

The marital status of South Africans, A spatial analysis

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Abstract

A decline in marriages has been observed over the years with a counter increase in those living together as married. The importance of marriage has been fading and more couples are rather living together as married and raising family together without getting married.

The incidence of cohabitation is increasing steadily in South Africa and around the world. It has become more common and more socially acceptable in South Africa for couples to live together without being married especially in urban and mining areas.

This study investigates the marital status of the South African community. The data from Census 2001 is compared with the data from Census 2011. The ages of the married community and the number of unmarried people living together is profiled by population group and other socio economic factors. Esri's ArcMap is used to map the results spatially.

Keywords: Cohabitation, Married, Spatial

Introduction

A decline in marriage rate has been observed over the years with a counter increase in those living together as married. The importance of marriage has been fading and more couples are rather living together as married and raising family together without getting married.

The incidence of cohabitation is increasing steadily in South Africa and around the world. It has become more common and more socially acceptable in South Africa for couples to live together without being married especially in urban and mining areas. They are mainly observed as a norm amongst students and the working youth (see Dolbik-Vorobei 2005; cf. Murray-Swant 2005).

Children who do not engage in premarital sex are perceived by their peers as stupid and boring "said they do not have style", resulting in children engaging in sexual activities at earlier ages than ever before (Mashau 2008:30).

This has resulted in concept of cohabitation, where since the 1960s cohabitation and premarital sex have been growing trends worldwide (Scherrer & Klepacki 2004; cf. Musick 2007).

Sweden has the lowest rates of marriage in the world whereas France and Britain is about a third.

Most of the countries have shown an inverse relationship between those that are married and those living together as married. The same has been observed when comparing the data from the 3 Censuses as conducted by Stats SA for South African case. I.e. As marriages decreases the number of those living together as married (cohabiting) increases.

This is evident from also the Marriages and divorces data as reported by Stats SA from the administrative records. The information as provided by Statistics South Africa in 2014 shows that the highest number of marriages was recorded in 2008 and the lowest in 2012.

This evidence of the decline in marriages and an increase on those living together as married from both Census and Marriages and divorces has identified a need to investigate on where these people are located spatially, their characteristics and their socio economic status .

The aim of the research is to look at a spatial analysis of marital status in SA, specifically looking at the married and the living together as married.

Literature Review

Durkheim argues that marriage regulates the life of passion and force a man to attach himself forever to the same woman; in so doing, marriage makes it man's "duty to find happiness in his lot" (Durkheim 1951).

In a study done by Mary Margaret Adams and Dr. Michael Hughes (1972-1976), it is suggested that marriage continues to be an important institution. Married persons continue to have significantly higher levels of happiness than persons in other marital categories. It provides persons with important benefits that cannot be obtained from other living arrangements such as cohabitation.

Glenn in his study argues that marriage provides persons with security and social support. As a result, married persons are happier and healthier psychologically. This may lower their chances of adopting risky behaviors and lifestyles. (Glenn 1975)

Pearlin and Johnson (1977) also found that unmarried persons were more likely to experience economic strains than married persons. In addition, unmarried persons who experienced economic hardships appear to be more vulnerable to the effects of limited resources. The combination of greater economic hardship and a greater vulnerability to limited resources may contribute to higher levels of stress and depression.

Data in a study done by Glenn and Weaver (1988) from 1972 through 1986 deviate from the above findings, it indicate that neither life satisfaction, or socioeconomic factors, or cohabitation can explain the relative increase in the happiness of the never-married, compared to the married.

According to a study by Gove, Style, et al it is found that there is relationship between marital status and mortality rates, mortality rates for married persons are substantially lower than mortality rates for unmarried persons.

The data also showed that the relationship between marital status and mortality is stronger for younger persons than older persons and stronger for males than for females. (Gove, Style, and Hughes 1990)

According to study done by Victoria H., Nuala M et al: Dispensing with marriage: Marital and partnership trends in rural, KwaZulu-Natal, South Africa (2000-2006), Marriage has continued to decline with a small increase in cohabitation among unmarried couples, particularly in more urbanised areas.

In supporting the findings of other authors already mentioned in American studies done for similar work, (Castro 2002) found that in many Latin American countries, cohabitation is hardly an anomaly, and has coexisted with marriage since colonial times.

