Projections for London Boroughs

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BSPS Meeting at LSE

Content

- **Background**
  - ***London Plan* EiP 2003**
- **Data and Assumptions**
- **Methods**
  - **Links to CLG household projections**
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Background - 1

- GLA Population Model
  - Roots in GLC and developed in LRC
  - Multi-area: 32 boroughs and City of London
  - Migration Matrix with 4 external areas
- GLC/LRC/GLA Household Model
  - Based on 1981 and 1991 Censuses …
  - … but limited …
  - … 15-year age bands …
  - … Married and Not-married
  - Complicated iterative feedback via migration to Population Model
- Household Model - no longer used

Background - 2

- 2000-01 preparing the *London Plan*
  - ODPM estimates of dwellings and households out of synch
  - Average household size problems
  - No 2001 Census data to help!
- Expert Panel advice:
  - Recent international migration impacting household formation and average household size
  - Market conditions
  - Hold AHS constant at 1996 estimates, re-estimate borough populations and link to 1999 London Housing Capacity study.
- 2001 Census Key Statistics
  - Broadly confirmed the approach

Background - 3

- London Plan EiP – Spring 2003
- Panel advice:
  - Happy with demographics – understanding data limitations and inconsistencies
  - Link to ODPM household methodology when available
  - Work together with East and South East regions
- CLG 2003-based household projections
  - Available 2006
  - Incorporated in GLA 2006 Round
- CLG 2004-based household projections
  - Incorporated in GLA 2007 Round

