Space, time, and social support dynamics in personal networks

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- Introduction and motivation

- Data collection instrument

- Preliminary results

- Illustration and future challenges

Motivation: Why dynamics?

- Empirical support on current assumptions regarding social (personal) network evolution

- Insights regarding data collection methods and the "kinds" of social contacts that we collect

- Understanding of different factors in personal network maintenance

  – Mobility tools (car, public transport, phones, Internet)

  – Spatiality (distance between alters)

  – Temporality (frequency of interaction)

  – Social support (exchange of emotional / material resources)

Past research: Key questions

- Research from middle 1990s in the social networks and health fields

- Suitor et al. (1997)

  - **To which extend do ties persist?** – Persistent core versus persistent ties

  - **Why do some ties persist more than others?** – Kinship ties and emotionally supportive relationships – Homophily? – Tie structure?

  - **What is the influence of the ego's characteristics?** Marital status, geographical area, age, gender

  - Causes of the network changes and intersection with **broader societal changes**

Past research: Stability?

- Bowling et al. (1995)
  - Research on elderly people – two waves 2-3 years
  - "Weaker" networks – loose network size, but stable
  - Changes in family members: need for other informal support
- Lubbers et al.(2010)
  - Argentineans immigrants in Spain
  - Stability in composition and structure
  - Persistence of tie strength, density, country of origin, residence

Past research: Stability?

- White and Watkins (2000)
  - Conversational networks in rural Kenya – contraceptive behaviour
  - Levels of stability and reciprocity were low
  - Measurement with "systematic" problems (under-reporting)
- Bignami – Van Assche (2005)
  - Low levels of stability even over short periods of time
  - Network characteristics and exchange patterns were stable
  - Importance of measurement bias should not be over-emphasized

Past research: Stability?

- Wellman et al. (1997)
  - A strong turnover of personal networks in a decade
  - Still persistence and stability in core kin contacts
- Bidart and Levena (2005)
  - 66 young people in along period of time
  - Networks dramatically changes as they become adults
  - Factors reducing ties: end of studies, employment, going into a relationship, family life, …
 - Factors increasing ties: remaining single, specific jobs…

Past research: Methods

- Qualitative methods
  - To understand key explanatory variables
  - To capture potential biases
- Quantitative methods
  - Multilevel statistical models: correlation among alters, but also in time
  - Simulation based estimation: relevance of the "other alters" in the dynamics (SIENA, Snijders and collaborators)