Marriage appears to be one such influence. In particular, the symbolic meaning men accord to marriage, the norms associated with marriage, and the status rewards associated with following those norms i.e being a good husband appear to encourage higher levels of commitment, sacrifice, and affection in intimate relationships among men more than among women (Stanley, Whitton, and Markman 2004;).

Recent research on marriage and cohabitation suggests that men's relationship behavior, more than women's, is shaped by institutional contexts (Stanley, Whitton, and Markman 2004). Unlike men, women tend to be committed to their romantic relationships regardless of their marital status.

According to authors Casey E. ; Kimberly D;et.al, (2006–2010 National Survey of Family Growth in United States), study done using the Division of Vital Statistics, the findings showed that percentage of married for first time decreased as those cohabiting increased. They also found that the proportion of married for both sexes increased with greater educational attainments and those cohabiting showed a decrease as educational attainments increased.

According to a study done by (Esteve 2012), Unmarried cohabitation has increased significantly in recent decades in the vast majority of countries in both North and South America.

In a study done by economist David H Author in 2013, it was found that sharp declines in the earning power of non-college males combined with economic self-sufficiency of women rising educational attainment, falling gender gap and greater female control over fertility choices have reduced the economic value of marriage for women (Author 2013).

U.Va. psychologist Professor Robert Emery says that in the past people thought of marriage as a business like relationship. Women were dependent financially from their husbands and their role was household and child-rearing labour. Marriage rates declined and divorce rates rose when people started thinking more with their hearts and less with their wallets.

Jay Zagorsky, an Ohio State University economist state that “If you really want to increase your wealth, get married and stay married”. He regards marriage as a carrier of sense of meaning, purpose, direction and stability benefitting both adults and children.

Methodology

In analyzing our data these 2 aspects were looked at:

1. Spatial Autocorrelation (Morans I) - to check whether there is clustering in data.

Moran's I is defined as

$$I = \frac{N}{\sum_i \sum_j w_{ij}} \frac{\sum_i \sum_j w_{ij} (X_i - \bar{X})(X_j - \bar{X})}{\sum_i (X_i - \bar{X})^2}$$

where N is the number of spatial units indexed by i and j ; X is the variable of interest; \bar{X} is the mean of X ; and w_{ij} is an element of a matrix of spatial weights.

The expected value of Moran's I under the null hypothesis of no spatial autocorrelation is

$$E(I) = \frac{-1}{N-1}$$

Its variance equals

$$\text{Var}(I) = \frac{NS_4 - S_3S_5}{(N-1)(N-2)(N-3)(\sum_i \sum_j w_{ij})^2}$$

where

$$S_1 = \frac{1}{2} \sum_i \sum_j (w_{ij} + w_{ji})^2$$

$$S_2 = \frac{\sum_i (\sum_j w_{ij} + \sum_j w_{ji})^2}{1}$$

$$S_3 = \frac{N^{-1} \sum_i (x_i - \bar{x})^4}{(N^{-1} \sum_i (x_i - \bar{x})^2)^2}$$

$$S_4 = \frac{(N^2 - 3N + 3)S_1 - NS_2 + 3(\sum_i \sum_j w_{ij})^2}{1}$$

$$S_5 = S_1 - 2NS_1 + \frac{6(\sum_i \sum_j w_{ij})^2}{1}$$

Negative values indicate negative spatial autocorrelation and the inverse for positive values. Values range from -1 (indicating perfect dispersion) to +1 (perfect correlation). A zero value indicates a random spatial pattern. For statistical hypothesis testing, Moran's I values can be transformed to Z-scores in which values greater than 1.96 or smaller than -1.96 indicate spatial autocorrelation that is significant at the 5% level.

2. Hot spot analysis –Getis Ord to check where is clustering, as identified by Morans I.

The Getis-Ord local statistic is given as:

$$G_i^* = \frac{\sum_{j=1}^n w_{i,j} x_j - \bar{X} \sum_{j=1}^n w_{i,j}}{S \sqrt{\frac{n \sum_{j=1}^n w_{i,j}^2 - \left(\sum_{j=1}^n w_{i,j}\right)^2}{n-1}}} \quad (1)$$

where x_j is the attribute value for feature j , $w_{i,j}$ is the spatial weight between feature i and j , n is equal to the total number of features and:

$$\bar{X} = \frac{\sum_{j=1}^n x_j}{n} \quad (2)$$

$$S = \sqrt{\frac{\sum_{j=1}^n x_j^2}{n} - (\bar{X})^2} \quad (3)$$

The G_i^* statistic is a z-score so no further calculations are required.

