The role of identity and mobility in reconciling individual and community change:

Insights from a combined panel and trend study

Karen V. Beaman

Queen Mary University of London

EBERHARD KARLS UNIVERSITÄT TÜBINGEN

New Ways of Analyzing Variation (NWAV48)
October 10-14, 2019

Research Aims

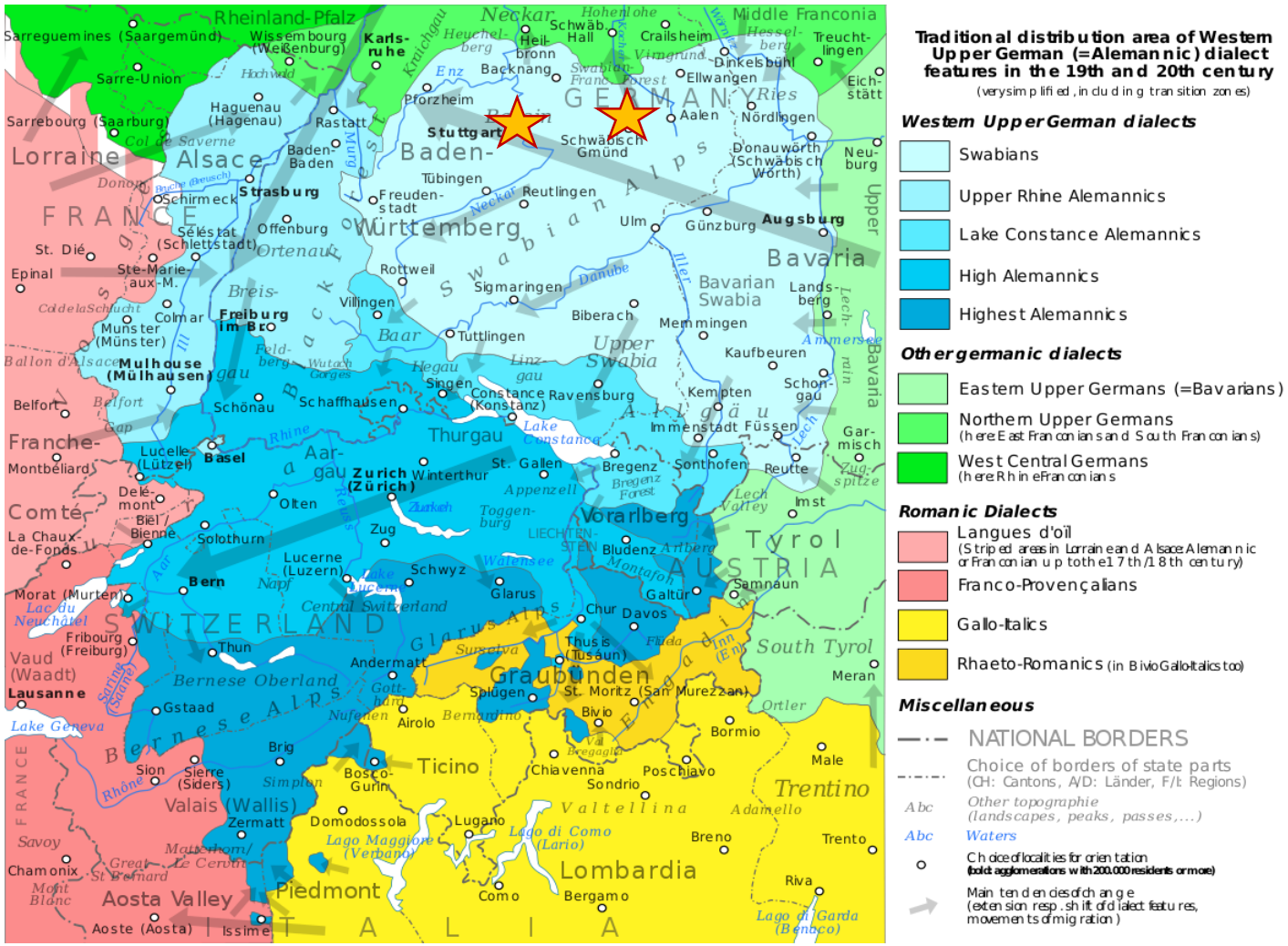
- To explore the relationship between:
  - —generational change across the community → real-time Trend Study
  - —individual change across the lifespan → real-time Panel Study
- To understand how individuals over their lifespans may “speed up” or “slow down” a community change in process
- To assess various social factors and their influence on the direction and speed of linguistic change
  - —traditional social categories: speaker age, sex, education, social class
  - —local orientation/identity, interlocutor accommodation, and mobility
- To investigate lifespan change at different levels of linguistic structure
  - —phonological, morphosyntactic, syntactic lexical, and discourse

Swabian

Swabian or **Schwäbisch** is a High German dialect, belonging to the Alemannic family, spoken by just over 800,000 people.

Two communities:

- Stuttgart area
- Schwäbisch Gmünd



Two Speech Communities

Swabian: Loved or Loathed

also gewisserweise isch mã da scho e bissle Stolz darauf ã … des [ist] aber eich zu neunundneunzig Komma fünf Prozent alles witzig und positiv [ge]meint, und niemand meint des in Konotation wie Baure oder sowas, also des isch scho ganz cool und, von dem her i glaub die Schwabe sind au relativ gut angesehen in Deutschland und so, des isch ja e fleißiges Volk ja.

'in a certain way, one is a little proud [to be Swabian]… it's 99,5% funny and positive, and no one makes a connection to farmers or whatever, it's pretty cool, and because of that, I think Schwabs are viewed relatively well in Germany, they're hard-working people.'

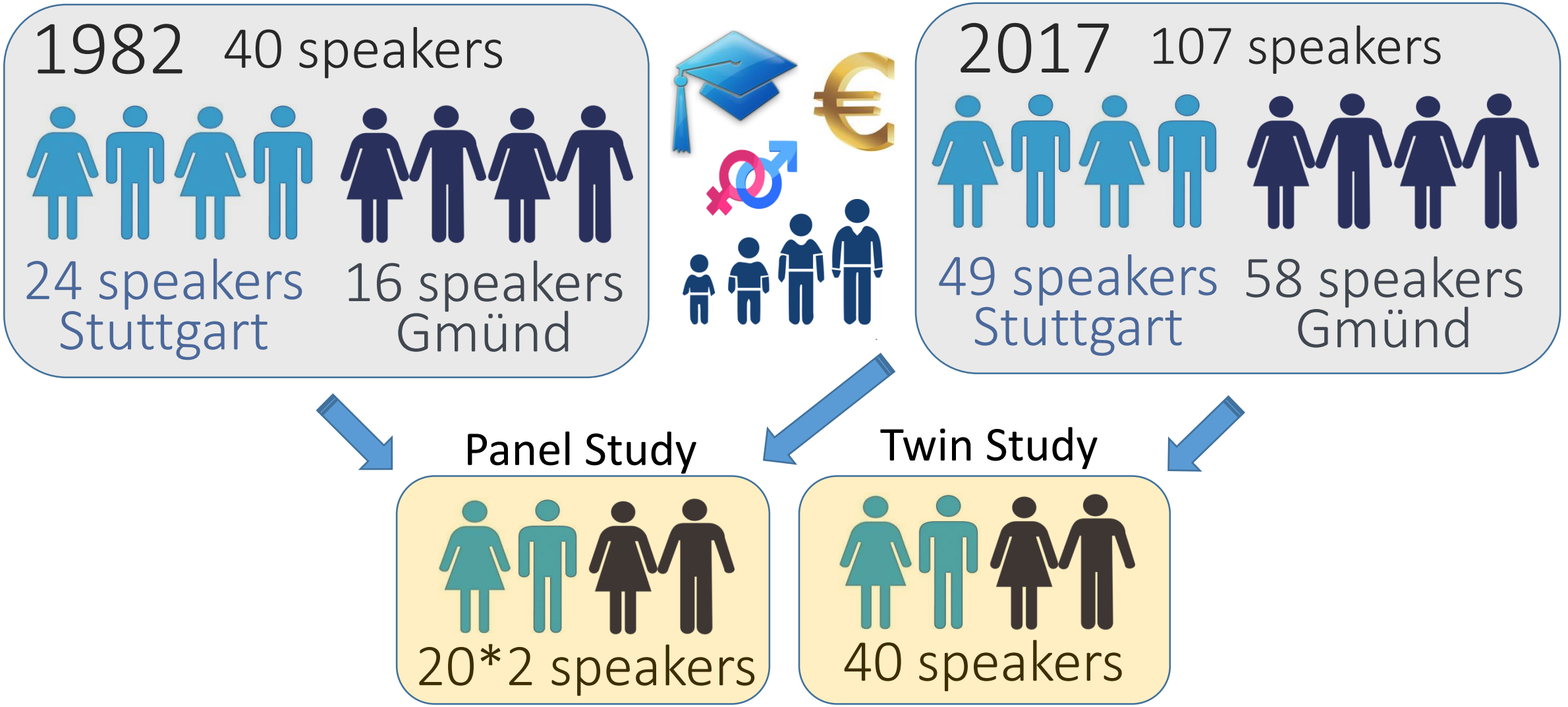
(Fabian 2017)

meine Kinder schämen sich sogar heutzutage Schwäbisch, also die verbinden Schwäbisch mit irgendwas, was sie nicht möchten…. dieser dörfliche Zusammenhalt stoßen die eher ab.

'nowadays my children are actually ashamed of Swabian, well they associate Swabian with something they don't like…. they are more likely to reject this village solidarity.'

