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Resúmenes de revistas
Mayo-junio 2018



Instituto de Estadística y Cartografía de Andalucía
CONSEJERÍA DE ECONOMÍA, INNOVACIÓN, CIENCIA Y EMPLEO

PRESENTACIÓN

El presente boletín de resúmenes tiene una periodicidad mensual y con él la Biblioteca del Instituto de Estadística y Cartografía de Andalucía pretende dar a conocer a los usuarios de una forma detallada el contenido de las revistas especializadas que entran en su colección. Se trata de un complemento al boletín de novedades de publicaciones seriadas ya que en él se incluyen los resúmenes de cada uno de los artículos que aparecen publicados en los diferentes números de las revistas en el idioma original de las mismas.

Los resúmenes de este boletín corresponden a las revistas que han ingresado en la Biblioteca del Instituto de Estadística y Cartografía de Andalucía durante los meses de mayo y junio de 2018 y que pueden consultarse gratuitamente en sus instalaciones en la siguiente dirección:

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Martes, miércoles y viernes: de 9:00h a 14:00h.

Horario de verano (del 15 de junio al 15 de septiembre), Semana Santa, Feria de Sevilla y Navidad (del 24 de diciembre al 6 de enero): de lunes a viernes de 9:00h. a 14:00h.



AH: Andalucía en la historia, ISSN 1695-1956
Número 59 (enero – marzo 2017)

Merced, dinero, favores y votos. Los gobiernos municipales en Andalucía

P. 6-37

Coordinado por: Jesús Manuel González Beltrán

Resumen

La significación de los ayuntamientos y/o cabildos municipales a lo largo de la historia viene dada por ser la institución que tiene un contacto más directo con los vecinos, la que regula, desde la cercanía, múltiples aspectos de la vida cotidiana, así como las actividades económicas que se desarrollan en la localidad. Esta relevancia de las competencias concejiles, entre otros aspectos, provoca que la pugna por acceder y obtener el control de los cargos municipales haya sido, bajo diversas fórmulas, una pertinaz constante histórica. Este dossier, coordinado por el catedrático de Historia Moderna de la Universidad de Cádiz, Jesús Manuel González Beltrán, ofrece una perspectiva histórica y social de los gobiernos municipales en Andalucía desde el siglo XII, con las repoblaciones, hasta las primeras elecciones de la actual democracia, en abril de 1979.

El puerto colombino de Palos de la Frontera

P. 38-43

Juan Campos Carrasco

Resumen

La localización de las estructuras originales del puerto histórico de Palos de la Frontera, lugar desde donde partió la expedición colombina en 1492, es un descubrimiento arqueológico de excepcional importancia histórica.

Los monstruos del Siglo de Oro

P. 44-47

Jaime Galbarro García

Resumen

Con la invención de la imprenta se desarrolló un producto editorial de gran impacto: el pliego suelto o relación de sucesos. La mayor parte se dedicó a dar noticia de acontecimientos políticos o religiosos, pero también los hubo dedicados a las historias extraordinarias.

El Arsenal de La Carraca 48

P. 48-53

José Quintero González

Resumen

El Arsenal de La Carraca nació en San Fernando hace ahora 300 años para cimentar la nueva Armada, ser el centro de las comunicaciones navales con América y convertirse en un complejo fabril vinculado al mar y al ejército.

De Filadelfia a Cádiz 54

P. 54-59

Guadalupe Carrasco-González

Resumen

En 1804 Richard Worsen Meade, miembro de una importante familia de mercaderes de Filadelfia, se instaló en Cádiz buscando recuperar la fortuna y el crédito como negociante que había perdido la casa comercial familiar de Filadelfia.

Armas nazis durante la Segunda Guerra Mundial 60

P. 60-63

Carlos A. Font Gavira

Resumen

La Fábrica de Artillería de Sevilla se hizo eco de los adelantos armamentísticos alcanzados por las potencias del Eje y dedicó varios informes a los avances conseguidos por los alemanes y desarrollados durante la guerra en el campo aeronáutico.

Garzón y Señán, califas de la fotografía andaluza 64

P. 64-69

Antonio Jesús González

Resumen

El florecimiento del turismo en Granada favoreció que en la década de 1880 se instalesen en el interior del recinto de la Alhambra los dos creadores de la fotografía turística: Rafael Garzón Rodríguez (Granada, 1863-1923) y Rafael Señán González (Ciudad Real, 1864–Granada, 1909).



Cartographic journal, The, ISSN 0008-7041
Volume 54, number 4 (november 2017): "INTERNATIONAL
CARTOGRAPHIC CONFERENCE 2017 - WASHINGTON D.C."

Cartographies of Fuzziness: Mapping Places and Emotions

P. 291-300

Alenka Poplin

Abstract

Historical enclosure era property-related maps can tell us a great deal about the life and times of communities in the past. This study offers a unique approach to studying the historical landscape by applying GIS techniques to the examination of an eighteenth-century English village. Using novel GIS applications relying on historical maps, the study explores various aspects of the village's physical and social characteristics. In doing so, the study forges effective linkages between cultural and landscape variables to reveal aspects of the historical landscape in eighteenth-century Britain previously inaccessible to researchers. This, in turn, provides a much more comprehensive and sophisticated template for future use by historical geographers in a number of contexts.

A Design Pattern Approach to Cartography with Big Geospatial Data

P. 301-312

Serena Coetzee & Victoria Rautenbach

Abstract

The long sequence of Pigot's plans of Manchester and Salford is used to test the concept that the dates of churches and chapels can be used as a valuable indicator of the completeness of the coverage of large-scale nineteenth-century town plans. The approach appears to hold some promise and suggests that Pigot's plans were surprisingly comprehensive. This may reflect not merely his drawing on existing surveys but, more interestingly, may be the incidental product of collecting data for his town directories. The methodology could usefully be extended to explore the value of directory plans of other towns.

