

# HMO Competition and HMO Quality: Longitudinal Evidence

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# Research question

- How does competition among HMOs affect HMO quality?

# Main issues

- Causality is hard to assess
  - We use different identification strategies, but fundamentally we measure association
- Quality is multidimensional and hard to measure
  - We use commonly used measures of performance
    - HEDIS
    - CAHPS

# Previous literature

- Literature focuses on plan traits as opposed to market traits
- Literature on the relationship between competition and performance is sparse
  - Morrissey, 2001
- Scanlon et al. 2004
  - Competition not associated with better performance
    - Cross sectional design
    - Maybe 'production function' issues

# Quality measured by HEDIS and CAHPS data

## ■ HEDIS: administrative and medical record data

- childhood DTP immunization rate
- adolescent MMR immunization rate
- cervical cancer screening rates
- breast cancer screening rates
- annual eye exam rate for diabetic enrollees
- beta blocker prescription rate post AMI

## ■ CAHPS: consumer survey data

- overall plan rating
- rating for getting care quickly
- rating for claims processing

# NCQA sample

Year	Number of Plans Reporting
1998	459
1999	384
2000	380
2001	338
2002	318

Includes plans that do not allow public reporting

# Plan reporting by measure

Variable	No report	1 year	2 years	3 years	4 years	5 years
DTP	17	191	97	87	57	102
MMR	24	189	94	88	56	100
Breast Cancer	11	189	98	89	62	102
Cervical Cancer	7	189	105	87	60	103
B-Blocker	169	122	79	74	44	72
Diabetic eye exam	91	139	93	81	127	20
Overall CAHPS	28	175	96	88	67	97
Getting care quickly	35	175	101	79	66	95
Claims processing	32	178	100	86	68	87