(Helmut 2017)

Swabian Corpora



Swabian Corpora

Panel Study

PANEL STUDY		STUTTGART		GMÜND		Total
Age	Sex	HiEdu	LoEdu	HiEdu	LoEdu	
1982 GEN2	M	0	0	0	1	1
(31-60 years)	W	0	1	0	2	3
1982 GEN3	M	4	0	6	0	10
(18-30 years)	W	1	1	3	1	6
2017 GEN4	M	0	0	0	1	1
(61-90 years)	W	0	1	0	2	3
2017 GEN5	M	4	0	6	0	10
(31-60 years)	W	1	1	3	1	6
Subtotal		10	4	18	8	40
TOTAL		14		26		40

Social Twin Study

TWIN STUDY		STUTTGART		GMÜND		Total
Age	Sex	HiEdu	LoEdu	HiEdu	LoEdu	
2017 GEN4	M	0	1	1	1	3
(61-90 years)	W	0	1	1	3	5
2017 GEN5	M	1	2	3	4	10
(31-60 years)	W	1	2	2	1	6
2017 GEN6	M	4	0	3	2	9
(18-30 years)	W	1	1	3	2	7
Subtotal		7	7	13	13	40
TOTAL		14		26		40

Data and Methods

- ***Sociolinguistic Interviews***
  - —Labovian-style, casual interview questions of approximately one hour
  - —Same interview instrument and techniques used in 1982 and 2017
  - —Similar interview situations, albeit different interviewers
  - —Differences in “Interviewer Closeness” across the samples
- ***Social Predictors***
  - —Sample Type (Panel/Twin)
  - —Recording Year (1982/2017)
  - —Community (Gmünd/Stuttgart)
  - —Speaker Age (<30, 30-60, >60)
  - —Speaker Sex (Male/Female)
  - —Composite Class Index (CCI)
  - —Speaker Education (with/without Abitur)
  - —Swabian Orientation Index (SOI)
  - —Swabian Interlocutor Index (SII)
  - —Swabian Mobility Index (SMI)
  - —Principal Investigator Presence

Linguistic Variables – Phonological (13)

Code	Name	Swabian ~ Standard	Examples (Swabian Orthography)	Type	DDM
	PHONOLOGICAL VARIABLES:				
AIS1	MHG /i:/ Diphthong Shift	[əɪ] ~ [aɪ]	da dued mã in den Zylinder obe der Dêig nei	SWG	Y
AIS2	MHG /ei/ Diphthong Shift	[ɔɪ] ~ [aɪ]	mã braucht da kôi Flôisch dazu	SWG	Y
ANN	Nasalisation /an/	[ã] ~ [an]	mã kã es mit em normale [Mehl] mache	SWG	Y
FRV1	Unrounded Front Vowel /ö/	[ɛ] ~ [ø]	so guet wie meeglich probier es	SWG	Y
FRV2	Unrounded Diphthong /eu/	[aɪ] ~ [ɔɪ]	bin gern auf Baim gestiege	SWG	Y
FRV3	Unrounded Diphthong /ü/ (MHG /ü/	[iə] ~ [y]	dann ist d Kieche explodiert	SWG	Y
FRV4	Diphthongisation /u/ (MHG /uo/	[uə] ~ [u]	nâ muess er sueche	SWG	Y
LEO	Long /e:/ Opening	[ɛː] ~ [eː]	dâ e baar Jâhr lääbe	REG	Y
SFV	Stop-Fricative Variation	[ɪk] ~ [ɪç]	scho richtich, wo andersch verkaufe au	REG	Y
STP	Palatalisation coda /st/	[ʃt] ~ [st]	da darfsch ja bloß hundertdreißig fahre in Italien	ALM	Y
ULO1	Lowering /un/ prefix	[o] ~ [u]	sin oofreundlich, i ken kôi fraindliche Stuegarder	SWG	Y
ULO2	Lowering /un/ other	[o] ~ [u]	bei ors	SWG	Y
ULO3	Lowering /u/	[o] ~ [u]	dorchenandr	SWG	Y

LEGEND: Type of Variable: SWG=Swabian; ALM=Alemannic; REG=Regional; COL=Colloquial

Linguistic Variables – Morphosyntactic (15)

Code	Name	Swabian ~ Standard	Examples (Swabian Orthography)	Type	DDM
	MORPHOSYNTACTIC VARIABLES:				
DAS	Definite Neuter Article	[dɛs] ~ [das]	kennsch des?	ALM	Y
EDP	Plural Verb Inflection	[əd] ~ [ən]	die finded es wichtich.	SWG	Y
IPP	Irregular Past Participle	kennt ~ gekannt	hasch den net kennt?	SWG	Y
IRV1	Irregular Verb 'gehen'	[gangə] ~ [ge:ən]	willsch du an Telefon gange?	SWG	Y
IRV2	Irregular Verb 'stehen'	[ʃtandə] ~ [ʃte:ən]	lässt mã no e halb Stunde stande	SWG	Y
IRV3	Irregular Verb 'haben'	[hɛn] ~ [ha:bən]	mr hen e aldes Haus khet	SWG	Y
IRV4	Irregular Verb 'wollen'	[vɛlə] ~ [vo:lən]	was hâsch du welle sage?	SWG	Y
IRV5	Irregular Verb 'tun'	[doə] ~ [tuːn]	mã muess des net obedingt doe	SWG	Y
NEG	Negative Marker	'nedde'/'et' ~ 'nicht'/'nich'	glaub mã net ge?	REG	Y
PVB	Periphrastic Subjunctive	'dääd' ~ 'würde'	es dääd beeinflusse	SWG	Y
SAF1	Swabian Affix '-le'	'-le' ~ '-chen'/'-lein'	dass er en Mädle mâg un se ihn mâg	ALM	Y
SAF2	Swabian Affix 'ver-'	'ver-' ~ 'er-'/'zer-'	nâ verzählet se was se so im Gschäft erlebet	SWG	Y
SAF3	Swabian Affix 'na-'	nââ-' ~ 'hin-'	ich glaub net, dass mã des so schnell nââkriegt	SWG	Y
SAF4	Swabian Affix 'sau-'	sau-' ~ 'sehr'	s war saukalt	SWG	Y
SAF5	Swabian Affix 'ge-'	[θ] ~ [gə]	un hen hier e Haus [ge]baut	REG	Y

LEGEND: Type of Variable: SWG=Swabian; ALM=Alemannic; REG=Regional; COL=Colloquial

Linguistic Variables – Phonological (13)

Code	Name	Swabian ~ Standard	Examples (Swabian Orthography)	Type	DDM
	PHONOLOGICAL VARIABLES:				
AIS1	MHG /i:/ Diphthong Shift	[əɪ] ~ [aɪ]	da dued mã in den Zylinder obe der Dêig nei	SWG	Y
AIS2	MHG /ei/ Diphthong Shift	[ɔɪ] ~ [aɪ]	mã braucht da kôi Flôisch dazu	SWG	Y
ANN	Nasalisation /an/	[ã] ~ [an]	mã kã es mit em normale [Mehl] mache	SWG	Y
FRV1	Unrounded Front Vowel /ö/	[ɛ] ~ [ø]	so guet wie meeglich probier es	SWG	Y
FRV2	Unrounded Diphthong /eu/	[aɪ] ~ [ɔɪ]	bin gern auf Baim gestiege	SWG	Y
FRV3	Unrounded Diphthong /ü/ (MHG /ü/	[iə] ~ [y]	dann ist d Kieche explodiert	SWG	Y
FRV4	Diphthongisation /u/ (MHG /uo/	[uə] ~ [u]	nâ muess er sueche	SWG	Y
LEO	Long /e:/ Opening	[ɛː] ~ [eː]	dâ e baar Jâhr lääbe	REG	Y
SFV	Stop-Fricative Variation	[ɪk] ~ [ɪç]	scho richtich, wo andersch verkaufe au	REG	Y
STP	Palatalisation coda /st/	[ʃt] ~ [st]	da darfsch ja bloß hundertdreißig fahre in Italien	ALM	Y
ULO1	Lowering /un/ prefix	[o] ~ [u]	sin oofreundlich, i ken kôi fraindliche Stuegarder	SWG	Y
ULO2	Lowering /un/ other	[o] ~ [u]	bei ors	SWG	Y
ULO3	Lowering /u/	[o] ~ [u]	dorchenandr	SWG	Y

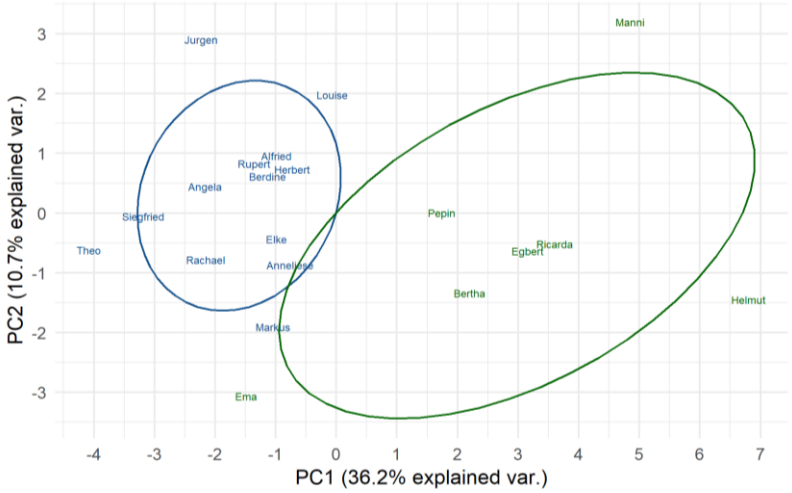
LEGEND: Type of Variable: SWG=Swabian; ALM=Alemannic; REG=Regional; COL=Colloquial

Dialect Density across Communities

Stuttgart
Schwäbisch Gmünd

Panel Study 1982

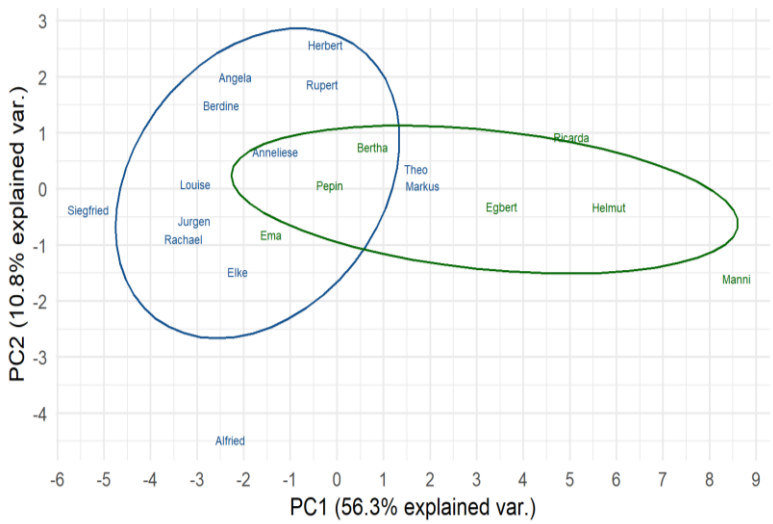
nS = 20 *nT = 27,806*



Two distinct speech communities; Schwäbisch Gmünd homogenous

Panel Study 2017

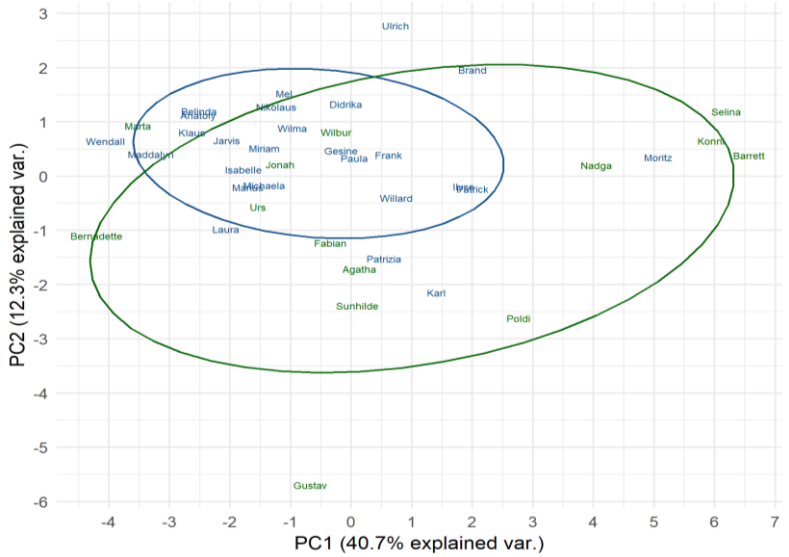
nS = 20 *nT = 40,964*



Communities beginning to merge; Schwäbisch Gmünd expanding

Twin Study 2017

nS = 40 *nT = 68,513*



High degree of levelling; two communities almost completely fused

Includes 9 Phonological Vars: AIS1 + AIS2 + ANN + FRV1 + FRV2 + FRV3 + FRV4 + LEO + SFVA
and 9 Morphosyntactic Vars: DAS + EDP + IRV1 + IRV2 + IRV3 + NEG + PVB + SAF1B + SAF5