Augmented Reality and Maps: New Possibilities for Engaging with Geographic Data

P. 313-321

Gabriel Henrique de Almeida Pereira, Kristin Stock, Luciene Stamato Delazari & Jorge Antonio Silva Centeno

Abstract

The paper describes a localization of Müller's maps of regions of Bohemia from 1712 to 1718. Original maps represent the territories within regional boundaries in approximate scale 1: 100 000. It is relatively problematic to extract spatial information from the maps based on precise geodetic control and well-known cartographic projection. A different approach must be chosen in case of old maps without geodetic control and identifiable cartographic projection. In such a case the identical points whose coordinates in the reference coordinate system are known must be identified in the old map and their cartometric coordinates measured. This is also the case of manuscript Müller's maps. For creation of a transformation key the suitable input data must be selected. As the most frequented features on these maps are settlements it was decided to use this part of planimetric component. Several ways how to use the settlements for transformation were explored in order to find out the most appropriate way of localization of these rare old maps. For purpose of old maps localization the database of settlements (DBS) was used. This database is based on the Territorial

Identification Register of Basic Settlement Units (TIR-BSU) which has been created in 1992–2004 and contains current coordinates of settlements. Furthermore, after transformation, the analysis of the visualization accuracy of watercourses was done.

Experiments to Distribute and Parallelize Map Generalization Processes

P. 322-332

Guillaume Touya, Justin Berli, Imran Lokhat & Nicolas Regnauld

Abstract

A good seabed representation is one of the important characteristics of any navigational chart. Along with depth contours and coloured depth areas, soundings are used for this task. All the soundings on a navigational chart are selected for a reason. Soundings contribute to the navigational chart safety aspect by alerting to all the threats and dangers. They also show all the attributes of a seabed relief without overcrowding it, thus maintaining the overall chart quality. Soundings are selected from a hydrographic survey and since it consists of a vast number of data, the process of sounding selection is a challenging and demanding task. It requires experience and knowledge from the nautical cartographer and is mostly done manually. Some types of software nowadays provide an automatic selection feature. This paper analyses a process of automatic sounding selection in the dKart Editor software. On the Croatian side of the Adriatic Sea, Šibenski Kanal (Šibenik channel) and Kanal Sv. Ante (St. Ante's channel) are used as the study area. A hydrographic survey of the area represents the input data. The official navigational chart of the surveyed area is used as the basis for determining three different sets of parameters for the selection process. After the selection, obtained results are assessed based on geometrical accuracy and on the conservation level of navigational safety. For geometrical accuracy, the best results were produced by the third set that was divided in two subsets for each channel. It was determined that the nature of the seabed relief had an impact on the selection process. The same set had the best result for navigational safety assessment but it was concluded that all the sets undermined the aspect. Because of these crucial shortcomings noticed in all the tested sets of parameters, the feature is considered inadequate for serious usage as a completely automatic tool for the process of sounding selection on navigational charts.

A Brief Retrospection on Hungarian School Atlases

P. 333-342

István Klinghammer & José Jesús Reyes Nuñez

Abstract

On the basis of initial studies devoted to a better understanding of how the public user (a pedestrian in the city) perceives cartographic symbols in the mobile augmented reality system, we present an attempt to determine the threshold values of differentiation for three visual variables. The variables of *size*, *transparency*, and *focus* were implemented into image point symbols representing five types of objects. The set of symbols was designed in accordance with the rules of cartographic design taking into consideration an analysis of 19 professional tourist works. The symbols were presented on the screen of a mobile device in a system imitating the augmented reality system against four different backgrounds: white, a wall, and two typical urban landscapes. The results of an internet survey conducted using a tablet at four locations in Poznan (Poland) allowed us to determine the following: threshold differentiation values for the analysed variables, indication of the dependence on the type of background displayed on the mobile device in augmented reality, and the advantage of using a combination of visual variables.

Atlas Design: A Usability Approach for the Development and Evaluation of Cartographic Products

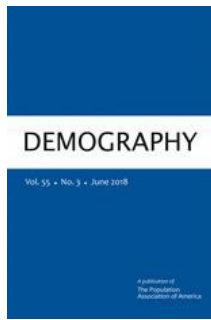
P. 343-357

Lilliam Sofía Gómez Solórzano, José Sancho Comins & Joaquín Bosque Sendra

Abstract

Dot maps are one of the best ways to visualize absolute values in thematic cartography. Dots represent quantitative data on a map. Population is often used in this type of representation. This paper presents a population dot density map for the year 2011 on two scales: (1) for mainland Portugal, and (2) for the Lisbon and Oporto regions. We have used dots with constant values and sizes at the most detailed statistical level (i.e. statistical subsection) for localities with less than 5000 inhabitants, and proportional circles for localities with more than 5000 inhabitants. These two scales of analysis

coupled with two cartographic representation techniques used on a single map allow for a clear reading of the distribution of population.



Sequential Neighborhood Effects: The Effect of Long-Term Exposure to Concentrated Disadvantage on Children's Reading and Math Test Scores

P. 1-31

Andrew L. Hicks, Mark S. Handcock, Narayan Sastry, Anne R. Pebley

Abstract

Prior research has suggested that children living in a disadvantaged neighborhood have lower achievement test scores, but these studies typically have not estimated causal effects that account for neighborhood choice. Recent studies used propensity score methods to account for the endogeneity of neighborhood exposures, comparing disadvantaged and nondisadvantaged neighborhoods. We develop an alternative propensity function approach in which cumulative neighborhood effects are modeled as a continuous treatment variable. This approach offers several advantages. We use our approach to examine the cumulative effects of neighborhood disadvantage on reading and math test scores in Los Angeles. Our substantive results indicate that recency of exposure to disadvantaged neighborhoods may be more important than average exposure for children's test scores. We conclude that studies of child development should consider both average cumulative neighborhood exposure and the timing of this exposure.

Three Dimensions of Change in School Segregation: A Grade-Period-Cohort Analysis

P. 33-58

Jeremy E. Fiel, Yongjun Zhang

Abstract

This study uses the first age-period-cohort (APC) analysis of segregation to examine changes in U.S. public school segregation from 1999–2000 to 2013–2014. APC analyses disentangle distinct sources of change in segregation, and they account for grade effects that could distort temporal trends if grade distributions change over time. Findings indicate that grade effects are substantial, drastically reducing segregation at the transition to middle school and further at the transition to high school. These grade effects do not substantially distort the analysis of recent trends, however, because grade distributions were sufficiently stable. Black-white segregation was stagnant overall, while Hispanic-white segregation declined modestly. In both cases, declines across periods were offset by increases across cohorts. Further analyses reveal variation in these trends across metropolitan and nonmetropolitan areas, regions, and areas with different histories of desegregation policy.