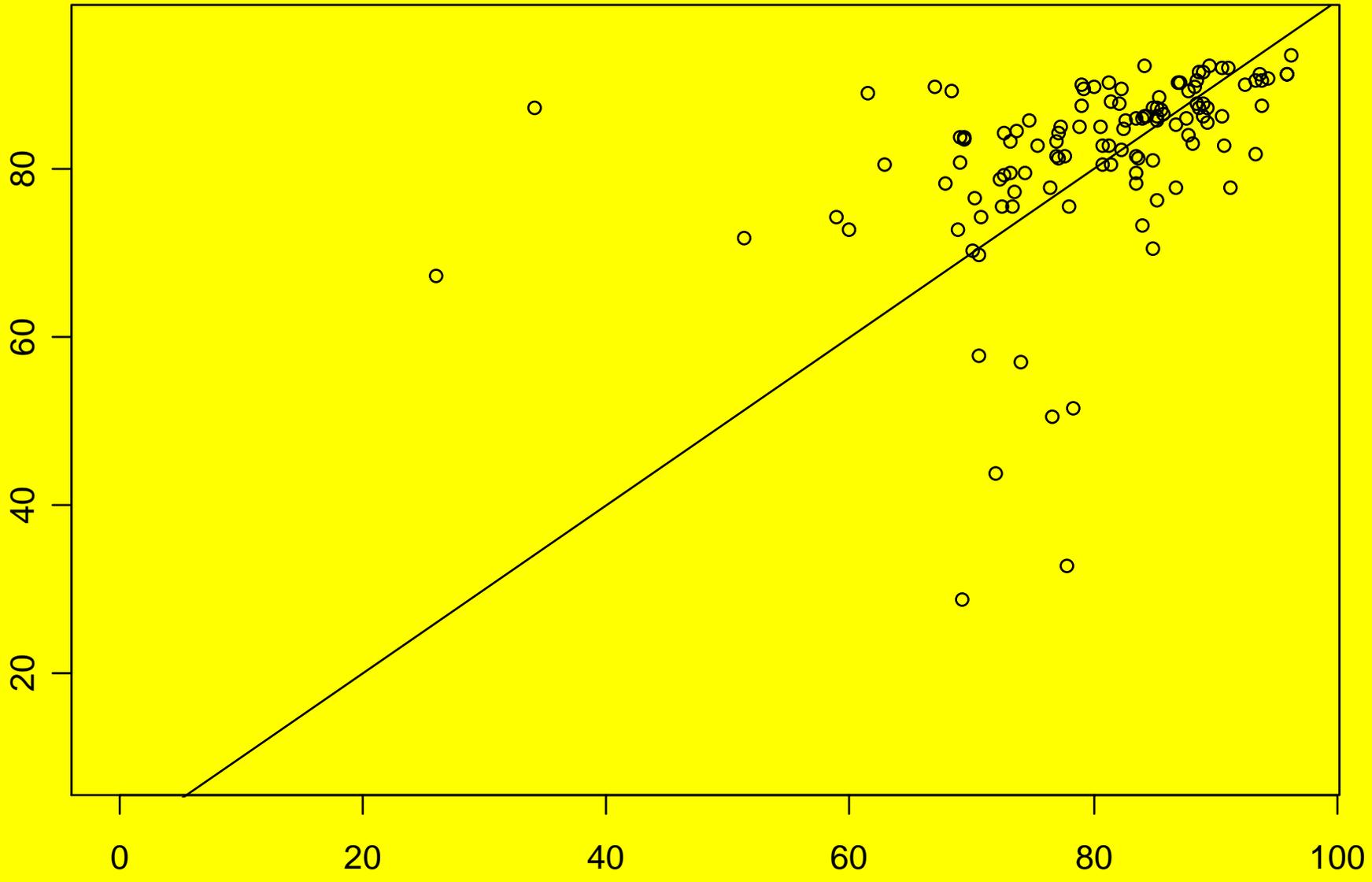
# Analysis sample

- For each measure, plans dropped if 'excessive' change in performance given year
- 551 plans
  - Public and non-public reporting
  - About 70% of commercial HMO enrollment
- 363 with 2 or more years of data
- Serving 314 Markets
- Five years
  - 1998 – 2002

