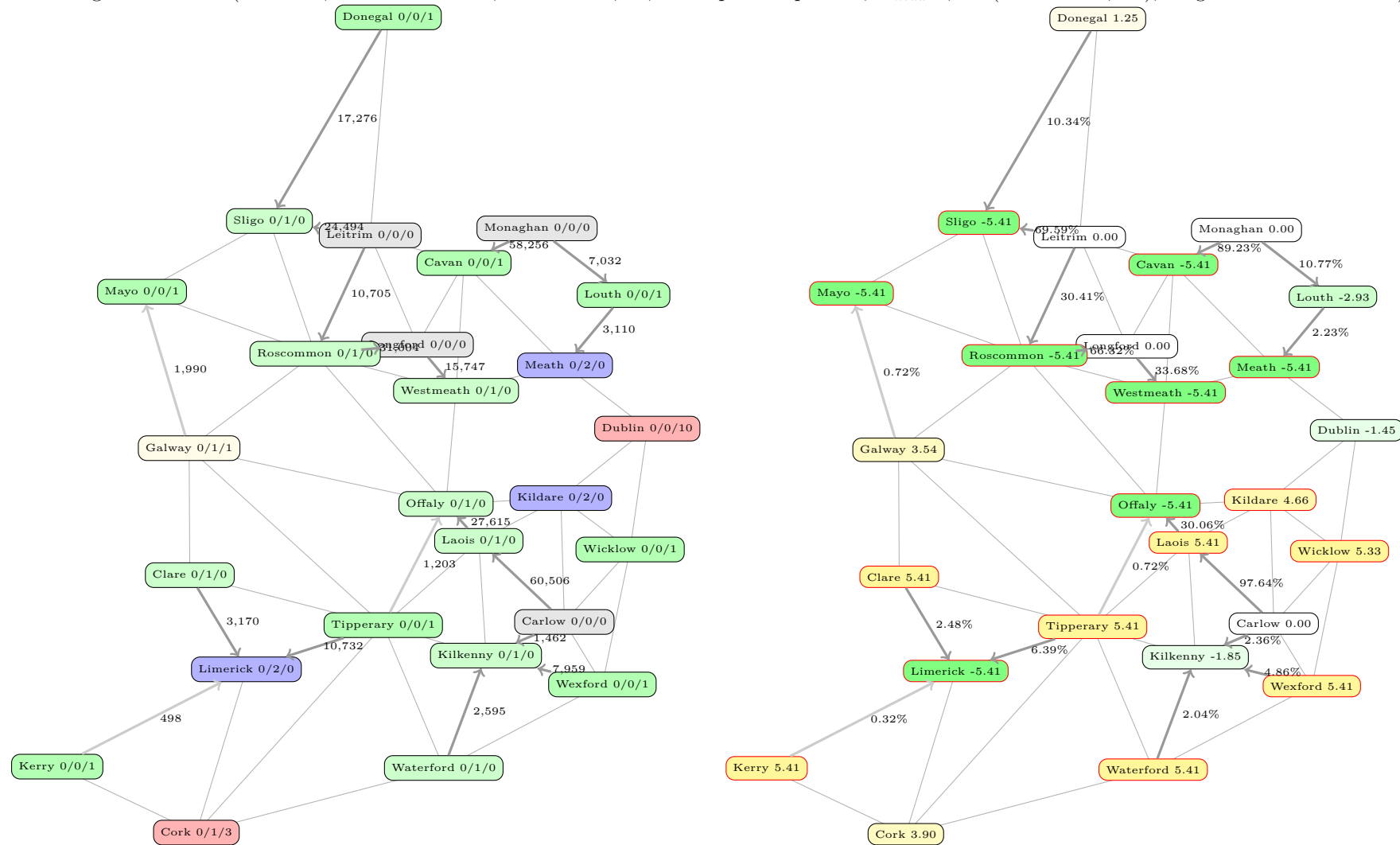
Table 93: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	58,256	139,960	1	0/0/1	5	27,992.00	-5.41
Clare	127,938	4.32	3,170	0	124,768	1	0/1/0	4	31,192.00	5.41
Cork	584,156	19.74	0	0	584,156	4	0/1/3	19	30,745.05	3.90
Donegal	167,084	5.65	17,276	0	149,808	1	0/0/1	5	29,961.60	1.25
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	1,990	0	275,747	2	0/1/1	9	30,638.56	3.54
Kerry	156,458	5.29	498	0	155,960	1	0/0/1	5	31,192.00	5.41
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	12,016	116,176	1	0/1/0	4	29,044.00	-1.85
Laois	91,877	3.10	27,615	60,506	124,768	1	0/1/0	4	31,192.00	5.41
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	14,400	223,936	2	0/2/0	8	27,992.00	-5.41
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	3,110	7,032	143,625	1	0/0/1	5	28,725.00	-2.93
Mayo	137,970	4.66	0	1,990	139,960	1	0/0/1	5	27,992.00	-5.41
Meath	220,826	7.46	0	3,110	223,936	2	0/2/0	8	27,992.00	-5.41
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	28,818	111,968	1	0/1/0	4	27,992.00	-5.41
Roscommon	70,259	2.37	0	41,709	111,968	1	0/1/0	4	27,992.00	-5.41
Sligo	70,198	2.37	0	41,770	111,968	1	0/1/0	4	27,992.00	-5.41
Tipperary	167,895	5.67	11,935	0	155,960	1	0/0/1	5	31,192.00	5.41
Waterford	127,363	4.30	2,595	0	124,768	1	0/1/0	4	31,192.00	5.41

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	15,747	111,968	1	0/1/0	4	27,992.00	-5.41
Wexford	163,919	5.54	7,959	0	155,960	1	0/0/1	5	31,192.00	5.41
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 94: 18 Transfers (Total 285354)

From	To	Volume	Percent of From
Carlow	Kilkenny	1,462	2.36
Carlow	Laois	60,506	97.64
Laois	Offaly	27,615	30.06
Longford	Westmeath	15,747	33.68
Longford	Roscommon	31,004	66.32
Louth	Meath	3,110	2.23
Wexford	Kilkenny	7,959	4.86
Clare	Limerick	3,170	2.48
Kerry	Limerick	498	0.32
Tipperary	Offaly	1,203	0.72
Tipperary	Limerick	10,732	6.39
Waterford	Kilkenny	2,595	2.04
Galway	Mayo	1,990	0.72
Leitrim	Roscommon	10,705	30.41
Leitrim	Sligo	24,494	69.59
Donegal	Sligo	17,276	10.34
Monaghan	Louth	7,032	10.77
Monaghan	Cavan	58,256	89.23

Figure 32: Sol31 (174 seats, 38 constituencies, 18 transfers, 29,642.14 persons per TD,  $\Delta_{max}$  1,600 (5.41% of 29,592), weighted variation 3.48%)



### 3.32 Solution Sol32

Table 95: Solution 32

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol32	174	1,650	5.58	11.15	27,942.00	31,242.00	29,642.93	1,491,697.89	3.41	20	283,054	38	0/16/22	4.58	Optimal	0.13	0.0093

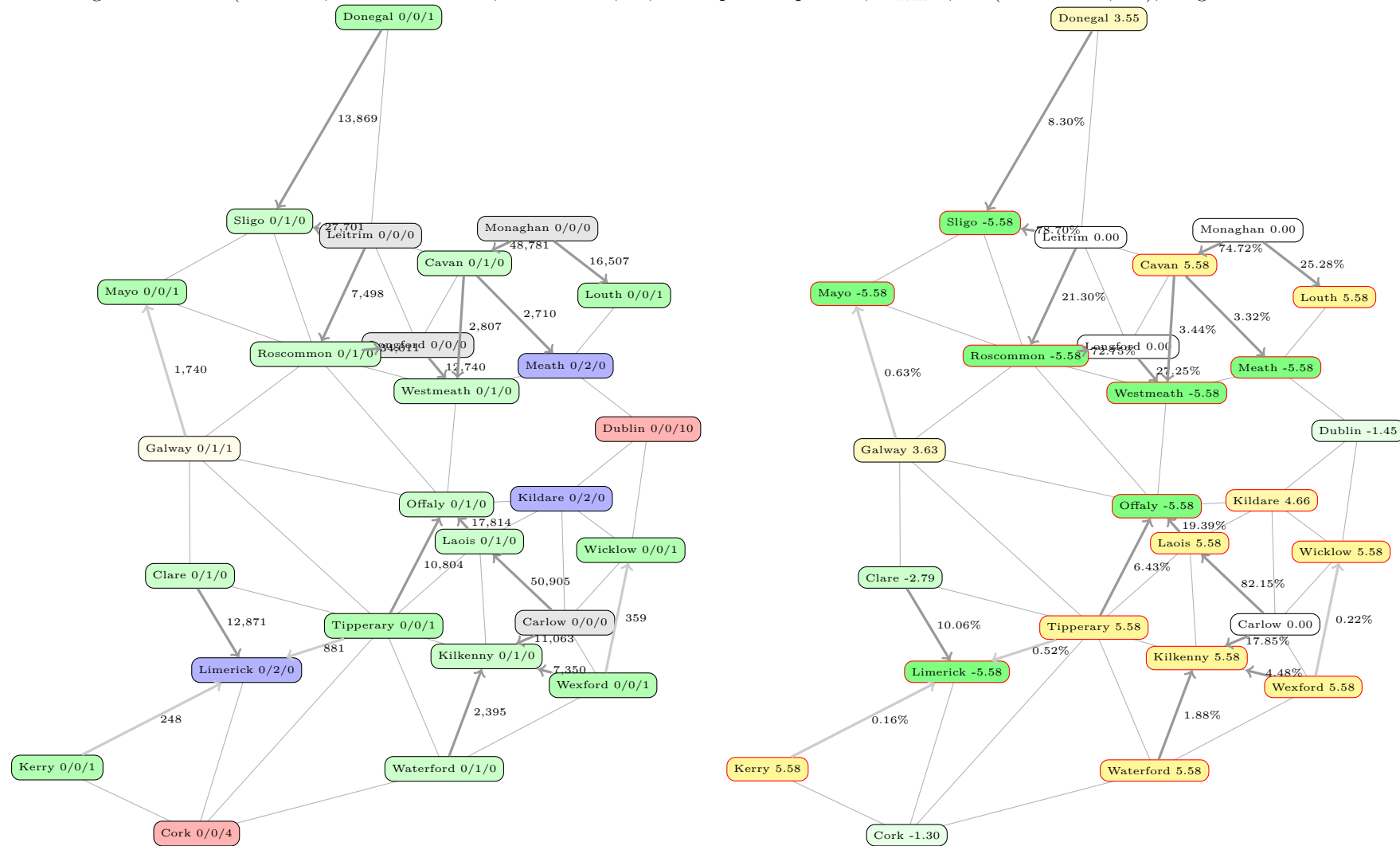
Table 96: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	5,517	48,781	124,968	1	0/1/0	4	31,242.00	5.58
Clare	127,938	4.32	12,871	0	115,067	1	0/1/0	4	28,766.75	-2.79
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	13,869	0	153,215	1	0/0/1	5	30,643.00	3.55
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	1,740	0	275,997	2	0/1/1	9	30,666.33	3.63
Kerry	156,458	5.29	248	0	156,210	1	0/0/1	5	31,242.00	5.58
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	20,808	124,968	1	0/1/0	4	31,242.00	5.58
Laois	91,877	3.10	17,814	50,905	124,968	1	0/1/0	4	31,242.00	5.58
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	14,000	223,536	2	0/2/0	8	27,942.00	-5.58
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	16,507	156,210	1	0/0/1	5	31,242.00	5.58
Mayo	137,970	4.66	0	1,740	139,710	1	0/0/1	5	27,942.00	-5.58
Meath	220,826	7.46	0	2,710	223,536	2	0/2/0	8	27,942.00	-5.58
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	28,618	111,768	1	0/1/0	4	27,942.00	-5.58
Roscommon	70,259	2.37	0	41,509	111,768	1	0/1/0	4	27,942.00	-5.58
Sligo	70,198	2.37	0	41,570	111,768	1	0/1/0	4	27,942.00	-5.58
Tipperary	167,895	5.67	11,685	0	156,210	1	0/0/1	5	31,242.00	5.58
Waterford	127,363	4.30	2,395	0	124,968	1	0/1/0	4	31,242.00	5.58

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	15,547	111,768	1	0/1/0	4	27,942.00	-5.58
Wexford	163,919	5.54	7,709	0	156,210	1	0/0/1	5	31,242.00	5.58
Wicklow	155,851	5.27	0	359	156,210	1	0/0/1	5	31,242.00	5.58

Table 97: 20 Transfers (Total 283054)

From	To	Volume	Percent of From
Carlow	Kilkenny	11,063	17.85
Carlow	Laois	50,905	82.15
Laois	Offaly	17,814	19.39
Longford	Westmeath	12,740	27.25
Longford	Roscommon	34,011	72.75
Wexford	Kilkenny	7,350	4.48
Wexford	Wicklow	359	0.22
Clare	Limerick	12,871	10.06
Kerry	Limerick	248	0.16
Tipperary	Offaly	10,804	6.43
Tipperary	Limerick	881	0.52
Waterford	Kilkenny	2,395	1.88
Galway	Mayo	1,740	0.63
Leitrim	Roscommon	7,498	21.30
Leitrim	Sligo	27,701	78.70
Cavan	Meath	2,710	3.32
Cavan	Westmeath	2,807	3.44
Donegal	Sligo	13,869	8.30
Monaghan	Louth	16,507	25.28
Monaghan	Cavan	48,781	74.72

Figure 33: Sol32 (174 seats, 38 constituencies, 20 transfers, 29,642.93 persons per TD,  $\Delta_{max}$  1,650 (5.58% of 29,592), weighted variation 3.41%)

### 3.33 Solution Sol33

Table 98: Solution 33

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol33	174	1,700	5.74	11.49	27,892.00	31,292.00	29,648.32	1,628,877.03	3.75	17	280,754	38	0/16/22	4.58	Optimal	0.13	0.0000

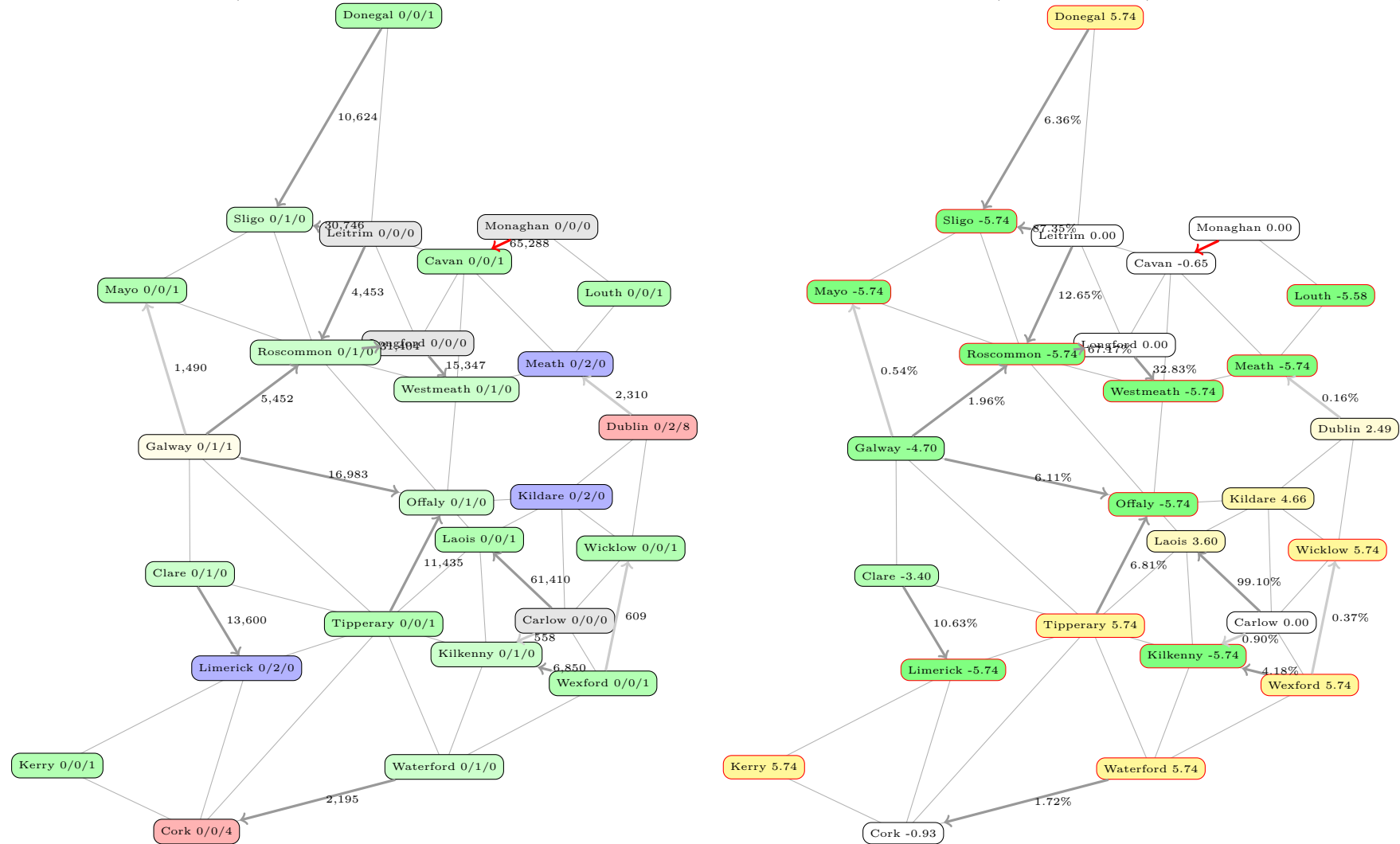
Table 99: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	13,600	0	114,338	1	0/1/0	4	28,584.50	-3.40
Cork	584,156	19.74	0	2,195	586,351	4	0/0/4	20	29,317.55	-0.93
Donegal	167,084	5.65	10,624	0	156,460	1	0/0/1	5	31,292.00	5.74
Dublin	1,458,154	49.28	2,310	0	1,455,844	10	0/2/8	48	30,330.08	2.49
Galway	277,737	9.39	23,925	0	253,812	2	0/1/1	9	28,201.33	-4.70
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	7,408	111,568	1	0/1/0	4	27,892.00	-5.74
Laois	91,877	3.10	0	61,410	153,287	1	0/0/1	5	30,657.40	3.60
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	13,600	223,136	2	0/2/0	8	27,892.00	-5.74
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	1,490	139,460	1	0/0/1	5	27,892.00	-5.74
Meath	220,826	7.46	0	2,310	223,136	2	0/2/0	8	27,892.00	-5.74
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	28,418	111,568	1	0/1/0	4	27,892.00	-5.74
Roscommon	70,259	2.37	0	41,309	111,568	1	0/1/0	4	27,892.00	-5.74
Sligo	70,198	2.37	0	41,370	111,568	1	0/1/0	4	27,892.00	-5.74
Tipperary	167,895	5.67	11,435	0	156,460	1	0/0/1	5	31,292.00	5.74
Waterford	127,363	4.30	2,195	0	125,168	1	0/1/0	4	31,292.00	5.74

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	15,347	111,568	1	0/1/0	4	27,892.00	-5.74
Wexford	163,919	5.54	7,459	0	156,460	1	0/0/1	5	31,292.00	5.74
Wicklow	155,851	5.27	0	609	156,460	1	0/0/1	5	31,292.00	5.74

Table 100: 17 Transfers (Total 280754)

From	To	Volume	Percent of From
Carlow	Kilkenny	558	0.90
Carlow	Laois	61,410	99.10
Dublin	Meath	2,310	0.16
Longford	Westmeath	15,347	32.83
Longford	Roscommon	31,404	67.17
Wexford	Kilkenny	6,850	4.18
Wexford	Wicklow	609	0.37
Clare	Limerick	13,600	10.63
Tipperary	Offaly	11,435	6.81
Waterford	Cork	2,195	1.72
Galway	Offaly	16,983	6.11
Galway	Mayo	1,490	0.54
Galway	Roscommon	5,452	1.96
Leitrim	Roscommon	4,453	12.65
Leitrim	Sligo	30,746	87.35
Donegal	Sligo	10,624	6.36
Monaghan	Cavan	65,288	100.00

Figure 34: Sol33 (174 seats, 38 constituencies, 17 transfers, 29,648.32 persons per TD,  $\Delta_{max}$  1,700 (5.74% of 29,592), weighted variation 3.75%)

### 3.34 Solution Sol34

Table 101: Solution 34

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol34	174	1,750	5.91	11.83	27,842.00	31,342.00	29,650.79	1,700,122.12	3.74	18	278,454	38	0/16/22	4.58	Optimal	0.14	0.0048