Can Increased Educational Attainment Among Lower-Educated Mothers Reduce Inequalities in Children's Skill Development?

P. 59-82

Jennifer March Augustine, Daniela V. Negraia

Abstract

A rich tradition of stratification research has established a robust link between mothers' education and the skills in children that forecast children's own mobility. Yet, this research has failed to consider that many U.S. women are now completing their education after having children. Such a trend raises questions about whether increases in mothers' educational attainment can improve their children's skill development and whether these gains are enough to reduce inequalities in skills compared

with children whose mothers completed the same degree before they were born. To answer these questions, we draw on a nationally representative sample of mothers and children participating in the National Longitudinal Surveys (NLSY79 and CNLY), random- and fixed-effects techniques, and repeated measures of children's cognitive and noncognitive skills. Contrary to existing research and theory, our results reveal that educational attainment obtained after children's births is not associated with an improvement in children's skills. Such findings offer substantial refinement to a long-standing model of intergenerational mobility by suggesting that the intergenerational returns to mother's education are weaker when education is acquired after children are born. Results also highlight the limits of two-generation policy approaches to reducing inequality in future generations.

Divorce, Separation, and Housing Changes: A Multiprocess Analysis of Longitudinal Data from England and Wales

P. 83-106

Júlia Mikolai, Hill Kulu

Abstract

This study investigates the effect of marital and nonmarital separation on individuals' residential and housing trajectories. Using rich data from the British Household Panel Survey (BHPS) and applying multilevel competing-risks event history models, we analyze the risk of a move of single, married, cohabiting, and separated men and women to different housing types. We distinguish moves due to separation from moves of separated people and account for unobserved codeterminants of moving and separation risks. Our analysis shows that many individuals move due to separation, as expected, but that the likelihood of moving is also relatively high among separated individuals. We find that separation has a long-term effect on individuals' residential careers. Separated women exhibit high moving risks regardless of whether they moved out of the joint home upon separation, whereas separated men who did not move out upon separation are less likely to move. Interestingly, separated women are most likely to move to terraced houses, whereas separated men are equally likely to move to flats (apartments) and terraced (row) houses, suggesting that family structure shapes moving patterns of separated individuals.

Marital Status and Mothers' Time Use: Childcare, Housework, Leisure, and Sleep

P. 107-133

Joanna R. Pepin, Liana C. Sayer, Lynne M. Casper

Abstract

Assumptions that single mothers are "time poor" compared with married mothers are ubiquitous. We tested theorized associations derived from the time poverty thesis and the gender perspective using the 2003–2012 American Time Use Surveys (ATUS). We found marital status differentiated housework, leisure, and sleep time, but did not influence the amount of time that mothers provided childcare. Net of the number of employment hours, married mothers did more housework and slept less than never-married and divorced mothers, counter to expectations of the time poverty thesis. Never-married and cohabiting mothers reported more total and more sedentary leisure time than married mothers. We assessed the influence of demographic differences among mothers to account for variation in their time use by marital status. Compositional differences explained more than two-thirds of the variance in sedentary leisure time between married and never-married mothers, but only one-third of the variance between married and cohabiting mothers. The larger unexplained gap in leisure quality between cohabiting and married mothers is consistent with the gender perspective.

Family Trajectories Across Time and Space: Increasing Complexity in Family Life Courses in Europe?

P. 135-164

Zachary Van Winkle

Abstract

Family life courses are thought to have become more complex in Europe. This study uses SHARELIFE data from 14 European countries to analyze the family life courses of individuals born in 1924–1956 from ages 15 to 50. A new methodological approach, combining complexity metrics developed in sequence analysis with cross-classified multilevel modeling, is used to simultaneously quantify the proportions of variance attributable to birth cohort and country differences. This approach allows the direct comparison of changing levels of family trajectory differentiation across birth cohorts with cross-national variation,

which provides a benchmark against which temporal change may be evaluated. The results demonstrate that family trajectories have indeed become more differentiated but that change over time is minor compared with substantial cross-national variation. Further, cross-national differences in family trajectory differentiation correspond with differences in dominant family life course patterns. With regard to debates surrounding the second demographic transition thesis and the comparative life course literature, the results indicate that the degree of change over time tends to be overstated relative to large cross-national differences.

Racial and Ethnic Variation in the Relationship Between Student Loan Debt and the Transition to First Birth

P. 165-188

Stella Min, Miles G. Taylor

Abstract

The present study employs discrete-time hazard regression models to investigate the relationship between student loan debt and the probability of transitioning to either marital or nonmarital first childbirth using the 1997 National Longitudinal Survey of Youth (NLSY97). Accounting for nonrandom selection into student loans using propensity scores, our study reveals that the effect of student loan debt on the transition to motherhood differs among white, black, and Hispanic women. Hispanic women holding student loans experience significant declines in the probability of transitioning to both marital and nonmarital motherhood, whereas black women with student loans are significantly more likely to transition to any first childbirth. Indebted white women experience only a decrease in the probability of a marital first birth. The results from this study suggest that student loans will likely play a key role in shaping future demographic patterns and behaviors.

The Changing Safety Net for Low-Income Parents and Their Children: Structural or Cyclical Changes in Income Support Policy?

P. 189-221

Bradley Hardy, Timothy Smeeding, James P. Ziliak

Abstract

Refundable tax credits and food assistance are the largest transfer programs available to able-bodied working poor and near-poor families in the United States, and simultaneous participation in these programs has more than doubled since the early 2000s. To understand this growth, we construct a series of two-year panels from the 1981–2013 waves of the Current Population Survey Annual Social and Economic Supplement to estimate the effect of state labor-market conditions, federal and state transfer program policy choices, and household demographics governing joint participation in food and refundable tax credit programs. Overall, changing policy drives much of the increase in the simultaneous, biennial use of food assistance and refundable tax credits. This stands in stark contrast from the factors accounting for the growth in food assistance alone, where cyclical and structural labor market factors account for at least one-half of the growth, and demographics play a more prominent role. Moreover, since 2000, the business cycle factors as the leading determinant in biennial participation decisions in food programs and refundable tax credits, suggesting a recent strengthening in the relationship between economic conditions and transfer programs.