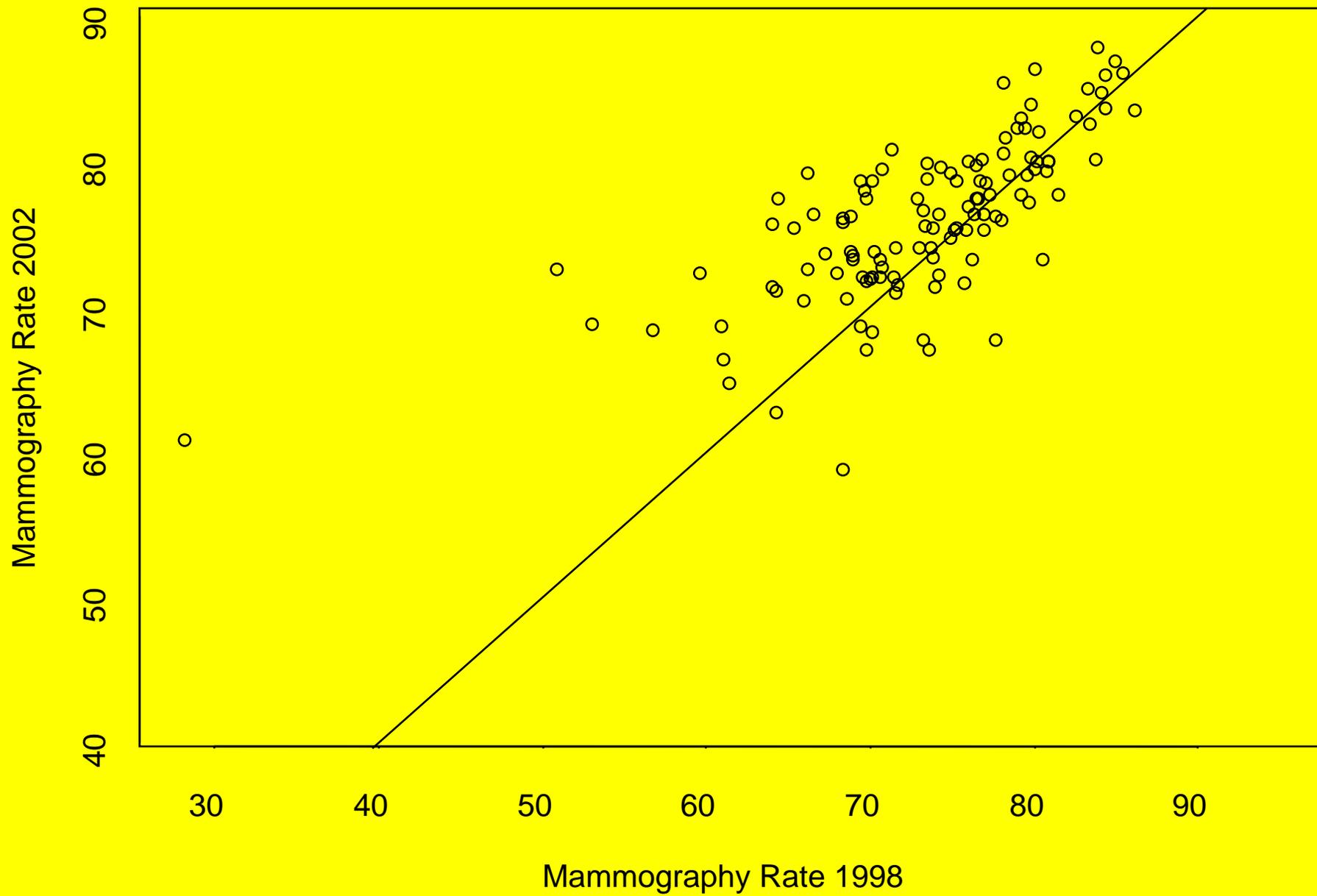
# Data aggregation

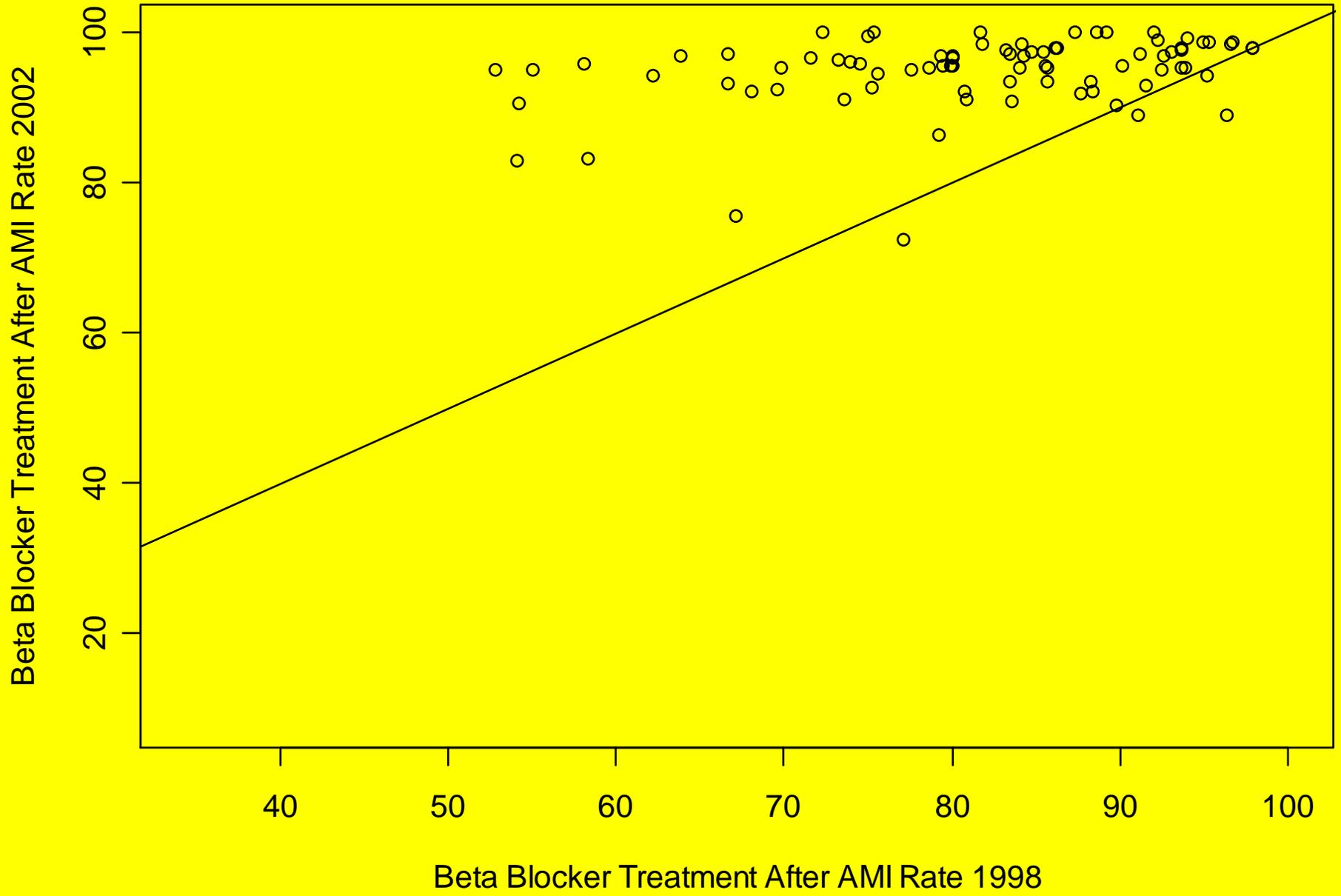
- Data is observed at the plan, not the market level
- We must aggregate market variables to the plan level
  - HHI
  - HMO penetration
- Aggregation based on share of plan enrollment in each MSA
  - Time varying
  - Constant share (based on average enrollment)