Table 102: Counties

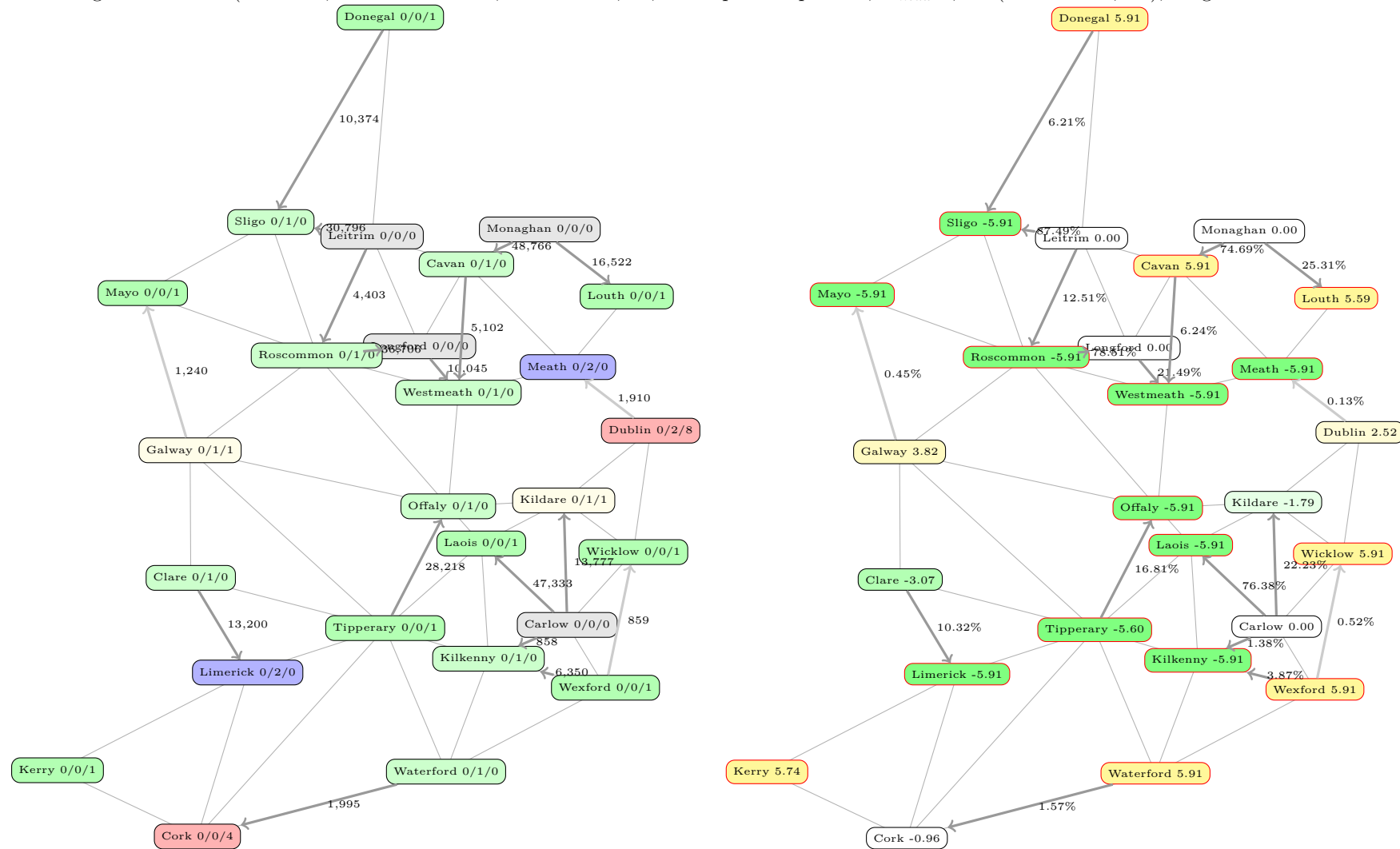
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	5,102	48,766	125,368	1	0/1/0	4	31,342.00	5.91
Clare	127,938	4.32	13,200	0	114,738	1	0/1/0	4	28,684.50	-3.07
Cork	584,156	19.74	0	1,995	586,151	4	0/0/4	20	29,307.55	-0.96
Donegal	167,084	5.65	10,374	0	156,710	1	0/0/1	5	31,342.00	5.91
Dublin	1,458,154	49.28	1,910	0	1,456,244	10	0/2/8	48	30,338.42	2.52
Galway	277,737	9.39	1,240	0	276,497	2	0/1/1	9	30,721.89	3.82
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	13,777	261,551	2	0/1/1	9	29,061.22	-1.79
Kilkenny	104,160	3.52	0	7,208	111,368	1	0/1/0	4	27,842.00	-5.91
Laois	91,877	3.10	0	47,333	139,210	1	0/0/1	5	27,842.00	-5.91
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	13,200	222,736	2	0/2/0	8	27,842.00	-5.91
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	16,522	156,225	1	0/0/1	5	31,245.00	5.59
Mayo	137,970	4.66	0	1,240	139,210	1	0/0/1	5	27,842.00	-5.91
Meath	220,826	7.46	0	1,910	222,736	2	0/2/0	8	27,842.00	-5.91
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	28,218	111,368	1	0/1/0	4	27,842.00	-5.91
Roscommon	70,259	2.37	0	41,109	111,368	1	0/1/0	4	27,842.00	-5.91
Sligo	70,198	2.37	0	41,170	111,368	1	0/1/0	4	27,842.00	-5.91
Tipperary	167,895	5.67	28,218	0	139,677	1	0/0/1	5	27,935.40	-5.60
Waterford	127,363	4.30	1,995	0	125,368	1	0/1/0	4	31,342.00	5.91

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	15,147	111,368	1	0/1/0	4	27,842.00	-5.91
Wexford	163,919	5.54	7,209	0	156,710	1	0/0/1	5	31,342.00	5.91
Wicklow	155,851	5.27	0	859	156,710	1	0/0/1	5	31,342.00	5.91

Table 103: 18 Transfers (Total 278454)

From	To	Volume	Percent of From
Carlow	Kildare	13,777	22.23
Carlow	Kilkenny	858	1.38
Carlow	Laois	47,333	76.38
Dublin	Meath	1,910	0.13
Longford	Westmeath	10,045	21.49
Longford	Roscommon	36,706	78.51
Wexford	Kilkenny	6,350	3.87
Wexford	Wicklow	859	0.52
Clare	Limerick	13,200	10.32
Tipperary	Offaly	28,218	16.81
Waterford	Cork	1,995	1.57
Galway	Mayo	1,240	0.45
Leitrim	Roscommon	4,403	12.51
Leitrim	Sligo	30,796	87.49
Cavan	Westmeath	5,102	6.24
Donegal	Sligo	10,374	6.21
Monaghan	Louth	16,522	25.31
Monaghan	Cavan	48,766	74.69



Figure 35: Sol34 (174 seats, 38 constituencies, 18 transfers, 29,650.79 persons per TD,  $\Delta_{max}$  1,750 (5.91% of 29,592), weighted variation 3.74%)

### 3.35 Solution Sol35

Table 104: Solution 35

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol35	174	1,800	6.08	12.17	27,792.00	31,392.00	29,660.07	1,985,190.72	4.12	19	276,154	38	0/16/22	4.58	Optimal	0.14	0.0094

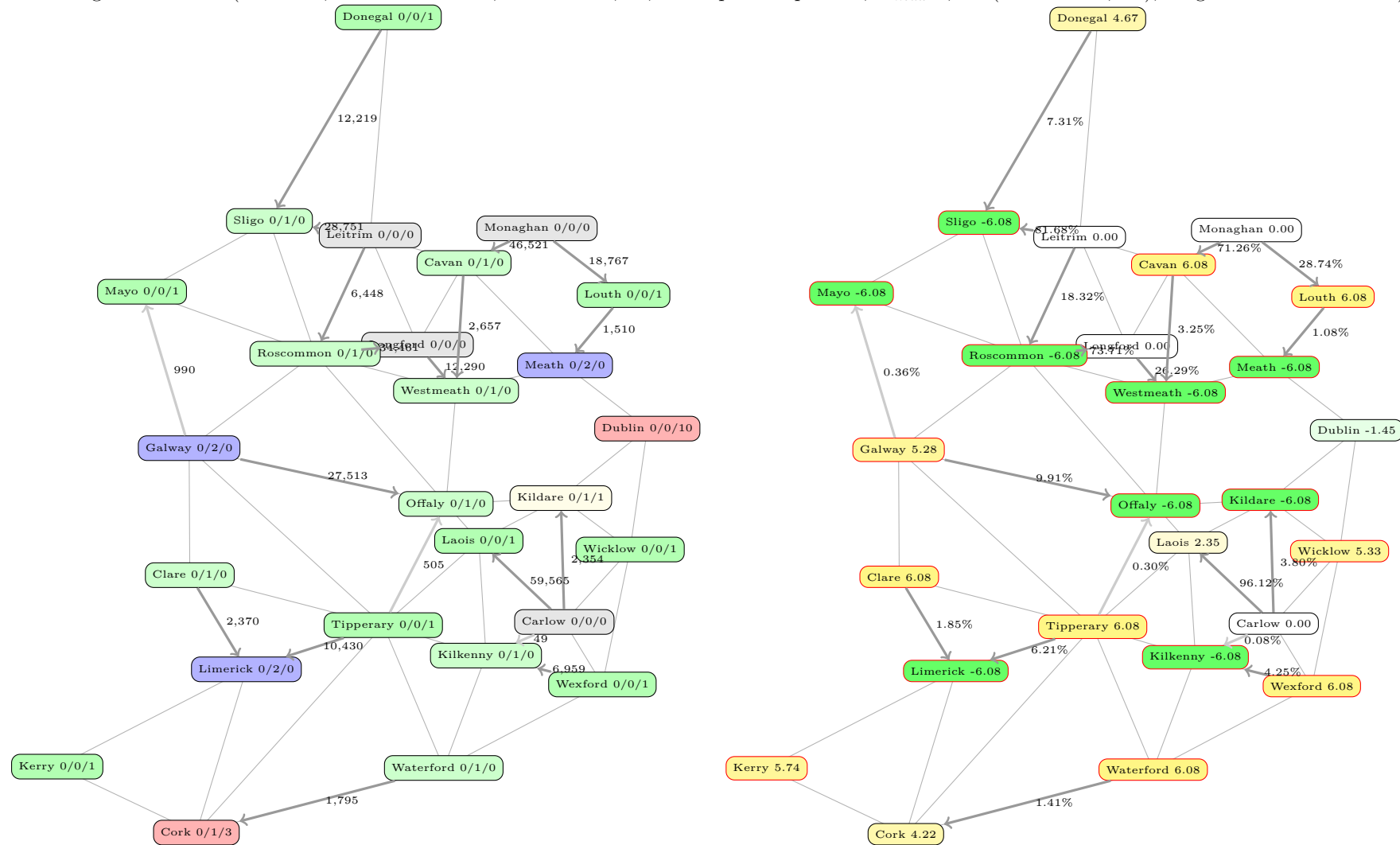
Table 105: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	2,657	46,521	125,568	1	0/1/0	4	31,392.00	6.08
Clare	127,938	4.32	2,370	0	125,568	1	0/1/0	4	31,392.00	6.08
Cork	584,156	19.74	0	1,795	585,951	4	0/1/3	19	30,839.53	4.22
Donegal	167,084	5.65	12,219	0	154,865	1	0/0/1	5	30,973.00	4.67
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	28,503	0	249,234	2	0/2/0	8	31,154.25	5.28
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	2,354	250,128	2	0/1/1	9	27,792.00	-6.08
Kilkenny	104,160	3.52	0	7,008	111,168	1	0/1/0	4	27,792.00	-6.08
Laois	91,877	3.10	0	59,565	151,442	1	0/0/1	5	30,288.40	2.35
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	12,800	222,336	2	0/2/0	8	27,792.00	-6.08
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	1,510	18,767	156,960	1	0/0/1	5	31,392.00	6.08
Mayo	137,970	4.66	0	990	138,960	1	0/0/1	5	27,792.00	-6.08
Meath	220,826	7.46	0	1,510	222,336	2	0/2/0	8	27,792.00	-6.08
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	28,018	111,168	1	0/1/0	4	27,792.00	-6.08
Roscommon	70,259	2.37	0	40,909	111,168	1	0/1/0	4	27,792.00	-6.08
Sligo	70,198	2.37	0	40,970	111,168	1	0/1/0	4	27,792.00	-6.08
Tipperary	167,895	5.67	10,935	0	156,960	1	0/0/1	5	31,392.00	6.08
Waterford	127,363	4.30	1,795	0	125,568	1	0/1/0	4	31,392.00	6.08

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	14,947	111,168	1	0/1/0	4	27,792.00	-6.08
Wexford	163,919	5.54	6,959	0	156,960	1	0/0/1	5	31,392.00	6.08
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 106: 19 Transfers (Total 276154)

From	To	Volume	Percent of From
Carlow	Kildare	2,354	3.80
Carlow	Kilkenny	49	0.08
Carlow	Laois	59,565	96.12
Longford	Westmeath	12,290	26.29
Longford	Roscommon	34,461	73.71
Louth	Meath	1,510	1.08
Wexford	Kilkenny	6,959	4.25
Clare	Limerick	2,370	1.85
Tipperary	Offaly	505	0.30
Tipperary	Limerick	10,430	6.21
Waterford	Cork	1,795	1.41
Galway	Offaly	27,513	9.91
Galway	Mayo	990	0.36
Leitrim	Roscommon	6,448	18.32
Leitrim	Sligo	28,751	81.68
Cavan	Westmeath	2,657	3.25
Donegal	Sligo	12,219	7.31
Monaghan	Louth	18,767	28.74
Monaghan	Cavan	46,521	71.26

Figure 36: Sol35 (174 seats, 38 constituencies, 19 transfers, 29,660.07 persons per TD,  $\Delta_{max}$  1,800 (6.08% of 29,592), weighted variation 4.12%)

### 3.36 Solution Sol36

Table 107: Solution 36

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol36	174	1,850	6.25	12.50	27,742.00	31,442.00	29,654.98	1,831,556.70	3.65	18	273,854	38	0/16/22	4.58	Optimal	0.13	0.0088

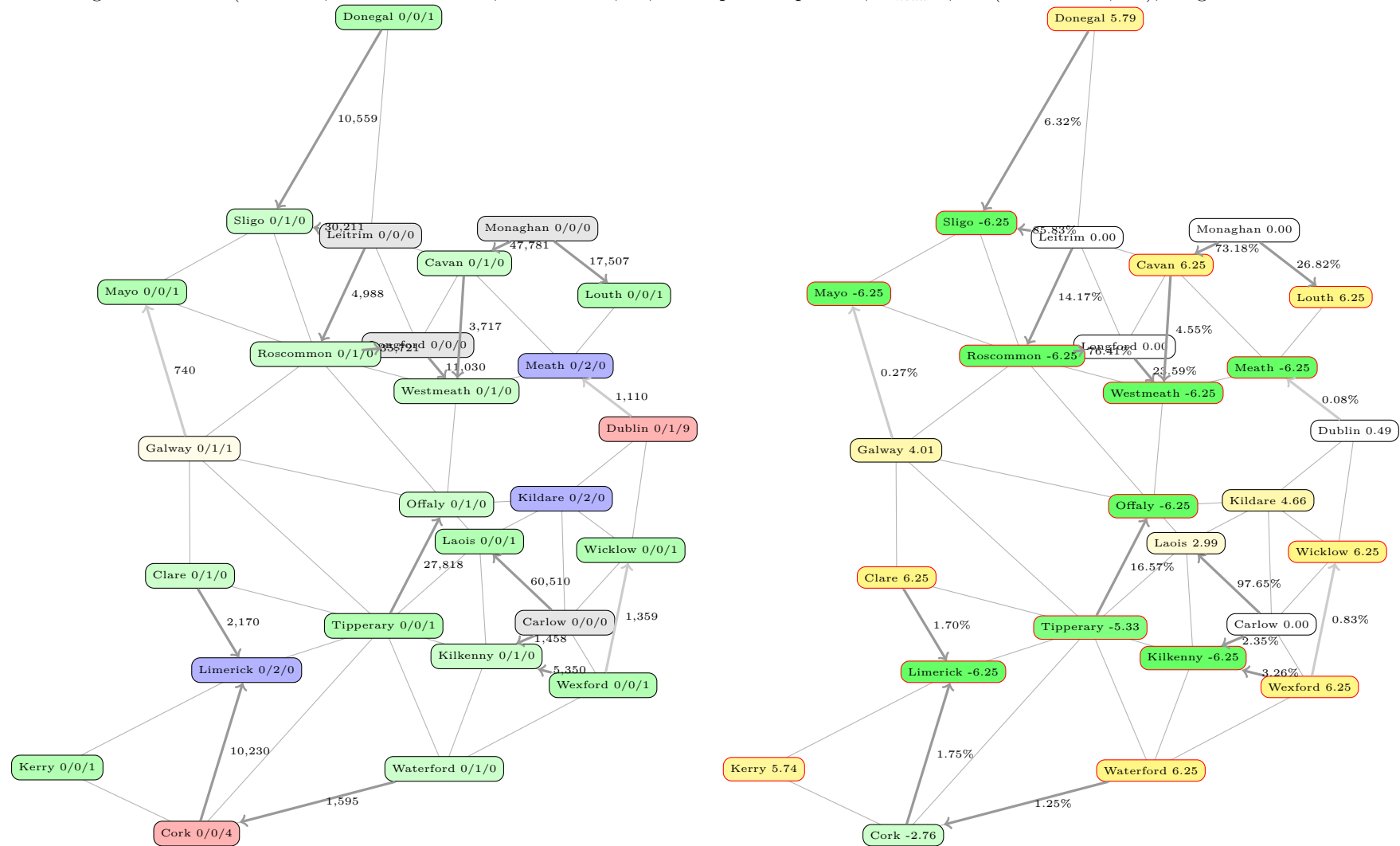
Table 108: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	3,717	47,781	125,768	1	0/1/0	4	31,442.00	6.25
Clare	127,938	4.32	2,170	0	125,768	1	0/1/0	4	31,442.00	6.25
Cork	584,156	19.74	10,230	1,595	575,521	4	0/0/4	20	28,776.05	-2.76
Donegal	167,084	5.65	10,559	0	156,525	1	0/0/1	5	31,305.00	5.79
Dublin	1,458,154	49.28	1,110	0	1,457,044	10	0/1/9	49	29,735.59	0.49
Galway	277,737	9.39	740	0	276,997	2	0/1/1	9	30,777.44	4.01
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	6,808	110,968	1	0/1/0	4	27,742.00	-6.25
Laois	91,877	3.10	0	60,510	152,387	1	0/0/1	5	30,477.40	2.99
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	12,400	221,936	2	0/2/0	8	27,742.00	-6.25
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	17,507	157,210	1	0/0/1	5	31,442.00	6.25
Mayo	137,970	4.66	0	740	138,710	1	0/0/1	5	27,742.00	-6.25
Meath	220,826	7.46	0	1,110	221,936	2	0/2/0	8	27,742.00	-6.25
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	27,818	110,968	1	0/1/0	4	27,742.00	-6.25
Roscommon	70,259	2.37	0	40,709	110,968	1	0/1/0	4	27,742.00	-6.25
Sligo	70,198	2.37	0	40,770	110,968	1	0/1/0	4	27,742.00	-6.25
Tipperary	167,895	5.67	27,818	0	140,077	1	0/0/1	5	28,015.40	-5.33
Waterford	127,363	4.30	1,595	0	125,768	1	0/1/0	4	31,442.00	6.25

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	14,747	110,968	1	0/1/0	4	27,742.00	-6.25
Wexford	163,919	5.54	6,709	0	157,210	1	0/0/1	5	31,442.00	6.25
Wicklow	155,851	5.27	0	1,359	157,210	1	0/0/1	5	31,442.00	6.25

Table 109: 18 Transfers (Total 273854)

From	To	Volume	Percent of From
Carlow	Kilkenny	1,458	2.35
Carlow	Laois	60,510	97.65
Dublin	Meath	1,110	0.08
Longford	Westmeath	11,030	23.59
Longford	Roscommon	35,721	76.41
Wexford	Kilkenny	5,350	3.26
Wexford	Wicklow	1,359	0.83
Clare	Limerick	2,170	1.70
Cork	Limerick	10,230	1.75
Tipperary	Offaly	27,818	16.57
Waterford	Cork	1,595	1.25
Galway	Mayo	740	0.27
Leitrim	Roscommon	4,988	14.17
Leitrim	Sligo	30,211	85.83
Cavan	Westmeath	3,717	4.55
Donegal	Sligo	10,559	6.32
Monaghan	Louth	17,507	26.82
Monaghan	Cavan	47,781	73.18

Figure 37: Sol36 (174 seats, 38 constituencies, 18 transfers, 29,654.98 persons per TD,  $\Delta_{max}$  1,850 (6.25% of 29,592), weighted variation 3.65%)

### 3.37 Solution Sol37

Table 110: Solution 37

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol37	174	1,900	6.42	12.84	27,692.00	31,492.00	29,662.72	2,054,199.17	4.11	18	271,554	38	0/16/22	4.58	Optimal	0.12	0.0094

Table 111: Counties

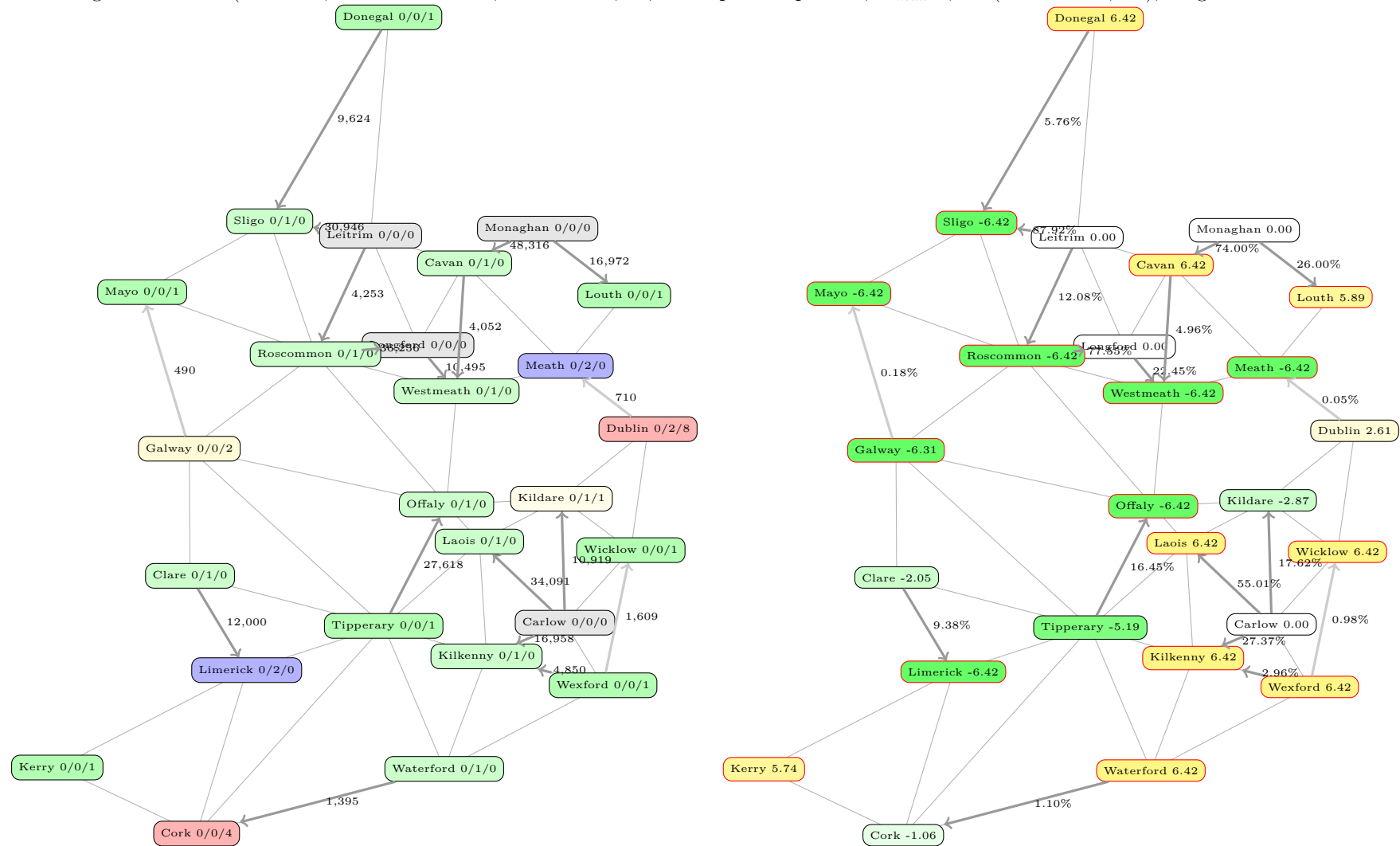
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	4,052	48,316	125,968	1	0/1/0	4	31,492.00	6.42
Clare	127,938	4.32	12,000	0	115,938	1	0/1/0	4	28,984.50	-2.05
Cork	584,156	19.74	0	1,395	585,551	4	0/0/4	20	29,277.55	-1.06
Donegal	167,084	5.65	9,624	0	157,460	1	0/0/1	5	31,492.00	6.42
Dublin	1,458,154	49.28	710	0	1,457,444	10	0/2/8	48	30,363.42	2.61
Galway	277,737	9.39	490	0	277,247	2	0/0/2	10	27,724.70	-6.31
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	10,919	258,693	2	0/1/1	9	28,743.67	-2.87
Kilkenny	104,160	3.52	0	21,808	125,968	1	0/1/0	4	31,492.00	6.42
Laois	91,877	3.10	0	34,091	125,968	1	0/1/0	4	31,492.00	6.42
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	12,000	221,536	2	0/2/0	8	27,692.00	-6.42
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	16,972	156,675	1	0/0/1	5	31,335.00	5.89
Mayo	137,970	4.66	0	490	138,460	1	0/0/1	5	27,692.00	-6.42
Meath	220,826	7.46	0	710	221,536	2	0/2/0	8	27,692.00	-6.42
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	27,618	110,768	1	0/1/0	4	27,692.00	-6.42
Roscommon	70,259	2.37	0	40,509	110,768	1	0/1/0	4	27,692.00	-6.42
Sligo	70,198	2.37	0	40,570	110,768	1	0/1/0	4	27,692.00	-6.42
Tipperary	167,895	5.67	27,618	0	140,277	1	0/0/1	5	28,055.40	-5.19
Waterford	127,363	4.30	1,395	0	125,968	1	0/1/0	4	31,492.00	6.42