Differences in Child Health Across Rural, Urban, and Slum Areas: Evidence From India

P. 223-247

Claus C. Pörtner, Yu-hsuan Su

Abstract

The developing world is rapidly urbanizing, but an understanding of how child health differs across urban and rural areas is lacking. We examine the association between area of residence and child health in India, focusing on composition and selection effects. Simple height-for-age averages show that rural Indian children have the poorest health and urban children have the best, with slum children in between. With wealth or observed health environment held constant, the urban height-for-age advantage disappears, and slum children fare significantly worse than their rural counterparts. Hence, differences in composition across areas mask a substantial negative association between living in slums and height-for-age. This association is more negative for girls than boys. Furthermore, a large number of

girls are “missing” in slums; we argue that this implies that the negative association between living in slums and health is even stronger than our estimate. The missing girls also help explain why slum girls appear to have a substantially lower mortality than rural girls, whereas slum boys have a higher mortality risk than rural boys. We estimate that slum conditions (such as overcrowding and open sewers), which the survey

**Health Endowment at Birth and Variation in Intergenerational Economic Mobility:
Evidence From U.S. County Birth Cohorts**

P. 249-269

Cassandra Robertson, Rourke O'Brien

Abstract

New estimates of intergenerational economic mobility reveal substantial variation in the spatial distribution of opportunity in the United States. Efforts to explain this variation in economic mobility have conspicuously omitted health despite it being a key pathway for the transmission of economic position across generations. We begin to fill this gap in the literature by examining the relationship between health endowment at birth and intergenerational economic mobility across county birth cohorts in the United States, drawing on estimates from two population-level data sets. Exploiting variation across counties and over time, we find a negative relationship between the incidence of low-weight births and the level of economic mobility as measured in adulthood for the county birth cohorts in our sample. Our results build on a large and growing literature detailing the role of early childhood health in the transmission of economic status across generations and suggest that the incidence of low-weight births is negatively associated with intergenerational economic mobility.

The Differential Mortality of Undesired Infants in Sub-Saharan Africa

P. 271-294

Martin Flatø

Abstract

With high rates of infant mortality in sub-Saharan Africa, investments in infant health are subject to tough prioritizations within the household, in which maternal preferences may play a part. How these preferences will affect infant mortality as African women have ever-lower fertility is still uncertain, as increased female empowerment and increased difficulty in achieving a desired gender composition within a smaller family pull in potentially different directions. I study how being born at a parity or of a gender undesired by the mother relates to infant mortality in sub-Saharan Africa and how such differential mortality varies between women at different stages of the demographic transition. Using data from 79 Demographic and Health Surveys, I find that a child being undesired according to the mother is associated with a differential mortality that is not due to constant maternal factors, family composition, or factors that are correlated with maternal preferences and vary continuously across siblings. As a share of overall infant mortality, the excess mortality of undesired children amounts to 3.3 % of male and 4 % of female infant mortality. Undesiredness can explain a larger share of infant mortality among mothers with lower fertility desires and a larger share of female than male infant mortality for children of women who desire 1–3 children. Undesired gender composition is more important for infant mortality than undesired childbearing and may also lead couples to increase family size beyond the maternal desire, in which case infants of the surplus gender are particularly vulnerable.

**Comparing Observed and Unobserved Components of Childhood: Evidence From
Finnish Register Data on Midlife Mortality From Siblings and Their Parents**

P. 295-318

Hannes Kröger, Rasmus Hoffmann, Lasse Tarkiainen, Pekka Martikainen

Abstract

In this study, we argue that the long arm of childhood that determines adult mortality should be thought of as comprising an observed part and its unobserved counterpart, reflecting the observed socioeconomic position of individuals and their parents and unobserved factors shared within a family. Our estimates of the observed and unobserved parts of the long arm of childhood are based on family-level variance in a survival analytic regression model, using siblings nested within families as the units of analysis. The study uses a sample of Finnish siblings born between 1936 and 1950 obtained from Finnish census data. Individuals are followed from ages 35 to 72. To explain familial influence on mortality, we use demographic

background factors, the socioeconomic position of the parents, and the individuals' own socioeconomic position at age 35 as predictors of all-cause and cause-specific mortality. The observed part—demographic and socioeconomic factors, including region; number of siblings; native language; parents' education and occupation; and individuals' income, occupation, tenancy status, and education—accounts for between 10 % and 25 % of the total familial influence on mortality. The larger part of the influence of the family on mortality is not explained by observed individual and parental socioeconomic position or demographic background and thus remains an unobserved component of the arm of childhood. This component highlights the need to investigate the influence of childhood circumstances on adult mortality in a comprehensive framework, including demographic, social, behavioral, and genetic information from the family of origin.

The Mexican Drug War and Early-Life Health: The Impact of Violent Crime on Birth Outcomes

P. 319-340

Ryan Brown

Abstract

This study examines the relationship between exposure to violent crime *in utero* and birth weight using longitudinal data from a household survey conducted in Mexico. Controlling for selective migration and fertility, the results suggest that early gestational exposure to the recent escalation of the Mexican Drug War is associated with a substantial decrease in birth weight. This association is especially pronounced among children born to mothers of low socioeconomic status and among children born to mothers who score poorly on a mental health index.

How We Fall Apart: Similarities of Human Aging in 10 European Countries

P. 341-359

Ana Lucia Abeliansky, Holger Strulik

Abstract

We analyze *human aging*—understood as health deficit accumulation—for a panel of European individuals, using four waves of the Survey of Health, Aging and Retirement in Europe (SHARE data set) and constructing a health deficit index. Results from log-linear regressions suggest that, on average, elderly European men and women develop approximately 2.5 % more health deficits from one birthday to the next. In nonlinear regressions (akin to the Gompertz-Makeham model), however, we find much greater rates of aging and large differences between men and women as well as between countries. Interestingly, these differences follow a particular regularity (akin to the compensation effect of mortality) and suggest an age at which average health deficits converge for men and women and across countries. This age, which may be associated with human life span, is estimated as 102 ± 2.6 years.