Swabian Orientation Index (SOI)

Swabian Allegiance:

1-1. Self-Declared Swabian: Are you a 'real' Swabian?
5=definitely, 4=maybe, 3=don't know, 2=not really, 1=no

1-2. Non-Swabian Friends: Do you have friends who are NOT Swabian?
5=no, 4=a few, 3=don't know, 2=many, 1=a lot

1-3. Swabian Ridicule: If yes, do they laugh at how you speak?
5=always, 4=sometimes, 3=don't know, 2=not really, 1=not at all

1-4. Accommodation: If yes, do you change how you speak?
5=not at all, 4=a little, 3=don't know, 2=a lot, 1=always

Swabian Language Attitudes:

2-1. Opinion of Swabian Language: What do you think of the Swabian language?
5=super, 4=good, 3=don't know, 2=not good, 1=awful

2-2. Job Prospects for Swabians: Is it difficult to find a job when you speak Swabian?
5=great, 4=good, 3=no impact/don't know, 2=maybe some, 1=very difficult

2-3. Swabians Speaking German: Is it odd when a Swabian speaks standard German?
5=very odd/awful, 4=funny, 3=don't know, 2=good, 1=great

2-4. Non-Swabians Speaking Swabian: Is it odd when a non-Swabian speaks Swabian?
5=very odd/awful, 4=funny, 3=don't know, 2=good, 1=great

Swabian Cultural Competence:

3-1. Swabian Knowledge: Are there different Swabian dialects?
5=considerable, 4=some, 3=don't know, 2=not much, 1=none

3-2. Swabian Specialties: Do you know how to make Spätzle? Maultaschen?
5=of course, 4=somewhat, 3=don't know, 2=not well, 1=not at all

3-3. Swabian People & Jokes: Do you know [various well-known Swabians]?
5=of course, 4=somewhat, 3=don't know, 2=not well, 1=not at all

3-4. Swabian Activities: Do you participate in 'Hocketse ' and local activities?
5=always, 4=some, 3=don't know, 2=not much, 1=never

Assesses speakers' orientation and attitudes to the Swabian culture and language

$$SOI = \frac{\sum_1^n \lambda_i}{n}$$

scaled from 1 for the lowest to 5 for the highest (rescaled to 0 to 1 for regression analysis)

Swabian Interlocutor Index (SII)

Interlocutors:

1. Parents
2. Siblings
3. Relatives
4. Partner/Spouse
5. Friends
6. Neighbours who are older
7. Neighbours who are younger
8. People you don't know well
9. People in a bus or train
10. Teachers/Professors
11. Colleagues
12. Boss
13. Clients

Evaluates speakers' responses as to whether they speak Swabian or Standard German with different interlocutors

$$SII = \frac{\sum_1^n \Upsilon_i}{n}$$

$$\Upsilon_i = \begin{cases} 0 & \text{if standard} \\ \frac{1}{2} & \text{if standard \& swabian} \\ 1 & \text{if swabian} \end{cases}$$

scaled from 0 for the lowest to 1 for the highest

Swabian Mobility Index (SMI)

Assess differences in residential distance and dispersion of residences across an individual's lifetime:

n = total number of years lived (speaker age)
d = residence (city) distance from birthplace (city)
y = years living in a residence (city)
i = number of moves (residences lived in)

S010-Angela	Residence (City)	Years in Location	km from Birthplace
Birthplace	Schwäbisch Gmünd	--	--
Residence 1	Schwabisch Gmünd	19	0
Residence 2	Heidelberg	2	157
Residence 3	Mannheim	2	172
Residence 4	Mannheim/Hohensachsen	2	172
Residence 5	Mannheim	4	172
Residence 6	Deggendorf	3	315
Residence 7	Iggingen	11	8
Residence 8	Groß Nemerow	2	710
Current Residence	Iggingen	8	8

Residential Dispersion

$$\lambda = 100 \times 1 - \sum_{i=1}^{n} \sqrt{y_i}$$

Residential Distance

$$\delta = \frac{100 \times \sum_{i=1}^{n} log(1 + d \times y)_i}{n}$$

Swabian Mobility Index (SMI)

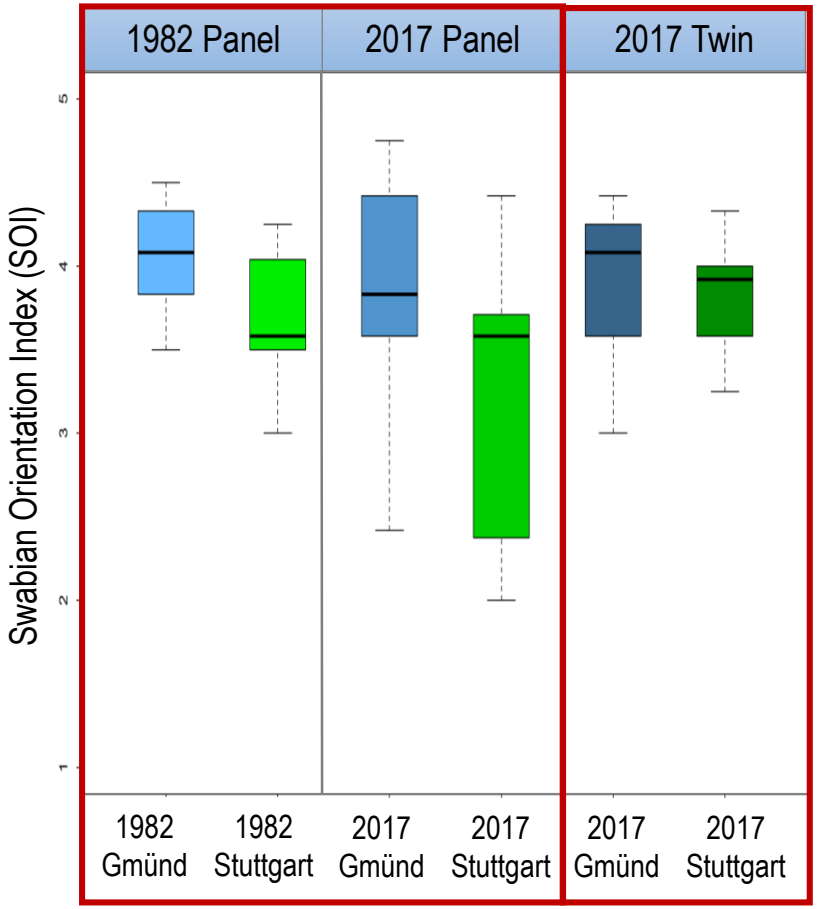
$$SMI = \frac{(\lambda + \delta)}{2}$$

scaled from 0 for the least mobile to 100 for the most (rescaled to 0 to 1 for regression analysis)