Data collection

Concepción: 500 km south Santiago,

~ 800,000 people, 40% auto ownership
(est.), relatively small size, good public
transport coverage
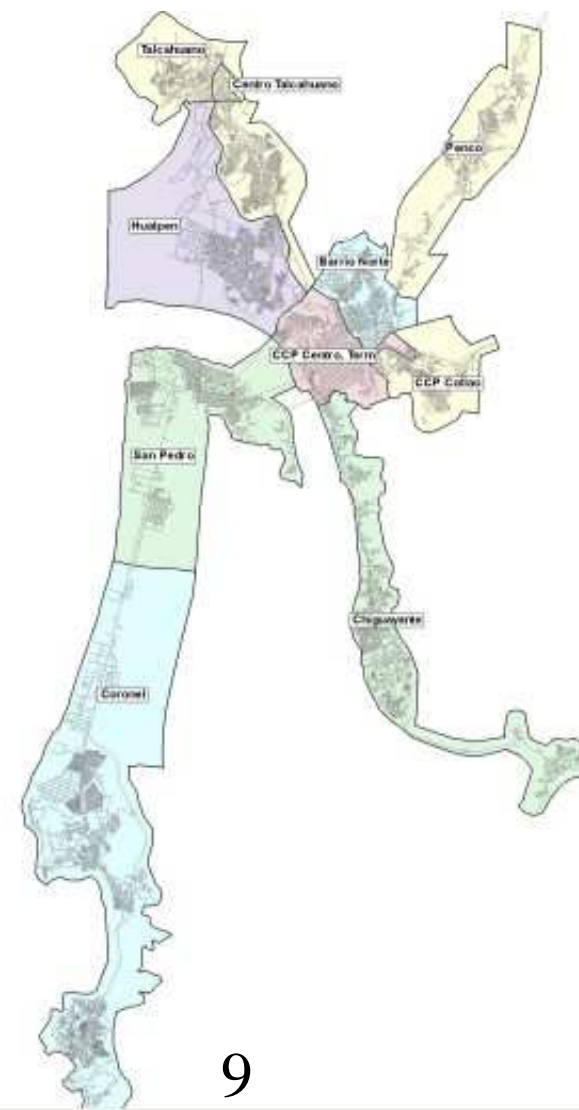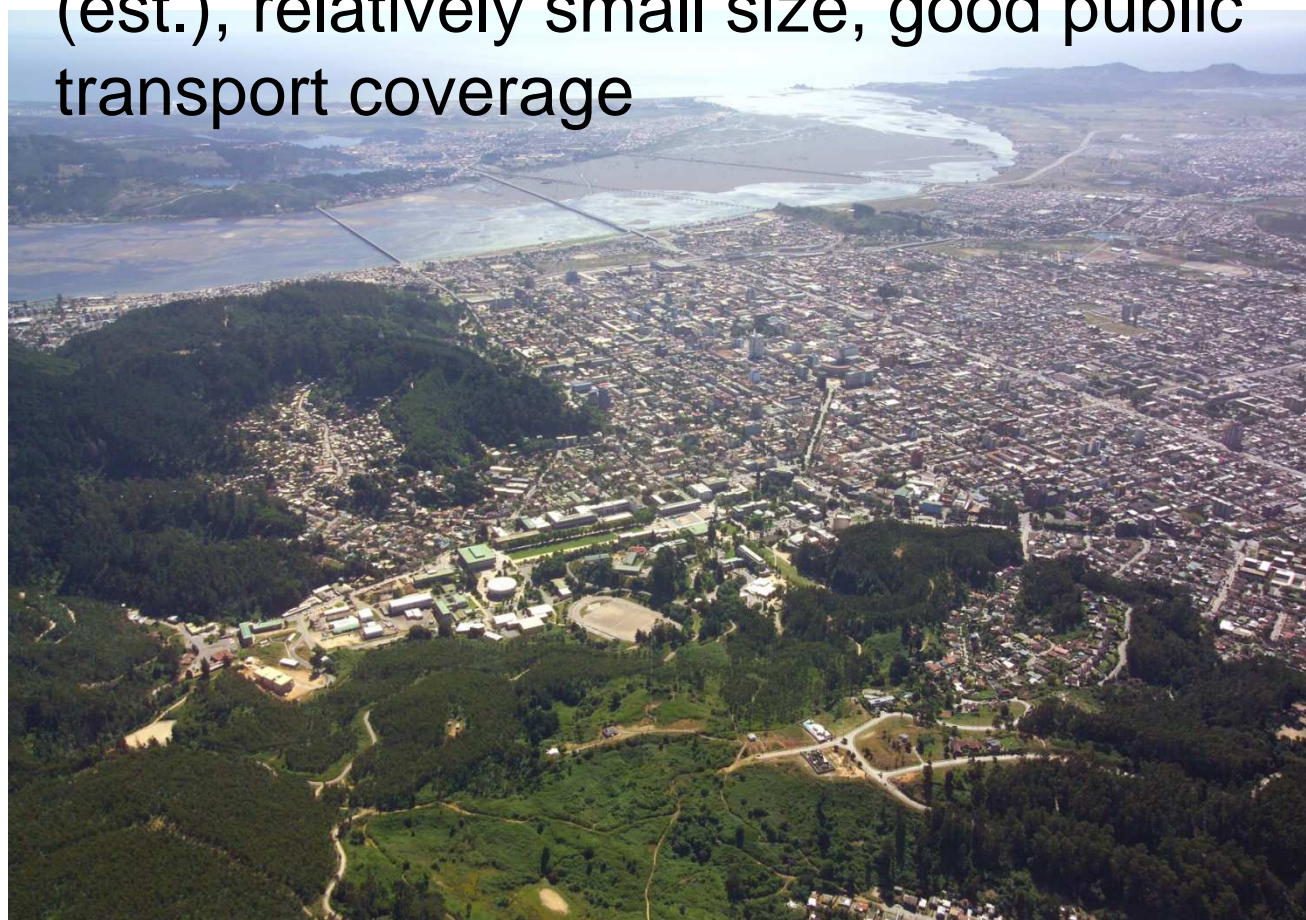
Data collection

- Return to 240 households already interviewed in 2008 – attrition was 106

- "Refresh" with similar individual socio-demograpihcs

		Distance to CBD	
		Short	**Medium**
Income	**Low**	*Agüita de la Perdiz* (**40**)	*Santa Sabina* (**27**)
	High	*B. La Virgen / B. Universitario* (**25**)	*L. San Sabastián / San Andrés* (**14**)