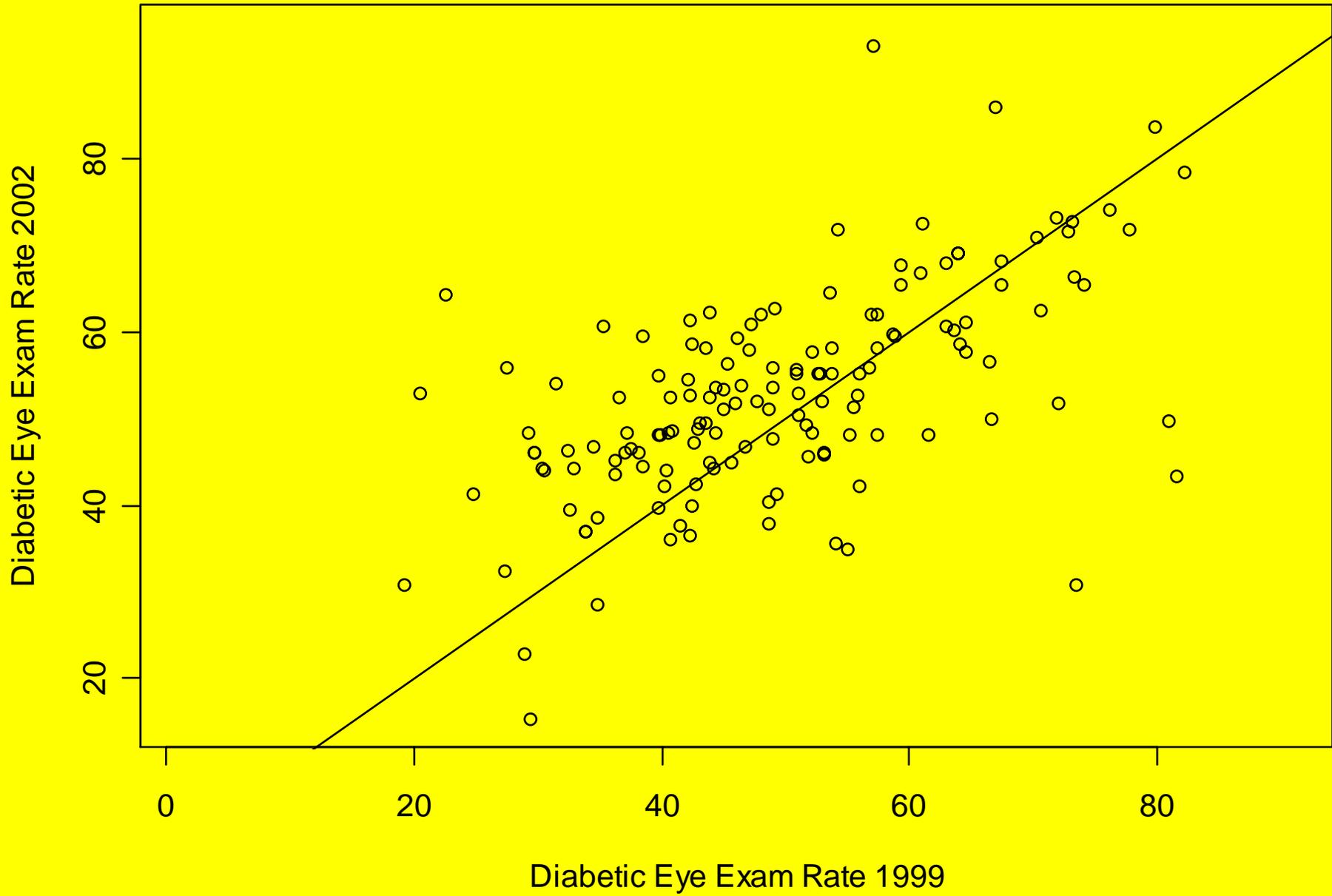
Childhood Immunization Rate-DTP 2002

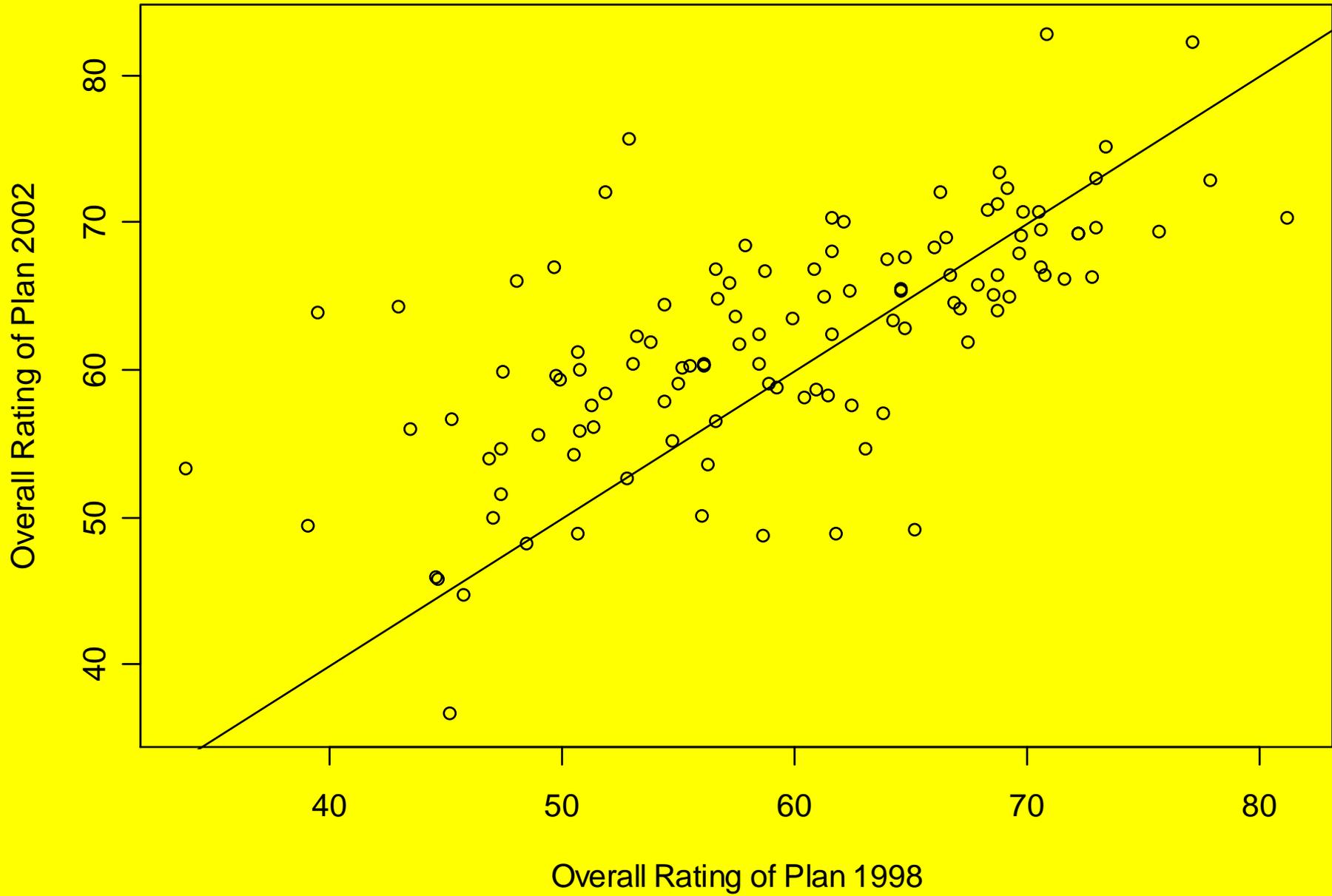


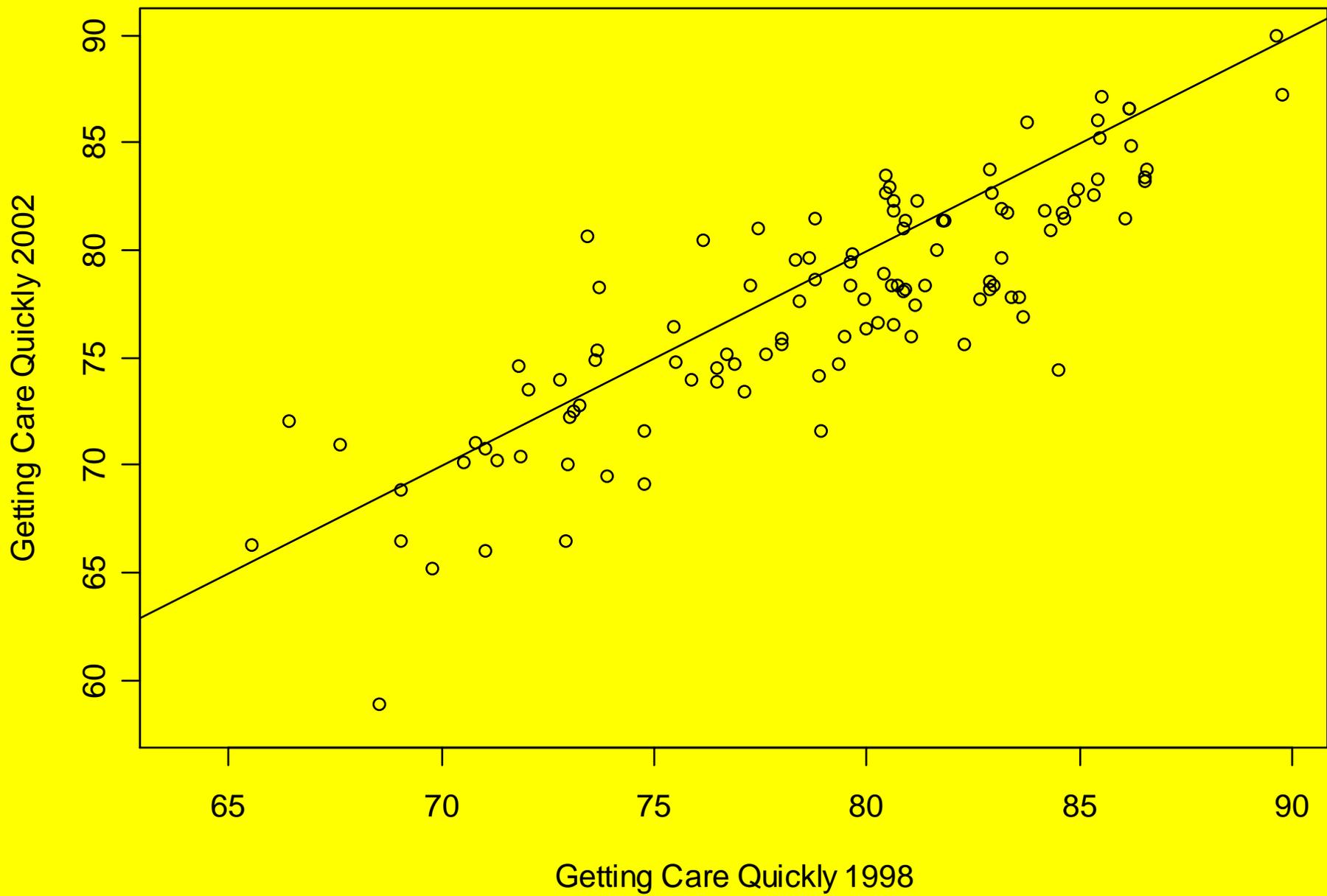
Childhood Immunization Rate-DTP 1998