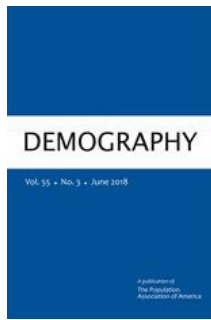
Health Insurance and the Aging: Evidence From the *Seguro Popular* Program in Mexico

P. 361-386

Susan W. Parker, Joseph Saenz, Rebeca Wong

Abstract

Aimed at covering the large fraction of workers in the informal sector without access to a social security program, the Mexican public health insurance program *Seguro Popular* began in 2002 and now reaches more than 50 million individuals. We estimate impacts of *Seguro Popular* for the population aged 50 and older on a set of indicators related to health care including utilization, diagnostic/preventive tests, and treatment conditional on being ill. Using the longitudinal Mexican Health and Aging Study over the period 2001–2012, we conduct before and after difference-in-difference matching impact estimators. Our results suggest large and important effects of the Program on utilization and diagnostic tests. We find overall smaller effects on the probability of being in treatment for individuals with chronic diseases, but these effects are concentrated in rural areas with relatively more health services versus rural areas with lower levels of health services. These results suggest that, to the extent that health services become more available in rural areas lacking services, effects of health insurance may increase.



Demography, ISSN 0070-3370
Volume 55, number 2 (April 2018)

Is 60 the New 50? Examining Changes in Biological Age Over the Past Two Decades

P. 387-402

Morgan E. Levine, Eileen M. Crimmins

Abstract

Increasing life expectancy has been interpreted as improving health of a population. However, mortality is not always a reliable proxy for the pace of aging and could instead reflect achievement in keeping ailing people alive. Using data from NHANES III (1988–1994) and NHANES IV (2007–2010), we examined how biological age, relative to chronological age, changed in the United States between 1988 and 2010, while estimating the contribution of changes in modifiable health behaviors. Results suggest that biological age is lower for more recent periods; however, the degree of improvement varied across age and sex groups. Overall, older adults experienced the greatest improvement or decreases in biological age. Males, especially those in the youngest and oldest groups, experienced greater declines in biological age than females. These differences were partially explained by age- and sex-specific changes in behaviors, such as smoking, obesity, and medication use. Slowing the pace of aging, along with increasing life expectancy, has important social and economic implications; thus, identifying modifiable risk factors that contribute to cohort differences in health and aging is essential.

If My Blood Pressure Is High, Do I Take It to Heart? Behavioral Effects of Biomarker Collection in the Health and Retirement Study

P. 403-434

Ryan D. Edwards

Abstract

Starting in 2006, respondents in the biennial U.S. Health and Retirement Study were asked to submit biomarkers every other wave and were notified of several results. Rates of undiagnosed high blood pressure and diabetes according to these biomarkers were 1.5 % and 0.7 %, respectively. An intent-to-treat analysis suggests that collection and notification had small effects on the average respondent and may have reduced health care utilization. Among respondents who received notification of potentially dangerous biomarker levels, subsequent rates of new diagnosis and associated pharmaceutical usage increased by 20 to 40 percentage points, an order of magnitude above baseline. High blood glucose A1C was associated with a 2.2 % drop in weight and an increase in exercise among respondents without a previous diagnosis of diabetes. Notifications appear also to have altered health behaviors by spouses, suggesting household responses to health maintenance. Biomarker collection seems to have altered circumstances for an interesting minority of HRS respondents.

Males' Later-Life Mortality Consequences of Coresidence With Paternal Grandparents: Evidence From Northeast China, 1789–1909

P. 435-457

Emma Zang, Cameron Campbell

Abstract

In this study, we investigate the effect of early-life coresidence with paternal grandparents on male mortality risks in

adulthood and older age in northeast China from 1789 to 1909. Despite growing interest in the influence of grandparents on child outcomes, few studies have examined the effect of coresidence with grandparents in early life on mortality in later life. We find that coresidence with paternal grandmothers in childhood is associated with higher mortality risks for males in adulthood. This may reflect the long-term effects of conflicts between mothers and their mothers-in-law. These results suggest that in extended families, patterns of coresidence in childhood may have long-term consequences for mortality, above and beyond the effects of common environmental and genetic factors, even when effects on childhood mortality are not readily apparent.

Gender and the Residential Mobility and Neighborhood Attainment of Black-White Couples

P. 459-484

Ryan Gabriel

Abstract

Including black-white couples in the study of residential stratification accentuates gendered power disparities within couples that favor men over women, which allows for the analysis of whether the race of male partners in black-white couples is associated with the racial and ethnic composition of their neighborhoods. I investigate this by combining longitudinal data between 1985 and 2015 from the Panel Study of Income Dynamics linked to neighborhood- and metropolitan-level data compiled from four censuses. Using these data, I assess the mobility of black male–white female and white male–black female couples out of and into neighborhoods defined respectively by their levels of whites, blacks, and ethnoracial diversity. My results show that the race of the male partner in black-white couples tends to align with the racial and ethnic composition of the neighborhoods where these couples reside. This finding highlights that the racial hierarchy within the United States affects the residential mobility and attainment of black-white couples, but its influence is conditioned by the race and gender composition of these couples.

Residential Mobility Across Early Childhood and Children’s Kindergarten Readiness

P. 485-510

Stefanie Mollborn, Elizabeth Lawrence, Elisabeth Dowling Root

Abstract

Understanding residential mobility in early childhood is important for contextualizing family, school, and neighborhood influences on child well-being. We examined the consequences of residential mobility for socioemotional and cognitive kindergarten readiness using the Early Childhood Longitudinal Study-Birth Cohort, a nationally representative longitudinal survey that followed U.S. children born in 2001 from infancy to kindergarten. We described individual, household, and neighborhood characteristics associated with residential mobility for children aged 0–5. Our residential mobility indicators examined frequency of moves, nonlinearities in move frequency, quality of moves, comparisons between moving houses and moving neighborhoods, and heterogeneity in the consequences of residential mobility. Nearly three-quarters of children moved by kindergarten start. Mobility did not predict cognitive scores. More moves, particularly at relatively high frequencies, predicted lower kindergarten behavior scores. Moves from socioeconomically advantaged to disadvantaged neighborhoods were especially problematic, whereas moves within a ZIP code were not. The implications of moves were similar across socioeconomic status. The behavior findings largely support an instability perspective that highlights potential disruptions from frequent or problematic moves. Our study contributes to literature emphasizing the importance of contextualizing residential mobility. The high prevalence and distinct implications of early childhood moves support the need for further research.