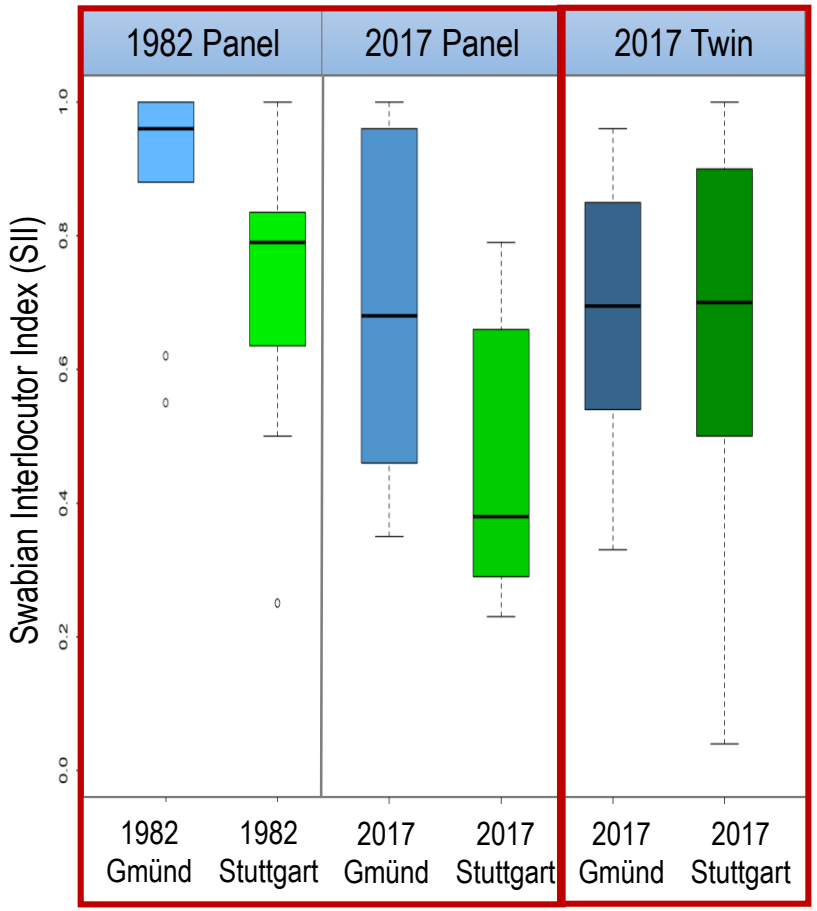
Changing Culture

Stuttgart
Schwäbisch Gmünd

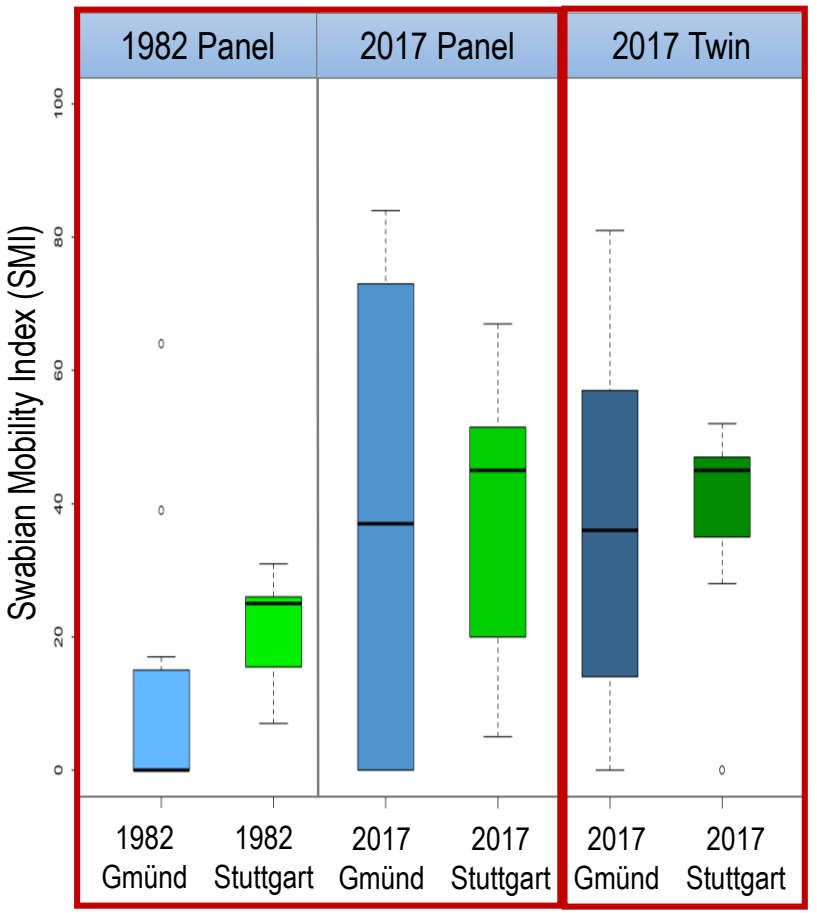
Swabian Orientation



Interlocutor Accommodation



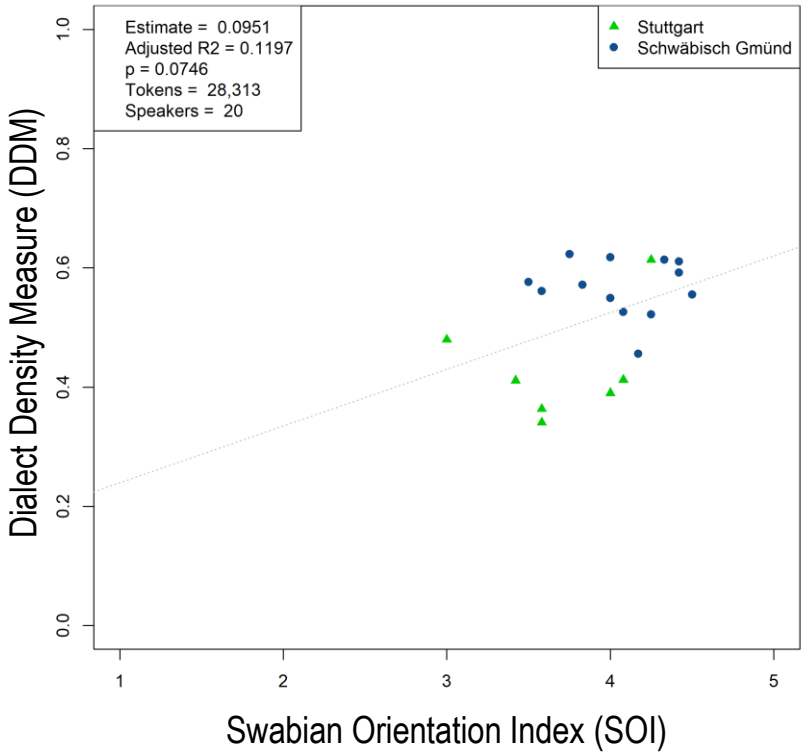
Swabian Mobility



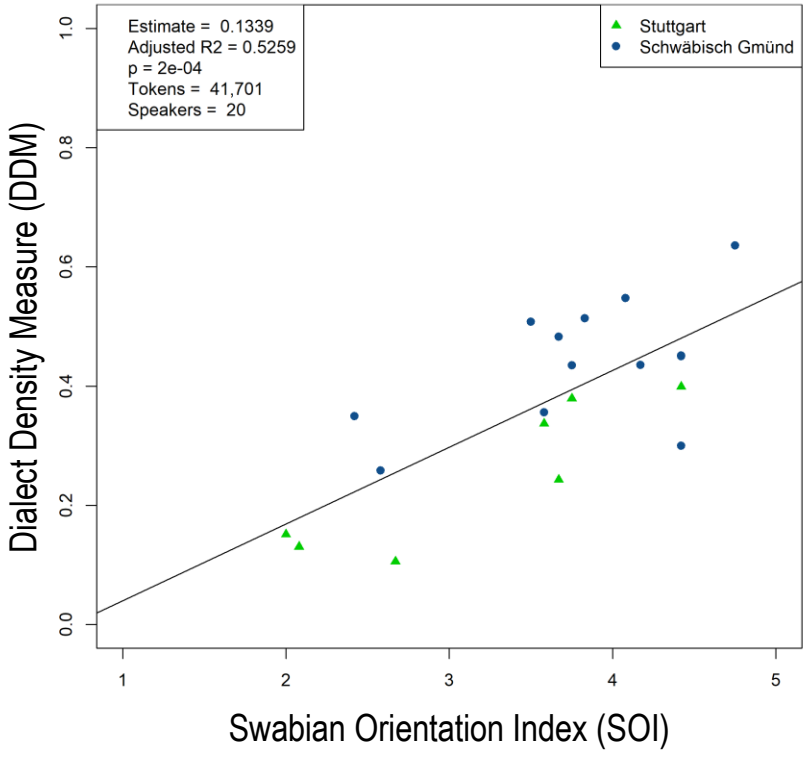
Dialect Density and Swabian Orientation

▲ Stuttgart
● Schwäbisch Gmünd

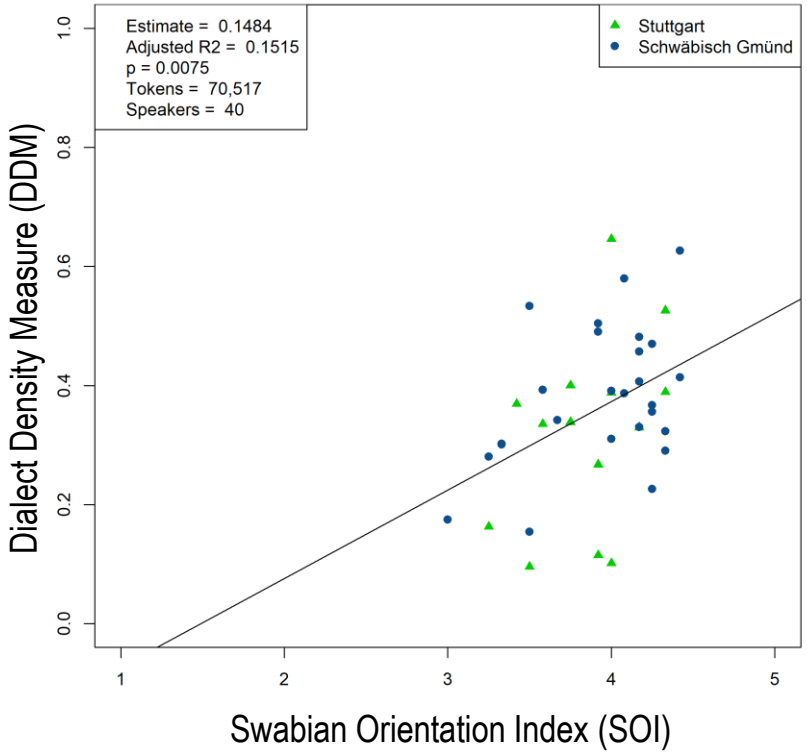
Panel Study 1982



Panel Study 2017



Twin Study 2017

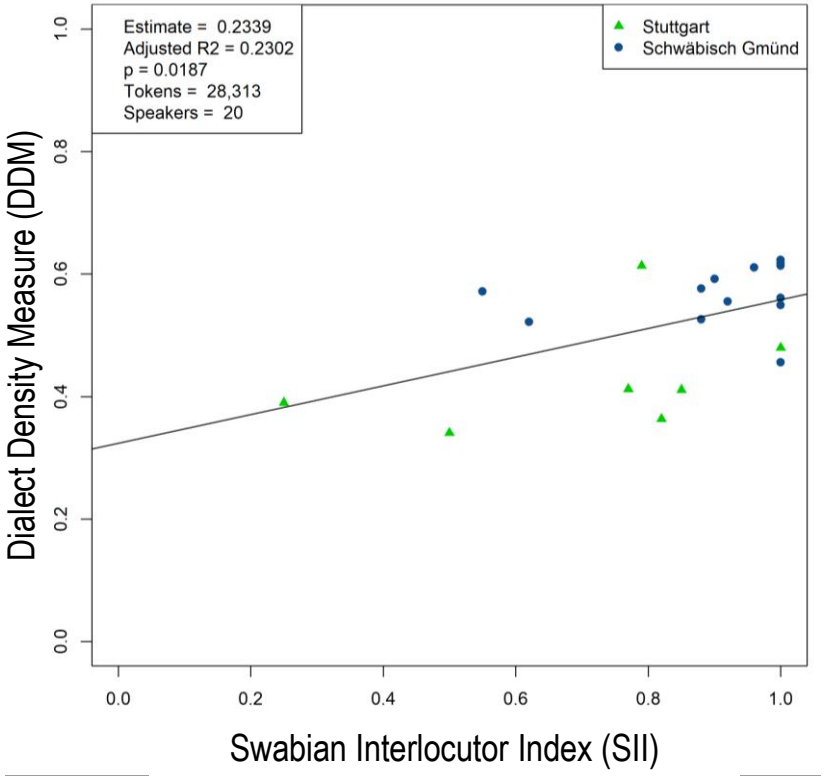


Scale from 1 (lowest) to 5 (highest) based on orientation to Swabia culture and attitudes.

