

Asociación Latino  
Americana de Población

Rio de Janeiro, Brasil  
9-11 de Noviembre de 2011



## *Certificate of Participation*

This certificate is presented to **Eliud Silva, V.M. Guerrero, D. Peña** for participation as speaker thematic session in the session *Thematic Session - paper presented: Temporal disaggregation and restricted forecasting of multiple population time series*, in the International Seminar on *Population Estimates and Projections: Methodologies, Innovations and Estimation of Target Population applied to Public Policies*, organized by the Latin American Population Association (ALAP), carried out from November 9 to 11, 2011, Rio de Janeiro, Brazil.

11 de November, 2011

  
Suzana Cavenaghi  
Seminar Coordinator





### **Asociación Latino Americana de Población**

Secretaria del Seminario: Rua André Cavalcanti, 106, sala 502, Bairro de Fátima  
Rio de Janeiro – RJ - Brasil - CEP 20231-050, Tél./Fax: (55) 21- 2142 4689  
e-mail: Projection.OrgCom@alapop.org - <http://www.alapop.org>

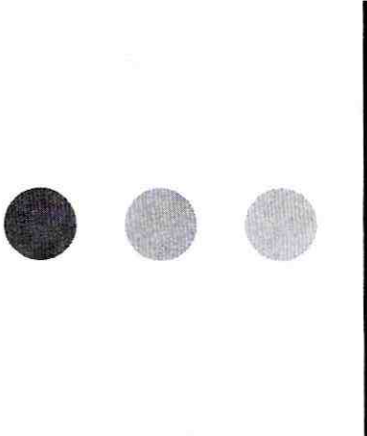
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Rio de Janeiro, 07 de octubre de 2011

- E. Silva** (Departamento de Estadística, Universidad Carlos III de Madrid)
- V.M. Guerrero** (Departamento de Estadística, Instituto Tecnológico Autónomo de México -ITAM)
- D. Peña** (Departamento de Estadística, Universidad Carlos III de Madrid)

Estimados Srs.:

Por este medio tenemos el agrado de informarle que la Asociación Latinoamericana de Población (ALAP) por medio de su Red de Investigación de Estimaciones y Proyecciones de Población, en coordinación con la Escuela Nacional de Estadística (ENCE) del Instituto Brasileiro de Geografía y Estadística (IBGE), está organizando el *Seminario Internacional de Estimaciones y Proyecciones de Población: Metodologías, Innovaciones y Estimación de Grupos Objetivo de Políticas Públicas*, a realizarse del 9 al 11 de noviembre de 2011 en Rio de Janeiro, Brasil. El objetivo principal es promover



## **Temporal disaggregation and restricted forecasting of multiple population time series**

Eliud Silva (Universidad Anáhuac y UNAM)

Víctor M. Guerrero (ITAM)

Daniel Peña (Universidad Carlos III de Madrid)

Presented at the International Seminar on *Population Estimates and Projections: Methodologies, Innovations and Estimation of Target Population applied to Public Policies*, 9-11 November 2011, Rio de Janeiro

## Brasil

E. Silva<sup>1</sup>, V.M. Guerrero<sup>2</sup> and D. Peña<sup>3</sup>

<sup>1</sup>Escuela de Actuaría, Universidad Anáhuac del Norte

Estado de México, 52786, MEXICO. Tel. (+52)55-56270210. E-mail: jsilvaurrutia@hotmail.com

<sup>2</sup>Departamento de Estadística, Universidad Carlos III de Madrid, 28903 Getafe, Madrid, Spain;

<sup>3</sup>Departamento de Estadística, Instituto Tecnológico Autónomo de México (ITAM), 01080 D. F., México

This article presents some applications of time-series procedures to solve two typical problems that arise when analyzing demographic information in developing countries: (1) unavailability of annual time series of population growth rates (PGRs) and their corresponding population time series and (2) inappropriately defined population growth goals in official population programs. These problems are considered as situations that require combining information of population time series. Firstly, we suggest the use of temporal disaggregation techniques to combine census data with vital statistics information in order to estimate annual PGRs. Secondly, we apply multiple restricted forecasting to combine the official targets on future PGRs with the disaggregated series. Then, we propose a mechanism to evaluate the compatibility of the demographic goals with the annual data. We apply the aforementioned procedures to data of the Mexico City Metropolitan Zone divided by concentric rings and conclude that the targets established in the official program are not feasible. Hence, we derive future PGRs that are both in line with the official targets and with the historical demographic behavior. We conclude that growth population programs should be based on this kind of analysis to be supported empirically. So, through specialized multivariate time-series techniques, we propose to obtain first an optimal estimate of a disaggregate vector of population time series and then, produce restricted forecasts in agreement with some data-based population policies here derived.