Data collection

I. Family and sociodemographics

    1. Respondent's sociodemographic characteristics

    2. Housing mobility and life history

    3. Inventory - Transport and communication modes

II. Transport barriers for health, socializing and shopping

    1. Knowledge and experience about activity facilities

    2. Factors which are barriers to perform activities

III. Personal health
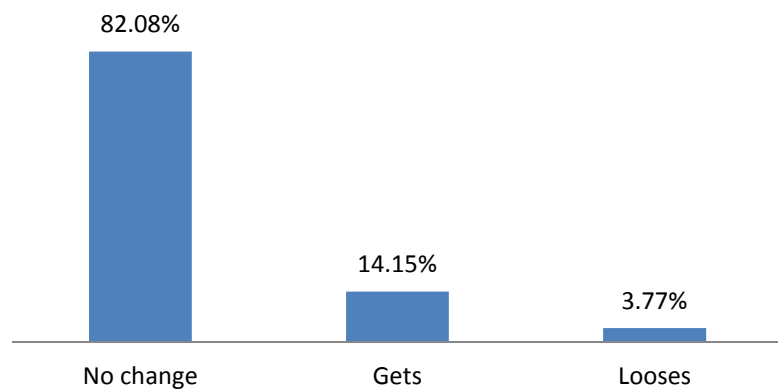
IV. Personality and life satisfaction

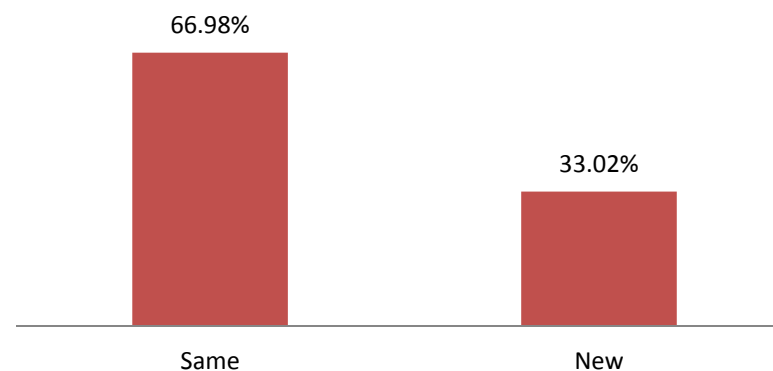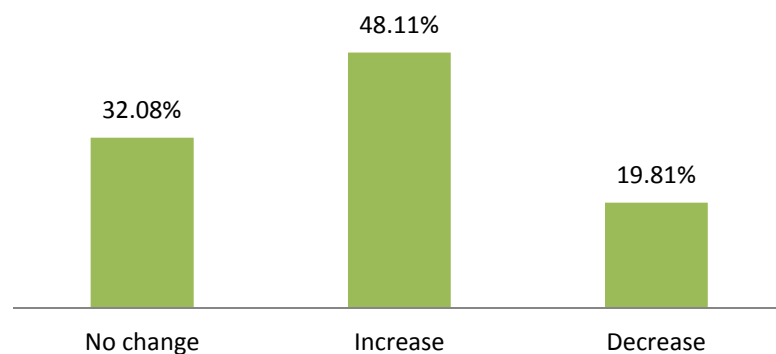**V. Personal networks**

VI. Two-day, retrospective time use diary
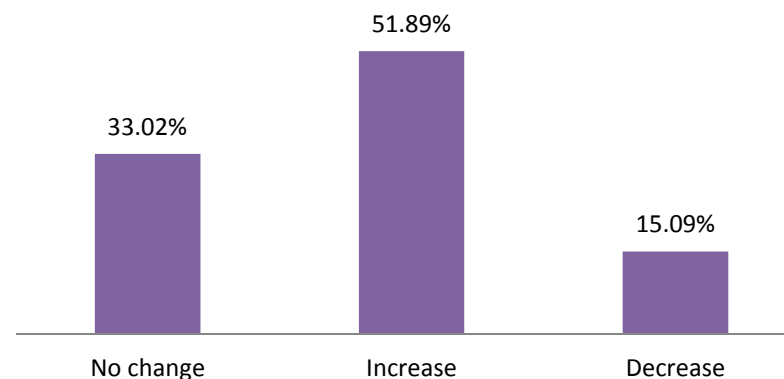
Egos' dynamics

In relationship?

Category	Value
No change	82.08%
Gets	14.15%
Looses	3.77%

Occupational status

Category	Value
Same	66.98%
New	33.02%

Individual income

Category	Value
No change	32.08%
Increase	48.11%
Decrease	19.81%

Household income

Category	Value
No change	33.02%
Increase	51.89%
Decrease	15.09%

Egos' dynamics

Mobile phone
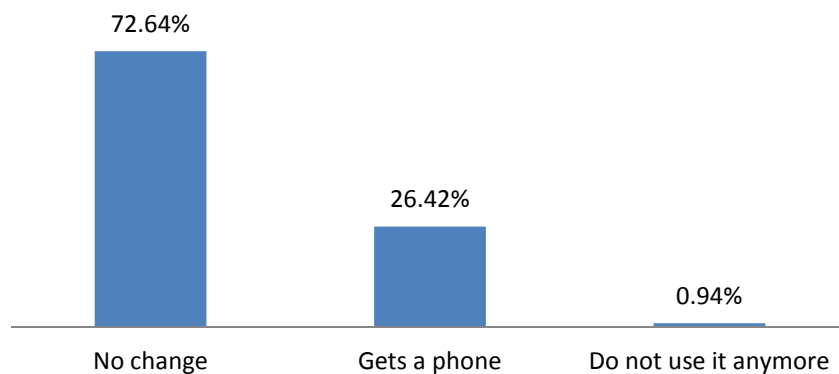
- No change: 72.64%
- Gets a phone: 26.42%
- Do not use it anymore: 0.94%