# Measuring competition

## ■ HHI

- HMO commercial market

  - Excluding Medicare and Medicaid

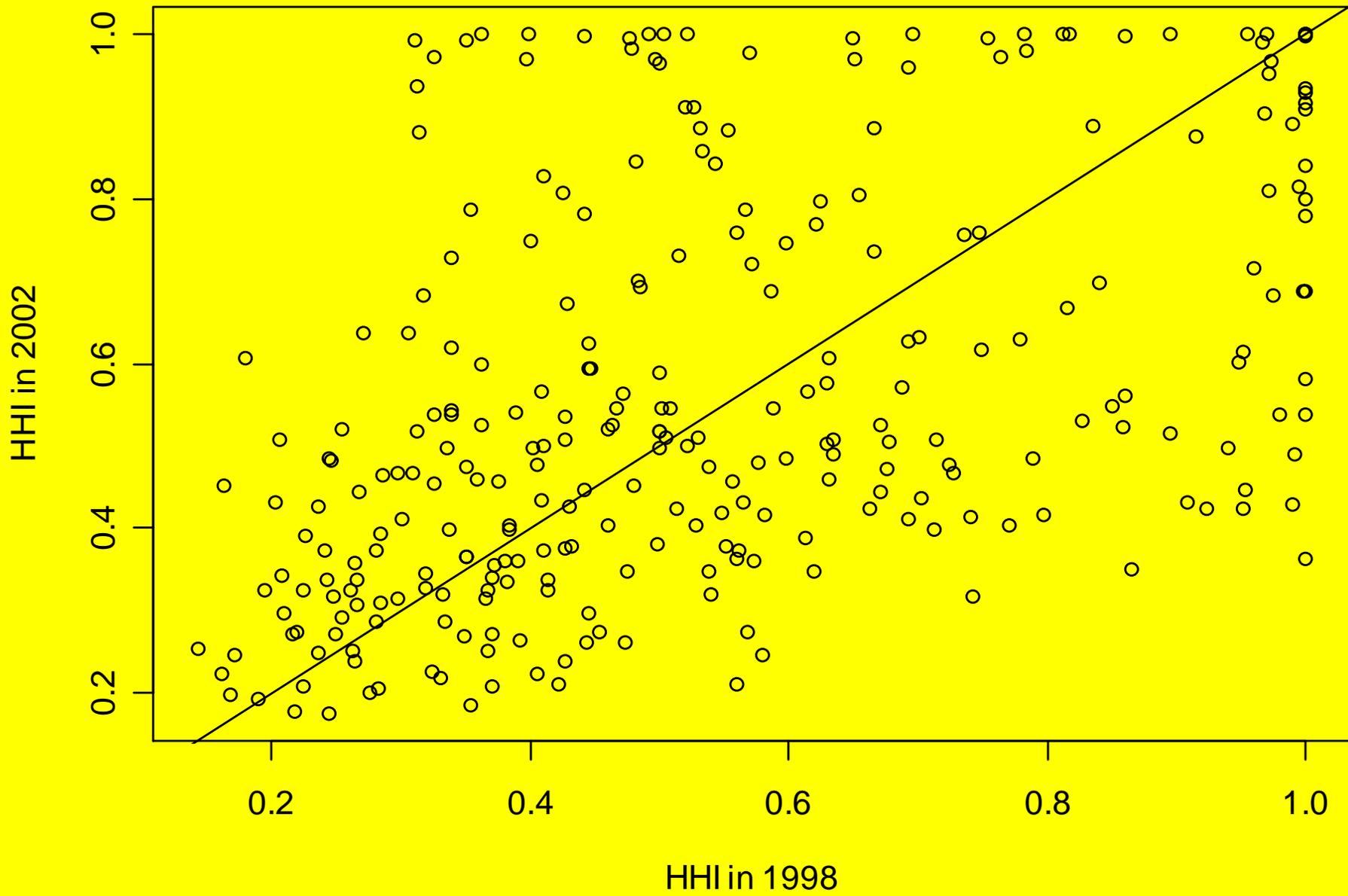
- Aggregate from the market to plan level

## ■ Aggregate competitiveness is relatively stable

- HHI 1998: .54

- HHI 2002: .56

## ■ 75% of MSA experienced a change in the number of HMOs



# Sources of HHI variation

- Cross sectional
- Changes within markets over time
- Changes over time in markets served