Data

The data used in this paper were obtained using Census data as produced by Statistics South Africa. 1996 Census data, together with 2001 and 2011 was used to show the trends of both married and living together at national level. Census 2001 and 2011 data was also used to calculate the percentage change in between the two Censuses at ward level. The results throughout this study are based on the percentage change between the 2 Censuses i.e 2001 and 2011. The Census 2011 data was used to investigate on the socio economic characteristics in the data. Assembling these data involved working with more than 4 277 individual records of population aged 15 and above. The data was crosstabulated using Supercross and exported and cleaned in Excel. Arcmap was used to map the data. The shapefiles as produced by Stats SA was used and converted to geodatabase. Spatial autocorrelation and Getis Ord were performed using Arcmap.

An analysis was done using SAS to check the relationship between the variables. Descriptive statistics was run to give summary statistics at both national and provincial. And also Multivariate analysis was also performed in data to check the relationship between the variables married correlating it to other socio economic variables. Variables used are married, living together, individual income level, highest educational level, population group, gender, age groups, employment, unemployment and not economically active.

Results and Analysis

The table below shows the comparisons of the living together as married and married nationally and provincially for the 2 Censuses (2001 and 2011) as conducted by Stats SA.

It shows an inverse relationship between those that are married and those living together as married i.e. as the proportions of married decrease, the proportions of those living together increases.

Table 1: Comparisons of married and living together as married

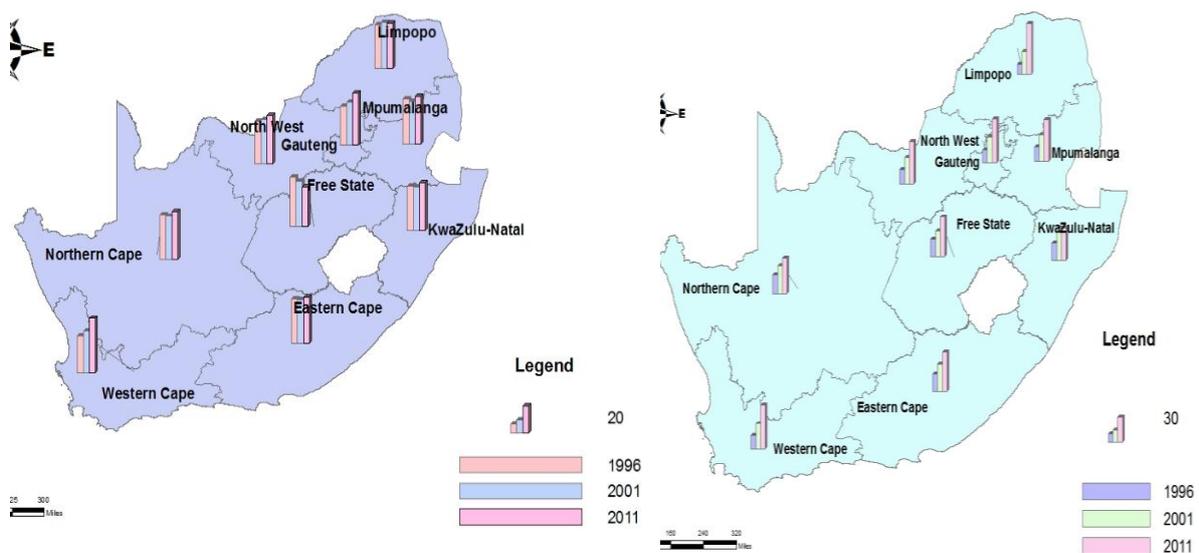
Provinces	2001				2011			
	Married	Living together like married partners	%Married	%Living together like married partners	Married	Living together like married partners	%Married	%Living together like married partners
Eastern Cape	1323607	164187	33	4	1386580	231070	32	5
Free State	716332	141522	38	8	627892	218602	32	11
Gauteng	2688092	709047	38	10	3244766	1199651	35	13
KwaZulu-Natal	1756511	549500	28	9	1912924	542529	27	8
Limpopo	1073770	142544	35	5	1054396	311780	30	9
Mpumalanga	685930	208349	32	10	761894	323878	27	12
North West	675478	177580	33	9	739668	282952	30	11
Northern Cape	223069	72499	33	11	246217	90632	31	11
Western Cape	1367031	220712	42	7	1762397	382134	40	9
South Africa	10509820	2385940	35	8	11736734	3583228	32	10

The graphs below show the comparison of the married and living together for 3 Censuses in all provinces of South Africa.