Internet use

- Same frequency: 67.29%
- Less frequent: 6.54%
- More frequent: 26.17%

Internet access

- No change: 72.64%
- Gets a cell: 26.42%
- Do not use it anymore: 0.94%

Car use

- No change: 82.08%
- Gets a car: 12.26%
- Do not use it anymore: 5.66%

Alter and network dynamics

Alter's dynamics

Category	Value
Only 2012	~1,000
Both years	~510
Only 2008	~1,580

Changes by personal network

Category	Value
Higher number	~25
Same number	~6
Lower number	~75
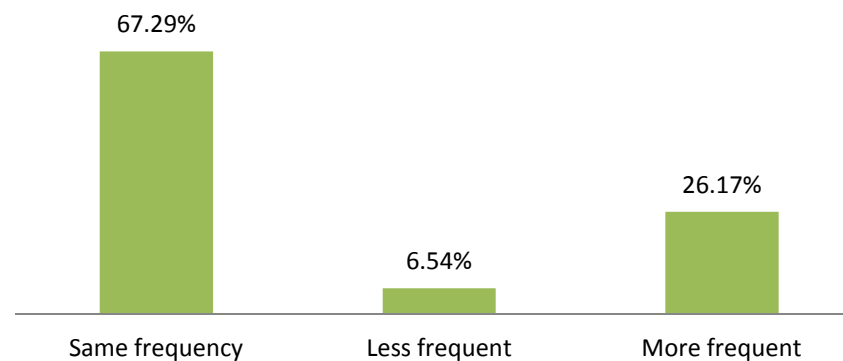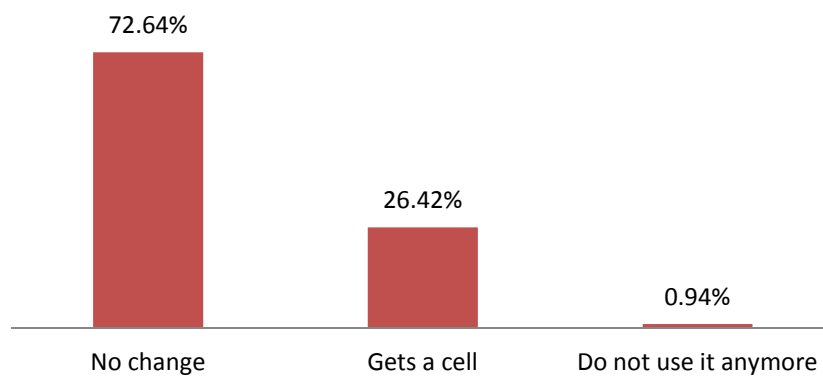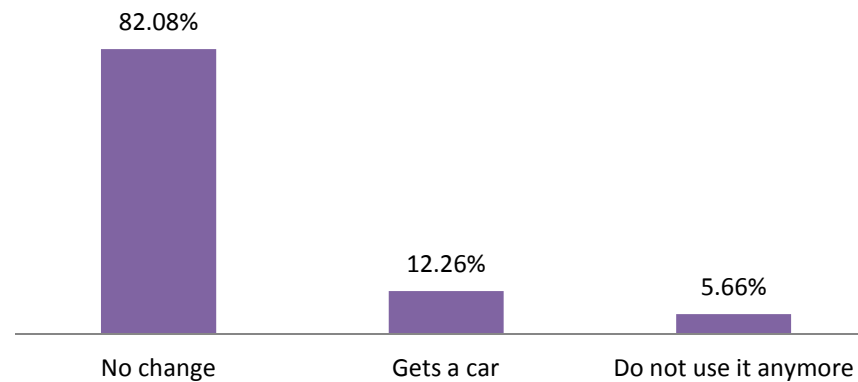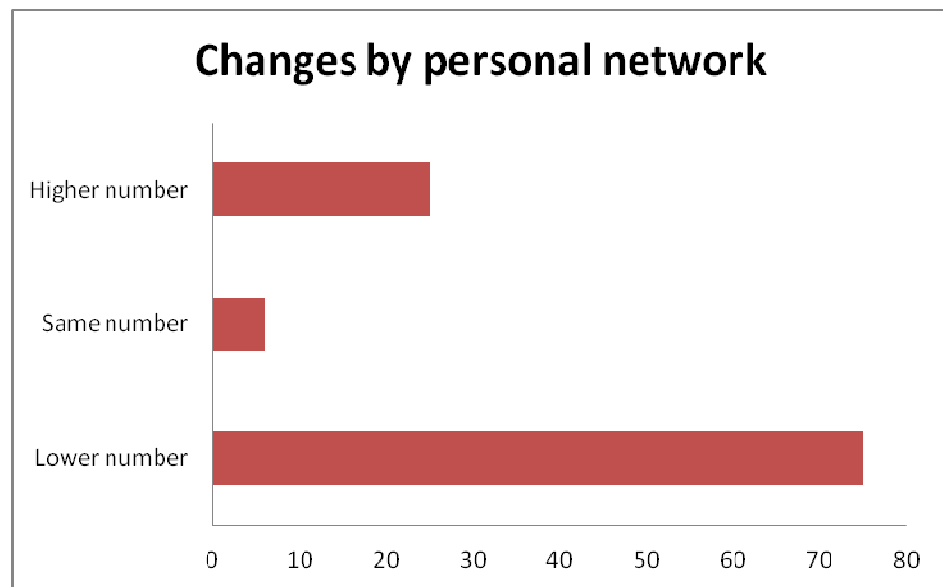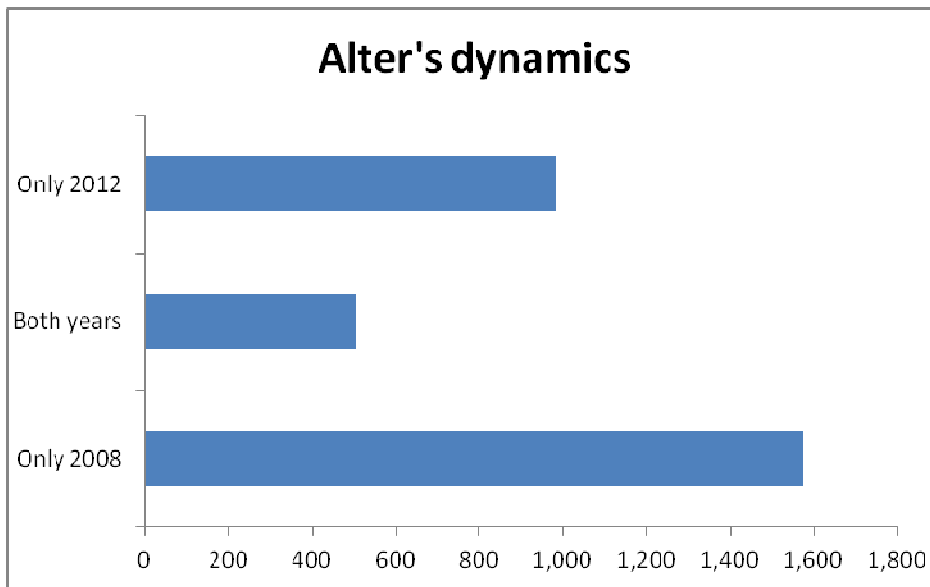
Alter and network dynamics