Transitions From Sexual Relationships Into Cohabitation and Beyond

P. 511-534

Sharon Sassler, Katherine Micheltore, Zhenchao Qian

Abstract

Much research on cohabitation has focused on transitions from cohabitation to marriage or dissolution, but less is known about how rapidly women progress into cohabitation, what factors are associated with the tempo to shared living, and

whether the timing into cohabitation is associated with subsequent marital transitions. We use data from the 2006–2013 National Survey of Family Growth to answer these questions among women whose most recent sexual relationship began within 10 years of the interview. Life table results indicate that transitions into cohabitation are most common early in sexual relationships; nearly one-quarter of women had begun cohabiting within six months of becoming sexually involved. Multivariate analyses reveal important social class disparities in the timing to cohabitation. Not only are women from more-advantaged backgrounds significantly less likely to cohabit, but those who do cohabit enter shared living at significantly slower tempos than women whose mothers lacked a college degree. In addition, among sexual relationships that transitioned into cohabiting unions, college-educated women were significantly more likely to transition into marriage than less-educated women. Finally, although the tempo effect is only weakly significant, women who moved in within the first year of their sexual relationship demonstrated lower odds of marrying than did women who deferred cohabiting for over a year. Relationship processes are diverging by social class, contributing to inequality between more- and less-advantaged young adults.

The Economic Foundations of Cohabiting Couples' Union Transitions

P. 535-557

Patrick Ishizuka

Abstract

In recent decades, cohabitation has become an increasingly important relationship context for U.S. adults and their children, a union status characterized by high levels of instability. To understand why some cohabiting couples marry but others separate, researchers have drawn on theories emphasizing the benefits of specialization, the persistence of the male breadwinner norm, low income as a source of stress and conflict, and rising economic standards associated with marriage (the marriage bar). Because of conflicting evidence and data constraints, however, important theoretical questions remain. This study uses survival analysis with prospective monthly data from nationally representative panels of the Survey of Income and Program Participation from 1996–2013 to test alternative theories of how money and work affect whether cohabiting couples marry or separate. Analyses indicate that the economic foundations of cohabiting couples' union transitions do not lie in economic specialization or only men's ability to be good providers. Instead, results for marriage support marriage bar theory: adjusting for couples' absolute earnings, increases in wealth and couples' earnings relative to a standard associated with marriage strongly predict marriage. For dissolution, couples with higher and more equal earnings are significantly less likely to separate. Findings demonstrate that within-couple earnings equality promotes stability, and between-couple inequalities in economic resources are critical in producing inequalities in couples' relationship outcomes.

Women, Demography, and Politics: How Lower Fertility Rates Lead to Democracy

P. 559-586

Udi Sommer

Abstract

Where connections between demography and politics are examined in the literature, it is largely in the context of the effects of male aspects of demography on phenomena such as political violence. This project aims to place the study of demographic variables' influence on politics, particularly on democracy, squarely within the scope of political and social sciences, and to focus on the effects of woman-related demographics—namely, fertility rate. I test the hypothesis that demographic variables—female-related predictors, in particular—have an independent effect on political structure. Comparing countries over time, this study finds a growth in democracy when fertility rates decline. In the theoretical framework developed, it is family structure as well as the economic and political status of women that account for this change at the macro and micro levels. Findings based on data for more than 140 countries over three decades are robust when controlling not only for alternative effects but also for reverse causality and data limitations.

Maternity Leave and Mothers' Long-Term Sickness Absence: Evidence From West Germany

P. 587-615

Nicole Guertzgen, Karsten Hank

Abstract

Exploiting unique German administrative data, we estimate the association between an expansion in maternity leave

duration from two to six months in 1979 and mothers' postbirth long-term sickness absence over a period of three decades after childbirth. Adopting a difference-in-difference approach, we first assess the reform's labor market effects and, subsequently, prebirth and postbirth maternal long-term sickness absence, accounting for the potential role of the reform in mothers' selection into employment. Consistent with previous research, our estimates show that the leave extension caused mothers to significantly delay their return to work within the first year after childbirth. We then provide difference-in-difference estimates for the number and length of spells of long-term sickness absence among returned mothers. Our findings suggest that among those returned, mothers subject to the leave extension exhibit a higher incidence of long-term sickness absence compared with mothers who gave birth before the reform. This also holds true after we control for observable differences in prebirth illness histories. At the same time, we find no pronounced effects on mothers' medium-run labor market attachment following the short-run delay in return to work, which might rationalize a negative causal health effect. Breaking down the results by mothers' prebirth health status suggests that the higher incidence of long-term sickness absence among mothers subject to the reform may be explained by the fact that the reform facilitated the reentry of a negative health selection into the labor market.

Subsidized Housing and the Transition to Adulthood

P. 617-642

Yana Kucheva

Abstract

Despite abundant evidence about the effect of children's socioeconomic circumstances on their transition to adulthood, we know much less about the effect of social policy programs aimed at poor families with children in facilitating how and when children become adults. This issue is particularly important for the U.S. federal subsidized housing program given its long history of placing subsidized units in some of the poorest and most racially segregated neighborhoods. Using counterfactual causal methods that adjust for the length of receipt of subsidized housing, I estimate the effect of subsidized housing on teenage parenthood, household formation, and educational attainment. I find that the subsidized housing program has either null or positive effects on the transition to adulthood and that these effects vary by both race and gender. These results underscore the importance of considering whether social programs have differential effects on the life chances of individuals based on both race and gender.

Early Childbearing, School Attainment, and Cognitive Skills: Evidence From Madagascar

P. 643-668

Catalina Herrera Almanza, David E. Sahn

Abstract

Female secondary school attendance has recently increased in sub-Saharan Africa, and so has the risk of becoming pregnant while attending school. We analyze the impact of teenage pregnancy on young women's human capital using longitudinal data in Madagascar that capture the transition from adolescence to adulthood for a cohort aged 21–24 in 2012, first interviewed in 2004. We find that early childbearing increases the likelihood of dropping out of school and decreases the chances of completing secondary school. This pregnancy-related school dropout also has a detrimental impact on standardized test scores in math and French. We instrument early pregnancy with the young woman's community-level access and her exposure to condoms since age 15 after controlling for pre-fertility socioeconomic conditions. Our results are robust to different specifications that address potential endogeneity of program placement and instrument validity.