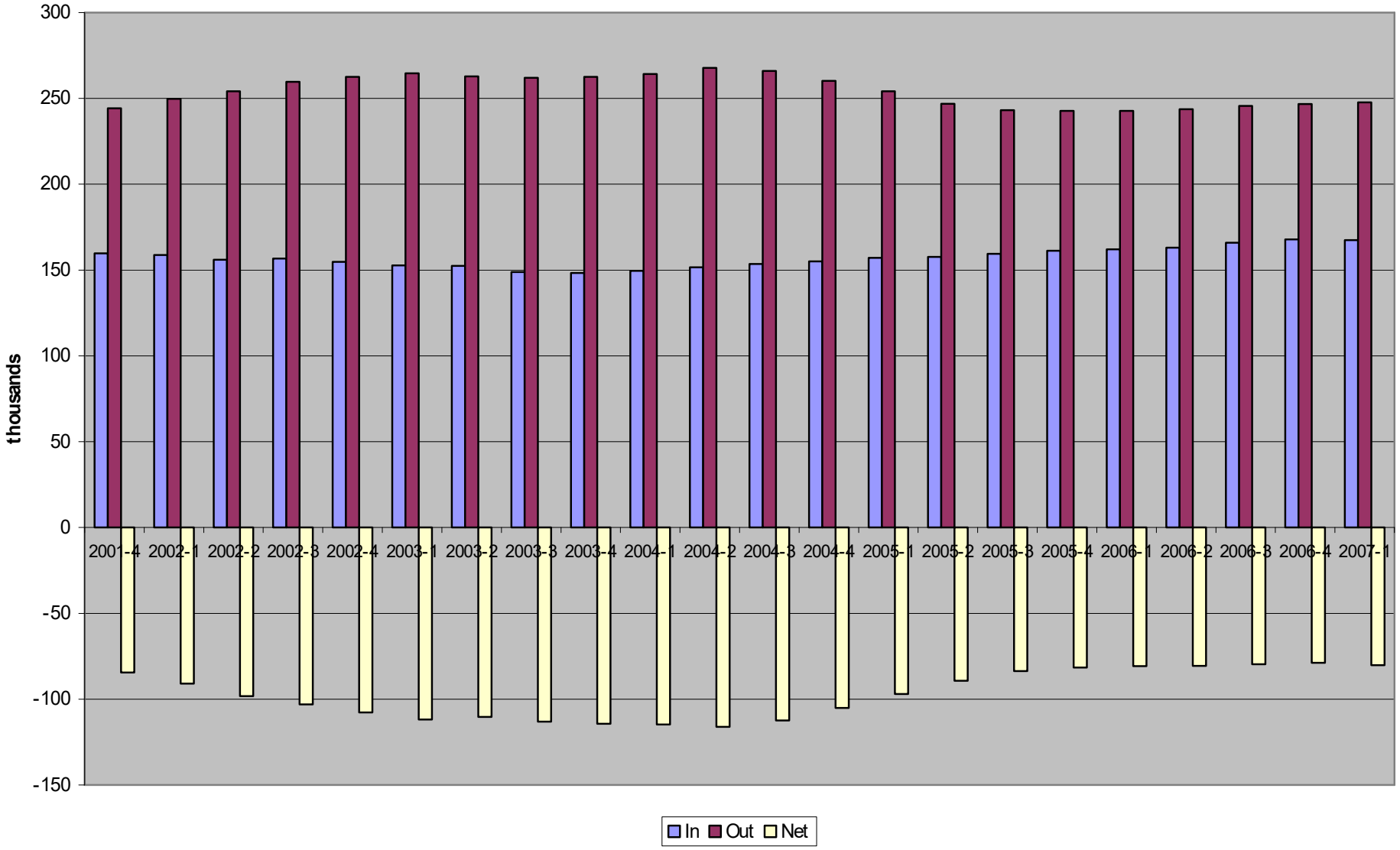
Data in Base Period - 1

- **Base population is 2001 MYE**
  - **Ages 0-4 adjusted to better reflect past borough births**
- **Fertility**
  - **MYE births 2001-02 to 2005-06 – known gender split**
- **Mortality**
  - **MYE Deaths 2001-02 to 2005-06 – known gender split**
  - **Lifetables based on 2000-02 for grouped boroughs**
  - **Apportion deaths to ages**
- **Internal Migration**
  - **Matrix based on MYE-PRDS flows linking boroughs plus GOER/GOSE/Rest UK**