Lost ties — stacked bar chart with categories (Immediate family, Extended family, neighbours, work/student mate, organizations, friend). Legend: Alters only in 2008, Alters both in 2008 and 2012.

Gained ties — stacked bar chart with categories (Immediate family, Extended family, neighbours, work/student mate, organizations, friend). Legend: Alters only in 2012, Alters both in 2008 and 2012.
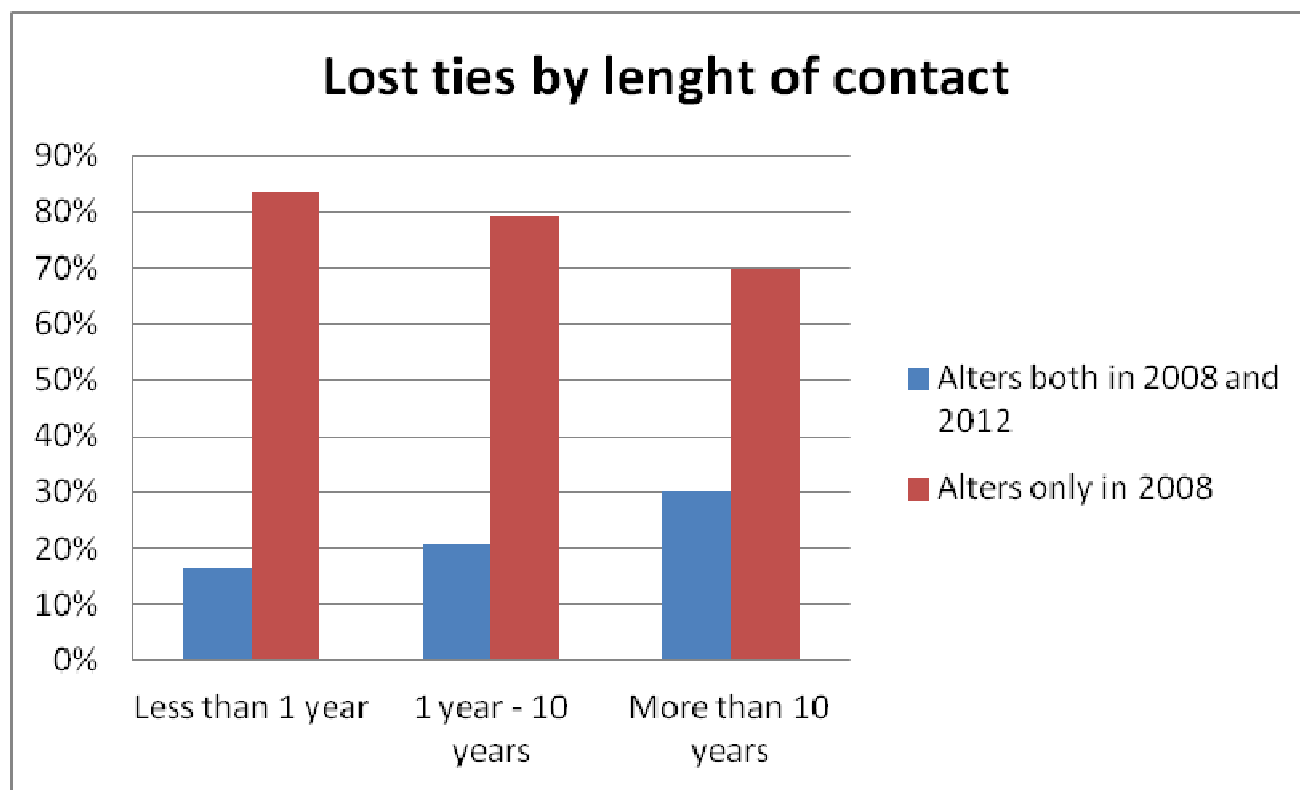
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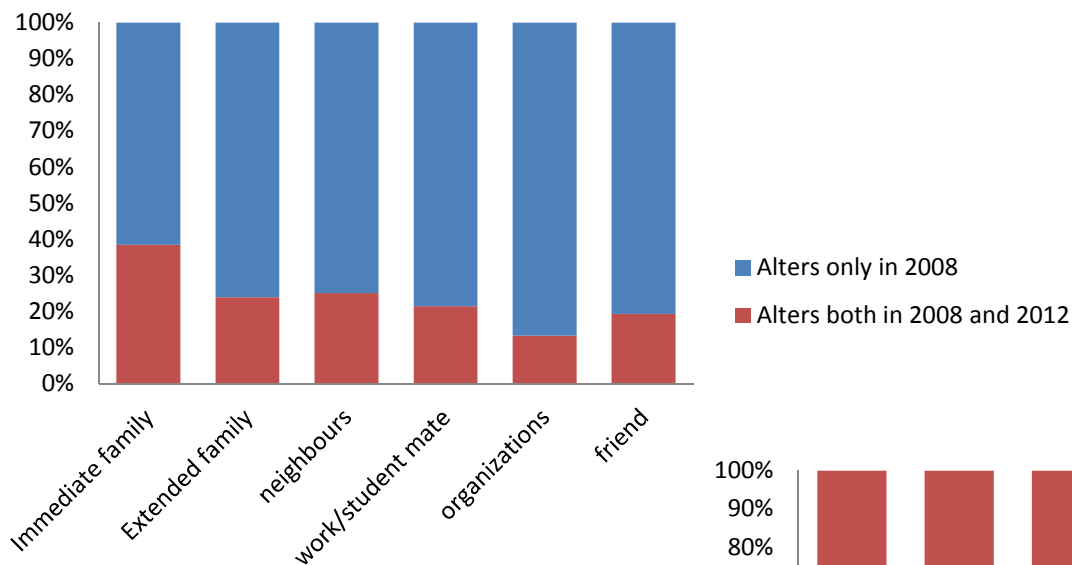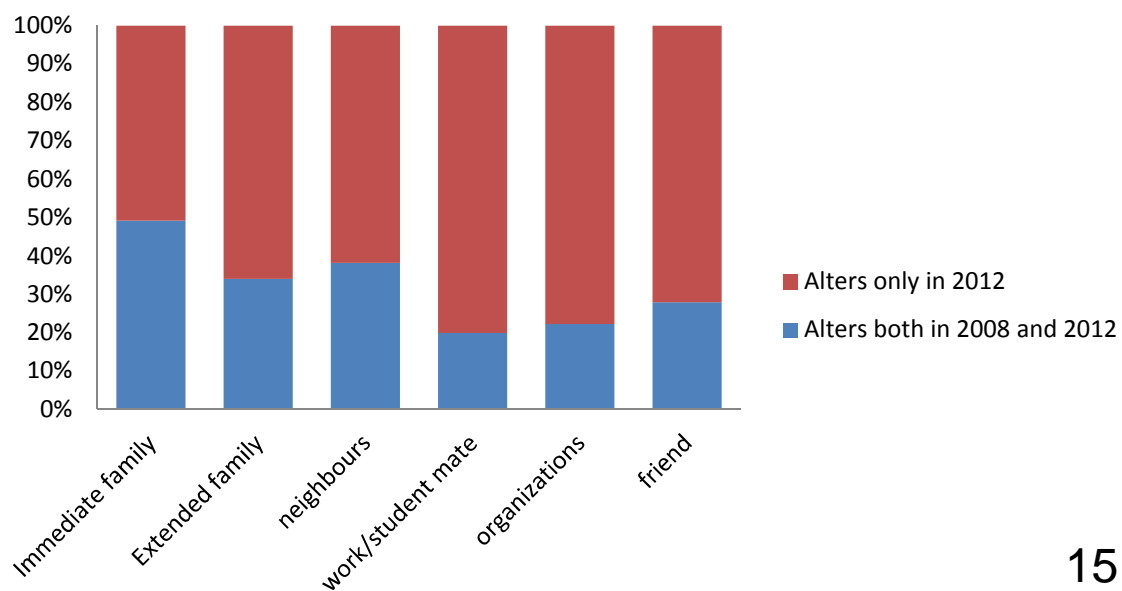
Alter and network dynamics