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	14,547	110,768	1	0/1/0	4	27,692.00	-6.42
Wexford	163,919	5.54	6,459	0	157,460	1	0/0/1	5	31,492.00	6.42
Wicklow	155,851	5.27	0	1,609	157,460	1	0/0/1	5	31,492.00	6.42

Table 112: 18 Transfers (Total 271554)

From	To	Volume	Percent of From
Carlow	Kildare	10,919	17.62
Carlow	Kilkenny	16,958	27.37
Carlow	Laois	34,091	55.01
Dublin	Meath	710	0.05
Longford	Westmeath	10,495	22.45
Longford	Roscommon	36,256	77.55
Wexford	Kilkenny	4,850	2.96
Wexford	Wicklow	1,609	0.98
Clare	Limerick	12,000	9.38
Tipperary	Offaly	27,618	16.45
Waterford	Cork	1,395	1.10
Galway	Mayo	490	0.18
Leitrim	Roscommon	4,253	12.08
Leitrim	Sligo	30,946	87.92
Cavan	Westmeath	4,052	4.96
Donegal	Sligo	9,624	5.76
Monaghan	Louth	16,972	26.00
Monaghan	Cavan	48,316	74.00

Figure 38: Sol37 (174 seats, 38 constituencies, 18 transfers, 29,662.72 persons per TD,  $\Delta_{max}$  1,900 (6.42% of 29,592), weighted variation 4.11%)

### 3.38 Solution Sol38

Table 113: Solution 38

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol38	174	1,950	6.59	13.18	27,642.00	31,542.00	29,665.72	2,175,557.60	4.05	21	269,254	38	0/16/22	4.58	Optimal	0.11	0.0052

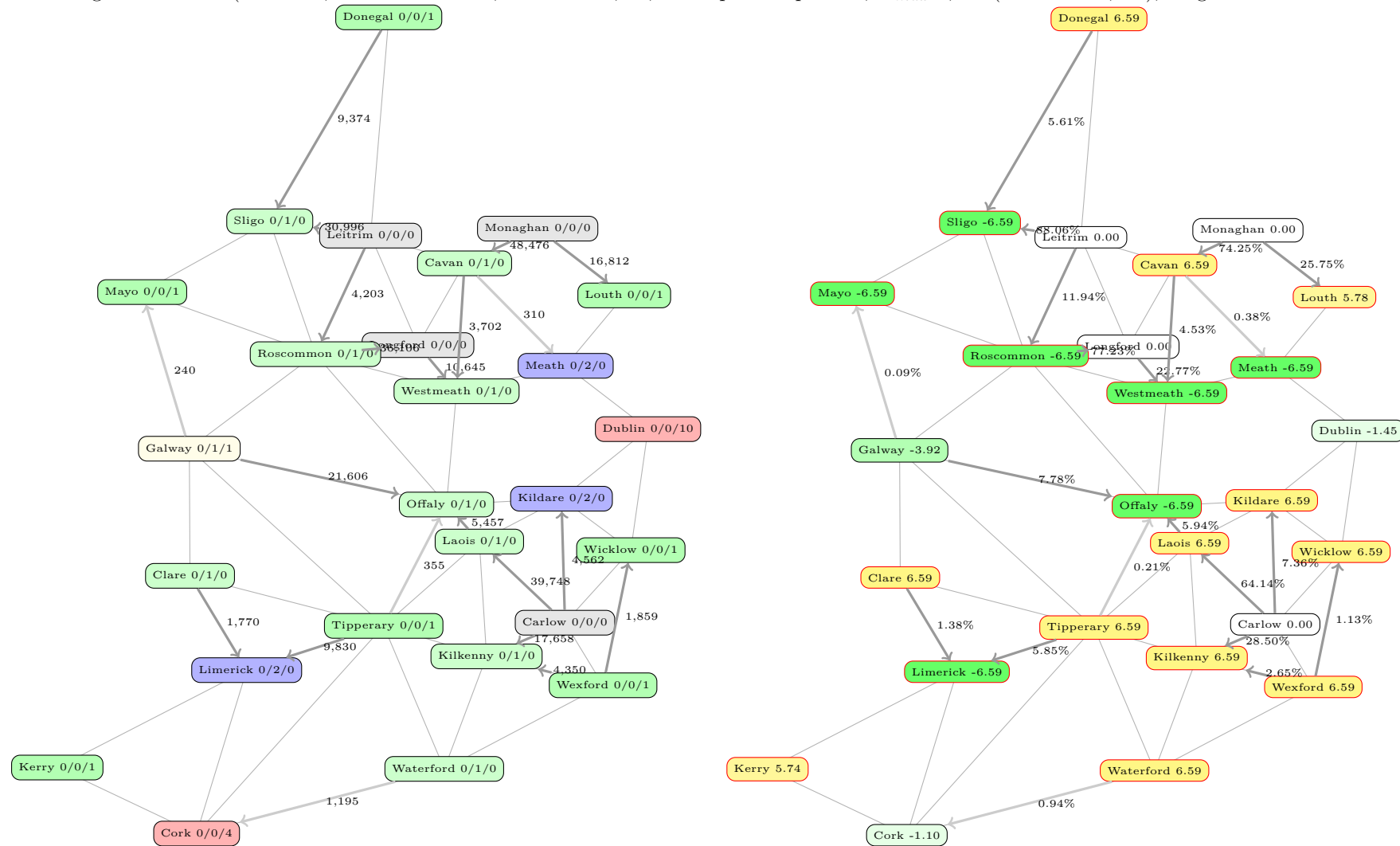
Table 114: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	4,012	48,476	126,168	1	0/1/0	4	31,542.00	6.59
Clare	127,938	4.32	1,770	0	126,168	1	0/1/0	4	31,542.00	6.59
Cork	584,156	19.74	0	1,195	585,351	4	0/0/4	20	29,267.55	-1.10
Donegal	167,084	5.65	9,374	0	157,710	1	0/0/1	5	31,542.00	6.59
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/0/10	50	29,163.08	-1.45
Galway	277,737	9.39	21,846	0	255,891	2	0/1/1	9	28,432.33	-3.92
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	4,562	252,336	2	0/2/0	8	31,542.00	6.59
Kilkenny	104,160	3.52	0	22,008	126,168	1	0/1/0	4	31,542.00	6.59
Laois	91,877	3.10	5,457	39,748	126,168	1	0/1/0	4	31,542.00	6.59
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	11,600	221,136	2	0/2/0	8	27,642.00	-6.59
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	16,812	156,515	1	0/0/1	5	31,303.00	5.78
Mayo	137,970	4.66	0	240	138,210	1	0/0/1	5	27,642.00	-6.59
Meath	220,826	7.46	0	310	221,136	2	0/2/0	8	27,642.00	-6.59
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	27,418	110,568	1	0/1/0	4	27,642.00	-6.59
Roscommon	70,259	2.37	0	40,309	110,568	1	0/1/0	4	27,642.00	-6.59
Sligo	70,198	2.37	0	40,370	110,568	1	0/1/0	4	27,642.00	-6.59
Tipperary	167,895	5.67	10,185	0	157,710	1	0/0/1	5	31,542.00	6.59
Waterford	127,363	4.30	1,195	0	126,168	1	0/1/0	4	31,542.00	6.59

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	14,347	110,568	1	0/1/0	4	27,642.00	-6.59
Wexford	163,919	5.54	6,209	0	157,710	1	0/0/1	5	31,542.00	6.59
Wicklow	155,851	5.27	0	1,859	157,710	1	0/0/1	5	31,542.00	6.59

Table 115: 21 Transfers (Total 269254)

From	To	Volume	Percent of From
Carlow	Kildare	4,562	7.36
Carlow	Kilkenny	17,658	28.50
Carlow	Laois	39,748	64.14
Laois	Offaly	5,457	5.94
Longford	Westmeath	10,645	22.77
Longford	Roscommon	36,106	77.23
Wexford	Kilkenny	4,350	2.65
Wexford	Wicklow	1,859	1.13
Clare	Limerick	1,770	1.38
Tipperary	Offaly	355	0.21
Tipperary	Limerick	9,830	5.85
Waterford	Cork	1,195	0.94
Galway	Offaly	21,606	7.78
Galway	Mayo	240	0.09
Leitrim	Roscommon	4,203	11.94
Leitrim	Sligo	30,996	88.06
Cavan	Meath	310	0.38
Cavan	Westmeath	3,702	4.53
Donegal	Sligo	9,374	5.61
Monaghan	Louth	16,812	25.75
Monaghan	Cavan	48,476	74.25

Figure 39: Sol38 (174 seats, 38 constituencies, 21 transfers, 29,665.72 persons per TD,  $\Delta_{max}$  1,950 (6.59% of 29,592), weighted variation 4.05%)

### 3.39 Solution Sol39

Table 116: Solution 39

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol39	174	2,000	6.76	13.52	27,592.00	31,592.00	29,661.54	2,022,059.30	3.66	15	267,054	38	0/16/22	4.58	Optimal	0.13	0.0094

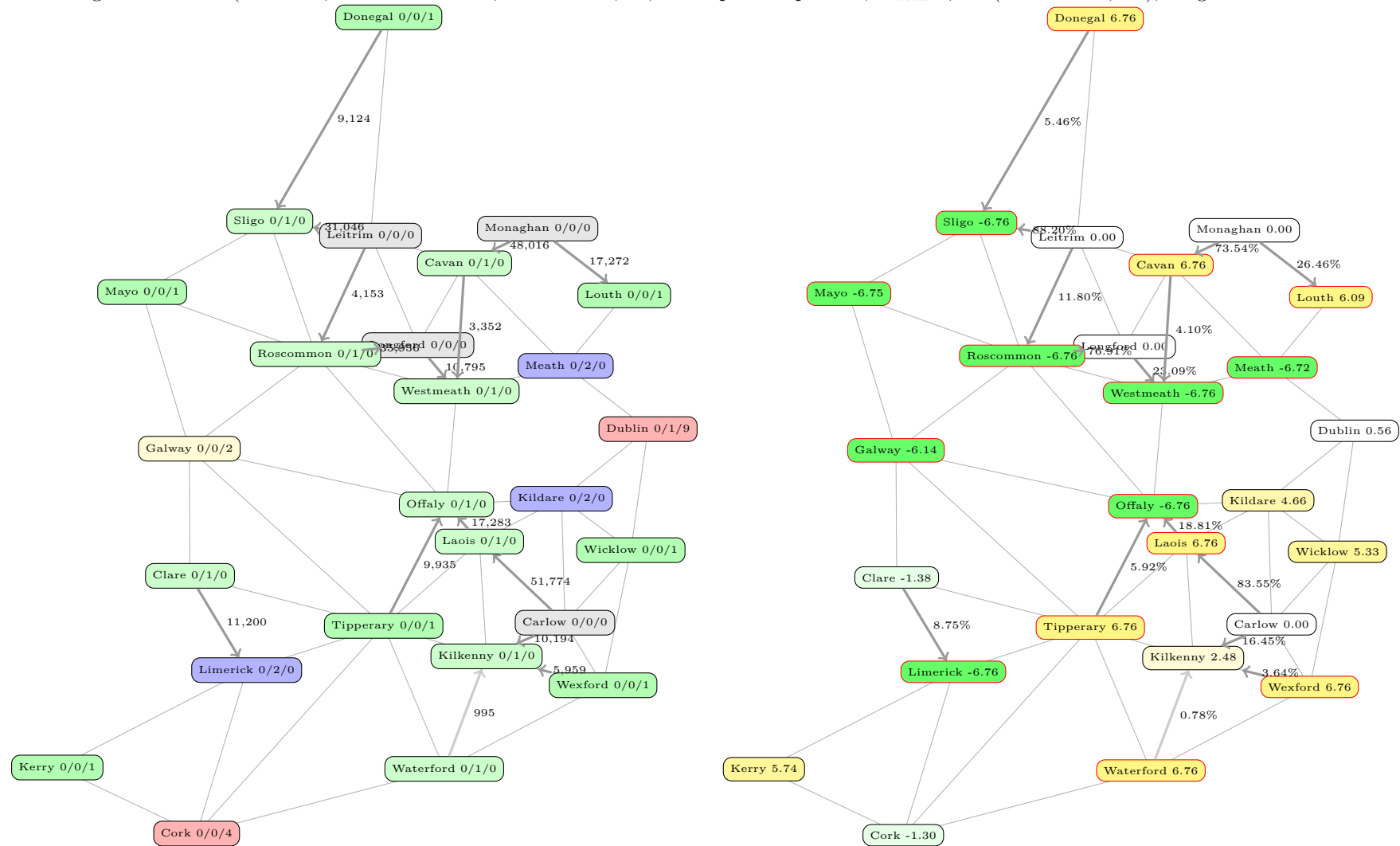
Table 117: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	3,352	48,016	126,368	1	0/1/0	4	31,592.00	6.76
Clare	127,938	4.32	11,200	0	116,738	1	0/1/0	4	29,184.50	-1.38
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	9,124	0	157,960	1	0/0/1	5	31,592.00	6.76
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	17,148	121,308	1	0/1/0	4	30,327.00	2.48
Laois	91,877	3.10	17,283	51,774	126,368	1	0/1/0	4	31,592.00	6.76
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	11,200	220,736	2	0/2/0	8	27,592.00	-6.76
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	17,272	156,975	1	0/0/1	5	31,395.00	6.09
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	27,218	110,368	1	0/1/0	4	27,592.00	-6.76
Roscommon	70,259	2.37	0	40,109	110,368	1	0/1/0	4	27,592.00	-6.76
Sligo	70,198	2.37	0	40,170	110,368	1	0/1/0	4	27,592.00	-6.76
Tipperary	167,895	5.67	9,935	0	157,960	1	0/0/1	5	31,592.00	6.76
Waterford	127,363	4.30	995	0	126,368	1	0/1/0	4	31,592.00	6.76

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	14,147	110,368	1	0/1/0	4	27,592.00	-6.76
Wexford	163,919	5.54	5,959	0	157,960	1	0/0/1	5	31,592.00	6.76
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 118: 15 Transfers (Total 267054)

From	To	Volume	Percent of From
Carlow	Kilkenny	10,194	16.45
Carlow	Laois	51,774	83.55
Laois	Offaly	17,283	18.81
Longford	Westmeath	10,795	23.09
Longford	Roscommon	35,956	76.91
Wexford	Kilkenny	5,959	3.64
Clare	Limerick	11,200	8.75
Tipperary	Offaly	9,935	5.92
Waterford	Kilkenny	995	0.78
Leitrim	Roscommon	4,153	11.80
Leitrim	Sligo	31,046	88.20
Cavan	Westmeath	3,352	4.10
Donegal	Sligo	9,124	5.46
Monaghan	Louth	17,272	26.46
Monaghan	Cavan	48,016	73.54

Figure 40: Sol39 (174 seats, 38 constituencies, 15 transfers, 29,661.54 persons per TD,  $\Delta_{max}$  2,000 (6.76% of 29,592), weighted variation 3.66%)



### 3.40 Solution Sol40

Table 119: Solution 40

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol40	174	2,050	6.93	13.86	27,542.00	31,642.00	29,668.87	2,240,688.54	3.92	16	265,404	38	0/16/22	4.58	Optimal	0.17	0.0091

Table 120: Counties

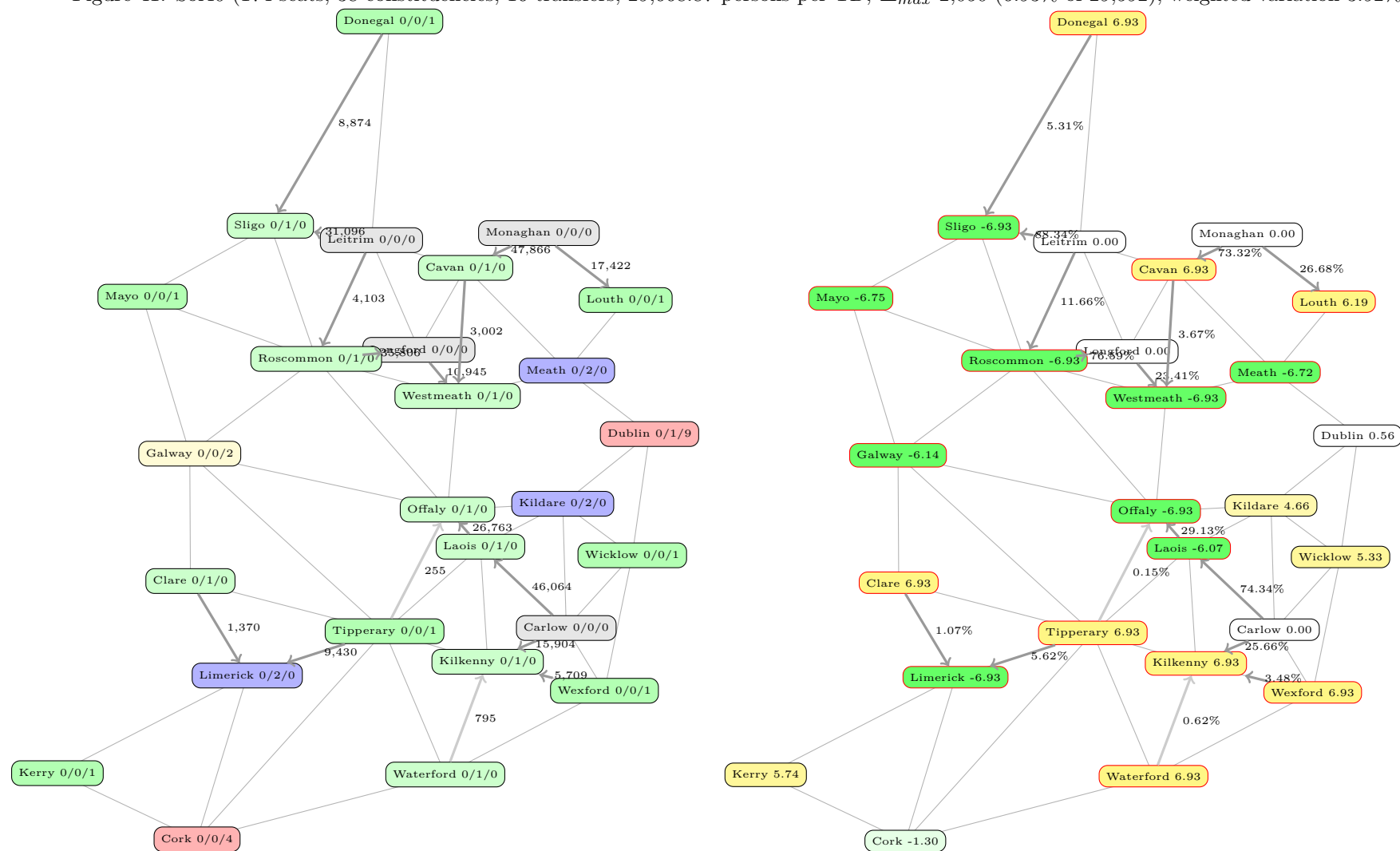
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	3,002	47,866	126,568	1	0/1/0	4	31,642.00	6.93
Clare	127,938	4.32	1,370	0	126,568	1	0/1/0	4	31,642.00	6.93
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	8,874	0	158,210	1	0/0/1	5	31,642.00	6.93
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	22,408	126,568	1	0/1/0	4	31,642.00	6.93
Laois	91,877	3.10	26,763	46,064	111,178	1	0/1/0	4	27,794.50	-6.07
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	10,800	220,336	2	0/2/0	8	27,542.00	-6.93
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	17,422	157,125	1	0/0/1	5	31,425.00	6.19
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	27,018	110,168	1	0/1/0	4	27,542.00	-6.93
Roscommon	70,259	2.37	0	39,909	110,168	1	0/1/0	4	27,542.00	-6.93
Sligo	70,198	2.37	0	39,970	110,168	1	0/1/0	4	27,542.00	-6.93
Tipperary	167,895	5.67	9,685	0	158,210	1	0/0/1	5	31,642.00	6.93
Waterford	127,363	4.30	795	0	126,568	1	0/1/0	4	31,642.00	6.93

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	13,947	110,168	1	0/1/0	4	27,542.00	-6.93
Wexford	163,919	5.54	5,709	0	158,210	1	0/0/1	5	31,642.00	6.93
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 121: 16 Transfers (Total 265404)

From	To	Volume	Percent of From
Carlow	Kilkenny	15,904	25.66
Carlow	Laois	46,064	74.34
Laois	Offaly	26,763	29.13
Longford	Westmeath	10,945	23.41
Longford	Roscommon	35,806	76.59
Wexford	Kilkenny	5,709	3.48
Clare	Limerick	1,370	1.07
Tipperary	Offaly	255	0.15
Tipperary	Limerick	9,430	5.62
Waterford	Kilkenny	795	0.62
Leitrim	Roscommon	4,103	11.66
Leitrim	Sligo	31,096	88.34
Cavan	Westmeath	3,002	3.67
Donegal	Sligo	8,874	5.31
Monaghan	Louth	17,422	26.68
Monaghan	Cavan	47,866	73.32

Figure 41: Sol40 (174 seats, 38 constituencies, 16 transfers, 29,668.87 persons per TD,  $\Delta_{max}$  2,050 (6.93% of 29,592), weighted variation 3.92%)



### 3.41 Solution Sol41

Table 122: Solution 41

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol41	174	2,100	7.10	14.19	27,492.00	31,692.00	29,674.92	2,400,901.32	4.38	15	263,754	38	0/16/22	4.58	Optimal	0.15	0.0033