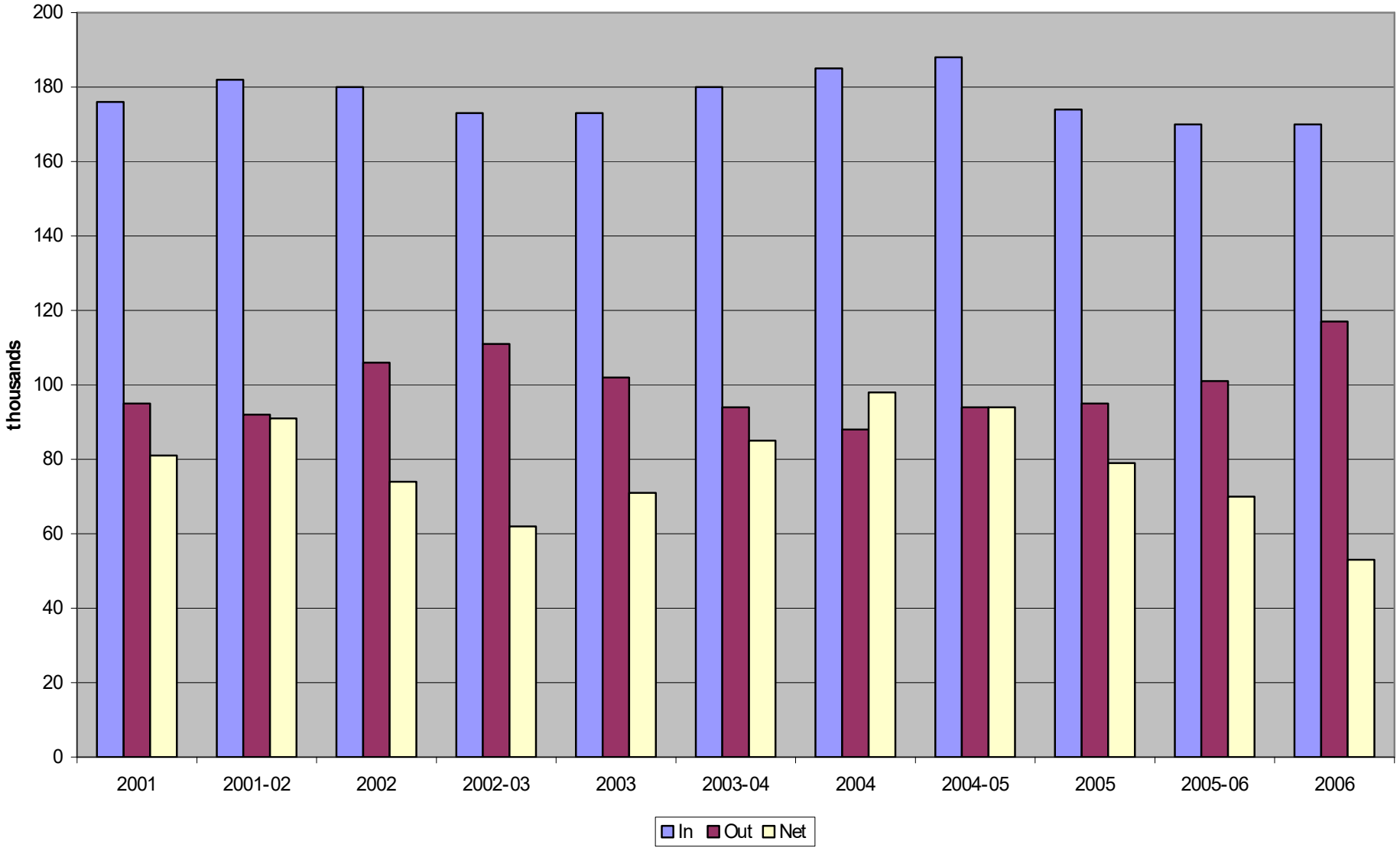
Data in Base Period - 2

- International Migration
  - MYE Trend - MYE levels of total flows for each borough
  - Alternate – Adjusted inflows (mainly) to better reflect total population changes based on housing data
- Migration Structures
  - Inflows from Outside London: 2001 Census age/gender structure of total flows
  - Flows starting in London boroughs to any destination: 2001 Census data converted to age/gender specific probabilities
  - Census migration data specific to grouped boroughs
  - O/D weights achieve required borough flows