Alter's dynamics and frequency of interaction

Lost ties by frequency of interaction

Changes with respect to face to face interaction

	< week	< month	< year	> year
Alters only in 2008	74%	72%	84%	92%
Alters both in 2008 and 2012	26%	28%	16%	8%

Changes with respect to socializing

	< week	< month	< year	> year	never
Alters only in 2008	69%	71%	77%	85%	83%
Alters both in 2008 and 2012	31%	29%	23%	15%	17%

Alter's dynamics and frequency of interaction

Lost ties by frequency of interaction

Changes with respect to telephoning

	< week	< month	< year	> year	never
Alters only in 2008	70%	75%	77%	77%	81%
Alters both in 2008 and 2012	30%	25%	23%	23%	19%

Changes with respect to email

	< week	< month	< year	> year	never
Alters only in 2008	77%	78%	76%	81%	75%
Alters both in 2008 and 2012	23%	22%	24%	19%	25%

Multivariate model

Variable	Coefficient	T-test
Constant	-0.283	-0.74
Ego's age	-0.003	-0.75
Ego's change of couple	0.098	0.56
Ego is woman	-0.098	-0.82
Ego has now a mobile phone	0.123	0.98
Network size in 2008	0.100	9.09
Network density in 2008	3.022	6.02
Alter is Immediate family	-0.345	-1.67
Alter is neighbour	-0.019	-0.10
Alter is extended family member	-0.031	-0.16
Alter is friend	0.110	0.60
Face to face frequency < month	-0.022	-0.16

Multivariate model

Variable	Coefficient	T-test
Alter provides emotional support	-0.333	-2.56
Alter is somewhat close	0.407	3.16
Alters' degree	-0.087	-4.83
Alter-ego knowledgement 1-10 years	-0.52	-2.67
Alter-ego knowledgement more than 10 years	-0.791	-4.77
Ego-alter log_distance	*	*
Alter is in the city, outside neighbourhood	0.290	1.80
Alter is in the Greater city area	0.212	1.30
Alter is in the region	0.037	0.13
Alter is in the country	0.157	0.62
Alter is in the country	1.305	1.64
Ego-alter sex homophily	-0.363	-3.33