# Specification

- Cross section model (1999)
- Pooled longitudinal/ cross section
- MSA fixed effects
  - MSA of largest enrollment
- Plan fixed effects
  - Actual MSA enrollment weights used for aggregation
  - Plan average MSA enrollment weights used for aggregation

# Other covariates

- HMO penetration (at the MSA level)
- HMO model type
- Public reporting
- Data collection method
- Tax status (e.g. for-profit)
- Plan age

# Cross Section Model (1999)

Covariate	DTP	Breast Cancer Screen	Beta Blocker Rate	Diabetic Eye Exam Rate	CAHPS Overall Rating	CAHPS Obtaining Care Quickly
HHI	1.49	3.39*	4.56	11.70***	10.01***	4.94***
HMO Pen.	16.71***	7.61**	5.50	3.03	4.16	-2.08
Public Report	3.22***	3.13***	4.41***	6.89***	3.15***	1.84***
N	287	292	202	290	289	288
R-Squared	0.38	0.40	0.37	0.43	0.282	0.51

## Pooled Longitudinal Model

Covariate	DTP	Breast Cancer Screen	Beta Blocker Rate	Diabetic Eye Exam Rate	CAHPS Overall Rating	CAHPS Obtaining Care Quickly
HHI	-0.55	0.66	-0.17	2.59	-0.31	-0.16
HMO Pen.	17.03***	5.75***	-3.43	3.68	0.76	2.18**
Public Report	4.16***	3.10***	7.74***	8.66***	3.52***	0.71***
N	1383	1409	1019	1175	1383	1352
R-Squared	0.39	0.38	0.26	0.38	0.235	0.46

# MSA Fixed Effects Model

Covariate	Childhood DTP	Breast Cancer Screen	Beta Blocker Rate	Diabetic Eye Exam Rate	CAHPS Overall Rating	CAHPS Obtaining Care Quickly
HHI	-0.67	-0.17	-0.62	-1.20	1.31	0.38
HMO Pen.	10.69**	1.11	-21.43***	-5.90	-2.43	3.16
Public Report	5.20***	4.34***	7.71***	9.58***	4.75***	1.30***
N	1381	1407	1017	1173	1381	1350
R- Squared	0.32	0.17	0.17	0.26	0.157	0.10

## Plan Fixed Effects Model (Time Variant MSA Weight)

Covariate	Childhood DTP	Breast Cancer Screening	Beta Blocker Rate	Diabetic Eye Exam Rate	CAHPS Overall Rating	CAHPS Obtaining Care Quickly
HHI	-0.58	0.35	-0.22	-1.66	-4.13***	-1.70***
HMO Pen.	8.63*	-2.63	-30.20***	-9.68	-4.16	4.86***
Public Report	2.80***	2.56***	6.75***	8.39***	3.18***	-0.16
N	1384	1410	1020	1176	1384	1353
R-Squared	0.26	0.08	0.11	0.11	0.007	0.05

# Plan Fixed Effects Model (Constant Weight)

Covariate	Childhood DTP	Breast Cancer Screening	Beta Blocker Rate	Diabetic Eye Exam Rate	CAHPS Overall Rating	CAHPS Obtaining Care Quickly
HHI	0.18	0.39	0.10	-2.80	-4.66***	-2.02***
HMO Pen.	8.65*	-2.63	-30.18***	-9.91	-4.16	4.84***
Public Report	2.83***	2.56***	6.76***	8.37***	3.20***	-0.15
N	1384	1410	1020	1176	1384	1353
R-Squared	0.26	0.08	0.11	0.09	0.003	0.06

# Other results

- Hybrid data collection associated with better performance
- Non-profit tends to be associated with better performance

# Results summary

- Source of identification matters
- Plan F.E. models suggest
  - Competition has little association with HEDIS variables
  - Competition is associated with better consumer rating of overall performance
  - HMO penetration is not consistently associated with better performance
- Plans that publicly report perform better
  - This may not be causal

# Implications

- Plan competition does not necessarily improve HEDIS performance. Why?
  - Fragmentation?
  - Externalities (negative quality spillovers)?
  - Consumers do know about HEDIS scores
  - Consumers do not care about HEDIS Scores
- Plan competition is associated with better overall performance on CAHPS
  - Plans may respond to consumer desires

# Outstanding issues

- Competition and Price?
- What plan traits affect consumer ratings?