London: Migration within UK



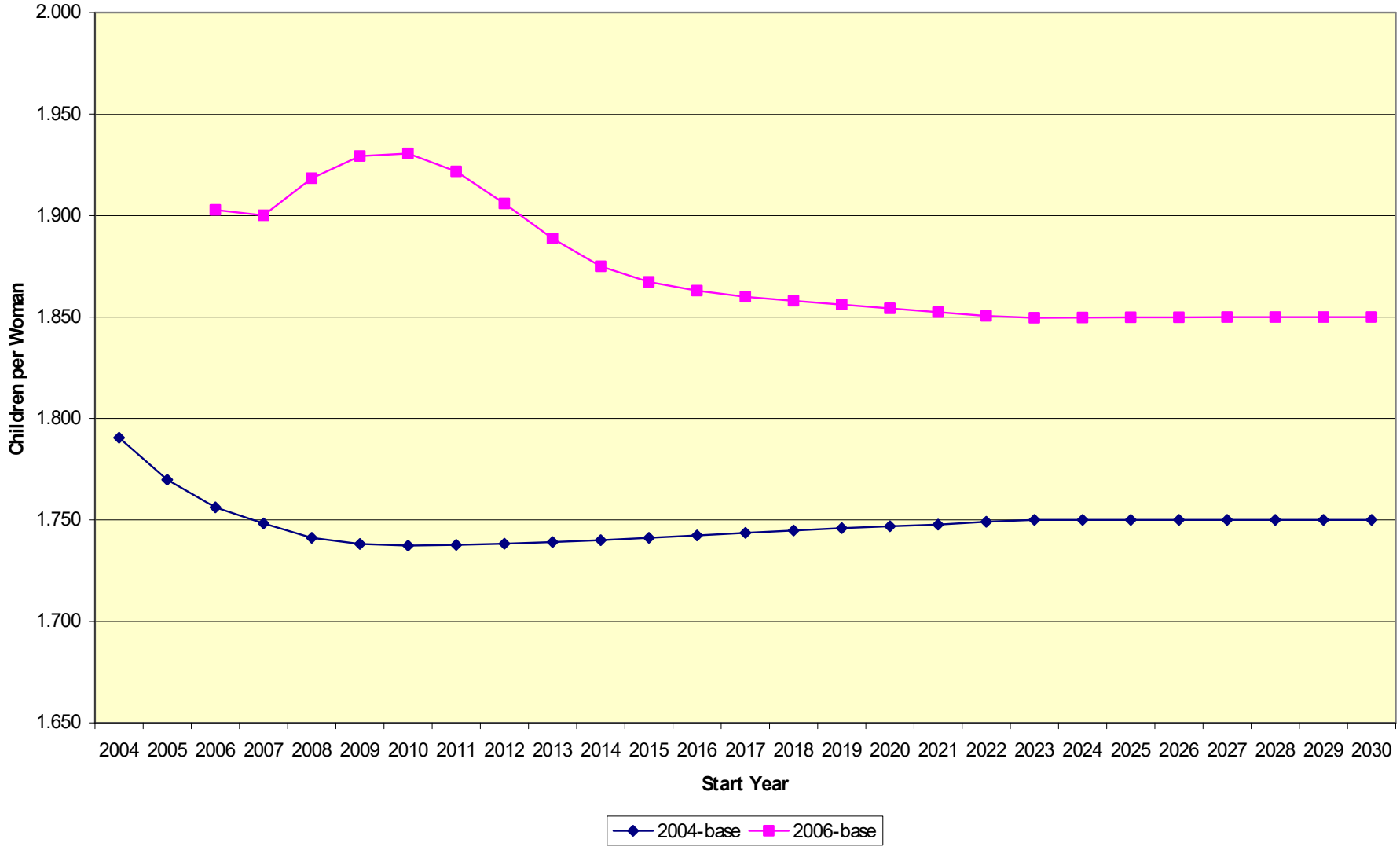
London: International Migration



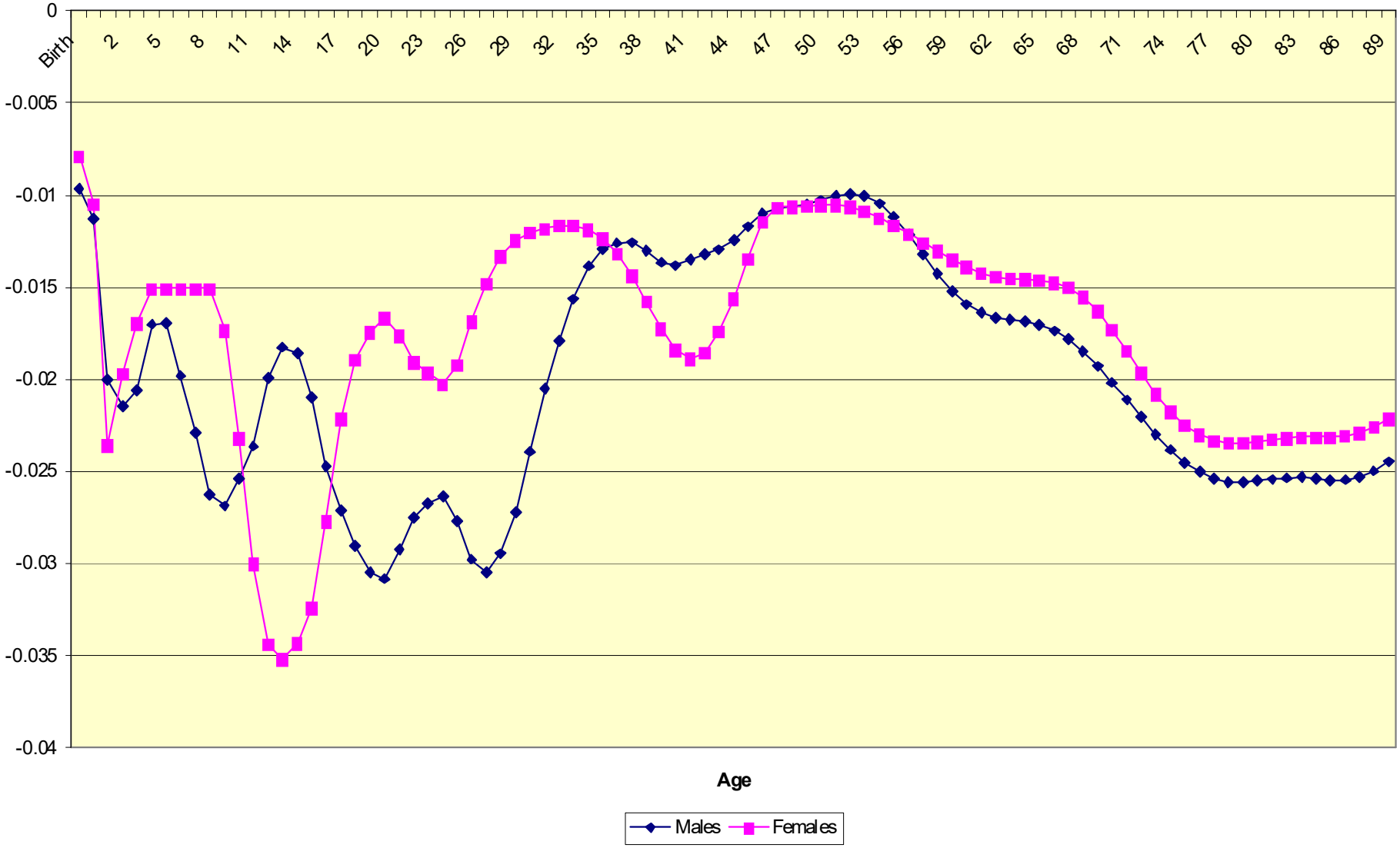
Assumptions - 1

- **Fertility**
  - Registered births 2006 used for 2006-07
  - Borough smoothed age-specific fertility rates for 2000-02 adjusted to match input births => estimated TFR for 2006-07
  - ONS 2006 national projections for England TFR trends to 2030-31
- **Mortality**
  - Registered deaths 2006 used for 2006-07
  - Borough lifetable adjustment to match input deaths
  - Calculate average borough adjustment over 2001-07
  - ONS 2006 national projections for England survival rate trends 2006-07 to 2030-31

ONS 2006-based England Projections: Fertility



ONS 2006-based England Projections: Survivorship



Assumptions - 2

- Internal Migration
  - 2006-07 input figures for the matrix based on linear trends over past five years.
  - Inflows from outside London then held constant
  - Flows starting in London will then be dynamic based on constant probabilities and changing population size/structure
- International Migration:
- MYE Trend
  - Each borough continues to receive same proportion of assumed net international flow to England (ONS 2006-based) as in 2001-06
- Alternate
  - Much as for internal migration
  - 2006-07 input figures for the matrix based on linear trends over past five years of capacity based assumptions for 2001-06.
  - Used 2006 Round results to guide these values

2007 Round Borough Projections