Table 123: Counties

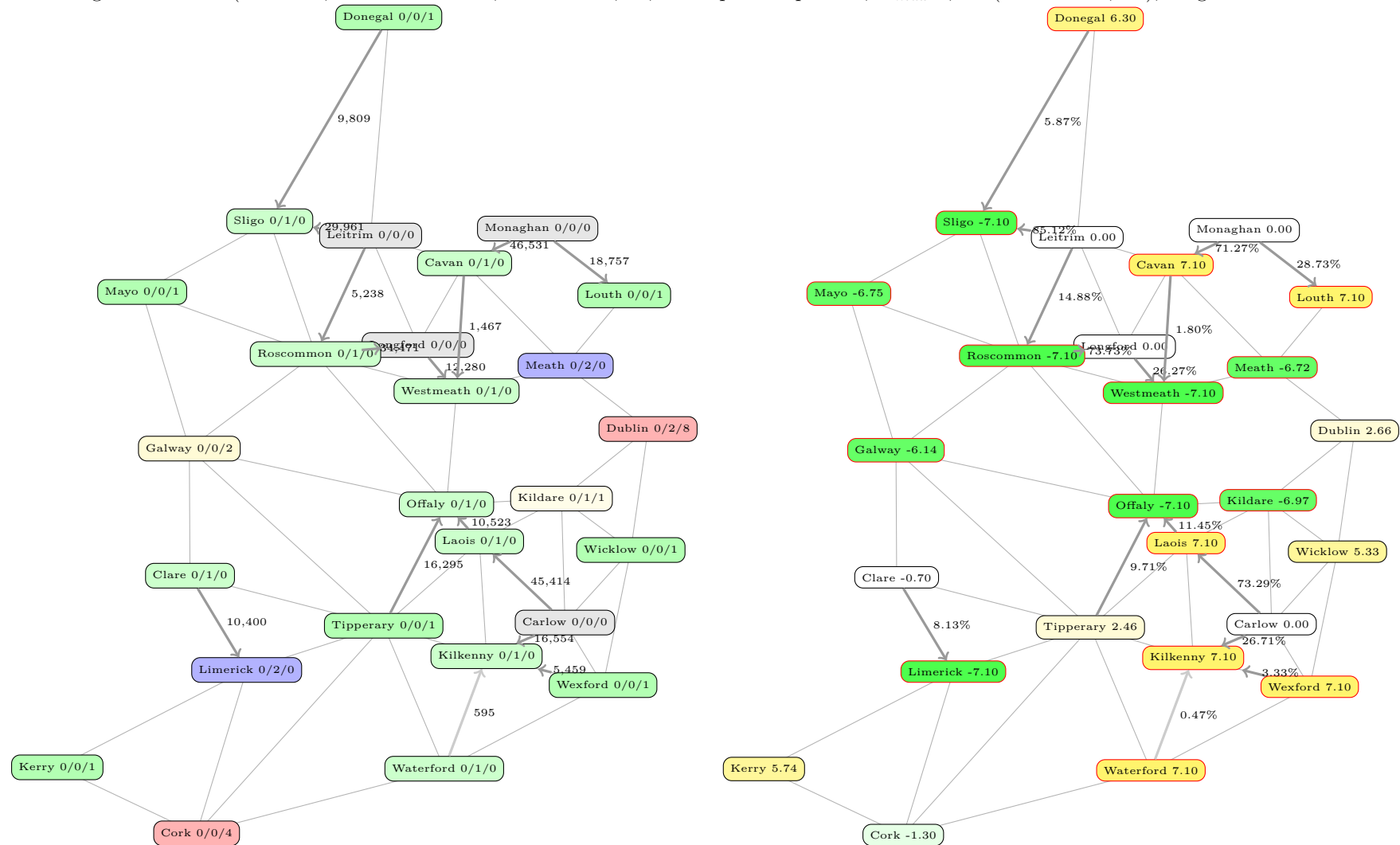
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	1,467	46,531	126,768	1	0/1/0	4	31,692.00	7.10
Clare	127,938	4.32	10,400	0	117,538	1	0/1/0	4	29,384.50	-0.70
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	9,809	0	157,275	1	0/0/1	5	31,455.00	6.30
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/2/8	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/1/1	9	27,530.44	-6.97
Kilkenny	104,160	3.52	0	22,608	126,768	1	0/1/0	4	31,692.00	7.10
Laois	91,877	3.10	10,523	45,414	126,768	1	0/1/0	4	31,692.00	7.10
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	10,400	219,936	2	0/2/0	8	27,492.00	-7.10
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	18,757	158,460	1	0/0/1	5	31,692.00	7.10
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	26,818	109,968	1	0/1/0	4	27,492.00	-7.10
Roscommon	70,259	2.37	0	39,709	109,968	1	0/1/0	4	27,492.00	-7.10
Sligo	70,198	2.37	0	39,770	109,968	1	0/1/0	4	27,492.00	-7.10
Tipperary	167,895	5.67	16,295	0	151,600	1	0/0/1	5	30,320.00	2.46
Waterford	127,363	4.30	595	0	126,768	1	0/1/0	4	31,692.00	7.10

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	13,747	109,968	1	0/1/0	4	27,492.00	-7.10
Wexford	163,919	5.54	5,459	0	158,460	1	0/0/1	5	31,692.00	7.10
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 124: 15 Transfers (Total 263754)

From	To	Volume	Percent of From
Carlow	Kilkenny	16,554	26.71
Carlow	Laois	45,414	73.29
Laois	Offaly	10,523	11.45
Longford	Westmeath	12,280	26.27
Longford	Roscommon	34,471	73.73
Wexford	Kilkenny	5,459	3.33
Clare	Limerick	10,400	8.13
Tipperary	Offaly	16,295	9.71
Waterford	Kilkenny	595	0.47
Leitrim	Roscommon	5,238	14.88
Leitrim	Sligo	29,961	85.12
Cavan	Westmeath	1,467	1.80
Donegal	Sligo	9,809	5.87
Monaghan	Louth	18,757	28.73
Monaghan	Cavan	46,531	71.27

Figure 42: Sol41 (174 seats, 38 constituencies, 15 transfers, 29,674.92 persons per TD,  $\Delta_{max}$  2,100 (7.10% of 29,592), weighted variation 4.38%)



### 3.42 Solution Sol42

Table 125: Solution 42

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol42	174	2,150	7.27	14.53	27,442.00	31,742.00	29,691.43	2,887,066.56	5.18	14	262,104	38	0/16/22	4.58	Optimal	0.16	0.0080

Table 126: Counties

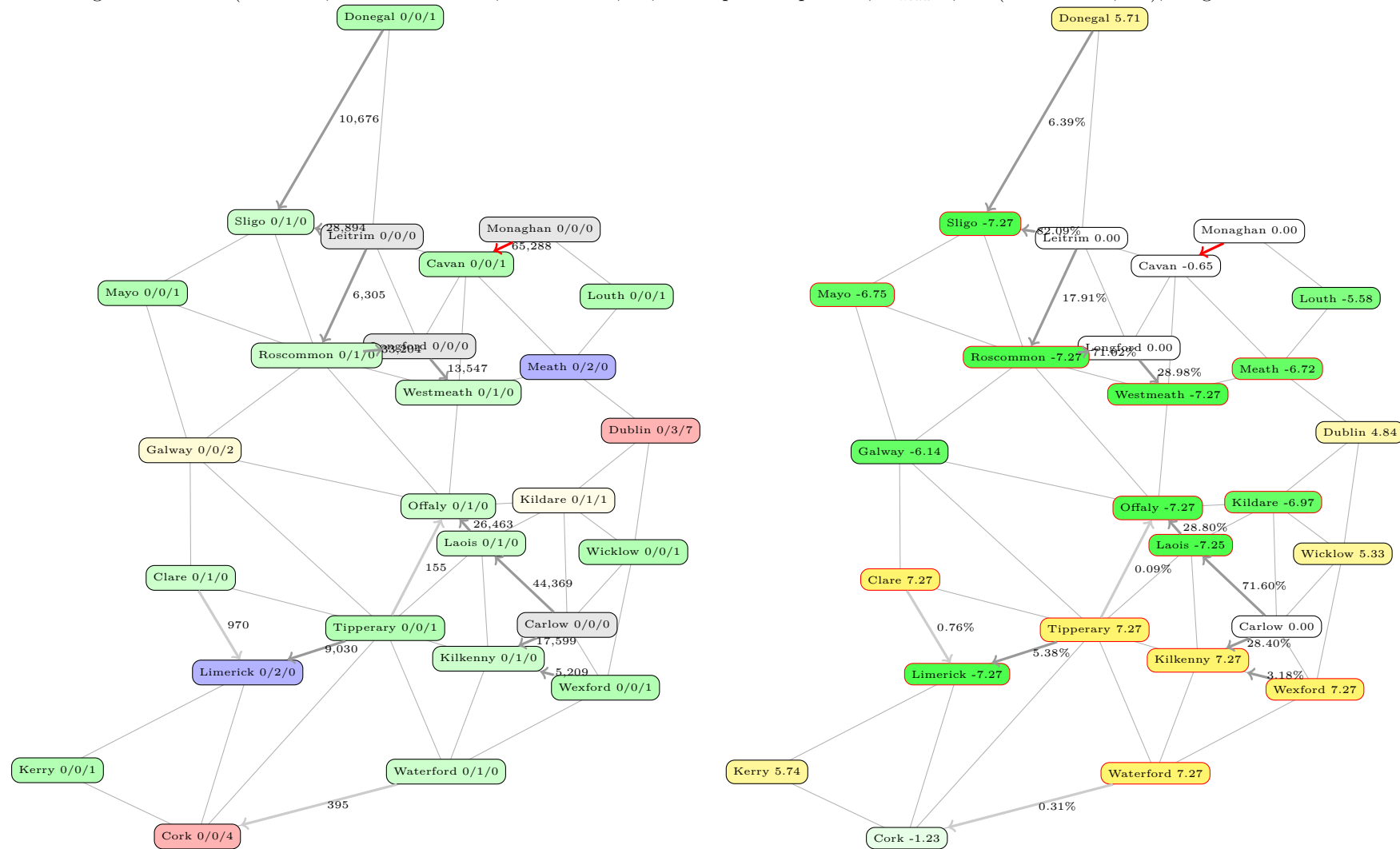
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	970	0	126,968	1	0/1/0	4	31,742.00	7.27
Cork	584,156	19.74	0	395	584,551	4	0/0/4	20	29,227.55	-1.23
Donegal	167,084	5.65	10,676	0	156,408	1	0/0/1	5	31,281.60	5.71
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/3/7	47	31,024.55	4.84
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/1/1	9	27,530.44	-6.97
Kilkenny	104,160	3.52	0	22,808	126,968	1	0/1/0	4	31,742.00	7.27
Laois	91,877	3.10	26,463	44,369	109,783	1	0/1/0	4	27,445.75	-7.25
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	10,000	219,536	2	0/2/0	8	27,442.00	-7.27
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	26,618	109,768	1	0/1/0	4	27,442.00	-7.27
Roscommon	70,259	2.37	0	39,509	109,768	1	0/1/0	4	27,442.00	-7.27
Sligo	70,198	2.37	0	39,570	109,768	1	0/1/0	4	27,442.00	-7.27
Tipperary	167,895	5.67	9,185	0	158,710	1	0/0/1	5	31,742.00	7.27
Waterford	127,363	4.30	395	0	126,968	1	0/1/0	4	31,742.00	7.27

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	13,547	109,768	1	0/1/0	4	27,442.00	-7.27
Wexford	163,919	5.54	5,209	0	158,710	1	0/0/1	5	31,742.00	7.27
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 127: 14 Transfers (Total 262104)

From	To	Volume	Percent of From
Carlow	Kilkenny	17,599	28.40
Carlow	Laois	44,369	71.60
Laois	Offaly	26,463	28.80
Longford	Westmeath	13,547	28.98
Longford	Roscommon	33,204	71.02
Wexford	Kilkenny	5,209	3.18
Clare	Limerick	970	0.76
Tipperary	Offaly	155	0.09
Tipperary	Limerick	9,030	5.38
Waterford	Cork	395	0.31
Leitrim	Roscommon	6,305	17.91
Leitrim	Sligo	28,894	82.09
Donegal	Sligo	10,676	6.39
Monaghan	Cavan	65,288	100.00



Figure 43: Sol42 (174 seats, 38 constituencies, 14 transfers, 29,691.43 persons per TD,  $\Delta_{max}$  2,150 (7.27% of 29,592), weighted variation 5.18%)

### 3.43 Solution Sol43

Table 128: Solution 43

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol43	174	2,200	7.43	14.87	27,392.00	31,792.00	29,668.97	2,241,595.20	3.72	15	260,454	38	0/16/22	4.58	Optimal	0.13	0.0069

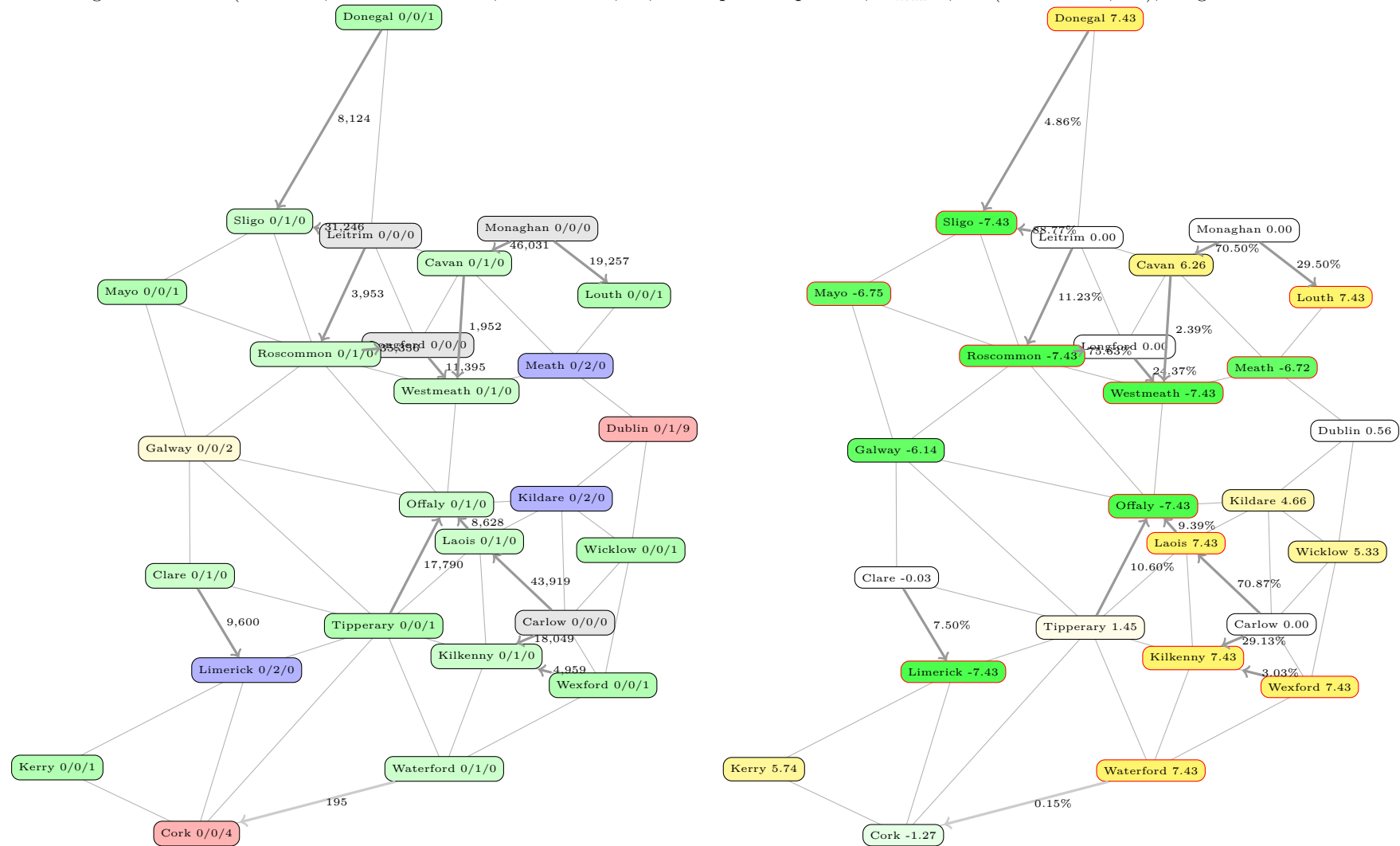
Table 129: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	1,952	46,031	125,783	1	0/1/0	4	31,445.75	6.26
Clare	127,938	4.32	9,600	0	118,338	1	0/1/0	4	29,584.50	-0.03
Cork	584,156	19.74	0	195	584,351	4	0/0/4	20	29,217.55	-1.27
Donegal	167,084	5.65	8,124	0	158,960	1	0/0/1	5	31,792.00	7.43
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	23,008	127,168	1	0/1/0	4	31,792.00	7.43
Laois	91,877	3.10	8,628	43,919	127,168	1	0/1/0	4	31,792.00	7.43
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	9,600	219,136	2	0/2/0	8	27,392.00	-7.43
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	19,257	158,960	1	0/0/1	5	31,792.00	7.43
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	26,418	109,568	1	0/1/0	4	27,392.00	-7.43
Roscommon	70,259	2.37	0	39,309	109,568	1	0/1/0	4	27,392.00	-7.43
Sligo	70,198	2.37	0	39,370	109,568	1	0/1/0	4	27,392.00	-7.43
Tipperary	167,895	5.67	17,790	0	150,105	1	0/0/1	5	30,021.00	1.45
Waterford	127,363	4.30	195	0	127,168	1	0/1/0	4	31,792.00	7.43

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	13,347	109,568	1	0/1/0	4	27,392.00	-7.43
Wexford	163,919	5.54	4,959	0	158,960	1	0/0/1	5	31,792.00	7.43
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 130: 15 Transfers (Total 260454)

From	To	Volume	Percent of From
Carlow	Kilkenny	18,049	29.13
Carlow	Laois	43,919	70.87
Laois	Offaly	8,628	9.39
Longford	Westmeath	11,395	24.37
Longford	Roscommon	35,356	75.63
Wexford	Kilkenny	4,959	3.03
Clare	Limerick	9,600	7.50
Tipperary	Offaly	17,790	10.60
Waterford	Cork	195	0.15
Leitrim	Roscommon	3,953	11.23
Leitrim	Sligo	31,246	88.77
Cavan	Westmeath	1,952	2.39
Donegal	Sligo	8,124	4.86
Monaghan	Louth	19,257	29.50
Monaghan	Cavan	46,031	70.50

Figure 44: Sol43 (174 seats, 38 constituencies, 15 transfers, 29,668.97 persons per TD,  $\Delta_{max}$  2,200 (7.43% of 29,592), weighted variation 3.72%)

### 3.44 Solution Sol44

Table 131: Solution 44

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol44	174	2,250	7.60	15.21	27,342.00	31,842.00	29,696.45	3,034,619.89	5.30	13	258,809	38	0/16/22	4.58	Optimal	0.13	0.0000

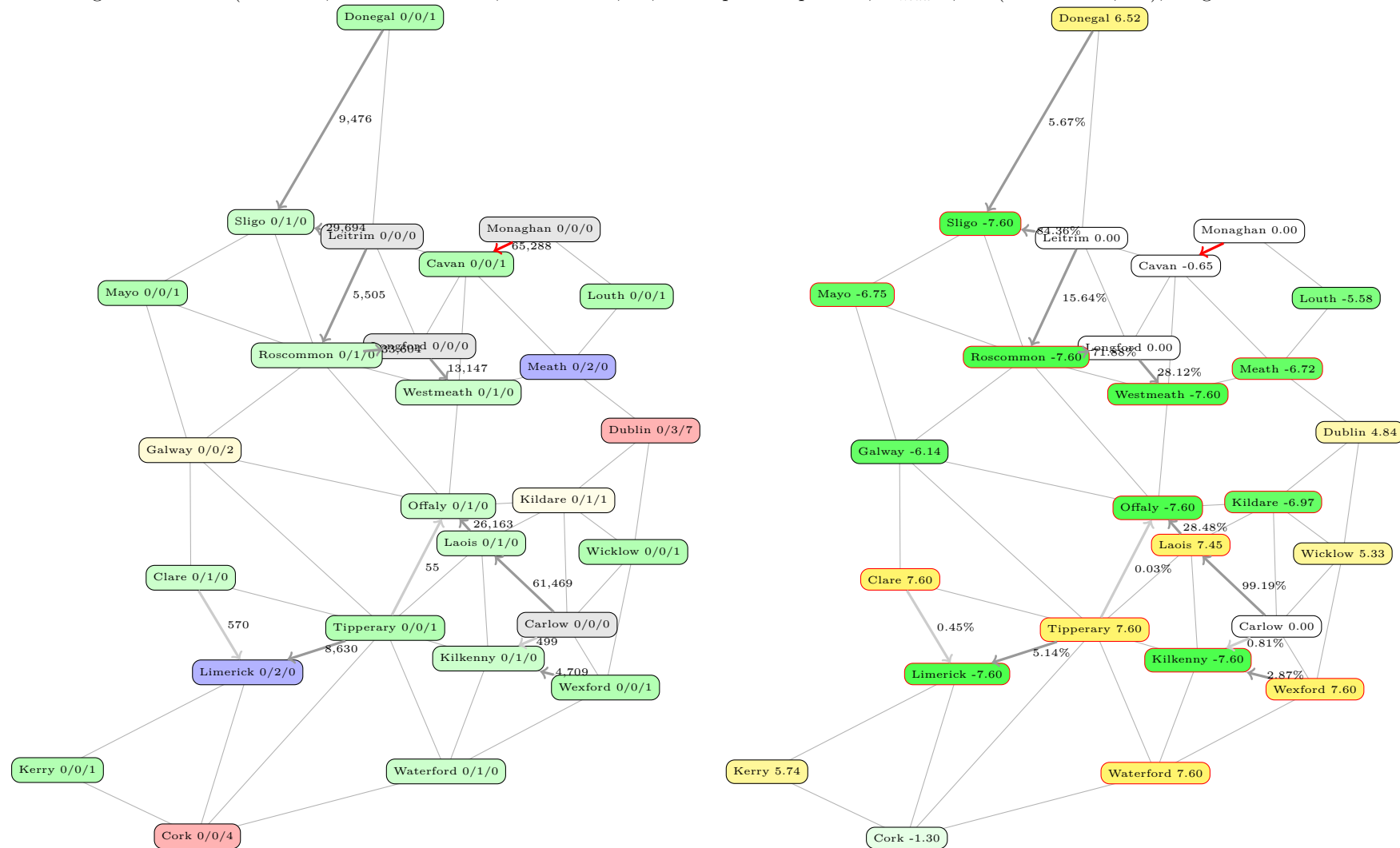
Table 132: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	570	0	127,368	1	0/1/0	4	31,842.00	7.60
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	9,476	0	157,608	1	0/0/1	5	31,521.60	6.52
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/3/7	47	31,024.55	4.84
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/1/1	9	27,530.44	-6.97
Kilkenny	104,160	3.52	0	5,208	109,368	1	0/1/0	4	27,342.00	-7.60
Laois	91,877	3.10	26,163	61,469	127,183	1	0/1/0	4	31,795.75	7.45
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	9,200	218,736	2	0/2/0	8	27,342.00	-7.60
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	26,218	109,368	1	0/1/0	4	27,342.00	-7.60
Roscommon	70,259	2.37	0	39,109	109,368	1	0/1/0	4	27,342.00	-7.60
Sligo	70,198	2.37	0	39,170	109,368	1	0/1/0	4	27,342.00	-7.60
Tipperary	167,895	5.67	8,685	0	159,210	1	0/0/1	5	31,842.00	7.60
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	13,147	109,368	1	0/1/0	4	27,342.00	-7.60
Wexford	163,919	5.54	4,709	0	159,210	1	0/0/1	5	31,842.00	7.60
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 133: 13 Transfers (Total 258809)