A Second Look at the Process of Occupational Feminization and Pay Reduction in Occupations

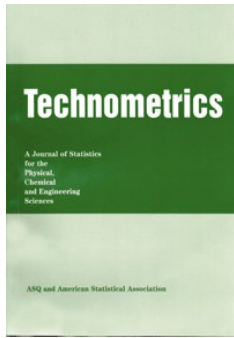
P. 669-690

Hadas Mandel

Abstract

Using the IPUMS-USA data for the years 1960–2015, this study examines trends in the effect of occupational feminization on occupational pay in the U.S. labor market and explores some of the mechanisms underlying these trends. The findings show that the (negative) association between occupational feminization and occupational pay level has declined, becoming

insignificant in 2015. This trend, however, is reversed after education is controlled for at the individual as well as the occupational level. The two opposite trends are discussed in light of the twofold effect of education: (1) the entry of women into occupations requiring high education, and (2) the growing returns to education and to occupations with higher educational requirements. These two processes have concealed the deterioration in occupational pay following feminization. The findings underscore the significance of structural forms of gender inequality in general, and occupational devaluation in particular.



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Detecting Deviating Data Cells

P. 135-145

Peter J. Rousseeuw & Wannes Van Den Bossche

Abstract

A multivariate dataset consists of n cases in d dimensions, and is often stored in an n by d data matrix. It is well-known that real data may contain outliers. Depending on the situation, outliers may be (a) undesirable errors, which can adversely affect the data analysis, or (b) valuable nuggets of unexpected information. In statistics and data analysis, the word outlier usually refers to a row of the data matrix, and the methods to detect such outliers only work when at least half the rows are clean. But often many rows have a few contaminated cell values, which may not be visible by looking at each variable (column) separately. We propose the first method to detect deviating data cells in a multivariate sample which takes the correlations between the variables into account. It has no restriction on the number of clean rows, and can deal with high dimensions. Other advantages are that it provides predicted values of the outlying cells, while imputing missing values at the same time. We illustrate the method on several real datasets, where it uncovers more structure than found by purely columnwise methods or purely rowwise methods. The proposed method can help to diagnose why a certain row is outlying, for example, in process control. It also serves as an initial step for estimating multivariate location and scatter matrices.

From Least Squares to Signal Processing and Particle Filtering

P. 146-160

Nozer D. Singpurwalla, Nicholas G. Polson & Refik Soyer

Abstract

De facto, signal processing is the interpolation and extrapolation of a sequence of observations viewed as a realization of a stochastic process. Its role in applied statistics ranges from scenarios in forecasting and time series analysis to image reconstruction, machine learning, and the degradation modeling for reliability assessment. This topic, which has an old and honorable history dating back to the times of Gauss and Legendre, should therefore be of interest to readers of *Technometrics*. A general solution to the problem of filtering and prediction entails some formidable mathematics. Efforts to circumvent the mathematics has resulted in the need for introducing more explicit descriptions of the underlying process. One such example, and a noteworthy one, is the Kalman filter model, which is a special case of state space models or what statisticians refer to as dynamic linear models. Implementing the Kalman filter model in the era of “big and high velocity non-Gaussian data” can pose computational challenges with respect to efficiency and timeliness. Particle filtering is a way to ease such computational burdens. The purpose of this article is to trace the historical evolution of this development from its inception to its current state, with an expository focus on two versions of the particle filter, namely, the propagate first-update next and the update first-propagate next version. By way of going beyond a pure review, this article also makes transparent the importance and the role of a less recognized principle, namely, the *principle of conditionalization*, in filtering and prediction based on Bayesian methods. Furthermore, the article also articulates the philosophical underpinnings of the filtering and prediction set-up, a matter that needs to be made explicit, and Yule's decomposition of a random variable in terms of a sequence of innovations.

Efficient Sparse Estimate of Sufficient Dimension Reduction in High Dimension

P. 161-168

Xin Chen, Wenhui Sheng & Xiangrong Yin

Abstract

In this article, we propose a new efficient sparse estimate (ESE) in sufficient dimension reduction using distance covariance. Our method is model-free and does not need any kernel function or slicing selection. Moreover, it can naturally deal with multivariate response scenarios, making it appealing in a modified sequential algorithm that targets the large p small n problems. Compared with screening procedures that only use marginal utility, our method can extract more useful information from the data and is capable of determining the size of the selected submodel automatically while most of screening procedures cannot. Under mild conditions, based on manifold theories and techniques, it can be shown that our method would perform asymptotically as well as if the true irrelevant predictors were known, which is referred to as the oracle property. Extensive simulation studies and two real data examples demonstrate the effectiveness and efficiency of the proposed approach. It is remarkable that the analysis in cardiomyopathy microarray data reveals distinct and interesting findings. Supplemental materials for this article are available online.

Phase I Monitoring of Spatial Surface Data from 3D Printing

P. 169-180

Yangyang Zang & Peihua Qiu

Abstract

In recent years, 3D printing gets more and more popular in manufacturing industries. Quality control of 3D printing products thus becomes an important research problem. However, this problem is challenging due to the facts that (i) the surface of a product from 3D printing can have arbitrary shape, even when the 3D printing process is in-control, (ii) surface observations of the product obtained from a laser scanner may not have regularly spaced locations, and (iii) the overall geometric positions of 3D printing products might be all different, making proper comparison among different products difficult. In this article, we propose a Phase I control chart for monitoring products from 3D printing that addresses all these challenges. Numerical studies show that it works well in practice.

Real-Time Monitoring of High-Dimensional Functional Data Streams via Spatio-Temporal Smooth Sparse Decomposition

P. 181-197

Hao Yan, Kamran Paynabar & Jianjun Shi

Abstract

High-dimensional data monitoring and diagnosis has recently attracted increasing attention among researchers as well as practitioners. However, existing process monitoring methods fail to fully use the information of high-dimensional data streams due to their complex characteristics including the large dimensionality, spatio-temporal correlation structure, and nonstationarity. In this article, we propose a novel process monitoring methodology for high-dimensional data streams including profiles and images that can effectively address foregoing challenges. We introduce spatio-temporal smooth sparse decomposition (ST-SSD), which serves as a dimension reduction and denoising technique by decomposing the original tensor into the functional mean, sparse anomalies, and random noises. ST-SSD is followed by a sequential likelihood ratio test on extracted anomalies for process monitoring. To enable real-time implementation of the proposed methodology, recursive estimation procedures for ST-SSD are developed. ST-SSD also provides useful diagnostics information about the location of change in the functional mean. The proposed methodology is validated through various simulations and real case studies. Supplementary materials for this article are available online.