- MYE Trend
  - Used in construction of PLP Low
  - Greater London constraint for PLP High
- Alternate
  - Only used in construction of PLP Low
- PLP (Post London Plan) Low
  - Borough level
  - Link above projections, actual and expected new homes and CLG household projection results – iterate to a solution
- PLP High
  - Gross borough PLP Low results to the MYE Trend results for Greater London by age and gender

2007 Round Borough Projections

- **Households**
  - At every fifth year the iteration process produces five types of households by gender, marital status and five-year ages of representatives.
  - Average household size can then be calculated.

- **Resident Labour Force**
  - Link population output and 2001 Census borough economic activity rates to ONS GB projection (*LMT: Jan 2006*) of EA rates (to 2020) by gender and five-year ages (up to age 74)

CLG Results as a Model

- **CLG 2004 Results for London & boroughs**
  - **2001**, 2004, **2006, 2011, 2016, 2021, 2026,** 2029
  - **Males and Females**
    - **Total, Private Household, Communal Establishment**
    - **Married, Divorced, Widowed, Single, Total**
    - **Ages 0-4 to 79-84 and 85+**
    - **Representatives etc for persons aged 15-19 to 85+ (PH Pop)**
  - **Persons – summary sheet**
- **Extract:**
  - **Numbers (0-74)/Proportions (75+) of persons PHPop/CEPop**
  - **Proportions of PHPop by age in each marital status**
  - **Representative rates for up to five household types**