Free State and Limpopo were the only provinces that recorded a decrease in the number of marriages from 2001 to 2011 and all other provinces recorded an increase in the number of people living together as married from 2001 to 2011.

Limpopo recorded the highest percentage of people living together as married, followed by Gauteng and the least was KZN.

Figure 1: Provincial comparisons for married and living together as married



The thematic map below shows the spatial distribution of the proportion of change in married people between 2001 and 2011 in South African wards.

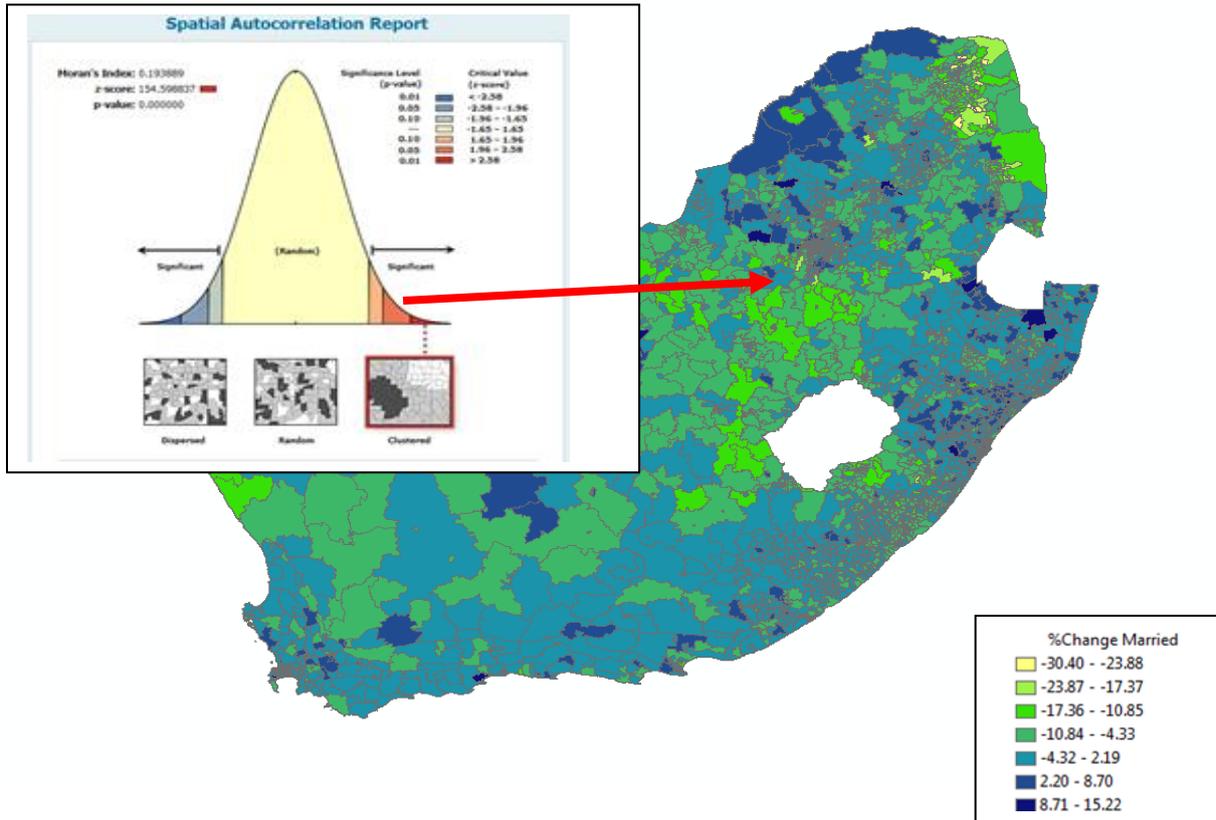
Moran's I autocorrelation was performed to check for spatial non stationarity in the data.