From	To	Volume	Percent of From
Carlow	Kilkenny	499	0.81
Carlow	Laois	61,469	99.19
Laois	Offaly	26,163	28.48
Longford	Westmeath	13,147	28.12
Longford	Roscommon	33,604	71.88
Wexford	Kilkenny	4,709	2.87
Clare	Limerick	570	0.45
Tipperary	Offaly	55	0.03
Tipperary	Limerick	8,630	5.14
Leitrim	Roscommon	5,505	15.64
Leitrim	Sligo	29,694	84.36
Donegal	Sligo	9,476	5.67
Monaghan	Cavan	65,288	100.00

Figure 45: Sol44 (174 seats, 38 constituencies, 13 transfers, 29,696.45 persons per TD,  $\Delta_{max}$  2,250 (7.60% of 29,592), weighted variation 5.30%)

### 3.45 Solution Sol45

Table 134: Solution 45

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol45	174	2,300	7.77	15.54	27,292.00	31,892.00	29,673.72	2,364,784.84	4.26	13	257,359	38	0/16/22	4.58	Optimal	0.17	0.0082

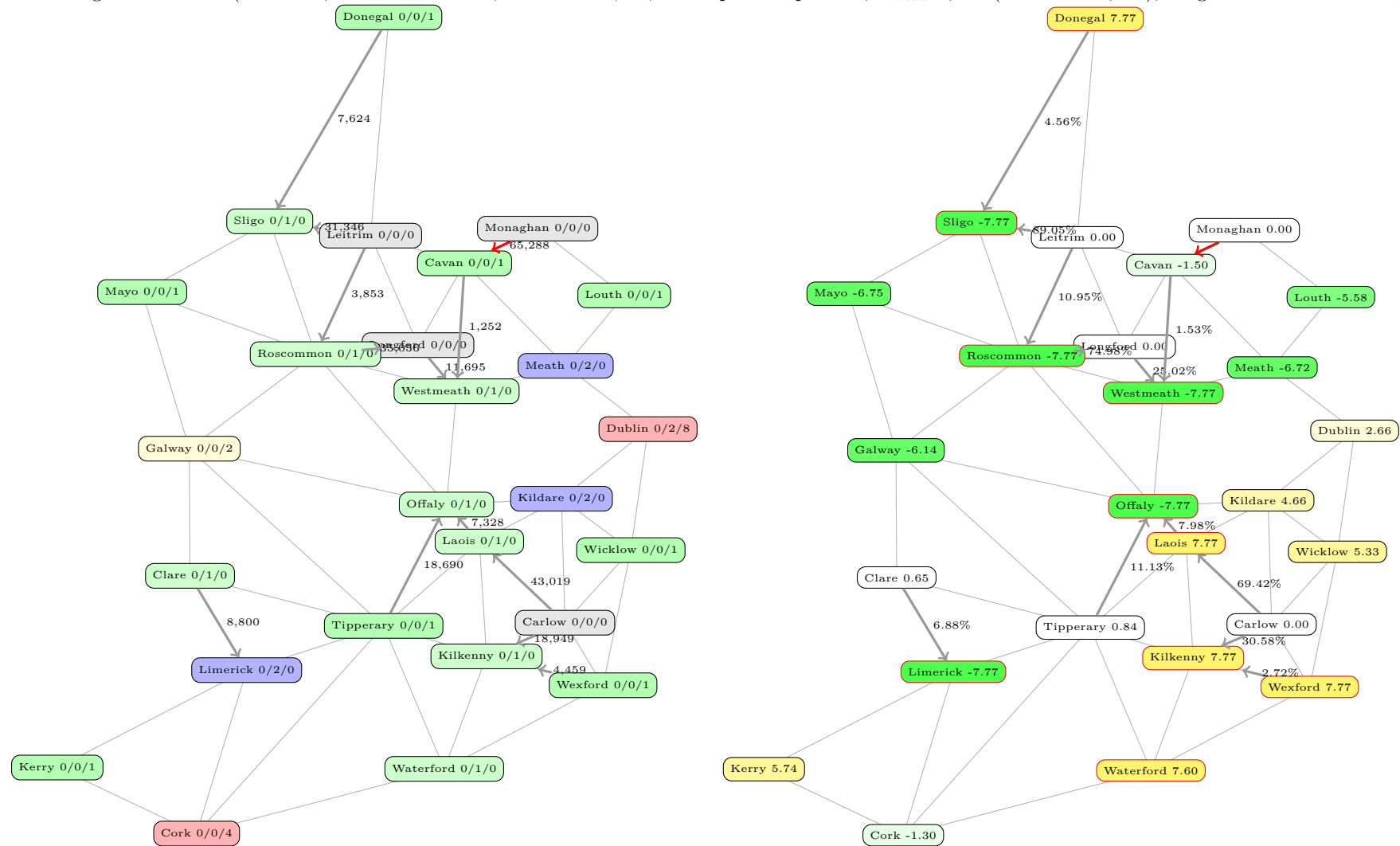
Table 135: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	1,252	65,288	145,740	1	0/0/1	5	29,148.00	-1.50
Clare	127,938	4.32	8,800	0	119,138	1	0/1/0	4	29,784.50	0.65
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	7,624	0	159,460	1	0/0/1	5	31,892.00	7.77
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/2/8	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	23,408	127,568	1	0/1/0	4	31,892.00	7.77
Laois	91,877	3.10	7,328	43,019	127,568	1	0/1/0	4	31,892.00	7.77
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	8,800	218,336	2	0/2/0	8	27,292.00	-7.77
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	26,018	109,168	1	0/1/0	4	27,292.00	-7.77
Roscommon	70,259	2.37	0	38,909	109,168	1	0/1/0	4	27,292.00	-7.77
Sligo	70,198	2.37	0	38,970	109,168	1	0/1/0	4	27,292.00	-7.77
Tipperary	167,895	5.67	18,690	0	149,205	1	0/0/1	5	29,841.00	0.84
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	12,947	109,168	1	0/1/0	4	27,292.00	-7.77
Wexford	163,919	5.54	4,459	0	159,460	1	0/0/1	5	31,892.00	7.77
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 136: 13 Transfers (Total 257359)			
From	To	Volume	Percent of From
Carlow	Kilkenny	18,949	30.58
Carlow	Laois	43,019	69.42
Laois	Offaly	7,328	7.98
Longford	Westmeath	11,695	25.02
Longford	Roscommon	35,056	74.98
Wexford	Kilkenny	4,459	2.72
Clare	Limerick	8,800	6.88
Tipperary	Offaly	18,690	11.13
Leitrim	Roscommon	3,853	10.95
Leitrim	Sligo	31,346	89.05
Cavan	Westmeath	1,252	1.53
Donegal	Sligo	7,624	4.56
Monaghan	Cavan	65,288	100.00

Figure 46: Sol45 (174 seats, 38 constituencies, 13 transfers, 29,673.72 persons per TD,  $\Delta_{max}$  2,300 (7.77% of 29,592), weighted variation 4.26%)

### 3.46 Solution Sol46

Table 137: Solution 46

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol46	174	2,350	7.94	15.88	27,242.00	31,942.00	29,684.82	2,692,038.26	4.70	14	255,909	38	0/16/22	4.58	Optimal	0.10	0.0066

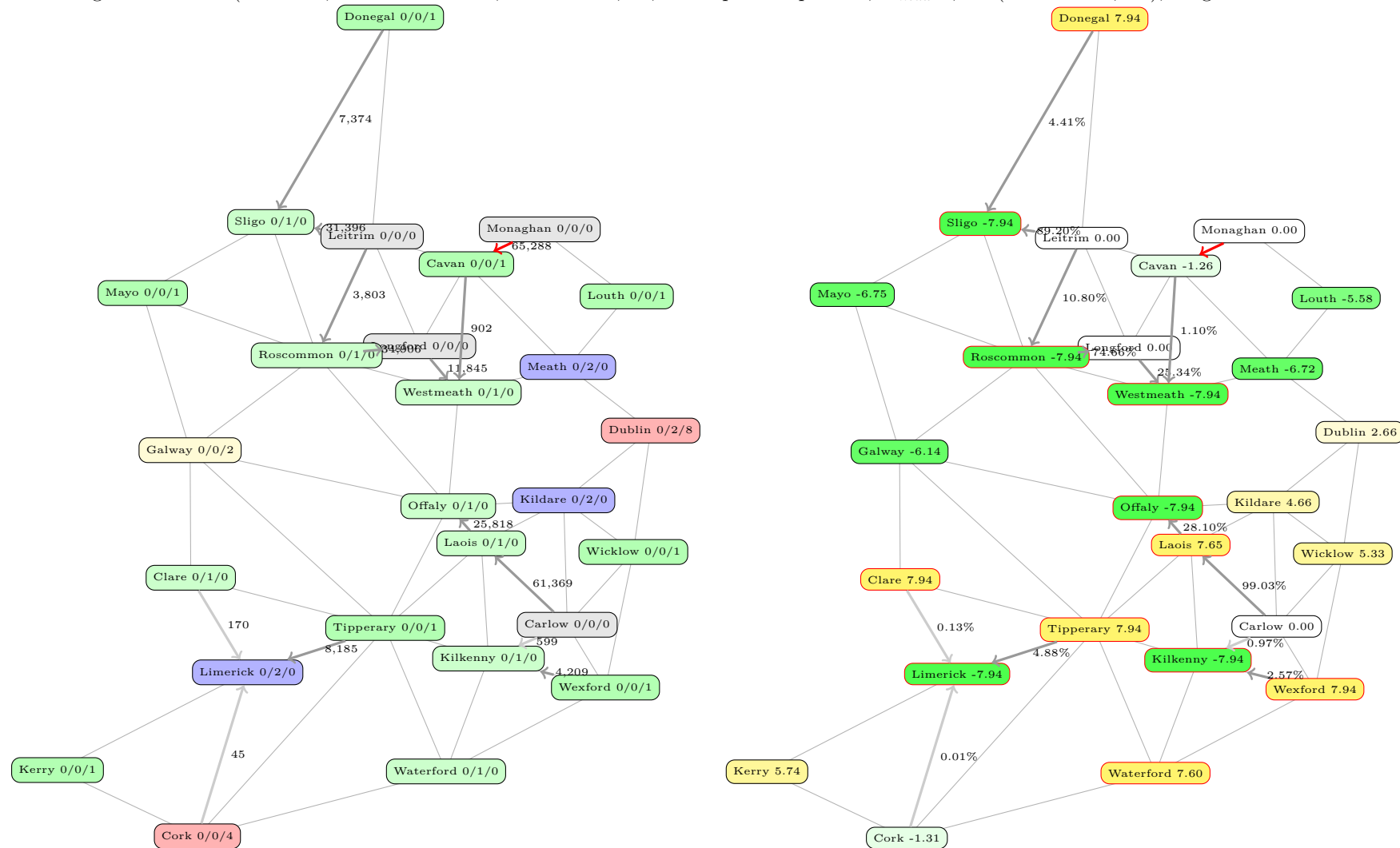
Table 138: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	902	65,288	146,090	1	0/0/1	5	29,218.00	-1.26
Clare	127,938	4.32	170	0	127,768	1	0/1/0	4	31,942.00	7.94
Cork	584,156	19.74	45	0	584,111	4	0/0/4	20	29,205.55	-1.31
Donegal	167,084	5.65	7,374	0	159,710	1	0/0/1	5	31,942.00	7.94
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/2/8	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	4,808	108,968	1	0/1/0	4	27,242.00	-7.94
Laois	91,877	3.10	25,818	61,369	127,428	1	0/1/0	4	31,857.00	7.65
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	8,400	217,936	2	0/2/0	8	27,242.00	-7.94
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	25,818	108,968	1	0/1/0	4	27,242.00	-7.94
Roscommon	70,259	2.37	0	38,709	108,968	1	0/1/0	4	27,242.00	-7.94
Sligo	70,198	2.37	0	38,770	108,968	1	0/1/0	4	27,242.00	-7.94
Tipperary	167,895	5.67	8,185	0	159,710	1	0/0/1	5	31,942.00	7.94
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	12,747	108,968	1	0/1/0	4	27,242.00	-7.94
Wexford	163,919	5.54	4,209	0	159,710	1	0/0/1	5	31,942.00	7.94
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 139: 14 Transfers (Total 255909)

From	To	Volume	Percent of From
Carlow	Kilkenny	599	0.97
Carlow	Laois	61,369	99.03
Laois	Offaly	25,818	28.10
Longford	Westmeath	11,845	25.34
Longford	Roscommon	34,906	74.66
Wexford	Kilkenny	4,209	2.57
Clare	Limerick	170	0.13
Cork	Limerick	45	0.01
Tipperary	Limerick	8,185	4.88
Leitrim	Roscommon	3,803	10.80
Leitrim	Sligo	31,396	89.20
Cavan	Westmeath	902	1.10
Donegal	Sligo	7,374	4.41
Monaghan	Cavan	65,288	100.00

Figure 47: Sol46 (174 seats, 38 constituencies, 14 transfers, 29,684.82 persons per TD,  $\Delta_{max}$  2,350 (7.94% of 29,592), weighted variation 4.70%)

### 3.47 Solution Sol47

Table 140: Solution 47

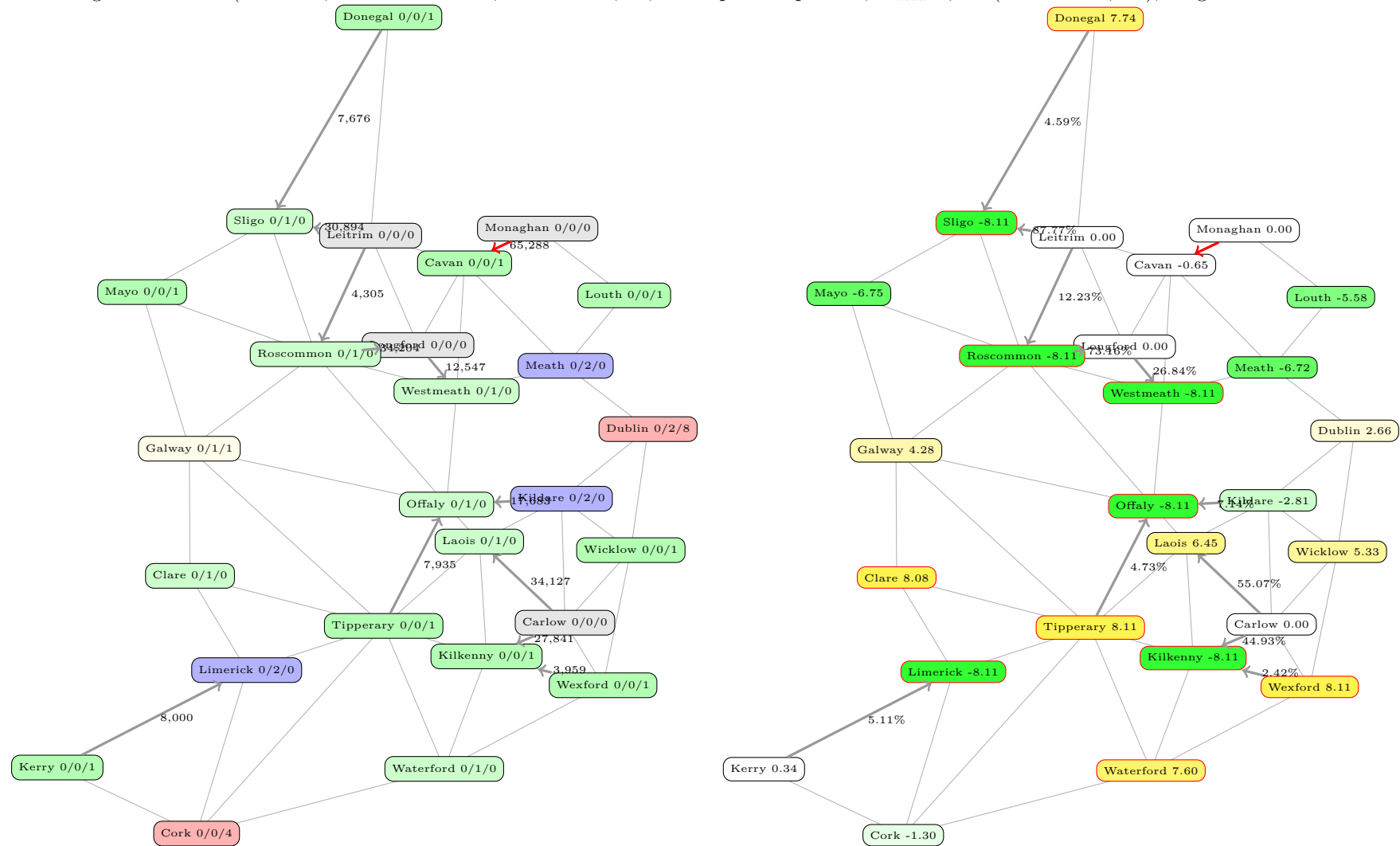
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol47	174	2,400	8.11	16.22	27,192.00	31,992.00	29,678.03	2,487,980.53	4.34	12	254,459	38	0/16/22	4.58	Optimal	0.13	0.0098

Table 141: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	7,676	0	159,408	1	0/0/1	5	31,881.60	7.74
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/2/8	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/1/1	9	30,859.67	4.28
Kerry	156,458	5.29	8,000	0	148,458	1	0/0/1	5	29,691.60	0.34
Kildare	247,774	8.37	17,683	0	230,091	2	0/2/0	8	28,761.38	-2.81
Kilkenny	104,160	3.52	0	31,800	135,960	1	0/0/1	5	27,192.00	-8.11
Laois	91,877	3.10	0	34,127	126,004	1	0/1/0	4	31,501.00	6.45
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	8,000	217,536	2	0/2/0	8	27,192.00	-8.11
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	25,618	108,768	1	0/1/0	4	27,192.00	-8.11
Roscommon	70,259	2.37	0	38,509	108,768	1	0/1/0	4	27,192.00	-8.11
Sligo	70,198	2.37	0	38,570	108,768	1	0/1/0	4	27,192.00	-8.11
Tipperary	167,895	5.67	7,935	0	159,960	1	0/0/1	5	31,992.00	8.11
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	12,547	108,768	1	0/1/0	4	27,192.00	-8.11
Wexford	163,919	5.54	3,959	0	159,960	1	0/0/1	5	31,992.00	8.11
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 142: 12 Transfers (Total 254459)			
From	To	Volume	Percent of From
Carlow	Kilkenny	27,841	44.93
Carlow	Laois	34,127	55.07
Kildare	Offaly	17,683	7.14
Longford	Westmeath	12,547	26.84
Longford	Roscommon	34,204	73.16
Wexford	Kilkenny	3,959	2.42
Kerry	Limerick	8,000	5.11
Tipperary	Offaly	7,935	4.73
Leitrim	Roscommon	4,305	12.23
Leitrim	Sligo	30,894	87.77
Donegal	Sligo	7,676	4.59
Monaghan	Cavan	65,288	100.00

Figure 48: Sol47 (174 seats, 38 constituencies, 12 transfers, 29,678.03 persons per TD,  $\Delta_{max}$  2,400 (8.11% of 29,592), weighted variation 4.34%)



### 3.48 Solution Sol48

Table 143: Solution 48

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol48	174	2,450	8.28	16.56	27,142.00	32,042.00	29,690.24	2,886,429.19	4.41	14	253,009	38	0/16/22	4.58	Optimal	0.12	0.0025

Table 144: Counties

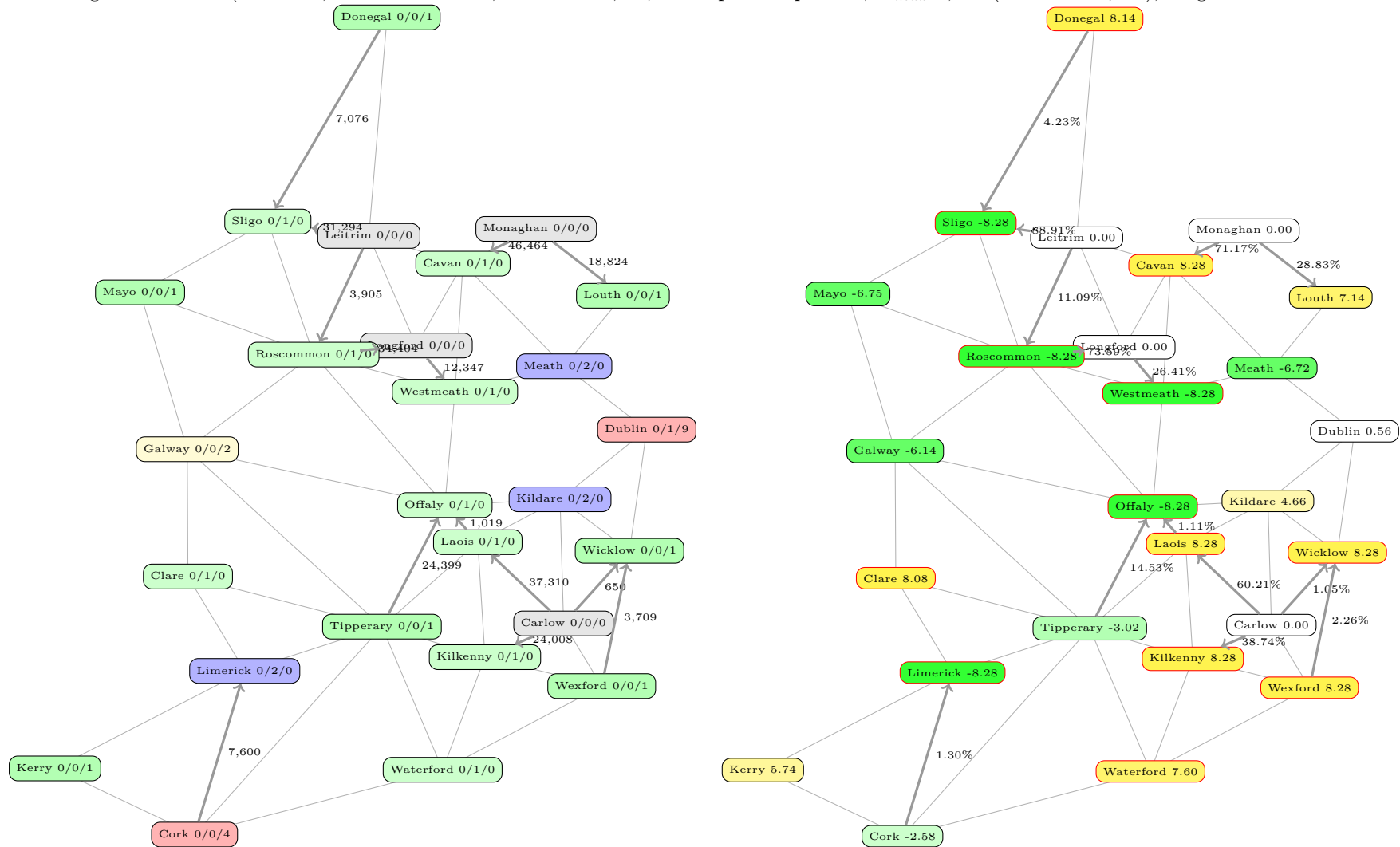
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	46,464	128,168	1	0/1/0	4	32,042.00	8.28
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	7,600	0	576,556	4	0/0/4	20	28,827.80	-2.58
Donegal	167,084	5.65	7,076	0	160,008	1	0/0/1	5	32,001.60	8.14
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	24,008	128,168	1	0/1/0	4	32,042.00	8.28
Laois	91,877	3.10	1,019	37,310	128,168	1	0/1/0	4	32,042.00	8.28
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	7,600	217,136	2	0/2/0	8	27,142.00	-8.28
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	18,824	158,527	1	0/0/1	5	31,705.40	7.14
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	25,418	108,568	1	0/1/0	4	27,142.00	-8.28
Roscommon	70,259	2.37	0	38,309	108,568	1	0/1/0	4	27,142.00	-8.28
Sligo	70,198	2.37	0	38,370	108,568	1	0/1/0	4	27,142.00	-8.28
Tipperary	167,895	5.67	24,399	0	143,496	1	0/0/1	5	28,699.20	-3.02
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	12,347	108,568	1	0/1/0	4	27,142.00	-8.28
Wexford	163,919	5.54	3,709	0	160,210	1	0/0/1	5	32,042.00	8.28
Wicklow	155,851	5.27	0	4,359	160,210	1	0/0/1	5	32,042.00	8.28