CLG 2004-based Results: London Married Males: 2006

2006	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85+	Total
UMCR	0	0	0	121	4407	31509	91858	140523	141883	123771	105056	105451	84063	73200	61011	44823	26702	14799	1049176
UCCR	0	0	0	0	42	492	1808	2380	2062	1808	1333	885	590	257	252	54	40	11	12013
ULPR	0	0	0	0	44	211	844	2412	3015	2041	975	416	282	235	90	48	13	22	10647
OMPR	0	0	0	6	231	1434	3280	2547	2480	2293	2140	1972	1457	998	655	508	252	154	20406
OPR	0	0	0	14	218	1388	4649	7515	8333	7037	6019	5742	4605	3474	2639	1922	1321	987	55865
CMCR	0	0	0	19	945	3020	3258	2307	1695	886	331	159	62	41	15	5	2	0	12745
CCCR	0	0	0	0	4	36	70	68	43	29	18	9	6	3	3	1	1	0	290
CLPR	0	0	0	1	20	70	143	113	75	56	27	13	13	6	5	3	1	0	546
MCWN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
CFN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
ON	0	0	0	127	2593	7003	10917	5634	4031	2506	1373	1119	921	744	519	333	187	115	38120
Reps NC	0	0	0	141	4900	34542	100630	152997	155711	135142	114190	113580	90407	77906	64395	47302	28288	15962	1136094
Reps C	0	0	0	0	42	492	1808	2380	2062	1808	1333	885	590	257	252	54	40	11	12013
Reps	0	0	0	141	4942	35034	102438	155377	157773	136950	115524	114465	90997	78163	64647	47356	28328	15973	1148107
Conc f NC	0	0	0	20	965	3089	3402	2420	1770	942	359	172	75	46	19	8	3	1	13291
Conc f C	0	0	0	0	4	36	70	68	43	29	18	9	6	3	3	1	1	0	290
Conc fam	0	0	0	20	969	3125	3472	2488	1813	972	376	182	81	49	22	8	3	1	13581
Non-r NC	0	0	0	127	2593	7003	10917	5634	4031	2506	1373	1119	921	744	519	333	187	115	38120
Non-r C	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Non-reps	0	0	0	127	2593	7003	10917	5634	4031	2506	1373	1119	921	744	519	333	187	115	38120
Pr pop NC	0	0	0	288	8458	44634	114949	161050	161512	138590	115921	114871	91403	78696	64933	47642	28478	16078	1187505
Pr pop C	0	0	0	0	45	528	1877	2448	2104	1837	1351	895	596	260	255	54	41	11	12303
Priv pop	0	0	0	288	8504	45162	116827	163499	163616	140427	117273	115766	91998	78956	65188	47697	28518	16088	1199808
Inst pop	0	0	0	21	137	428	651	581	431	355	295	226	219	273	313	453	529	668	5579
Total pop	0	0	0	309	8641	45590	117477	164079	164047	140783	117568	115992	92217	79229	65501	48150	29047	16756	1205387

GLA 2007 PLP Low Results: London Married Males: 2006

2006	0-4	5-9	10-14	15-19	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64	65-69	70-74	75-79	80-84	85-89	90+	Total
UMCR				110	3380	31204	93167	136384	134850	120596	105460	105197	84621	72069	59772	44032	26013	9710	4300	1030865
UCCR				0	32	487	1834	2310	1960	1762	1338	883	594	253	247	53	39	7	3	11802
ULPR				0	34	209	856	2341	2866	1989	979	415	284	231	88	47	13	14	6	10372
OMPR				5	177	1420	3327	2472	2357	2234	2148	1967	1467	983	642	499	246	101	45	20089
OPR				13	167	1375	4715	7294	7920	6856	6042	5728	4636	3420	2585	1888	1287	648	287	54861
CMCR																				
CCCR																				
CLPR																				
MCWN																				
CFN																				
ON																				
Reps NC																				
Reps C																				
Reps																				
Conc f NC																				
Conc f C																				
Conc fam																				
Non-r NC																				
Non-r C																				
Non-reps																				
Pr pop NC																				
Pr pop C																				
Priv pop	0	0	0	261	6522	44726	118491	158683	155506	136825	117724	115487	92609	77736	63864	46855	27783	10556	4675	1178303
Inst pop																				
Total pop																				

Using the Model -1

- Introduce MYE Trend population projection to the model:
  - Total population by 5ya/gender for 2001/6/11/16/21/26
- Calculate PHPop and CE Pop by gender/age
- Apportion to marital statuses
- Calculate representatives
- Extract: total households (2001 only), proportion of CEPop and average household size
- Link to anticipated annual growth in households based on new homes
- Calculate annual households from 2002
- Calculate 'capacity' population using AHS and CEPop