Moran's I autocorrelation was performed at ward level for the whole South Africa and produced corresponding Z score of 154,5 with its associated P value of less than 0,000. Given that the Z score is less than 1% likelihood that this clustering pattern could be result of random chance.

It means that the ward and its surrounding ward have more or less proportions of married.

Moran's I does not tell if its high or low value cluster, to obtain this information the Getis Ord Hotspot analysis is done.

Figure 2: Spatial Autocorrelation (Moran's I) - Married



The graph below shows the Anselin Outlier Analysis, this depicts an area that is an outlier within either the hot spot or cold spot area.

The yellow spots show areas that are outliers within the either hot spot or cold spot area.

Within those areas that are hot spots you find an area that is a cold spot.

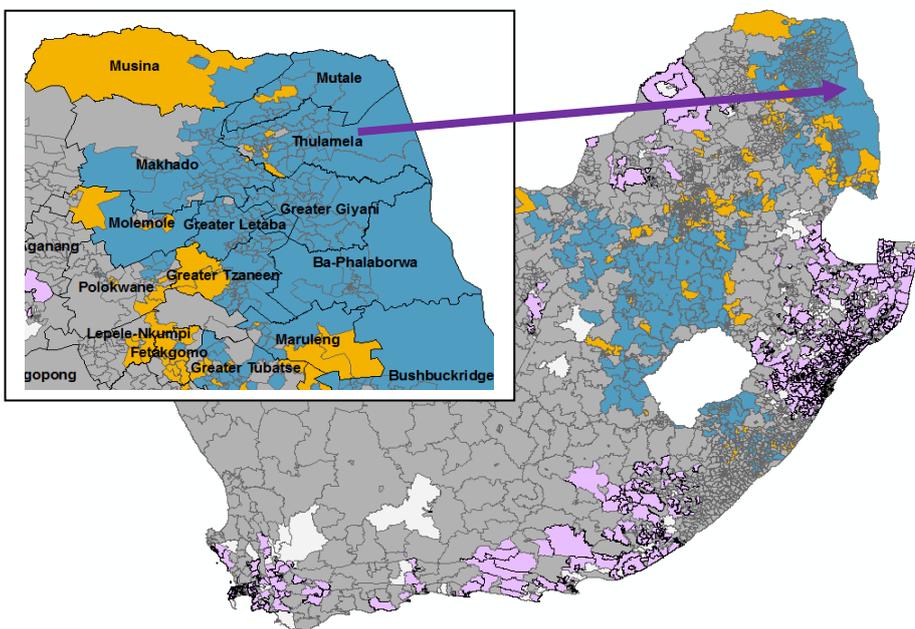
Kwazulu Natal and Eastern Cape appeared to be hot spot areas for those getting married however there are some wards in there that showed to be cold spot area.

This means that though they showed an increase in proportions of people getting married, there were some wards in those provinces that showed a decrease.

Though Limpopo appeared to be a cold spot area, almost all wards in Musina appeared to be hot spot area.

This means that though there was a decrease in people getting married in Limpopo, almost all wards in Musina recorded an increase in the proportions of those getting married.

Figure 4: Anselin Outlier for married



Conclusion

In their study Victoria H, Nuala M et.al: Dispensing with marriage: Marital and partnership trends in rural, KwaZulu-Natal, South Africa (2000-2006) it was found that marriage has continued to decline with a small increase in cohabitation among unmarried couples, particularly in more urbanised areas. Casey E.; Kimberly D;et.al, (2006–2010 National Survey of Family Growth in United States), in his study showed that percentage of married for first time decreased as those cohabiting increased. In the United States, the most recent evidence suggests that cohabitation is mostly a prelude to marriage and is still far from the stable alternative to marriage observed in some European nations. The relative instability of cohabiting relationships in the United States likely contributes to poorer outcomes for both adults and children in cohabiting households compared with married households. (Charles E. Stokes R. Kelly R)

Cohabitation rates are rising around the world, prompting some scholars to suggest that a major demographic transition is underway, one in which cohabitation will become a normative alternative to marriage (Van de Kaa,1988).

From the present study a decline in proportions of married was observed with a counter increase in those living together as married in South Africa.