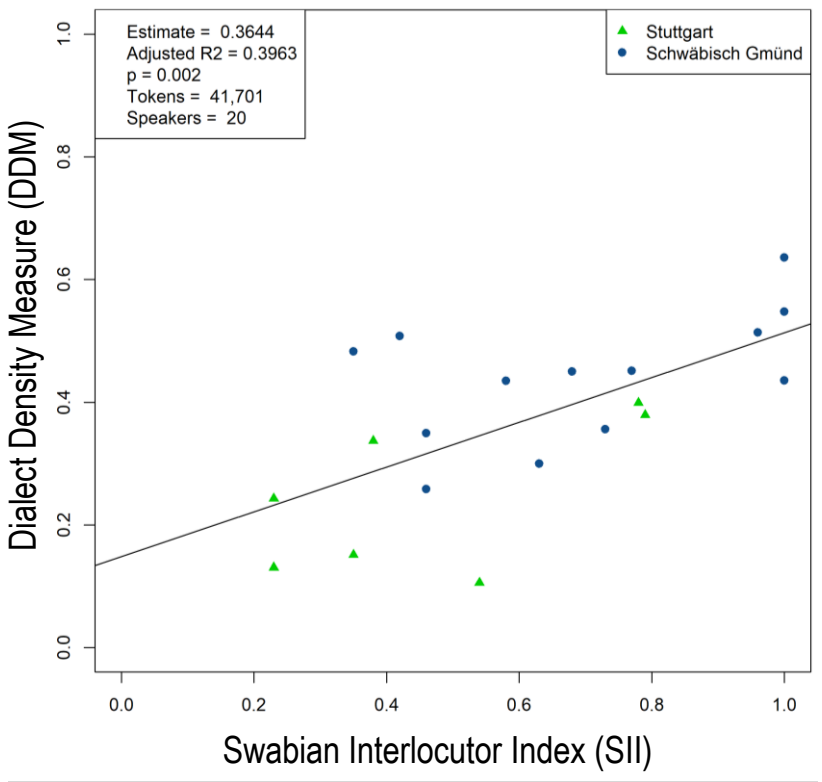
Dialect Density and Interlocutor

▲ Stuttgart
● Schwäbisch Gmünd

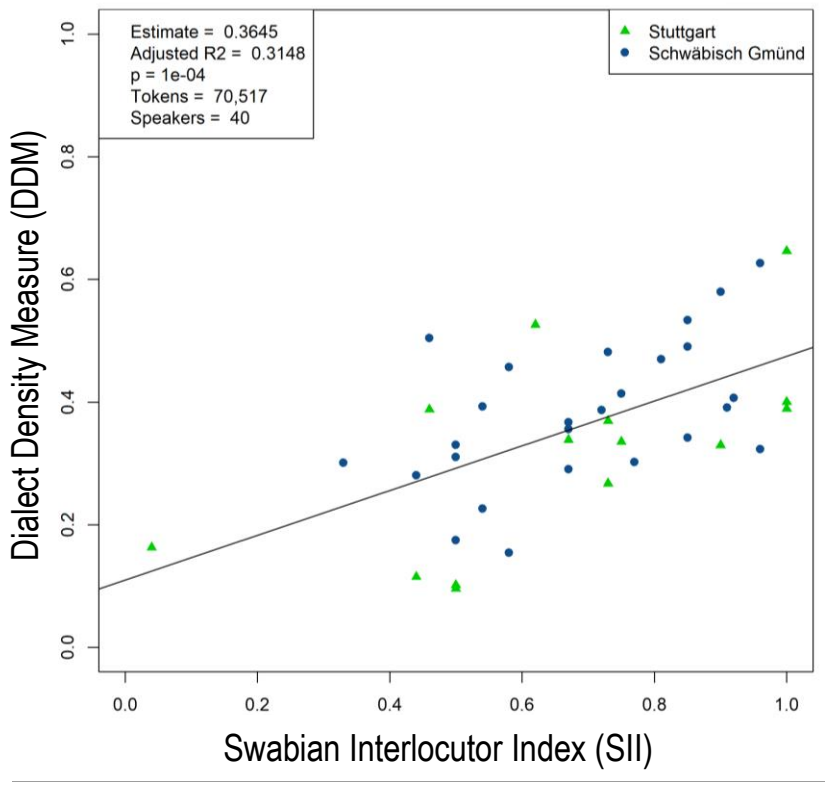
Panel Study 1982



Panel Study 2017



Twin Study 2017

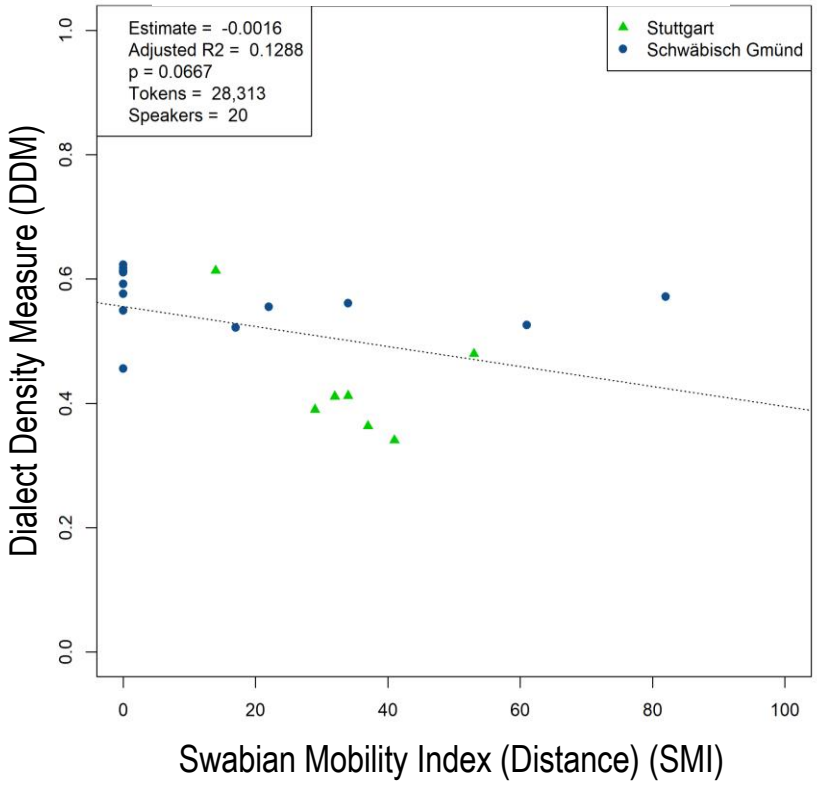


0 = standard German spoken with all interlocutors; 1 = Swabian spoken with all interlocutors

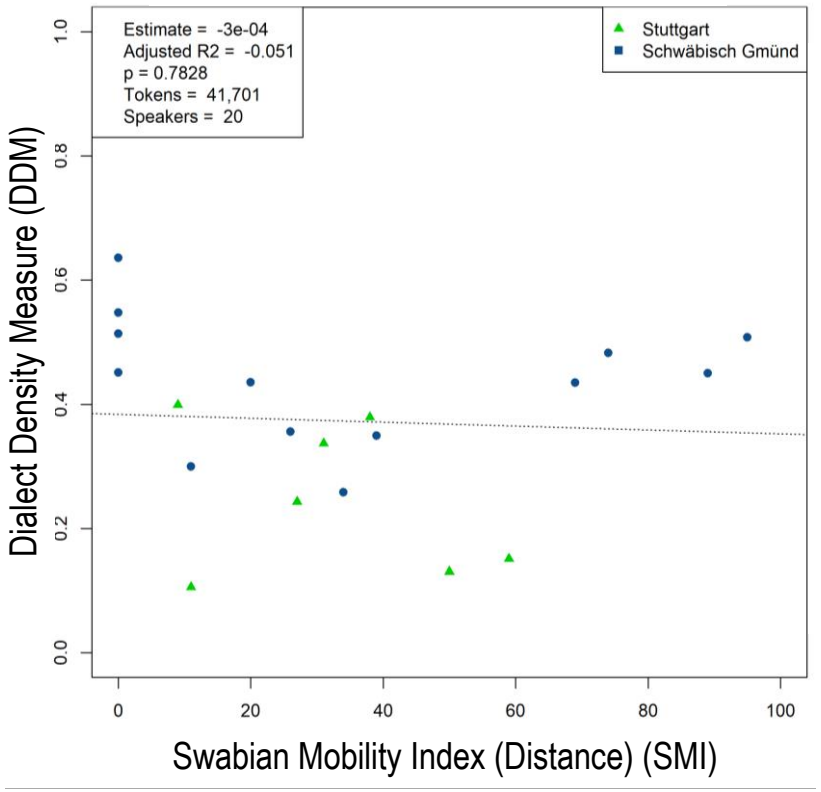
Dialect Density and Residential Mobility

▲ Stuttgart
● Schwäbisch Gmünd

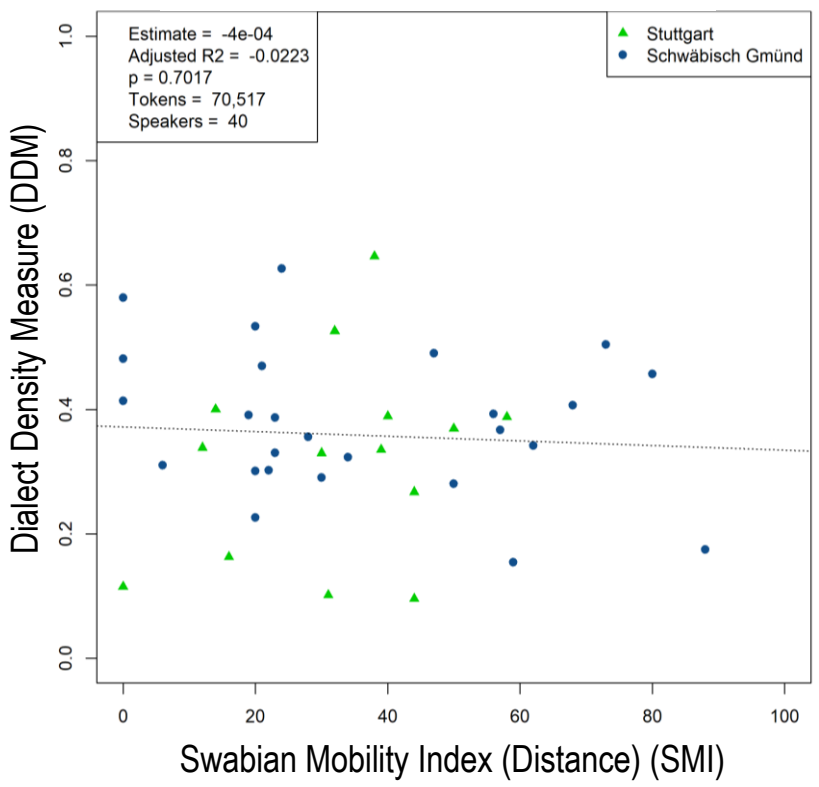
Panel Study 1982



Panel Study 2017



Twin Study 2017



Scale from 0-100 based on number and distance (km) residential moves, weighted by time spent in each location

Multivariate Analysis – Dialect Density

n = 147,879

Positive estimates indicate greater dialect usage

Random effects:

Groups	Name	Variance	Std.Dev.
Speaker	(Intercept)	0.1855	0.4307
Interviewer	(Intercept)	0.0485	0.2202

Groups: Speakers: 60; Interviewers: 10

Fixed effects:

	Estimate	Std. Error	z value	Pr(>|z|)	
(Intercept)	2.84263	0.41315	6.880	5.97e-12	***
Generation	-0.21423	0.08937	-2.397	0.016526	*
Community (Stuttgart)	-0.30923	0.20037	-1.543	0.122761	
Education (with Abitur)	-2.30844	0.27610	-8.361	< 2e-16	***
Sex (Women)	-0.50441	0.16378	-3.080	0.002072	**
Swabian Orientation (SOI)	-2.40839	0.20574	-11.706	< 2e-16	***
Interlocutor (SII)	-1.23454	0.19397	-6.365	1.96e-10	***
Birth Year	-1.37032	0.22686	-6.040	1.54e-09	***
Generation:Sex(Women)	0.14853	0.02390	6.213	5.19e-10	***
BirthYear:Stuttgart	-0.74885	0.24939	-3.003	0.002676	**
BirthYear:SOI	2.32225	0.27599	8.414	< 2e-16	***
BirthYear:Abitur	1.56389	0.27950	5.595	2.20e-08	***
SOI:Abitur	1.90171	0.18478	10.291	< 2e-16	***
SOI:Stuttgart	0.28853	0.08462	3.410	0.000650	***
SII:Abitur	0.71026	0.18292	3.883	0.000103	***
SII:SOI	1.53236	0.21536	7.115	1.12e-12	***
BirthYear:Abitur:SOI	-2.17027	0.38399	-5.652	1.59e-08	***