Using the Model - 2

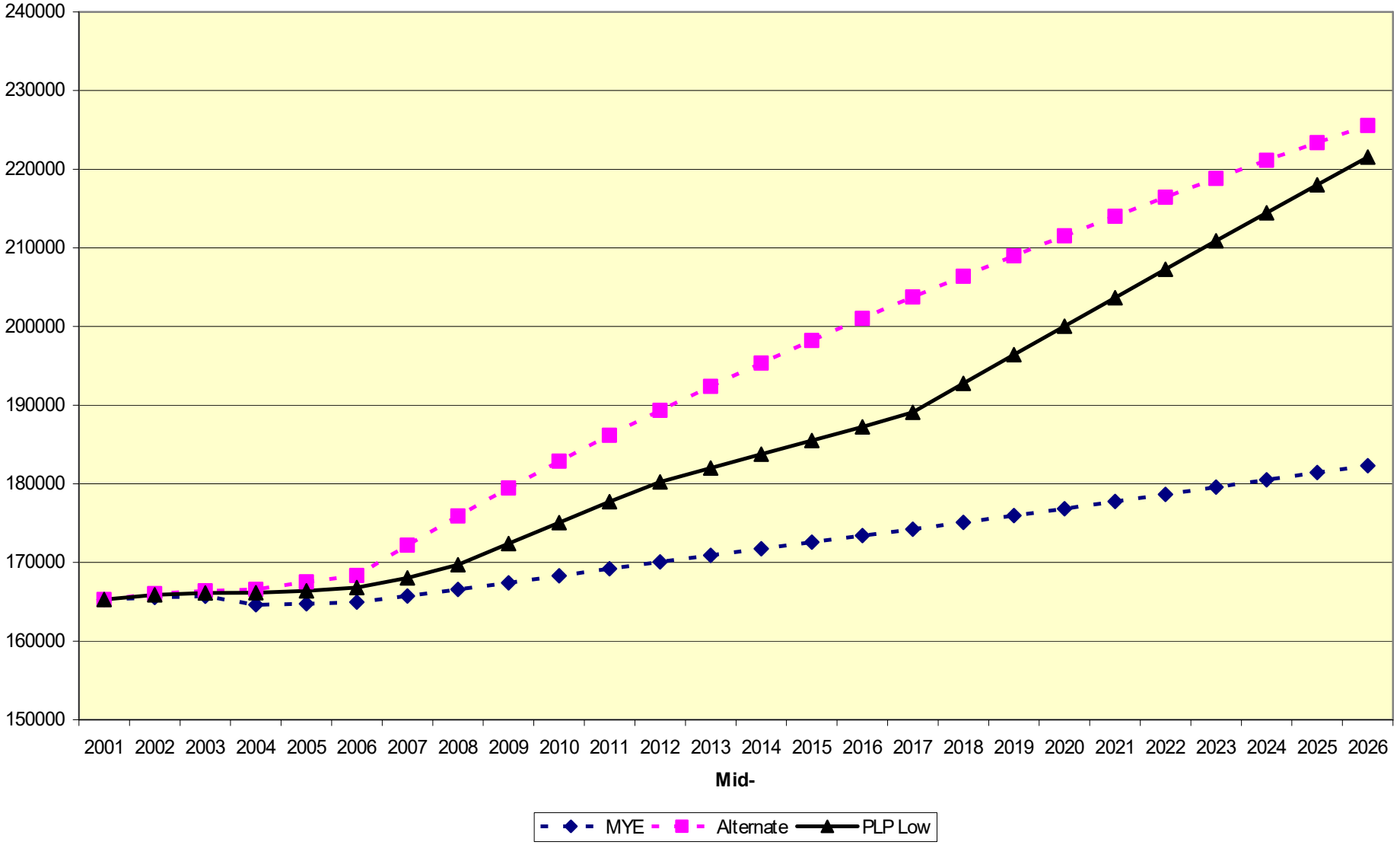
	TOTPOP	CEPOP	PHPOP	HH	AHS	New Homes	TOT/ PH
2001	**7336909**	**93603**	**7243306**	**3036116**	**2.386**		**1.013**
2002	**7355535**	93439	7262095	3056189	2.376	20073	1.013
2003	**7378284**	93326	7284958	3078145	2.367	21956	1.013
2004	**7402398**	93228	7309170	3100851	2.357	22706	1.013
2005	**7433219**	93211	7340008	3126564	2.348	25713	1.013
2006	**7462481**	93171	7369310	3151829	**2.338**	25265	**1.013**
2007	**7505946**	93162	7412784	3181118	2.330	29289	1.013
2008	**7564585**	93334	7471251	3217063	2.322	35944	1.012
2009	**7625105**	93520	7531585	3254057	2.315	36995	1.012
2010	**7686068**	93703	7592365	3291498	2.307	37441	1.012
2011	**7747696**	93885	7653811	3329484	**2.299**	37986	**1.012**
2012	**7806244**	94132	7712112	3366042	2.291	36559	1.012
2013	**7848013**	94170	7753844	3395589	2.284	29547	1.012
2014	**7886252**	94161	7792091	3423804	2.276	28215	1.012
2015	**7926232**	94168	7832064	3452970	2.268	29166	1.012
2016	**7966976**	94179	7872797	3482669	**2.261**	29699	**1.012**
2017	**8009053**	94317	7914735	3510514	2.255	27845	1.012
2018	**8044571**	94375	7950196	3535626	2.249	25112	1.012
2019	**8076736**	94390	7982346	3559396	2.243	23770	1.012
2020	**8107524**	94386	8013139	3582687	2.237	23290	1.012
2021	**8143839**	94443	8049397	3608552	**2.231**	25865	**1.012**
2022	**8179907**	94691	8085216	3632540	2.226	23988	1.012
2023	**8212477**	94897	8117580	3655078	2.221	22538	1.012
2024	**8244825**	95100	8149725	3677616	2.216	22538	1.012
2025	**8276725**	95295	8181429	3700054	2.211	22438	1.012
2026	**8308402**	95487	8212915	3722492	**2.206**	22438	**1.012**