Table 145: 14 Transfers (Total 253009)

From	To	Volume	Percent of From
Carlow	Kilkenny	24,008	38.74
Carlow	Laois	37,310	60.21
Carlow	Wicklow	650	1.05
Laois	Offaly	1,019	1.11
Longford	Westmeath	12,347	26.41
Longford	Roscommon	34,404	73.59
Wexford	Wicklow	3,709	2.26
Cork	Limerick	7,600	1.30
Tipperary	Offaly	24,399	14.53
Leitrim	Roscommon	3,905	11.09
Leitrim	Sligo	31,294	88.91
Donegal	Sligo	7,076	4.23
Monaghan	Louth	18,824	28.83
Monaghan	Cavan	46,464	71.17

Figure 49: Sol48 (174 seats, 38 constituencies, 14 transfers, 29,690.24 persons per TD,  $\Delta_{max}$  2,450 (8.28% of 29,592), weighted variation 4.41%)



### 3.49 Solution Sol49

Table 146: Solution 49

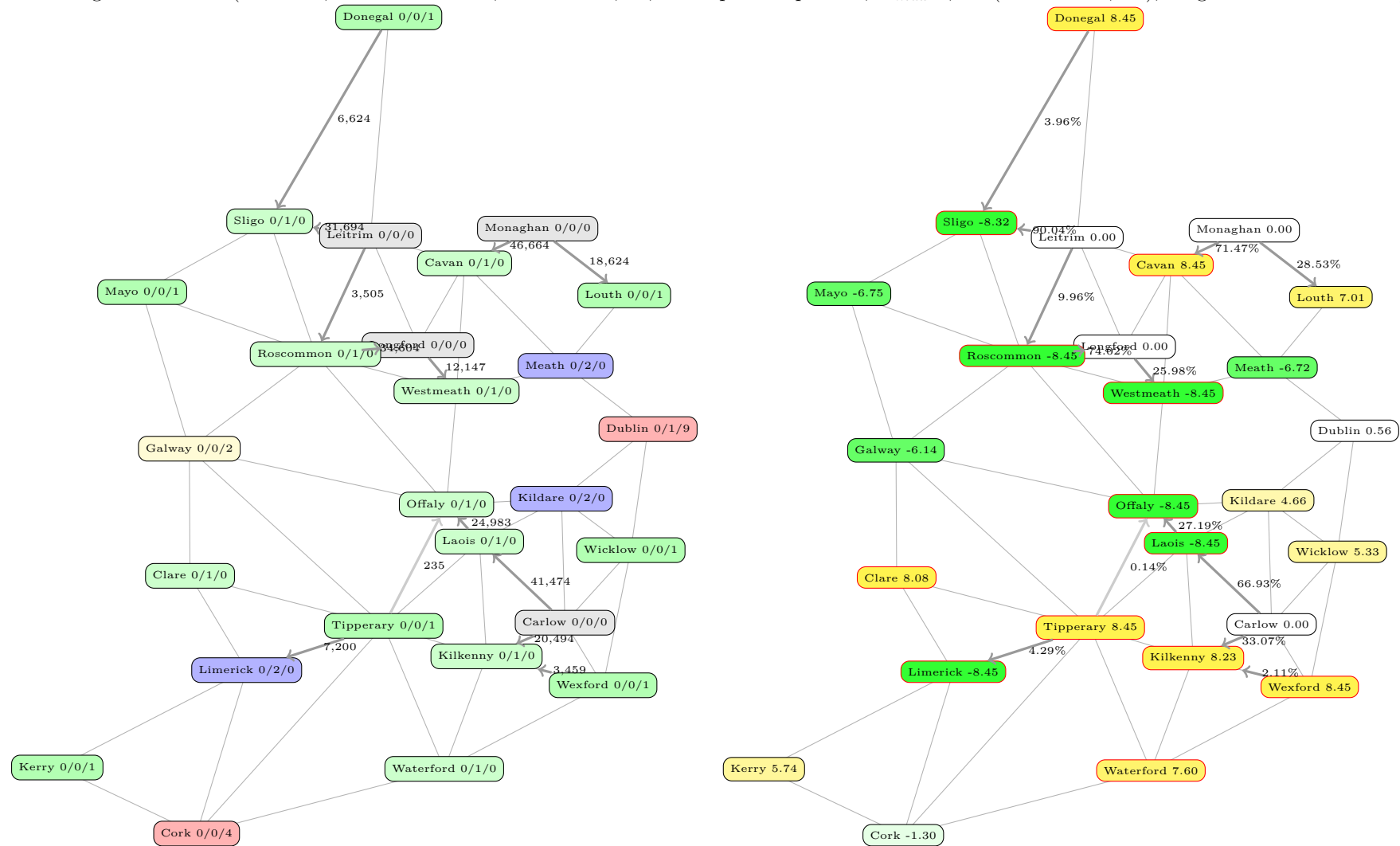
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol49	174	2,500	8.45	16.90	27,092.00	32,092.00	29,692.28	2,928,537.17	4.38	13	251,707	38	0/16/22	4.58	Optimal	0.13	0.0044

Table 147: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	46,664	128,368	1	0/1/0	4	32,092.00	8.45
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	6,624	0	160,460	1	0/0/1	5	32,092.00	8.45
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	23,953	128,113	1	0/1/0	4	32,028.25	8.23
Laois	91,877	3.10	24,983	41,474	108,368	1	0/1/0	4	27,092.00	-8.45
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	7,200	216,736	2	0/2/0	8	27,092.00	-8.45
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	18,624	158,327	1	0/0/1	5	31,665.40	7.01
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	25,218	108,368	1	0/1/0	4	27,092.00	-8.45
Roscommon	70,259	2.37	0	38,109	108,368	1	0/1/0	4	27,092.00	-8.45
Sligo	70,198	2.37	0	38,318	108,516	1	0/1/0	4	27,129.00	-8.32
Tipperary	167,895	5.67	7,435	0	160,460	1	0/0/1	5	32,092.00	8.45
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	12,147	108,368	1	0/1/0	4	27,092.00	-8.45
Wexford	163,919	5.54	3,459	0	160,460	1	0/0/1	5	32,092.00	8.45
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 148: 13 Transfers (Total 251707)			
From	To	Volume	Percent of From
Carlow	Kilkenny	20,494	33.07
Carlow	Laois	41,474	66.93
Laois	Offaly	24,983	27.19
Longford	Westmeath	12,147	25.98
Longford	Roscommon	34,604	74.02
Wexford	Kilkenny	3,459	2.11
Tipperary	Offaly	235	0.14
Tipperary	Limerick	7,200	4.29
Leitrim	Roscommon	3,505	9.96
Leitrim	Sligo	31,694	90.04
Donegal	Sligo	6,624	3.96
Monaghan	Louth	18,624	28.53
Monaghan	Cavan	46,664	71.47

Figure 50: Sol49 (174 seats, 38 constituencies, 13 transfers, 29,692.28 persons per TD,  $\Delta_{max}$  2,500 (8.45% of 29,592), weighted variation 4.38%)

### 3.50 Solution Sol50

Table 149: Solution 50

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol50	174	2,550	8.62	17.23	27,042.00	32,142.00	29,690.58	2,885,264.66	4.31	13	250,607	38	0/16/22	4.58	Optimal	0.15	0.0100

Table 150: Counties

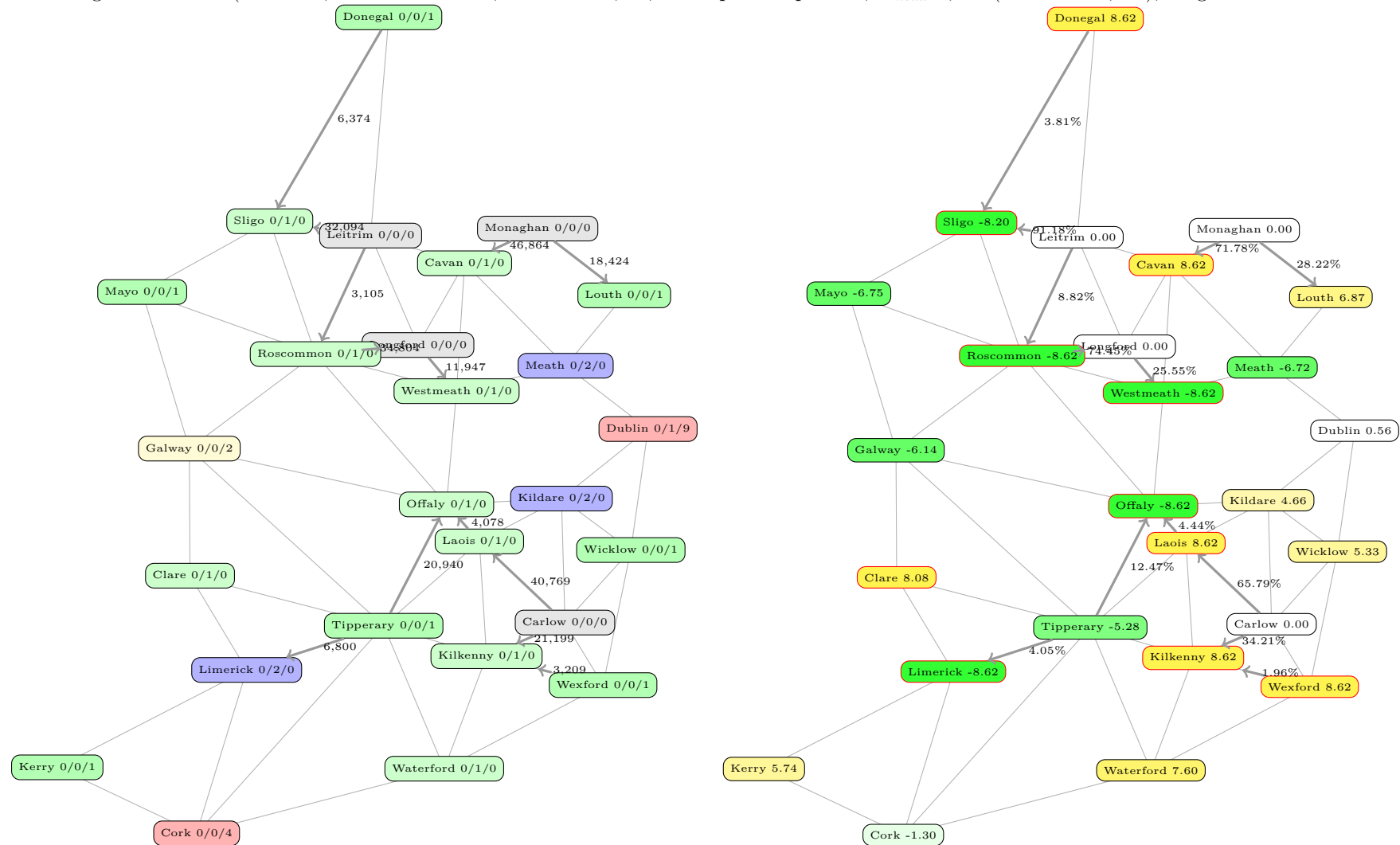
Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	46,864	128,568	1	0/1/0	4	32,142.00	8.62
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	6,374	0	160,710	1	0/0/1	5	32,142.00	8.62
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	24,408	128,568	1	0/1/0	4	32,142.00	8.62
Laois	91,877	3.10	4,078	40,769	128,568	1	0/1/0	4	32,142.00	8.62
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	6,800	216,336	2	0/2/0	8	27,042.00	-8.62
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	18,424	158,127	1	0/0/1	5	31,625.40	6.87
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	25,018	108,168	1	0/1/0	4	27,042.00	-8.62
Roscommon	70,259	2.37	0	37,909	108,168	1	0/1/0	4	27,042.00	-8.62
Sligo	70,198	2.37	0	38,468	108,666	1	0/1/0	4	27,166.50	-8.20
Tipperary	167,895	5.67	27,740	0	140,155	1	0/0/1	5	28,031.00	-5.28
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	11,947	108,168	1	0/1/0	4	27,042.00	-8.62
Wexford	163,919	5.54	3,209	0	160,710	1	0/0/1	5	32,142.00	8.62
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 151: 13 Transfers (Total 250607)

From	To	Volume	Percent of From
Carlow	Kilkenny	21,199	34.21
Carlow	Laois	40,769	65.79
Laois	Offaly	4,078	4.44
Longford	Westmeath	11,947	25.55
Longford	Roscommon	34,804	74.45
Wexford	Kilkenny	3,209	1.96
Tipperary	Offaly	20,940	12.47
Tipperary	Limerick	6,800	4.05
Leitrim	Roscommon	3,105	8.82
Leitrim	Sligo	32,094	91.18
Donegal	Sligo	6,374	3.81
Monaghan	Louth	18,424	28.22
Monaghan	Cavan	46,864	71.78



Figure 51: Sol50 (174 seats, 38 constituencies, 13 transfers, 29,690.58 persons per TD,  $\Delta_{max}$  2,550 (8.62% of 29,592), weighted variation 4.31%)

### 3.51 Solution Sol51

Table 152: Solution 51

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol51	174	2,600	8.79	17.57	26,992.00	32,192.00	29,692.41	2,939,524.15	4.34	13	249,507	38	0/16/22	4.58	Optimal	0.13	0.0096

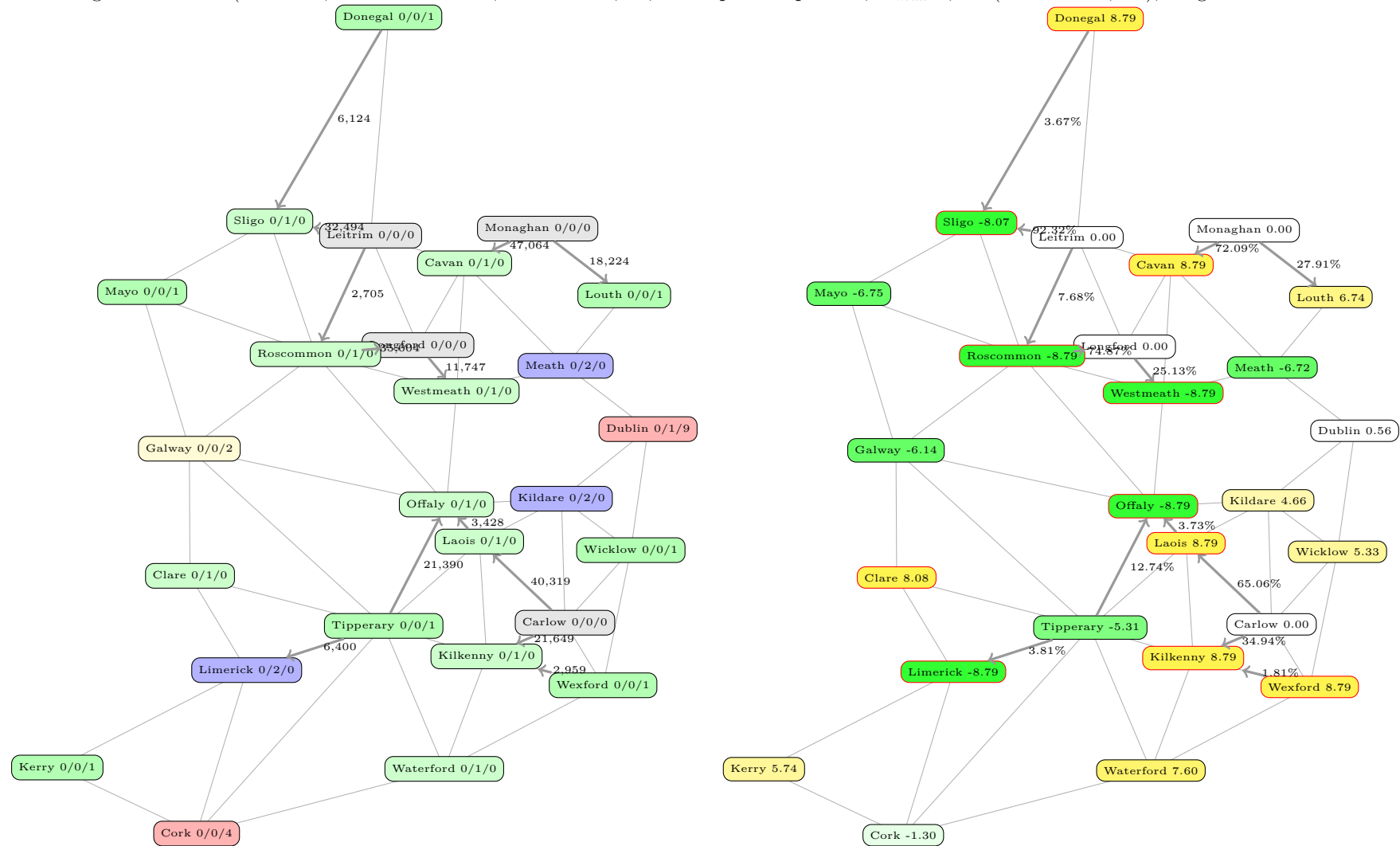
Table 153: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	47,064	128,768	1	0/1/0	4	32,192.00	8.79
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	6,124	0	160,960	1	0/0/1	5	32,192.00	8.79
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/1/9	49	29,758.24	0.56
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/2/0	8	30,971.75	4.66
Kilkenny	104,160	3.52	0	24,608	128,768	1	0/1/0	4	32,192.00	8.79
Laois	91,877	3.10	3,428	40,319	128,768	1	0/1/0	4	32,192.00	8.79
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	6,400	215,936	2	0/2/0	8	26,992.00	-8.79
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	18,224	157,927	1	0/0/1	5	31,585.40	6.74
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	24,818	107,968	1	0/1/0	4	26,992.00	-8.79
Roscommon	70,259	2.37	0	37,709	107,968	1	0/1/0	4	26,992.00	-8.79
Sligo	70,198	2.37	0	38,618	108,816	1	0/1/0	4	27,204.00	-8.07
Tipperary	167,895	5.67	27,790	0	140,105	1	0/0/1	5	28,021.00	-5.31
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	11,747	107,968	1	0/1/0	4	26,992.00	-8.79
Wexford	163,919	5.54	2,959	0	160,960	1	0/0/1	5	32,192.00	8.79
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 154: 13 Transfers (Total 249507)

From	To	Volume	Percent of From
Carlow	Kilkenny	21,649	34.94
Carlow	Laois	40,319	65.06
Laois	Offaly	3,428	3.73
Longford	Westmeath	11,747	25.13
Longford	Roscommon	35,004	74.87
Wexford	Kilkenny	2,959	1.81
Tipperary	Offaly	21,390	12.74
Tipperary	Limerick	6,400	3.81
Leitrim	Roscommon	2,705	7.68
Leitrim	Sligo	32,494	92.32
Donegal	Sligo	6,124	3.67
Monaghan	Louth	18,224	27.91
Monaghan	Cavan	47,064	72.09

Figure 52: Sol51 (174 seats, 38 constituencies, 13 transfers, 29,692.41 persons per TD,  $\Delta_{max}$  2,600 (8.79% of 29,592), weighted variation 4.34%)