Resolution Adaptive Fixed Rank Kriging

P. 198-208

ShengLi Tzeng & Hsin-Cheng Huang

Abstract

The spatial random effects model is flexible in modeling spatial covariance functions and is computationally efficient

for spatial prediction via fixed rank kriging (FRK). However, the model depends on a class of basis functions, which if not selected properly, may result in unstable or undesirable results. Additionally, the maximum likelihood (ML) estimates of the model parameters are commonly computed using an expectation-maximization (EM) algorithm, which further limits its applicability when a large number of basis functions are required. In this research, we propose a class of basis functions extracted from thin-plate splines. The functions are ordered in terms of their degrees of smoothness with higher-order functions corresponding to larger-scale features and lower-order ones corresponding to smaller-scale details, leading to a parsimonious representation of a (nonstationary) spatial covariance function with the number of basis functions playing the role of spatial resolution. The proposed class of basis functions avoids the difficult knot-allocation or scale-selection problem. In addition, we show that ML estimates of the random effects covariance matrix can be expressed in simple closed forms, and hence the resulting FRK can accommodate a much larger number of basis functions without numerical difficulties. Finally, we propose to select the number of basis functions using Akaike's information criterion, which also possesses a simple closed-form expression. The whole procedure, involving no additional tuning parameter, is efficient to compute, easy to program, automatic to implement, and applicable to massive amounts of spatial data even when they are sparsely and irregularly located. Proofs of the theorems and an R package *autoFRK* are provided in supplementary materials available online.

Gaussian Process Modeling of a Functional Output with Information from Boundary and Initial Conditions and Analytical Approximations

P. 209-221

Matthias HY Tan

Abstract

A partial differential equation (PDE) models a physical quantity as a function of space and time. These models are often solved numerically with the finite element (FE) method and the computer output consists of values of the solution on a fine grid over the spatial and temporal domain. When the simulations are time-consuming, Gaussian process (GP) models can be used to approximate the relationship between the functional output and the computer inputs, which consists of boundary and initial conditions. The Dirichlet boundary and initial conditions give the functional output values on parts of the space-time domain boundary. Although this information can help improve prediction of the output, it has not been used to construct GP models. In addition, analytical solutions of the PDE derived by simplifying the PDE can often be obtained, which can help further improve performance of the GP model. This article proposes a Karhunen–Loève (KL) expansion-based GP model that satisfies the Dirichlet boundary and initial conditions almost surely, and effectively uses information from analytical approximations to the PDE solution. Real examples demonstrate the improved prediction performance achieved by using these sources of prior information. Supplementary materials for this article are available online.

Semiparametric Models for Accelerated Destructive Degradation Test Data Analysis

P. 222-234

Yimeng Xie, Caleb B. King, Yili Hong & Qingyu Yang

Abstract

Accelerated destructive degradation tests (ADDT) are widely used in industry to evaluate materials' long-term properties. Even though there has been tremendous statistical research in nonparametric methods, the current industrial practice is still to use application-specific parametric models to describe ADDT data. The challenge of using a nonparametric approach comes from the need to retain the physical meaning of degradation mechanisms and also perform extrapolation for predictions at the use condition. Motivated by this challenge, we propose a semiparametric model to describe ADDT data. We use monotonic B-splines to model the degradation path, which not only provides flexible models with few assumptions, but also retains the physical meaning of degradation mechanisms (e.g., the degradation path is monotonic). Parametric models, such as the Arrhenius model, are used for modeling the relationship between the degradation and the accelerating variable, allowing for extrapolation to the use condition. We develop an efficient procedure to estimate model parameters. We also use simulations to validate the developed procedures and demonstrate the robustness of the semiparametric model under model misspecification. Finally, the

Inference on the Gamma Distribution

P. 235-244

Bing Xing Wang & Fangtao Wu

Abstract

This study develops inferential procedures for a gamma distribution. Based on the Cornish–Fisher expansion and pivoting the cumulative distribution function, an approximate confidence interval for the gamma shape parameter is derived. The generalized confidence intervals for the rate parameter and other quantities such as mean are explored. The proposed generalized inferential procedures are extended to construct prediction limits for a single future measurement and for at least p of m measurements at each of r locations. The performance of the proposed procedures is evaluated using Monte Carlo simulation. The simulation results show that the proposed procedures are very satisfactory. Finally, three real examples are used to illustrate the proposed procedures. Supplementary materials for this article are available online.

Band Depth Clustering for Nonstationary Time Series and Wind Speed Behavior

P. 245-254

Laura L. Tupper, David S. Matteson, C. Lindsay Anderson & Luckny Zephyr

Abstract

We explore the behavior of wind speed over time, using a subset of the Eastern Wind Dataset published by the National Renewable Energy Laboratory. This dataset gives modeled wind speeds over three years at hundreds of potential wind farm sites. Wind speed analysis is necessary to the integration of wind energy into the power grid; short-term variability in wind speed affects decisions about usage of other power sources, so that the shape of the wind speed time series becomes as important as the overall level. To assess differences in intra-day time series, we propose a functional distance measure, the band distance, which extends the band depth of López-Pintado and Romo. This measure emphasizes the shape of time series or functional observations relative to other members of a dataset and allows clustering of observations without reliance on pointwise Euclidean distance. We show a method for adjusting for seasonal effects in wind speed, and use these standardizations as input for the band distance. We demonstrate the utility of the new method in simulation studies and an application to the MOST power grid algorithm, where the band distance improves reliability over standard methods at a comparable cost.

Model Calibration With Censored Data

P. 255-262

Fang Cao, Shan Ba, William A. Brenneman & V. Roshan Joseph

Abstract

The purpose of model calibration is to make the model predictions closer to reality. The classical Kennedy–O’Hagan approach is widely used for model calibration, which can account for the inadequacy of the computer model while simultaneously estimating the unknown calibration parameters. In many applications, the phenomenon of censoring occurs when the exact outcome of the physical experiment is not observed, but is only known to fall within a certain region. In such cases, the Kennedy–O’Hagan approach cannot be used directly, and we propose a method to incorporate the censoring information when performing model calibration. The method is applied to study the compression phenomenon of liquid inside a bottle. The results show significant improvement over the traditional calibration methods, especially when the number of censored observations is large. Supplementary materials for this article are available online.