Using the Model -3

- Use the capacity population totals to create a weighted average of the MYE Trend and Alternate projections
  - Same weights for each age/gender/year
- Introduce this population to the model
- Extract results and perform same calculations as before
- Iterate until the output numbers of households match the input data on new homes

- Issues:
  - MYE Trend and Alternate projections should be close to Capacity population - with one above and one below
  - Have minimal differences in migration to ensure that there is consistent high/low relation between original projections.

Barking & Dagenham



PLP Low: London (000s)

	2001	2006	2011	2016	2021	2026	Change 2006-26
Total Population	**7336.9**	**7461.4**	**7749.2**	**7962.8**	**8123.6**	**8265.2**	**803.8**
Private Household	7243.3	7368.2	7655.2	7868.3	8028.4	8168.2	800.0
Communal Establishment	93.6	93.2	94.0	94.5	95.3	97.0	3.8
Economically Active	3642.6	3807.3	3997.5	4129.9	4212.1	4258.7	451.3
Total Households	**3036.1**	**3152.0**	**3328.6**	**3480.6**	**3605.1**	**3718.1**	**566.0**
Married Couples	1115.7	1031.3	967.0	909.3	861.0	821.8	-209.5
Cohabiting Couples	261.7	327.6	398.6	451.5	493.1	529.7	202.1
Lone Parents	274.6	312.3	346.9	371.6	385.5	393.6	81.3
One-person	1052.0	1140.0	1257.2	1371.9	1474.5	1568.1	428.1
Other (2+ adults: no family)	332.1	340.9	358.8	376.3	391.1	405.0	64.1
Average Household Size	**2.386**	**2.338**	**2.300**	**2.261**	**2.227**	**2.197**	-0.141

2007 Round Ward Projections

- 2001 population amended to match borough mid-2001 revisions at 0-4
- Births to mid-2006, deaths to mid-2005
- Electorates up to November 2006
- Development data as supplied by boroughs
- PLP Low – general use and school rolls
  - For school rolls to 2018: ages rebased to end August
- PLP High – TfL long-term transport modelling

GLA Demography 2007 Round: Projections Timetable

	Target	Done
Population	October	✔
Households	October	✔
Labour Force	November	✔ October
Wards	December	February 2008
Ethnic Group	February 2008	✔

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