### 3.52 Solution Sol52

Table 155: Solution 52

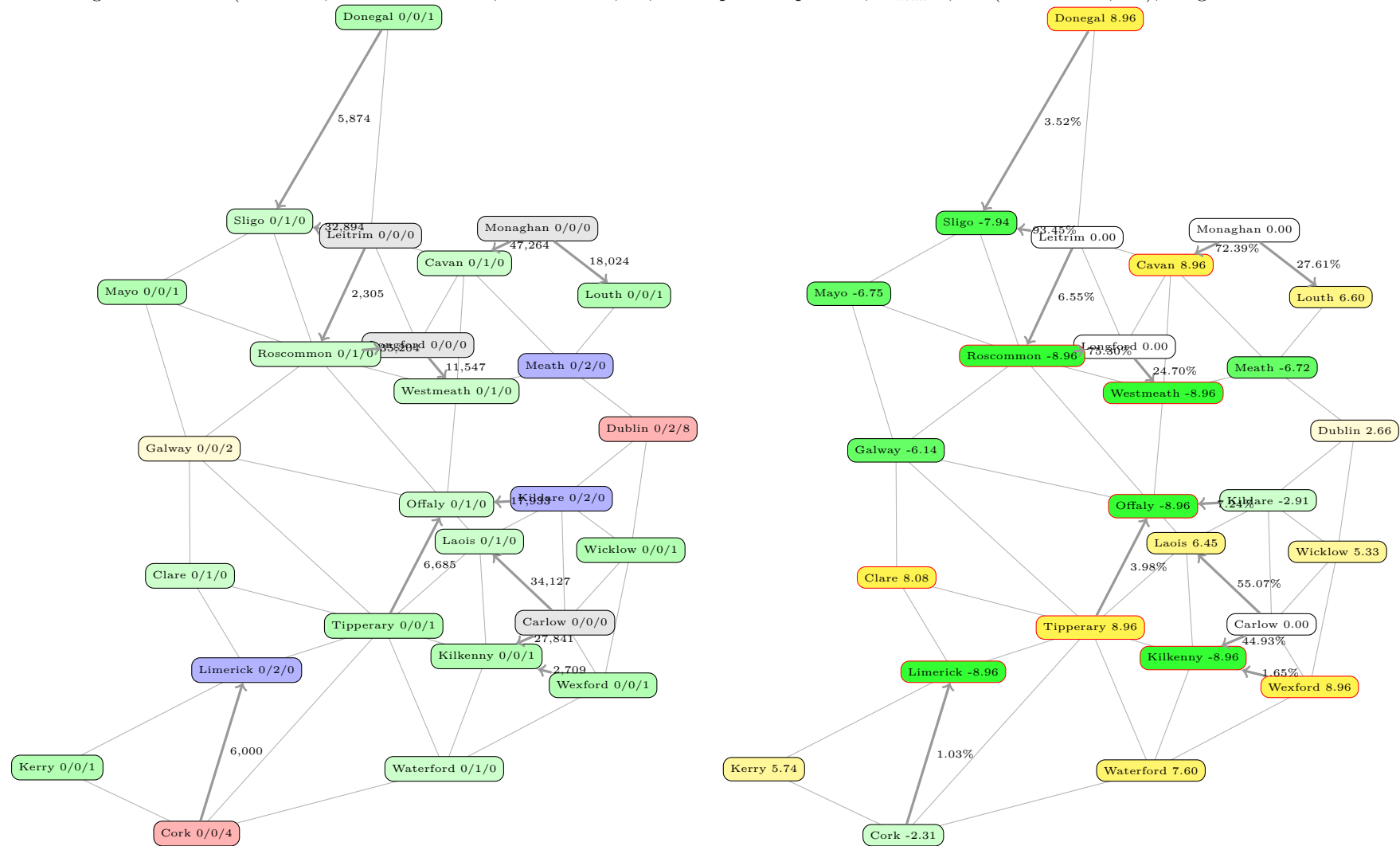
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol52	174	2,650	8.96	17.91	26,942.00	32,242.00	29,702.36	3,211,016.99	5.07	13	248,407	38	0/16/22	4.58	Optimal	0.15	0.0092

Table 156: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	47,264	128,968	1	0/1/0	4	32,242.00	8.96
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	6,000	0	578,156	4	0/0/4	20	28,907.80	-2.31
Donegal	167,084	5.65	5,874	0	161,210	1	0/0/1	5	32,242.00	8.96
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/2/8	48	30,378.21	2.66
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	17,933	0	229,841	2	0/2/0	8	28,730.13	-2.91
Kilkenny	104,160	3.52	0	30,550	134,710	1	0/0/1	5	26,942.00	-8.96
Laois	91,877	3.10	0	34,127	126,004	1	0/1/0	4	31,501.00	6.45
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	6,000	215,536	2	0/2/0	8	26,942.00	-8.96
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	18,024	157,727	1	0/0/1	5	31,545.40	6.60
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	24,618	107,768	1	0/1/0	4	26,942.00	-8.96
Roscommon	70,259	2.37	0	37,509	107,768	1	0/1/0	4	26,942.00	-8.96
Sligo	70,198	2.37	0	38,768	108,966	1	0/1/0	4	27,241.50	-7.94
Tipperary	167,895	5.67	6,685	0	161,210	1	0/0/1	5	32,242.00	8.96
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	11,547	107,768	1	0/1/0	4	26,942.00	-8.96
Wexford	163,919	5.54	2,709	0	161,210	1	0/0/1	5	32,242.00	8.96
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 157: 13 Transfers (Total 248407)			
From	To	Volume	Percent of From
Carlow	Kilkenny	27,841	44.93
Carlow	Laois	34,127	55.07
Kildare	Offaly	17,933	7.24
Longford	Westmeath	11,547	24.70
Longford	Roscommon	35,204	75.30
Wexford	Kilkenny	2,709	1.65
Cork	Limerick	6,000	1.03
Tipperary	Offaly	6,685	3.98
Leitrim	Roscommon	2,305	6.55
Leitrim	Sligo	32,894	93.45
Donegal	Sligo	5,874	3.52
Monaghan	Louth	18,024	27.61
Monaghan	Cavan	47,264	72.39

Figure 53: Sol52 (174 seats, 38 constituencies, 13 transfers, 29,702.36 persons per TD,  $\Delta_{max}$  2,650 (8.96% of 29,592), weighted variation 5.07%)

### 3.53 Solution Sol53

Table 158: Solution 53

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol53	174	2,700	9.12	18.25	26,892.00	32,292.00	29,712.63	3,514,878.29	5.57	12	247,307	38	0/16/22	4.58	Optimal	0.15	0.0081

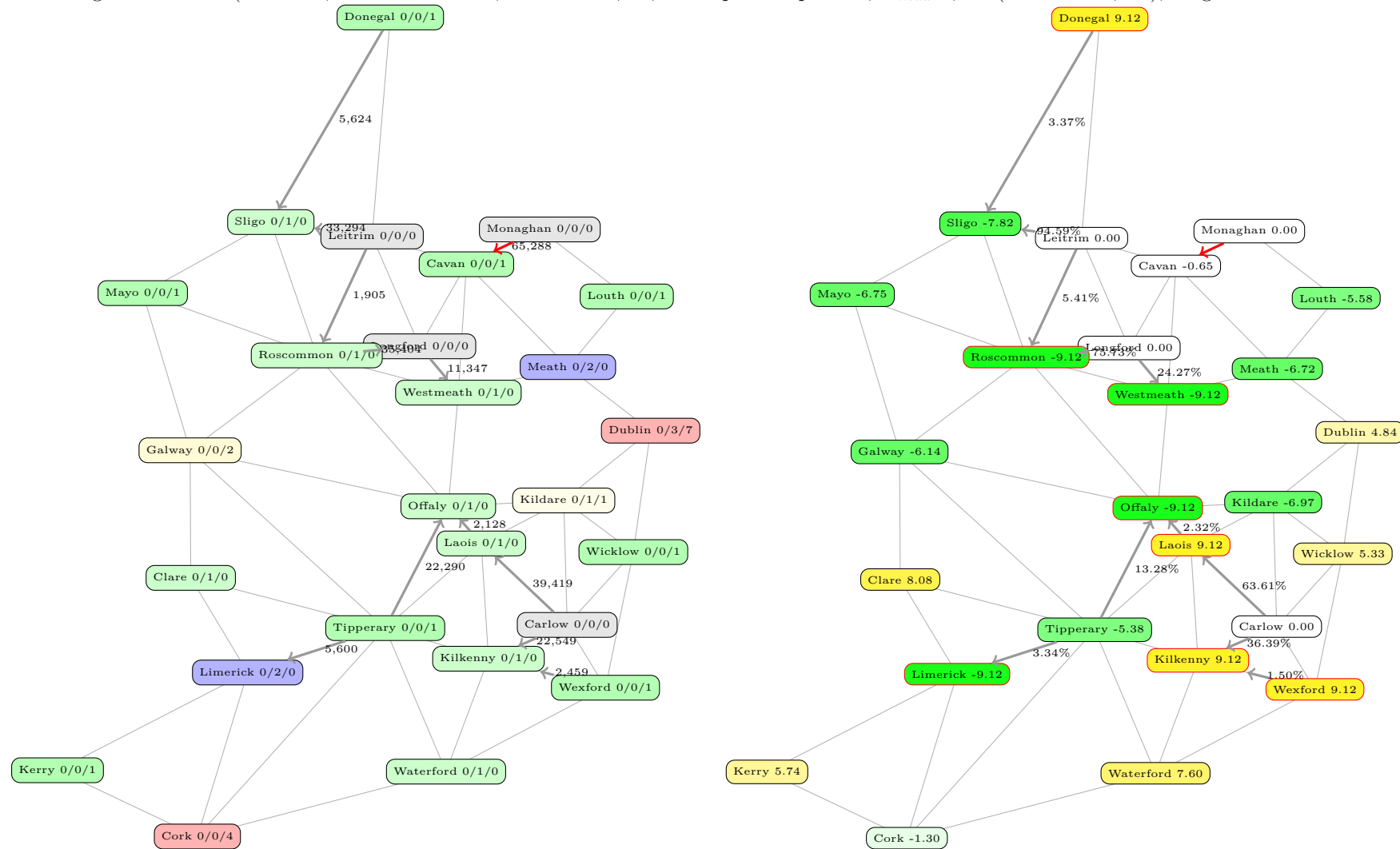
Table 159: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	5,624	0	161,460	1	0/0/1	5	32,292.00	9.12
Dublin	1,458,154	49.28	0	0	1,458,154	10	0/3/7	47	31,024.55	4.84
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	0	247,774	2	0/1/1	9	27,530.44	-6.97
Kilkenny	104,160	3.52	0	25,008	129,168	1	0/1/0	4	32,292.00	9.12
Laois	91,877	3.10	2,128	39,419	129,168	1	0/1/0	4	32,292.00	9.12
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	5,600	215,136	2	0/2/0	8	26,892.00	-9.12
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	24,418	107,568	1	0/1/0	4	26,892.00	-9.12
Roscommon	70,259	2.37	0	37,309	107,568	1	0/1/0	4	26,892.00	-9.12
Sligo	70,198	2.37	0	38,918	109,116	1	0/1/0	4	27,279.00	-7.82
Tipperary	167,895	5.67	27,890	0	140,005	1	0/0/1	5	28,001.00	-5.38
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60



Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	11,347	107,568	1	0/1/0	4	26,892.00	-9.12
Wexford	163,919	5.54	2,459	0	161,460	1	0/0/1	5	32,292.00	9.12
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 160: 12 Transfers (Total 247307)			
From	To	Volume	Percent of From
Carlow	Kilkenny	22,549	36.39
Carlow	Laois	39,419	63.61
Laois	Offaly	2,128	2.32
Longford	Westmeath	11,347	24.27
Longford	Roscommon	35,404	75.73
Wexford	Kilkenny	2,459	1.50
Tipperary	Offaly	22,290	13.28
Tipperary	Limerick	5,600	3.34
Leitrim	Roscommon	1,905	5.41
Leitrim	Sligo	33,294	94.59
Donegal	Sligo	5,624	3.37
Monaghan	Cavan	65,288	100.00

Figure 54: Sol53 (174 seats, 38 constituencies, 12 transfers, 29,712.63 persons per TD,  $\Delta_{max}$  2,700 (9.12% of 29,592), weighted variation 5.57%)

### 3.54 Solution Sol54

Table 161: Solution 54

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol54	174	2,750	9.29	18.59	26,842.00	32,342.00	29,779.70	5,510,340.08	7.19	16	248,971	37	0/11/26	4.70	Optimal	0.14	0.0060

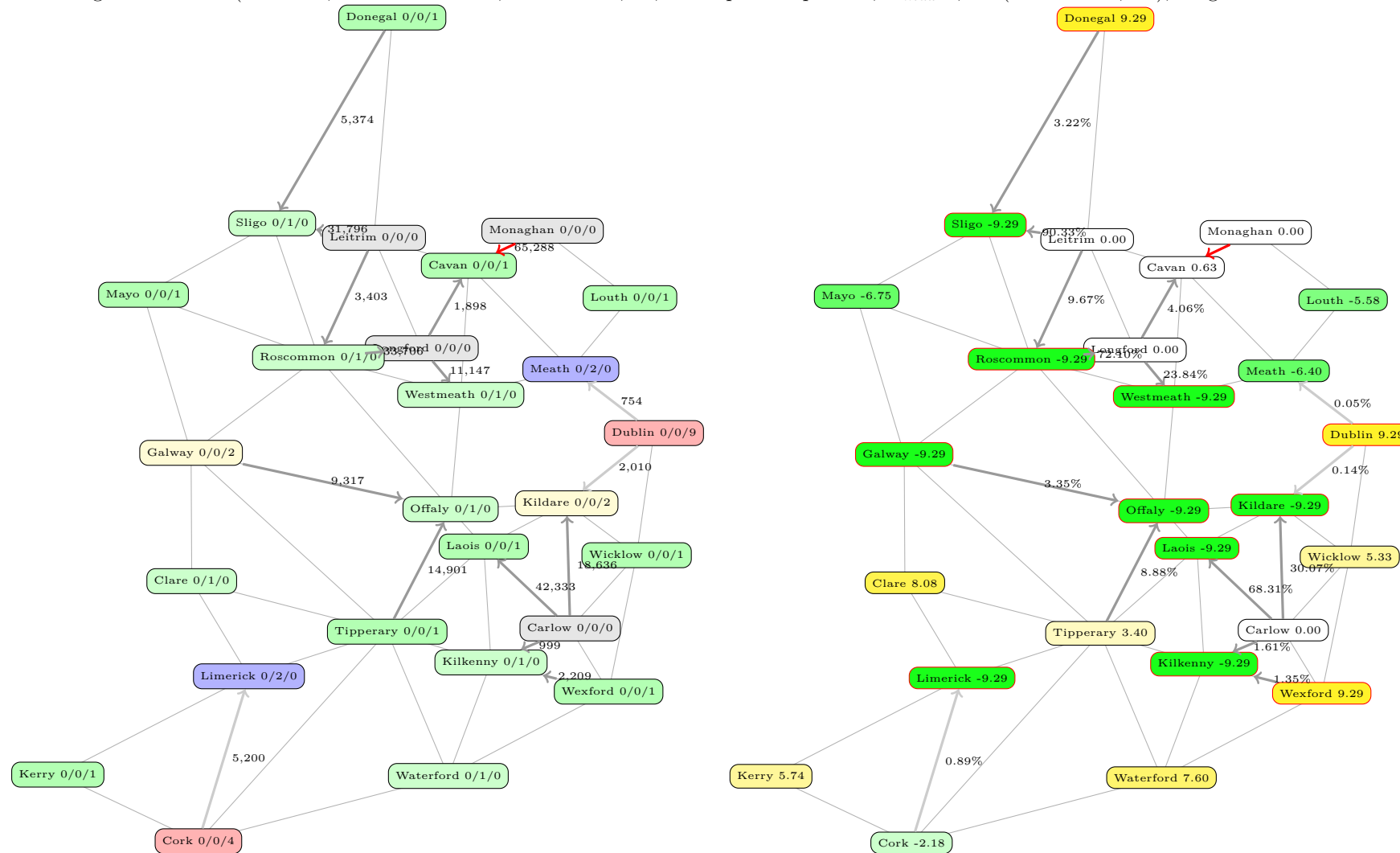
Table 162: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	67,186	148,890	1	0/0/1	5	29,778.00	0.63
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	5,200	0	578,956	4	0/0/4	20	28,947.80	-2.18
Donegal	167,084	5.65	5,374	0	161,710	1	0/0/1	5	32,342.00	9.29
Dublin	1,458,154	49.28	2,764	0	1,455,390	9	0/0/9	45	32,342.00	9.29
Galway	277,737	9.39	9,317	0	268,420	2	0/0/2	10	26,842.00	-9.29
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	20,646	268,420	2	0/0/2	10	26,842.00	-9.29
Kilkenny	104,160	3.52	0	3,208	107,368	1	0/1/0	4	26,842.00	-9.29
Laois	91,877	3.10	0	42,333	134,210	1	0/0/1	5	26,842.00	-9.29
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	5,200	214,736	2	0/2/0	8	26,842.00	-9.29
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	754	221,580	2	0/2/0	8	27,697.50	-6.40
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	24,218	107,368	1	0/1/0	4	26,842.00	-9.29
Roscommon	70,259	2.37	0	37,109	107,368	1	0/1/0	4	26,842.00	-9.29
Sligo	70,198	2.37	0	37,170	107,368	1	0/1/0	4	26,842.00	-9.29
Tipperary	167,895	5.67	14,901	0	152,994	1	0/0/1	5	30,598.80	3.40
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	11,147	107,368	1	0/1/0	4	26,842.00	-9.29
Wexford	163,919	5.54	2,209	0	161,710	1	0/0/1	5	32,342.00	9.29
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 163: 16 Transfers (Total 248971)

From	To	Volume	Percent of From
Carlow	Kildare	18,636	30.07
Carlow	Kilkenny	999	1.61
Carlow	Laois	42,333	68.31
Dublin	Kildare	2,010	0.14
Dublin	Meath	754	0.05
Longford	Westmeath	11,147	23.84
Longford	Roscommon	33,706	72.10
Longford	Cavan	1,898	4.06
Wexford	Kilkenny	2,209	1.35
Cork	Limerick	5,200	0.89
Tipperary	Offaly	14,901	8.88
Galway	Offaly	9,317	3.35
Leitrim	Roscommon	3,403	9.67
Leitrim	Sligo	31,796	90.33
Donegal	Sligo	5,374	3.22
Monaghan	Cavan	65,288	100.00

Figure 55: Sol54 (174 seats, 37 constituencies, 16 transfers, 29,779.70 persons per TD,  $\Delta_{max}$  2,750 (9.29% of 29,592), weighted variation 7.19%)

### 3.55 Solution Sol55

Table 164: Solution 55

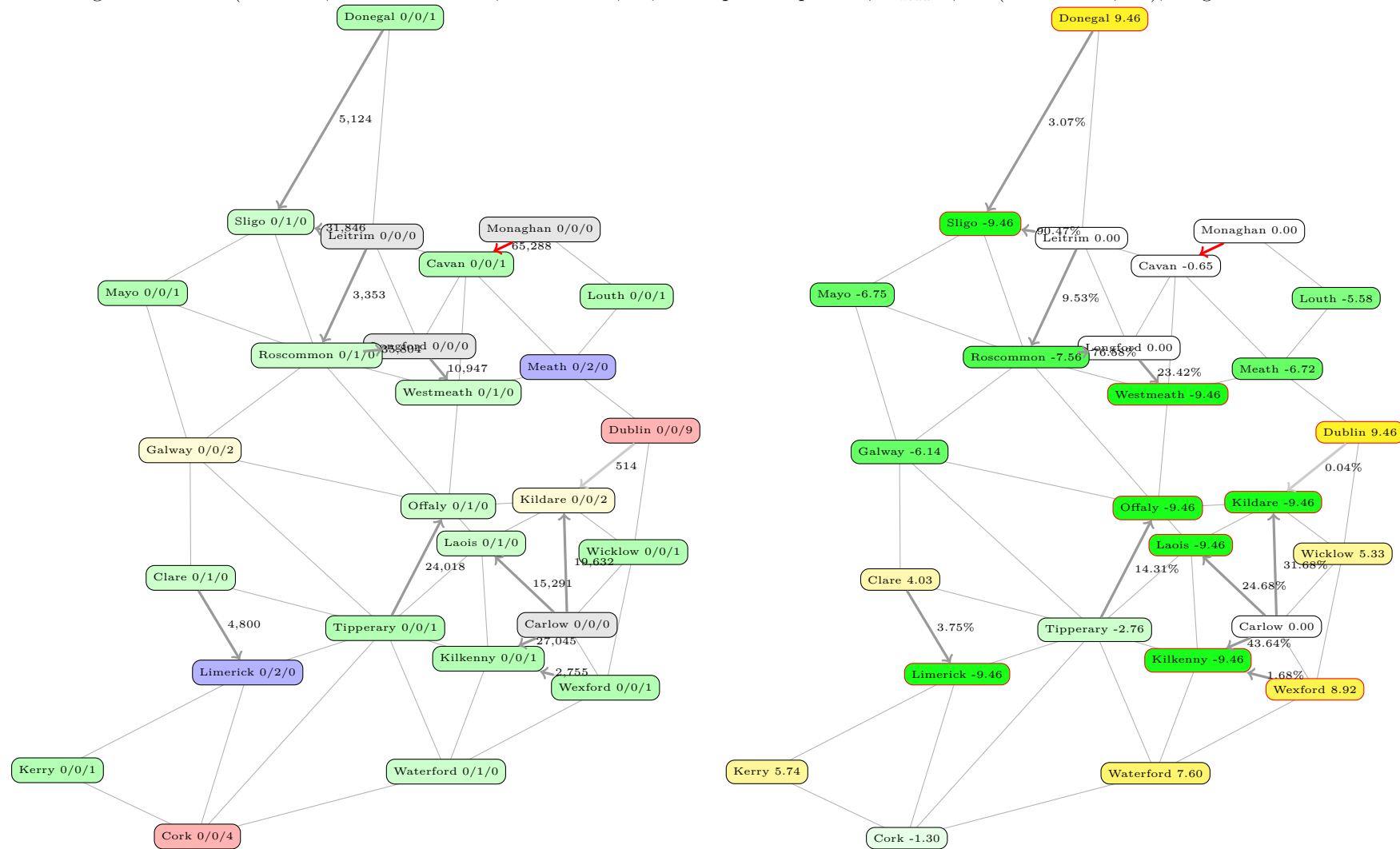
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol55	174	2,800	9.46	18.92	26,792.00	32,392.00	29,769.53	5,237,702.28	6.86	13	246,417	37	0/11/26	4.70	Optimal	0.14	0.0000

Table 165: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	4,800	0	123,138	1	0/1/0	4	30,784.50	4.03
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	5,124	0	161,960	1	0/0/1	5	32,392.00	9.46
Dublin	1,458,154	49.28	514	0	1,457,640	9	0/0/9	45	32,392.00	9.46
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	20,146	267,920	2	0/0/2	10	26,792.00	-9.46
Kilkenny	104,160	3.52	0	29,800	133,960	1	0/0/1	5	26,792.00	-9.46
Laois	91,877	3.10	0	15,291	107,168	1	0/1/0	4	26,792.00	-9.46
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	4,800	214,336	2	0/2/0	8	26,792.00	-9.46
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	24,018	107,168	1	0/1/0	4	26,792.00	-9.46
Roscommon	70,259	2.37	0	39,157	109,416	1	0/1/0	4	27,354.00	-7.56
Sligo	70,198	2.37	0	36,970	107,168	1	0/1/0	4	26,792.00	-9.46
Tipperary	167,895	5.67	24,018	0	143,877	1	0/0/1	5	28,775.40	-2.76
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	10,947	107,168	1	0/1/0	4	26,792.00	-9.46
Wexford	163,919	5.54	2,755	0	161,164	1	0/0/1	5	32,232.80	8.92
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 166: 13 Transfers (Total 246417)			
From	To	Volume	Percent of From
Carlow	Kildare	19,632	31.68
Carlow	Kilkenny	27,045	43.64
Carlow	Laois	15,291	24.68
Dublin	Kildare	514	0.04
Longford	Westmeath	10,947	23.42
Longford	Roscommon	35,804	76.58
Wexford	Kilkenny	2,755	1.68
Clare	Limerick	4,800	3.75
Tipperary	Offaly	24,018	14.31
Leitrim	Roscommon	3,353	9.53
Leitrim	Sligo	31,846	90.47
Donegal	Sligo	5,124	3.07
Monaghan	Cavan	65,288	100.00