Significant Main Effects

Generation
Birth Year
Education (Abitur)
Speaker Sex
Swabian Orientation (SOI)
Interlocutor Accommodation (SII)

Non-Significant Effects

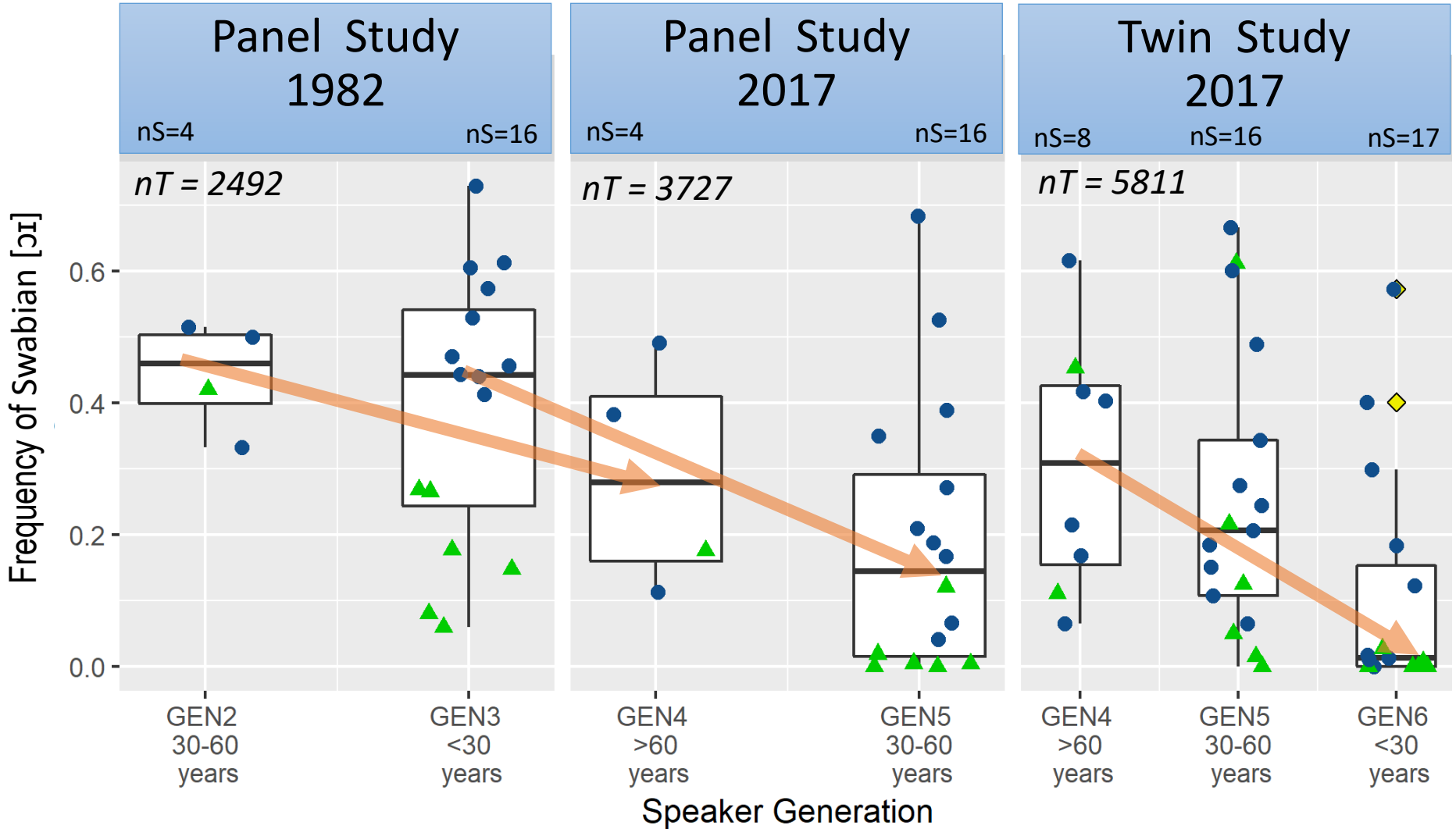
Community
Social Class
Mobility (SMI)
Sample Type
PI Presence

Significant Interaction Effects

Generation : Sex
Birth Year : Community
Birth Year : Education
SOI : Birth Year
SOI : Community
SOI : Education
SII : Education
SOI : SII

Birth Year : SOI : Education

MHG /ei/ Diphthong Shift – Across Generations



SWG [ɔɪ] ~ STD [aɪ]

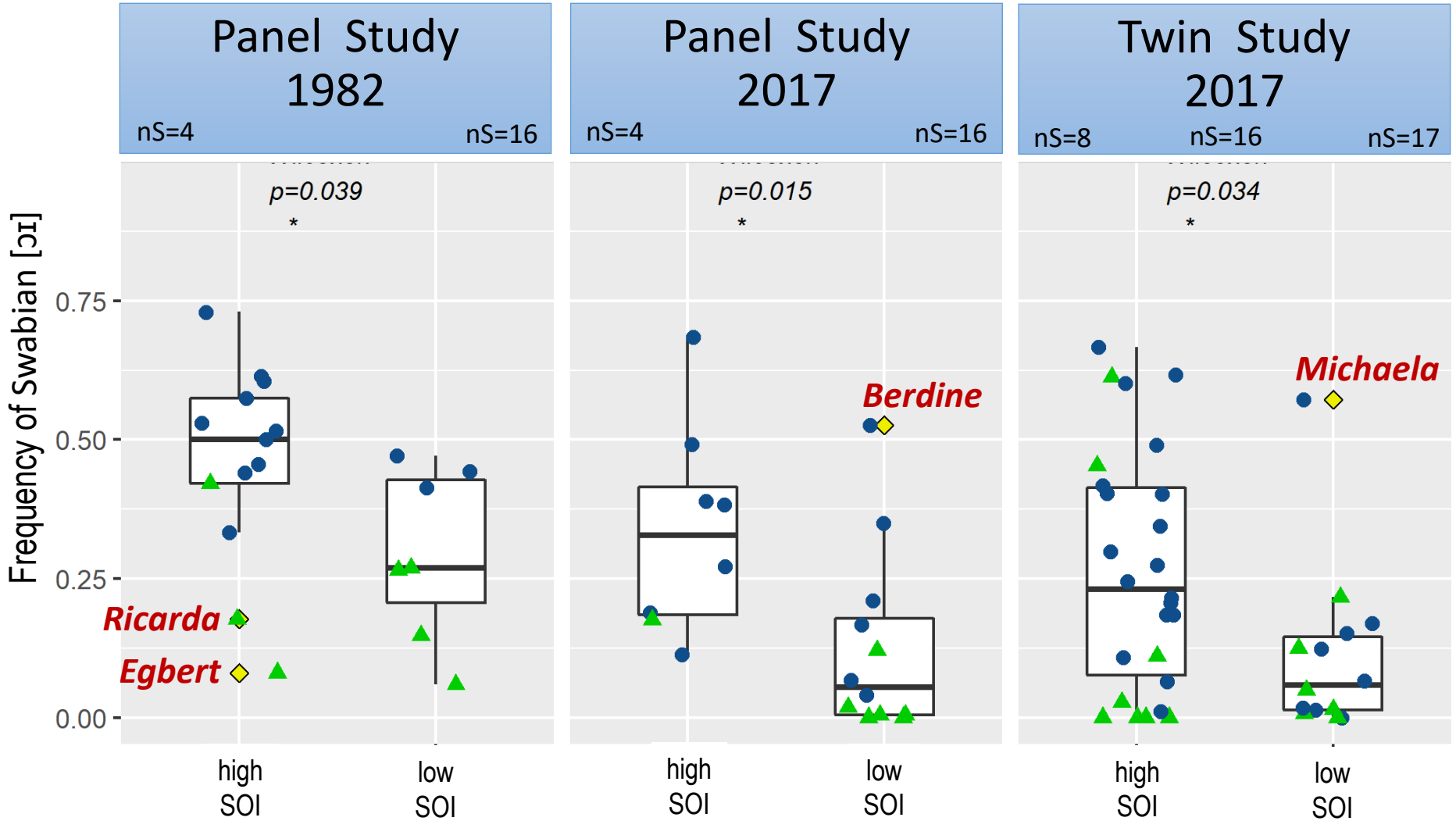
Some Examples

SWG ~ STD

allôi ~ allein ‘alone’
bôide ~ beide ‘both’
Dôig ~ Teig ‘dough’
Ôier ~ Eier ‘eggs’
Hôim ~ Heim ‘home’
glôi ~ klein ‘small’

▲ **Stuttgart**
● **Schwäbisch Gmünd**
◆ **Outliers**

MHG /ei/ Diphthong Shift – Swabian Orientation



SWG [ɔɪ] ~ STD [aɪ]