Kwazulu Natal and Eastern Cape were the only provinces that showed an increase in proportions of those getting married and all other provinces showed a decline.

References

- 1.Glenn, Norval D., and Charles N. Weaver. 1988. "The Changing Relationship of Marital Status to Reported Happiness." *Journal of Marriage and the Family* 50:317–324.
- 2.Verbrugge, Lois M. 1979. "Marital Status and Health." *Journal of Marriage and the Family* 41: 267–285.
- 3.Pearlin, Leonard I. and Joyce S. Johnson. 1977. "Marital Status, Life Strains and Depression." *American Sociological Review* 42: 704–715.
- 4.Umberson, Debra. 1992. "Gender, Marital Status and the Social Control of Health Behavior." *Social Science and Medicine* 34: 907–917.
- 5.Glenn, Norval D. 1975. "The Contribution of Marriage to the Psychological Wellbeing of Males and Females." *Journal of Marriage and the Family* 37: 105–110.
- 6.Gove, Walter R. 1973. "Sex, Marital Status, and Mortality." *American Journal of Sociology* 79: 45–67
- 7.Joung, I.M.A., F.W.A. van Poppel, J.B.W. van der Meer, and J.P. Mackenbach 1997. "The Contribution of Intermediary Factors to Marital Status Differences in Self-Reported Health." *Journal of Marriage and the Family* 59: 476–490.
- 8.Hughes, Michael and Walter R. Gove. 1981. "Living Alone, Social Integration, and Mental Health." *American Journal of Sociology* 87: 48–74.
- 9.Gove, Walter R., Carolyn Briggs Style, and Michael Hughes. 1990. "The Effect of Marriage on the Well-being of Adults: A Theoretical Analysis." *Journal of Family Issues* 11: 4–35.
- 10.Casey E. Copen, Ph.D.; Kimberly Daniels, Ph.D.; Jonathan Vespa, Ph.D.; and William D. Mosher, Ph.D, 2006–2010 National Survey of Family Growth in United States, Division of Vital Statistics
- 11.Udjo EO 2002. Marital Patterns and Fertility in South Africa: The Evidence from the 1996 Population Census. *Paper presented at the 24th IUSSP Population*
- 12.Spatial Variation of Age at Marriage in South AfricaL. G. Palamuleni1 and M. E. Palamuleni2
- 13.Gaise SK 2000. Family structure, gender and fertility in Botswana Pula. *Botswana Journal of African Studies*, 14(2): 130-147.
- 14.Copen CE, Daniels K, Vespa J, Mosher WD. First marriages in the United States: Data from the 2006–2010 National Survey of Family Growth. National health statistics reports; no 49. Hyattsville, MD: National Center for Health Statistics. 2012.
- 15.Cabella, W., Peri, A., and Street, M.C. (2004). *Dos orillas y una transición ? La segunda transición demográfica en Buenos Aires y Montevideo en perspectiva biográfica*. Paper presented at the Congress of the Latin American Population Association (ALAP), Caxambu MG, Brazil, September 18-20.
- 16.Binstock, G. (2008). *Cambios en la formación de la familia en Argentina: cuestion de tiempo o cuestion de forma?* Paper presented at the Congress of the Latin American population Association (ALAP), Cordoba, Argentina, September 24–26.
- 17.Esteve, A., Lesthaeghe, R., and López-Gay, A. (2012). The Latin American Cohabitation Boom, 1970–2007. *Population and Development Review* 38(1): 55–81. doi:10.1111/j.1728-4457.2012.00472.x.
- 18.Kennedy, S. and Bumpass, L.L. (2008). Cohabitation and children's living arrangements: New estimates from the United States. *Demographic Research* 19(47): 1663–1692. doi:10.4054/DemRes.2008.19.47.
- 19.Kennedy, S. and Fitch, C.A. (2012). Measuring Cohabitation and Family Structure in the United States: Assessing the Impact of New Data From the Current Population Survey. *Demography* 49(4): 1479–1498. doi:10.1007/s13524-012-0126-8. Quilodran, J. (2022). Atisbos de cambios en la formación de las parejas conyugales a fines del milenio. *Papeles de Población* 6(25): 9–19.
- 20.Vignoli, J.R. (2005). *Unión y cohabitación en América Latina: modernidad, exclusión, diversidad?* Santiago de Chile: CEPAL