Figure 56: Sol55 (174 seats, 37 constituencies, 13 transfers, 29,769.53 persons per TD,  $\Delta_{max}$  2,800 (9.46% of 29,592), weighted variation 6.86%)



### 3.56 Solution Sol56

Table 167: Solution 56

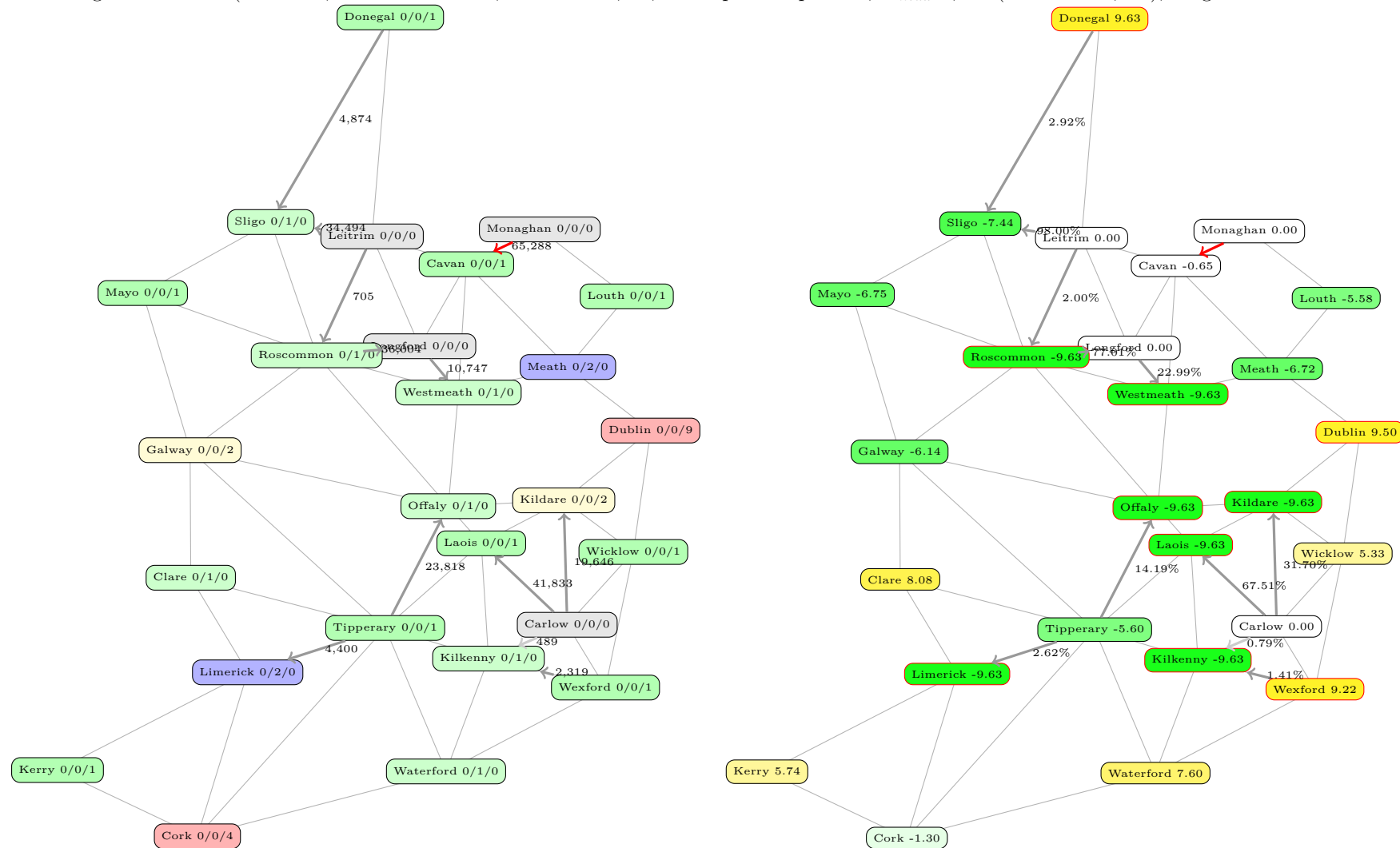
Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol56	174	2,850	9.63	19.26	26,742.00	32,442.00	29,778.19	5,492,929.79	7.10	12	244,617	37	0/11/26	4.70	Optimal	0.13	0.0000

Table 168: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	4,874	0	162,210	1	0/0/1	5	32,442.00	9.63
Dublin	1,458,154	49.28	0	0	1,458,154	9	0/0/9	45	32,403.42	9.50
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	19,646	267,420	2	0/0/2	10	26,742.00	-9.63
Kilkenny	104,160	3.52	0	2,808	106,968	1	0/1/0	4	26,742.00	-9.63
Laois	91,877	3.10	0	41,833	133,710	1	0/0/1	5	26,742.00	-9.63
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	4,400	213,936	2	0/2/0	8	26,742.00	-9.63
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	23,818	106,968	1	0/1/0	4	26,742.00	-9.63
Roscommon	70,259	2.37	0	36,709	106,968	1	0/1/0	4	26,742.00	-9.63
Sligo	70,198	2.37	0	39,368	109,566	1	0/1/0	4	27,391.50	-7.44
Tipperary	167,895	5.67	28,218	0	139,677	1	0/0/1	5	27,935.40	-5.60
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	10,747	106,968	1	0/1/0	4	26,742.00	-9.63
Wexford	163,919	5.54	2,319	0	161,600	1	0/0/1	5	32,320.00	9.22
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 169: 12 Transfers (Total 244617)			
From	To	Volume	Percent of From
Carlow	Kildare	19,646	31.70
Carlow	Kilkenny	489	0.79
Carlow	Laois	41,833	67.51
Longford	Westmeath	10,747	22.99
Longford	Roscommon	36,004	77.01
Wexford	Kilkenny	2,319	1.41
Tipperary	Offaly	23,818	14.19
Tipperary	Limerick	4,400	2.62
Leitrim	Roscommon	705	2.00
Leitrim	Sligo	34,494	98.00
Donegal	Sligo	4,874	2.92
Monaghan	Cavan	65,288	100.00

Figure 57: Sol56 (174 seats, 37 constituencies, 12 transfers, 29,778.19 persons per TD,  $\Delta_{max}$  2,850 (9.63% of 29,592), weighted variation 7.10%)

### 3.57 Solution Sol57

Table 170: Solution 57

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol57	174	2,900	9.80	19.60	26,692.00	32,492.00	29,784.05	5,650,277.80	7.19	14	242,907	37	0/11/26	4.70	Optimal	0.11	0.0000

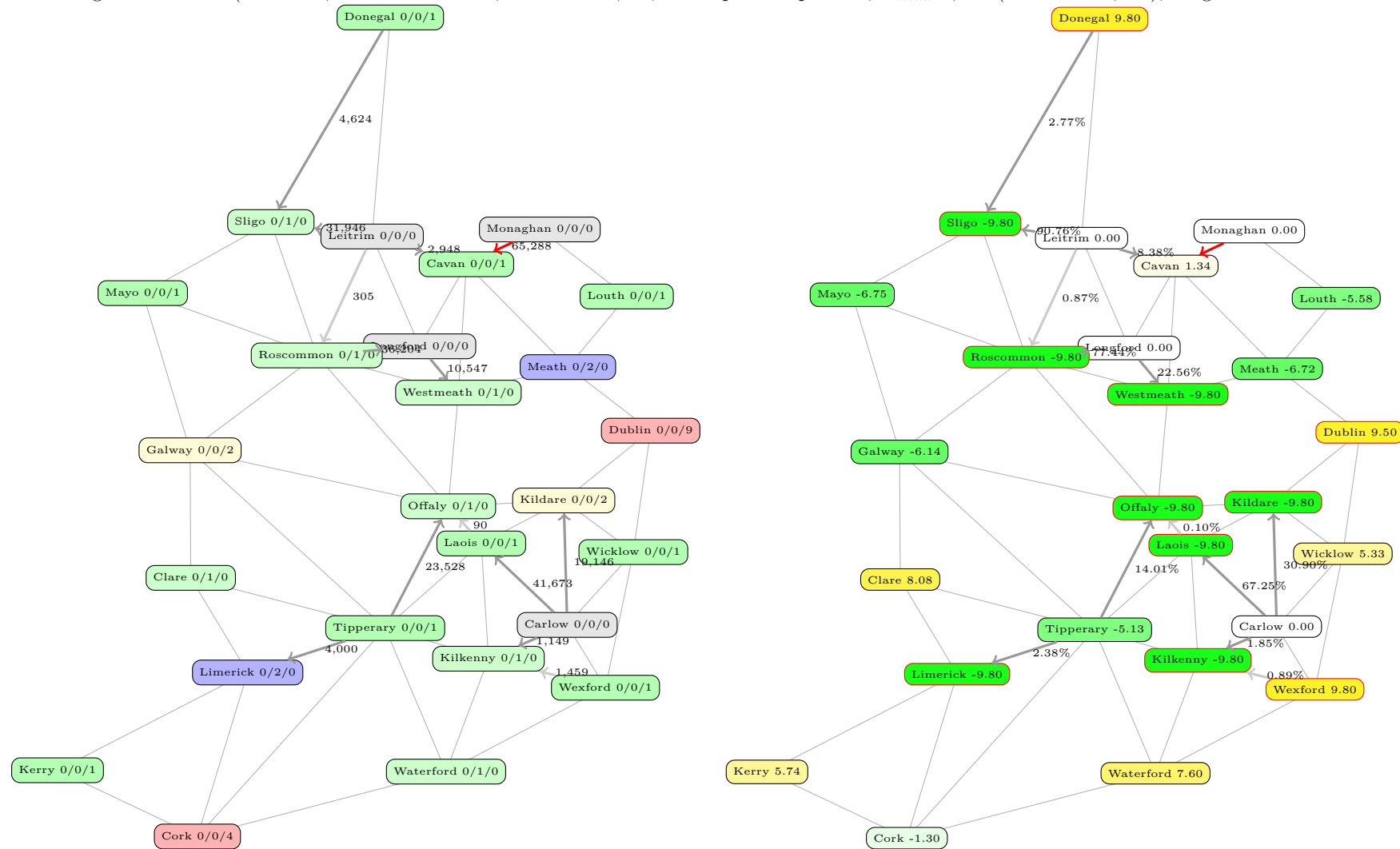
Table 171: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	68,236	149,940	1	0/0/1	5	29,988.00	1.34
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	4,624	0	162,460	1	0/0/1	5	32,492.00	9.80
Dublin	1,458,154	49.28	0	0	1,458,154	9	0/0/9	45	32,403.42	9.50
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	19,146	266,920	2	0/0/2	10	26,692.00	-9.80
Kilkenny	104,160	3.52	0	2,608	106,768	1	0/1/0	4	26,692.00	-9.80
Laois	91,877	3.10	90	41,673	133,460	1	0/0/1	5	26,692.00	-9.80
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	4,000	213,536	2	0/2/0	8	26,692.00	-9.80
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	23,618	106,768	1	0/1/0	4	26,692.00	-9.80
Roscommon	70,259	2.37	0	36,509	106,768	1	0/1/0	4	26,692.00	-9.80
Sligo	70,198	2.37	0	36,570	106,768	1	0/1/0	4	26,692.00	-9.80
Tipperary	167,895	5.67	27,528	0	140,367	1	0/0/1	5	28,073.40	-5.13
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	10,547	106,768	1	0/1/0	4	26,692.00	-9.80
Wexford	163,919	5.54	1,459	0	162,460	1	0/0/1	5	32,492.00	9.80
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 172: 14 Transfers (Total 242907)

From	To	Volume	Percent of From
Carlow	Kildare	19,146	30.90
Carlow	Kilkenny	1,149	1.85
Carlow	Laois	41,673	67.25
Laois	Offaly	90	0.10
Longford	Westmeath	10,547	22.56
Longford	Roscommon	36,204	77.44
Wexford	Kilkenny	1,459	0.89
Tipperary	Offaly	23,528	14.01
Tipperary	Limerick	4,000	2.38
Leitrim	Roscommon	305	0.87
Leitrim	Sligo	31,946	90.76
Leitrim	Cavan	2,948	8.38
Donegal	Sligo	4,624	2.77
Monaghan	Cavan	65,288	100.00

Figure 58: Sol57 (174 seats, 37 constituencies, 14 transfers, 29,784.05 persons per TD,  $\Delta_{max}$  2,900 (9.80% of 29,592), weighted variation 7.19%)

### 3.58 Solution Sol58

Table 173: Solution 58

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol58	174	2,950	9.97	19.94	26,642.00	32,542.00	29,782.59	5,616,135.44	7.16	12	241,807	37	0/11/26	4.70	Optimal	0.16	0.0000

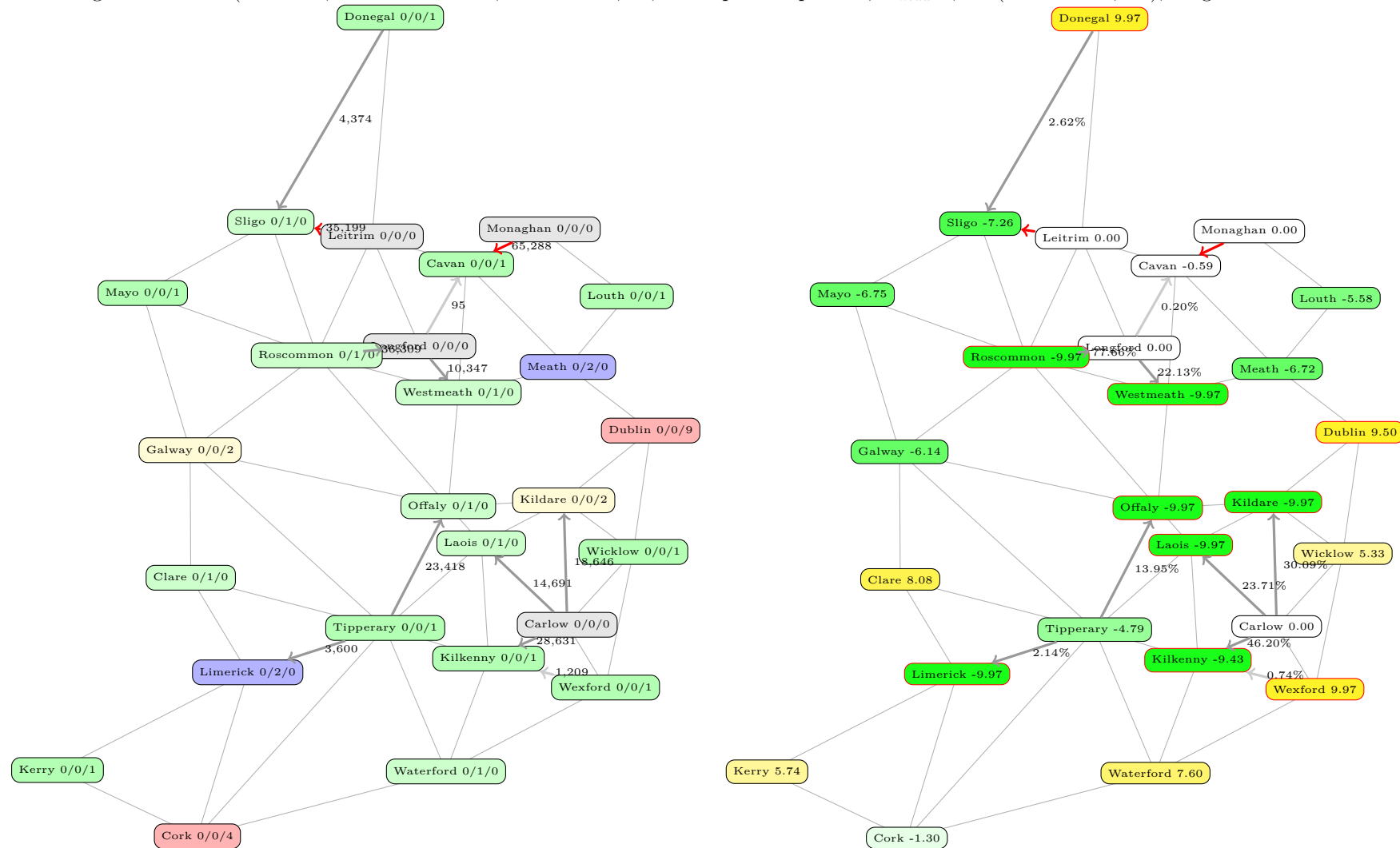
Table 174: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,383	147,087	1	0/0/1	5	29,417.40	-0.59
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	4,374	0	162,710	1	0/0/1	5	32,542.00	9.97
Dublin	1,458,154	49.28	0	0	1,458,154	9	0/0/9	45	32,403.42	9.50
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	18,646	266,420	2	0/0/2	10	26,642.00	-9.97
Kilkenny	104,160	3.52	0	29,840	134,000	1	0/0/1	5	26,800.00	-9.43
Laois	91,877	3.10	0	14,691	106,568	1	0/1/0	4	26,642.00	-9.97
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	3,600	213,136	2	0/2/0	8	26,642.00	-9.97
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	23,418	106,568	1	0/1/0	4	26,642.00	-9.97
Roscommon	70,259	2.37	0	36,309	106,568	1	0/1/0	4	26,642.00	-9.97
Sligo	70,198	2.37	0	39,573	109,771	1	0/1/0	4	27,442.75	-7.26
Tipperary	167,895	5.67	27,018	0	140,877	1	0/0/1	5	28,175.40	-4.79
Waterford	127,363	4.30	0	0	127,363	1	0/1/0	4	31,840.75	7.60

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	10,347	106,568	1	0/1/0	4	26,642.00	-9.97
Wexford	163,919	5.54	1,209	0	162,710	1	0/0/1	5	32,542.00	9.97
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 175: 12 Transfers (Total 241807)			
From	To	Volume	Percent of From
Carlow	Kildare	18,646	30.09
Carlow	Kilkenny	28,631	46.20
Carlow	Laois	14,691	23.71
Longford	Westmeath	10,347	22.13
Longford	Roscommon	36,309	77.66
Longford	Cavan	95	0.20
Wexford	Kilkenny	1,209	0.74
Tipperary	Offaly	23,418	13.95
Tipperary	Limerick	3,600	2.14
Leitrim	Sligo	35,199	100.00
Donegal	Sligo	4,374	2.62
Monaghan	Cavan	65,288	100.00



Figure 59: Sol58 (174 seats, 37 constituencies, 12 transfers, 29,782.59 persons per TD,  $\Delta_{max}$  2,950 (9.97% of 29,592), weighted variation 7.16%)

### 3.59 Solution Sol59

Table 176: Solution 59

Name	K	Delta	Delta Percent	Range Percent	Min E	Max E	Weighted Average	Weighted Variance	Weighted Absolute Variation	Nr Trans	Transferred	Nr Const.	3/4/5	Seats Per Const.	Solution Status	Time (s)	Gap Percent
Sol59	174	3,000	10.14	20.28	26,592.00	32,592.00	29,786.27	5,718,264.04	7.20	12	240,707	37	0/11/26	4.70	Optimal	0.14	0.0000

Table 177: Counties

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Carlow	61,968	2.09	61,968	0	0	0	0/0/0	0	0.00	0.00
Cavan	81,704	2.76	0	65,288	146,992	1	0/0/1	5	29,398.40	-0.65
Clare	127,938	4.32	0	0	127,938	1	0/1/0	4	31,984.50	8.08
Cork	584,156	19.74	0	0	584,156	4	0/0/4	20	29,207.80	-1.30
Donegal	167,084	5.65	4,124	0	162,960	1	0/0/1	5	32,592.00	10.14
Dublin	1,458,154	49.28	0	0	1,458,154	9	0/0/9	45	32,403.42	9.50
Galway	277,737	9.39	0	0	277,737	2	0/0/2	10	27,773.70	-6.14
Kerry	156,458	5.29	0	0	156,458	1	0/0/1	5	31,291.60	5.74
Kildare	247,774	8.37	0	18,146	265,920	2	0/0/2	10	26,592.00	-10.14
Kilkenny	104,160	3.52	0	28,800	132,960	1	0/0/1	5	26,592.00	-10.14
Laois	91,877	3.10	531	15,022	106,368	1	0/1/0	4	26,592.00	-10.14
Leitrim	35,199	1.19	35,199	0	0	0	0/0/0	0	0.00	0.00
Limerick	209,536	7.08	0	3,200	212,736	2	0/2/0	8	26,592.00	-10.14
Longford	46,751	1.58	46,751	0	0	0	0/0/0	0	0.00	0.00
Louth	139,703	4.72	0	0	139,703	1	0/0/1	5	27,940.60	-5.58
Mayo	137,970	4.66	0	0	137,970	1	0/0/1	5	27,594.00	-6.75
Meath	220,826	7.46	0	0	220,826	2	0/2/0	8	27,603.25	-6.72
Monaghan	65,288	2.21	65,288	0	0	0	0/0/0	0	0.00	0.00
Offaly	83,150	2.81	0	23,218	106,368	1	0/1/0	4	26,592.00	-10.14
Roscommon	70,259	2.37	0	36,604	106,863	1	0/1/0	4	26,715.75	-9.72
Sligo	70,198	2.37	0	39,323	109,521	1	0/1/0	4	27,380.25	-7.47
Tipperary	167,895	5.67	25,887	0	142,008	1	0/0/1	5	28,401.60	-4.02
Waterford	127,363	4.30	0	959	128,322	1	0/1/0	4	32,080.50	8.41

Name	Population	Fractional Seat	Transfer Out	Transfer In	Effective Population	Const. Assigned	Const. Types	Seats Assigned	Persons Per Seat	Variation
Westmeath	96,221	3.25	0	10,147	106,368	1	0/1/0	4	26,592.00	-10.14
Wexford	163,919	5.54	959	0	162,960	1	0/0/1	5	32,592.00	10.14
Wicklow	155,851	5.27	0	0	155,851	1	0/0/1	5	31,170.20	5.33

Table 178: 12 Transfers (Total 240707)			
From	To	Volume	Percent of From
Carlow	Kildare	18,146	29.28
Carlow	Kilkenny	28,800	46.48
Carlow	Laois	15,022	24.24
Laois	Offaly	531	0.58
Longford	Westmeath	10,147	21.70
Longford	Roscommon	36,604	78.30
Wexford	Waterford	959	0.59
Tipperary	Offaly	22,687	13.51
Tipperary	Limerick	3,200	1.91
Leitrim	Sligo	35,199	100.00
Donegal	Sligo	4,124	2.47
Monaghan	Cavan	65,288	100.00

Figure 60: Sol59 (174 seats, 37 constituencies, 12 transfers, 29,786.27 persons per TD,  $\Delta_{max}$  3,000 (10.14% of 29,592), weighted variation 7.20%)