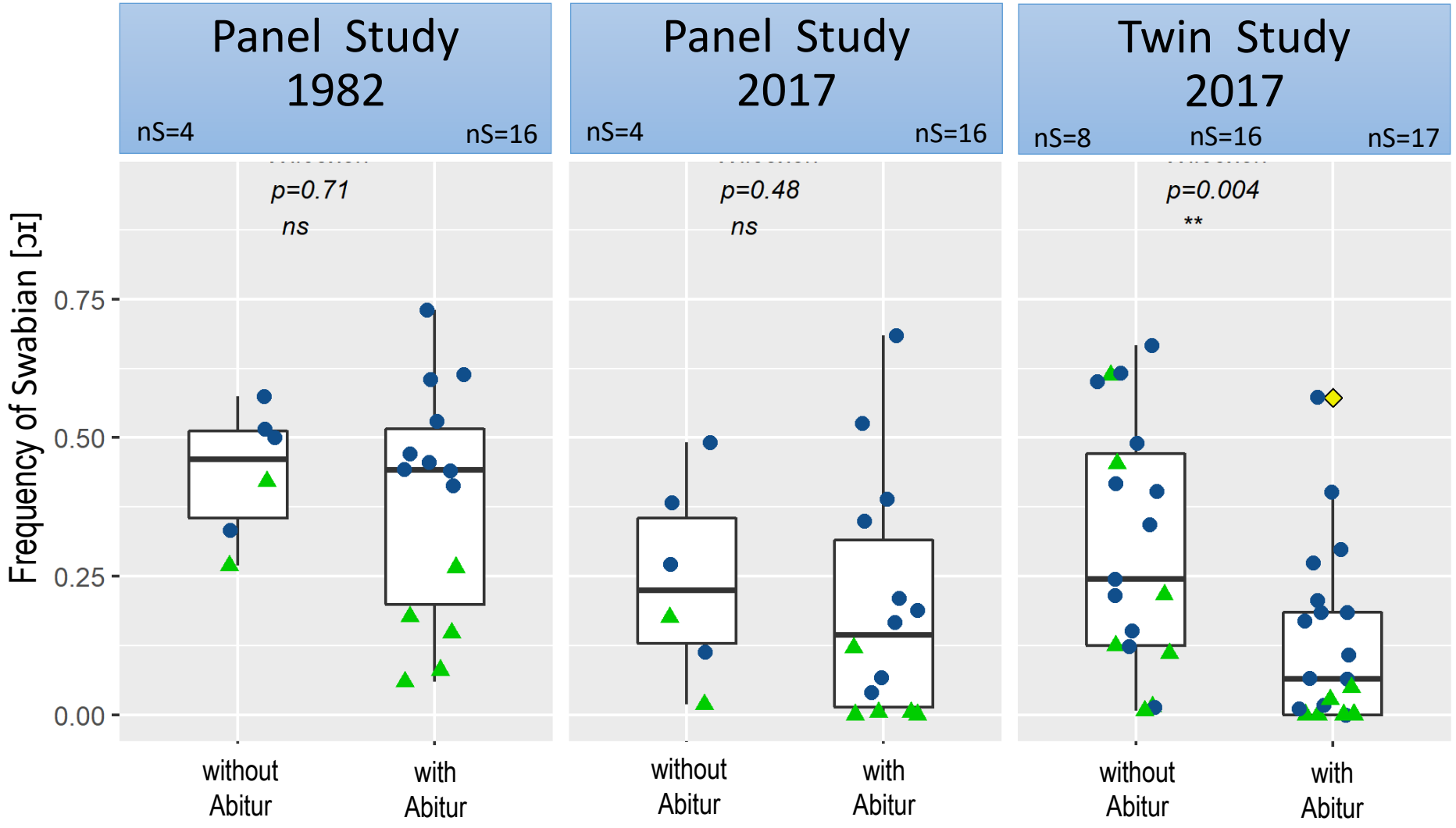
Some Examples

SWG ~ STD

allôi ~ allein ‘alone’
bôide ~ beide ‘both’
Dôig ~ Teig ‘dough’
Ôier ~ Eier ‘eggs’
Hôim ~ Heim ‘home’
glôi ~ klein ‘small’

▲ **Stuttgart**
● **Schwäbisch Gmünd**
◆ **Outliers**

MHG /ei/ Diphthong Shift – Education



SWG [ɔɪ] ~ STD [aɪ]

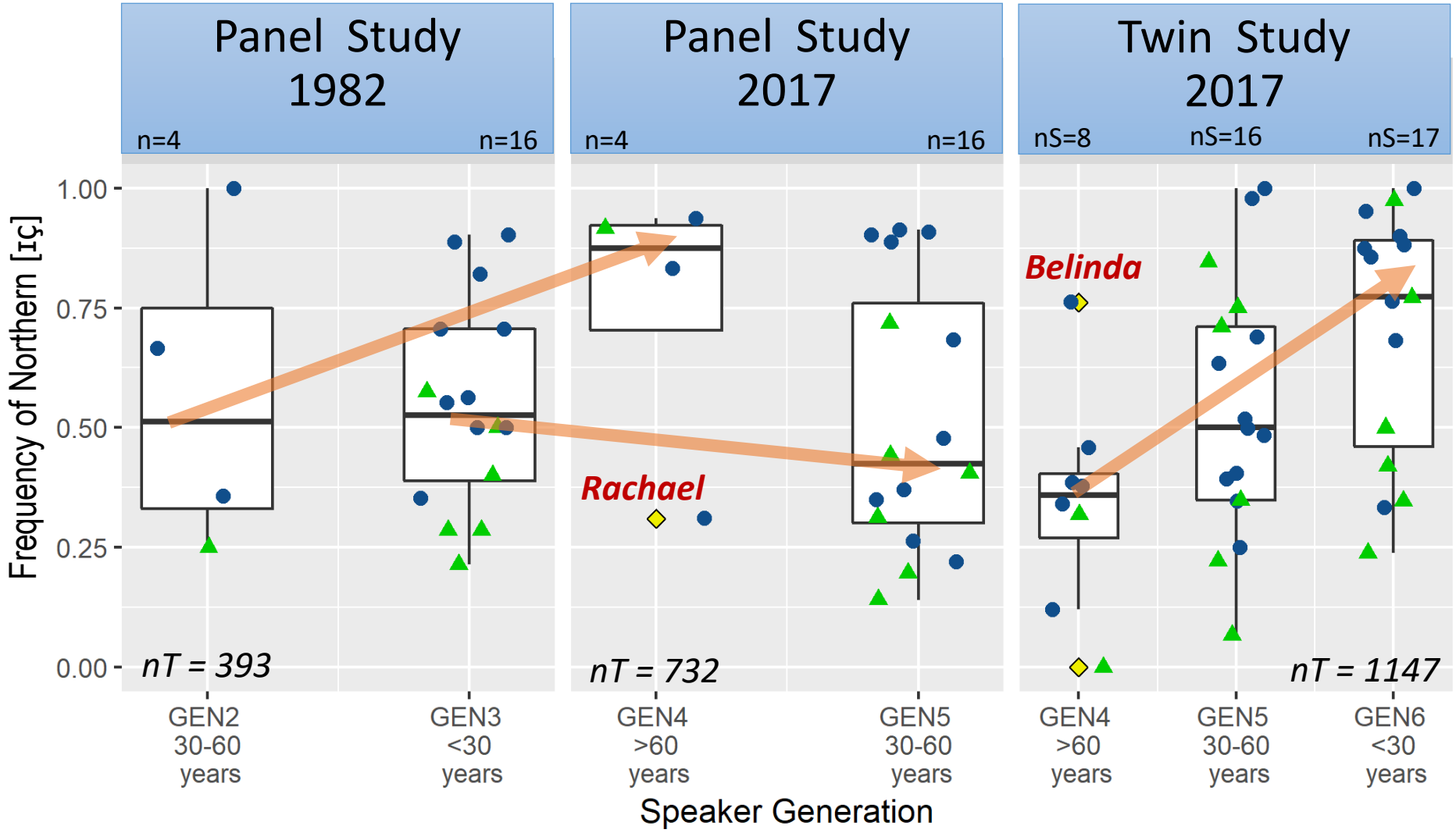
Some Examples

SWG ~ STD

allôi ~ allein ‘alone’
bôide ~ beide ‘both’
Dôig ~ Teig ‘dough’
Ôier ~ Eier ‘eggs’
Hôim ~ Heim ‘home’
glôi ~ klein ‘small’

▲ **Stuttgart**
● **Schwäbisch Gmünd**
◆ **Outliers**

Stop-Fricative Variation – Across Generations



SOU [ɪk] ~ NOR [ɪç]

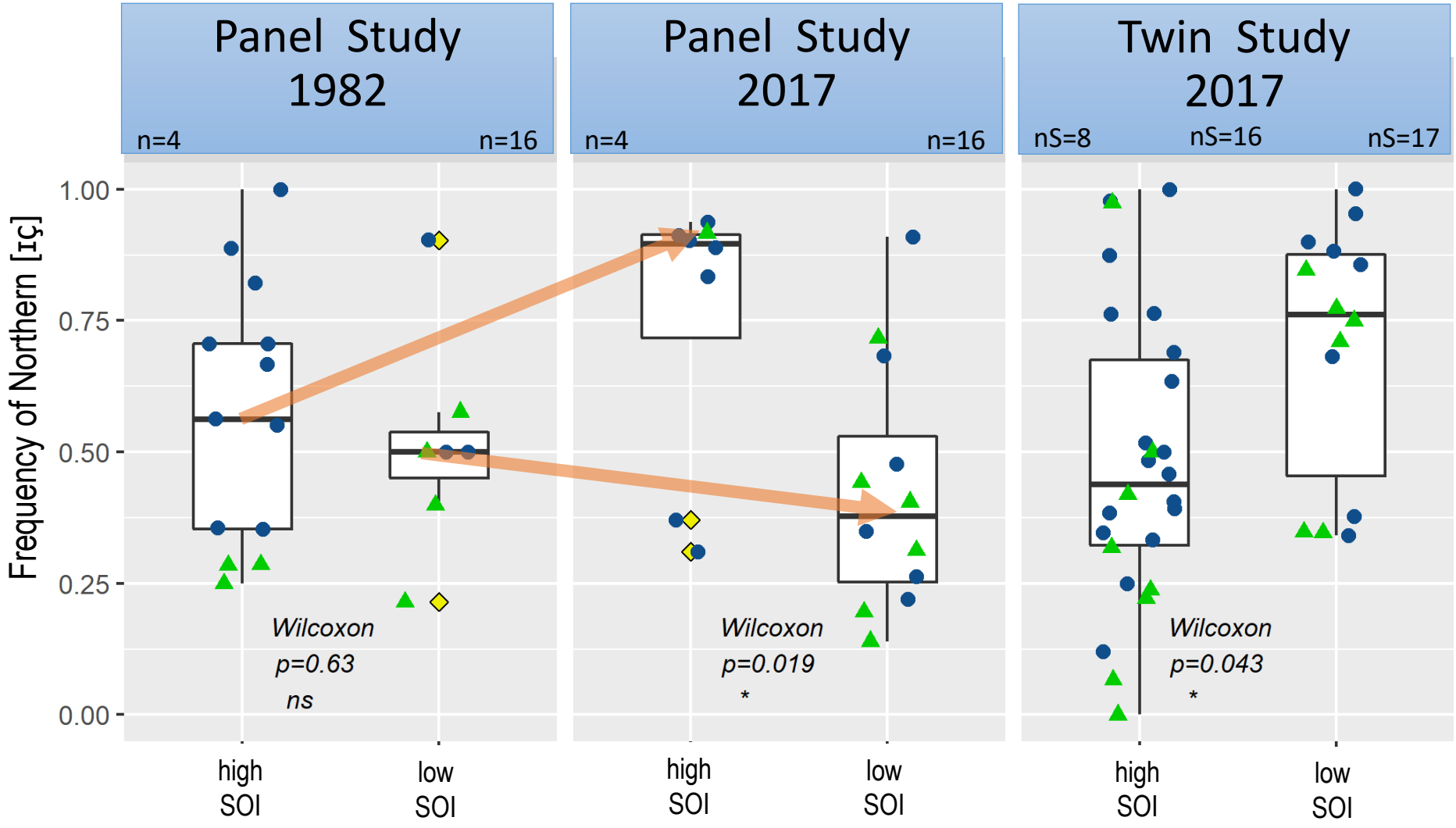
Some Examples

SWG ~ STD

blutig ~ blutich 'bloody'
häufig ~ häufich 'often'
mutig ~ mutich 'brave'
ruhig ~ ruhich 'quiet'
völlig ~ völlich 'fully'
witzig ~ witzich 'funny"

△ **Stuttgart**
● **Schwäbisch Gmünd**
◇ **Outliers**

Stop-Fricative Variation – Swabian Orientation



SOU [ɪk] ~ NOR [ɪç]