An illustration
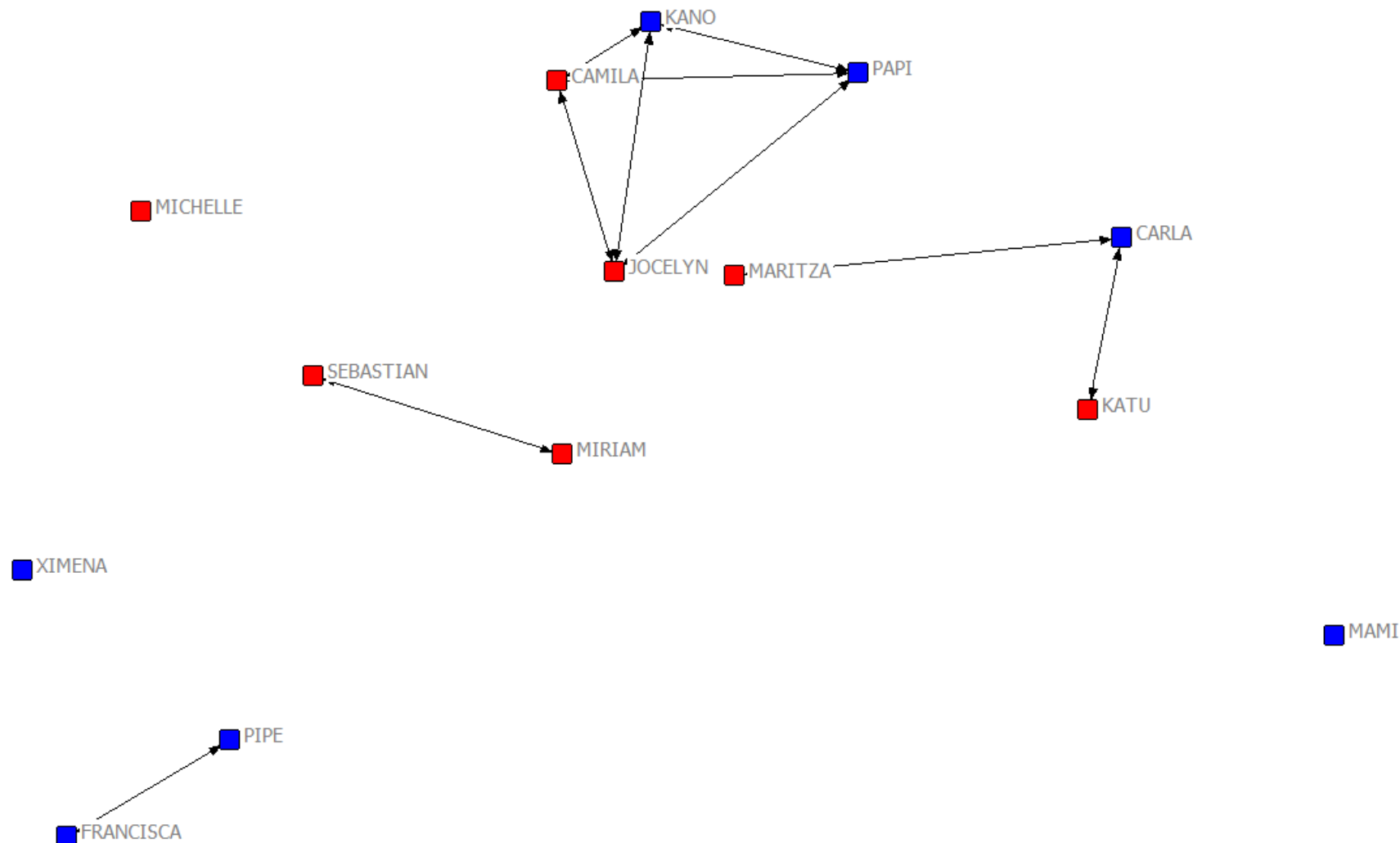
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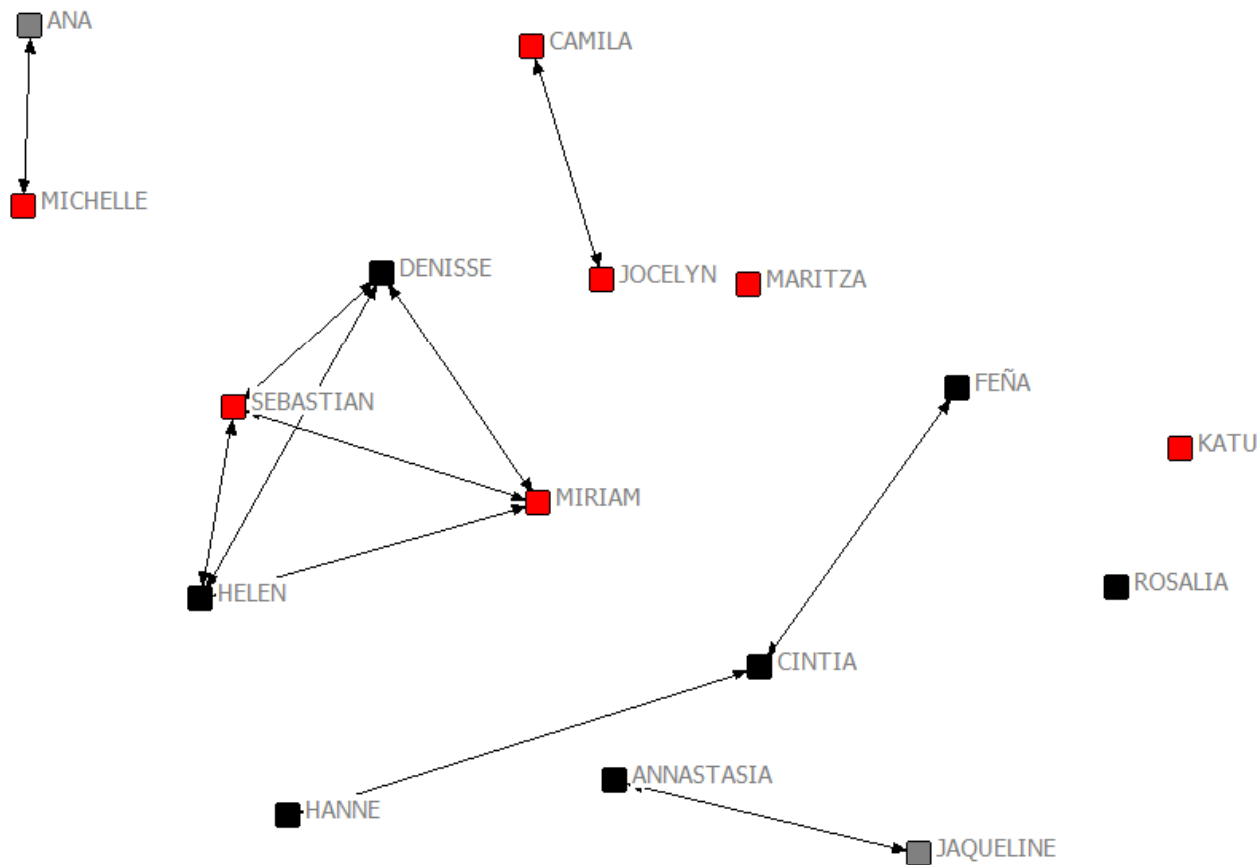
Conclusions - Future work

- Feasibility of collecting dynamics of personal networks
- Literature provide contextual
- Relevance of frequency of interaction, space, and social support
- Future work
  - Qualitative research into the contextual aspects of the data collection
  - Embeddedness with respect to other ties from the persona network (use of SIENA)
  - Further explore the relevance of mobility tools and transport disdvantage in personal network dynamics

Acknowledgements

- Research Assistants
  - Óscar Chávez and Cristián Cares

- Funding
  - Chilean Fund for Sciences and Technology (CONICYT) Projects Fondecyt 1102090 and Fondap Center for Sustainable Development15110020

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July 31 - August 4, 2013
Munich, Germany