Some Examples

SWG ~ STD

blutig ~ blutich 'bloody'
häufig ~ häufich 'often'
mutig ~ mutich 'brave'
ruhig ~ ruhich 'quiet'
völlig ~ völlich 'fully'
witzig ~ witzich 'funny"

△ **Stuttgart**
● **Schwäbisch Gmünd**
◇ **Outliers**

Conclusions

- ***Changing Culture concomitant with dialect levelling***
  - —Breaking apart of traditional homogeneous close-knit Schwäbisch Gmünd
  - —Fusing of the micro cultures and a levelling of dialect variants
  - —Increasing mobility becoming a way of life

- ***Largely, lifespan change mirrors community change***
  - —/ai/ Diphthong shows all speakers moving in the same direction
  - —Stop-Frication Variation signals some confounding factors at play

- ***Orientation and Interlocutor Accommodation are powerful predictors***
  - —High Swabian orientation correlates with high dialect usage
  - —Swabians speak Swabian with Swabian interlocutors
  - —Usurp traditional socio-demographic factors, such as age, sex, social class

Thank you

WITH SPECIAL THANKS TO THE INTERVIEWERS:

Reinhard, Kai, Edgar, Jakob, Selina, Benni, and Julia

AND TO THE TRANSCRIBERS:

Anne, Benni, Jakob, Jana, Julia, Niels, Oliver, Rachel, Vera

CONTACT INFORMATION:

Karen V. Beaman
Queen Mary, University of London
Eberhard Karls University of Tübingen
www.karenbeaman.com
karenbeamanvslx@gmail.com

References

Britain, David. 2016. “Sedentarism and Nomadism in the Sociolinguistics of Dialect.” In *Sociolinguistics: Theoretical Debates*, edited by Nikolas Coupland, 217–41. Cambridge: Cambridge University Press.

Coupland, Nikolas. 2001. “Language, Situation, and the Relational Self: Theorizing Dialect-Style in Sociolinguistics.” In *Style and Sociolinguistic Variation*, edited by Penelope Eckert and John R. Rickford, 185–210. New York: Cambridge University Press.

Johnstone, Barbara. 2011. “Language and Place.” In *The Cambridge Handbook of Sociolinguistics*, edited by Walt Wolfram and Raj Mesthrie, 203–17. Cambridge: Cambridge University Press.

Labov, William. 1963. “The Social Motivation of a Sound Change.” *Word* 19 (3): 273–309.

Sankoff, Gillian. 2019. “Language change across the lifespan: three trajectory types“. *Language 95(2): 1-33.*

Sankoff, Gillian. 2006. “Age: Apparent Time and Real Time.” *Encyclopedia of Language and Linguistics.*, no. 1: 110–16.

Sankoff, Gillian, and Hélène Blondeau. 2007. “Language Change Across the Lifespan: /r/ in Montreal French.” *Language* 83 (3): 560-588.

Schilling-Estes, Natalie. 2004. “Constructing Ethnicity in Interaction.” *Journal of Sociolinguistics* 8 (2): 163–95.

Sharma, Devyani. 2017. “Scalar effects of social networks on language variation.” *Language Variation and Change* 28(3): 393-418.

Van Hofwegen, Janneke, and Walt Wolfram. 2010. “Coming of Age in African American English: A Longitudinal Study.” *Journal of Sociolinguistics* 14 (4): 427–55.

Wagner, Suzanne Evans, and Isabelle Buchstaller. 2017. *Panel Studies of Variation and Change*. New York: Routledge

Research Background

- Apparent-time studies and ‘the use of the present to explain the past’
  —*cf. Labov 1963, 1975*
- Real-time studies compare synchronic distributions across age groups with diachronic data from the same set of speakers
  —*cf. Sankoff 2006, 2018, 2019*
- If post-adolescence individuals do not retain their early-acquired grammars, then change may be proceeding more quickly or more slowly than the apparent-time study suggests
  —*cf. Wagner and Buchstaller 2017; Sankoff 2018*
- Mobility and identity construction are pivotal factors in dialect performance and language change
  —*cf. Blommaert 2014; Britain 2016; Coupland 2001; Johnstone 2011; Schilling-Estes 2004.*

Swabian Corpora

	1982	2017	GROUP
1982 Speakers interviewed once	20		TREND
1982 Speakers interviewed twice	20	20	PANEL
2017 Speakers interviewed as Social Twins		40	TWIN
2017 Speakers interviewed for Trend Study		47	TREND
TOTAL SPEAKERS IN EACH GROUP	**40**	**107**	**147**

Multivariate Analysis – Dialect Density

Panel Study

n = 73,688

```
Groups   Name        Variance Std.Dev.
 spk_id   (Intercept) 0.07917  0.2814
 int_name (Intercept) 0.04612  0.2148
Number of obs: 1280, groups:  spk_id, 20; int_name, 6

Fixed effects:
                           Estimate Std. Error z value Pr(>|z|)
(Intercept)                 3.23079    0.44796   7.212 5.50e-13 ***
spk_gen                    -0.31779    0.09188  -3.459 0.000543 ***
spk_comStuttgart           -0.48309    0.23207  -2.082 0.037374 *
spk_ABI1                   -1.61879    0.75119  -2.155 0.031165 *
spk_sexW                   -0.42769    0.19576  -2.185 0.028904 *
spk_SOIR                   -2.53643    0.23004 -11.026  < 2e-16 ***
spk_SII                    -1.32320    0.25097  -5.272 1.35e-07 ***
spk_BYRR                   -0.91936    0.30056  -3.059 0.002222 **
spk_gen:spk_sexW            0.15235    0.02667   5.712 1.12e-08 ***
spk_comStuttgart:spk_BYRR  -0.69861    0.31076  -2.248 0.024571 *
spk_SOIR:spk_BYRR           1.34418    0.31929   4.210 2.55e-05 ***
spk_ABI1:spk_BYRR           0.45445    0.97260   0.467 0.640321
spk_ABI1:spk_SOIR           1.69882    0.34462   4.930 8.24e-07 ***
spk_comStuttgart:spk_SOIR   0.24775    0.09077   2.729 0.006346 **
spk_ABI1:spk_SII            0.80122    0.22913   3.497 0.000471 ***
spk_SOIR:spk_SII            1.53992    0.24059   6.401 1.55e-10 ***
spk_ABI1:spk_SOIR:spk_BYRR -0.79411    0.52454  -1.514 0.130049
```

Twin Study

n = 74,191

```
Random effects:
 Groups Name        Variance Std.Dev.
 spk_id (Intercept) 0.1496   0.3867
Number of obs: 1280, groups:  spk_id, 40

Fixed effects:
                           Estimate Std. Error z value Pr(>|z|)
(Intercept)                 -1.2195     0.3669  -3.324 0.000889 ***
spk_BYRR                    -0.4791     0.2242  -2.137 0.032610 *
spk_comStuttgart             1.5740     0.7605   2.070 0.038478 *
spk_ABI1                    -0.6025     0.1925  -3.130 0.001751 **
spk_SII                      1.3619     0.4546   2.996 0.002738 **
spk_BYRR:spk_comStuttgart   -1.4580     0.4144  -3.518 0.000435 ***
spk_BYRR:spk_ABI1            0.8943     0.2794   3.201 0.001368 **
spk_comStuttgart:spk_SII    -1.7015     0.8473  -2.008 0.044623 *
```

Positive values indicate greater dialect usage

```
Random effects:
 Groups               Name           Variance    Std.Dev.
 Speaker              (Intercept)    0.1855      0.4307
 Interviewer          (Intercept)    0.0485      0.2202
Groups:  Speakers: 60; Interviewers: 10

Fixed effects:
                          Estimate Std. Error z value Pr(>|z|)
(Intercept)                2.84263    0.41315   6.880 5.97e-12 ***
Generation                -0.21423    0.08937  -2.397 0.016526 *
Community (Stuttgart)     -0.30923    0.20037  -1.543 0.122761
Education (with Abitur)   -2.30844    0.27610  -8.361  < 2e-16 ***
Sex (Women)               -0.50441    0.16378  -3.080 0.002072 **
Swabian Orientation (SOI) -2.40839    0.20574 -11.706  < 2e-16 ***
Interlocutor (SII)        -1.23454    0.19397  -6.365 1.96e-10 ***
Birth Year                -1.37032    0.22686  -6.040 1.54e-09 ***
Generation:Sex(Women)      0.14853    0.02390   6.213 5.19e-10 ***
BirthYear:Stuttgart       -0.74885    0.24939  -3.003 0.002676 **
BirthYear:SOI              2.32225    0.27599   8.414  < 2e-16 ***
BirthYear:Abitur           1.56389    0.27950   5.595 2.20e-08 ***
SOI:Abitur                 1.90171    0.18478  10.291  < 2e-16 ***
SOI:Stuttgart              0.28853    0.08462   3.410 0.000650 ***
SII:Abitur                 0.71026    0.18292   3.883 0.000103 ***
SII:SOI                    1.53236    0.21536   7.115 1.12e-12 ***
BirthYear:Abitur:SOI      -2.17027    0.38399  -5.652 1.59e-08 ***
```

Composite Class Index (CCI)

LEVEL	SCHULISCHE UND BERUFLICHE QUALIFIKATIONEN	SCHOOL AND PROFESSIONAL QUALIFICATIONS
1	Hauptschule Hauptschulabschluss	Primary School Certificate of Primary Education
2	Realschule oder Oberschule Realschulabschluss/Oberschulabschluss	Secondary School Certificate of Secondary Education
3	Oberschule mit Abschluss und Ausbildung/Lehre	Secondary School with Certificate Training/Apprentice
4	Berufsschule/Erweitere Oberschule und Ausbildung/Lehre/Fachschule	Vocational School Training/Apprentice/Vocational School
5	Fachhochschule/Fachhochschulreife Gymnasium/Abitur	Technical College Qualification University Entrance Qualification
6	Universität/Bachelor Diplom	University/Bachelor's Degree
7	Universität/Master/Magister/Diplom/PhD/ Doktor	University/Master's Degree/PhD/ Doctorate

LEVEL	BERUF	PROFESSION
1	Landwirt Arbeiter (ungelernt/angelernt)	Farmers Workers (unskilled/semi-skilled)
2	Vorarbeiter/Facharbeiter Beamte (einfachen Dienst)	Foremen/Tradesmen Civil servants (lower service)
3	Selbstständige in Handel, Gewerbe Angestellte mit qualifizierter Tätigkeit	Self-employed in trade/business Employees doing qualified work
4	Angestellte mit verantwortlicher Tätigkeit Beamte (mittleren Dienst)	Employees in a position of responsibility Civil servants (intermediate service)
5	Freiberufler (keine Mitarbeiter) Beamte (gehobenen Dienst)	Freelancers (no employees) Civil servants (higher service)
6	Freiberufler (mit Mitarbeiter)	Freelancers (with employees)
7	Akademiker im freien Beruf Beamte (höheren Dienst)	Freelance academics Civil servants (highest service)

CCI	SOCIAL CLASS CATEGORY
6-13	A
14-20	B
21-27	C
28-34	D
35-42	E