

# REVISTA ESTADISTICA

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### **Univariate Distribution Functions and Summarizing Measures: Income Distributions from a Given Gini Measure**

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#### **Abstract**

In standard regression analysis, a bivariate distribution function is summarized with a univariate function and, as an inverse process, the original bivariate distribution can be approximated from the derived regression function if necessary. In this paper, as an analogy, a univariate distribution is summarized with one number and then the underlying univariate distribution function is approximately retrieved from the given summary measure. Though the density functions are very different, corresponding theoretical share functions often have more or less similar shapes and each share function can be well approximated with another share function. The density functions are classified according to their domains, finite, half-infinite, and infinite.

As an application, an income distribution is summarized with a Gini measure and then the underlying distribution is approximated from the given Gini measure. As a byproduct of this method, we introduce a new set of income inequality measures (RS) based on a Chi-squared distribution or based on the income share function for a given base year. Shares derived from RS measures perform well at all ranges including in both tail areas.

## **La Movilidad en la Distribución Personal de la Renta en España**

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### **Abstract**

This article considers the dynamic aspects of Personal Income Distribution in Spain from 1994 to 1998. Using the European Union data panel, a study is made of mobility within the distribution following the traditional HART and SHORROCKS methodology on the one hand, and on the other that of transition matrixes. The results are analyzed with a view to territorial and sociologic breakdowns (by socio-occupational categories, level of education and sex) as well as for two groups of income: primary income, generated by production factors, and disposable income.

## **The Dynamics Of The Distribution Of Wage and Salary Income In The Nonmetropolitan U.S.**

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## **Abstract**

This paper presents a method of forecasting how the distribution of the wage and salary income of residents of nonmetro areas of the United States would change if there were an unprecedentedly large fall in its mean. This forecast is credible because it is based on a model that is 1) parsimonious, 2) closely fits the observed distribution 1963-1995, and 3) explains three puzzling, quasi-symmetric patterns in the dynamics of the distribution 1963-1995. Empirically, an increase in mean nonmetro wage and salary income swells right tail relative frequencies and shrinks left tail relative frequencies, and vice versa for a decrease. Thus there is a negative correlation over time between left and right tail relative frequencies.

The greatest changes over time in relative frequency at a particular income level are those at the smallest income. The greatest proportional increases or decreases are seen at the extreme right tail of the distribution, accounting for an increase in the concentration of income when the mean rises. The model is not specialized for the nonmetro U.S. labor force. All findings for the nonmetro labor forces are valid, qualitatively, for the metro labor force. The nonmetro labor force is more vulnerable to a downturn of a given proportional size in its mean wage and salary income than the metro labor force because of lower levels of education in the nonmetro labor force.

## **A Parametric Estimation of Personal Income Distribution in Argentina Using the Dagum Model**

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## **Abstract**

The paper seeks to apply the Dagum generating model of income distribution functions to study the location and shape parameters of a sample distribution function of individual income receivers belonging to Greater Córdoba, its evolution in 1992-2000, and the impact that the persistent increase in unemployment exerted on inequality. A comparative analysis of income distribution between the Capital region of Argentina, represented by the Greater Buenos Aires, and the rest of the country, reflected in the analysis of Greater Córdoba, is included.

# **A Comparison of Parametric Models of Income Distribution Across Countries and Over Time**

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## **Abstract**

The five-parameter generalized beta distribution and ten of its special cases are considered as models for the size distribution of income. The models are fit to income data for 23 countries and various years—a total of 82 data sets. Of the models considered, the Weibull, Dagum and generalized beta of the second kind are best fitting of the models with two, three and four parameters for 62 percent, 84 percent, and 96 percent of the data sets, respectively. Increasing inequality with respect to pre-tax income is observed in most of the countries considered.

## **Una Relación Específica entre Distribución de la Renta y Crecimiento Económico: «La Hipótesis L».**

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### **Resumen**

La relación entre crecimiento económico y distribución de la renta sigue constituyendo uno de los capítulos más atractivos de los estudios sobre desarrollo. No obstante, a pesar de los esfuerzos realizados, aún no se ha llegado a un consenso; si bien, se va afianzando la idea de una relación de compatibilidad entre las variables representativas de ambos fenómenos. Ahora bien, las propuestas en favor de dicha relación no se han preocupado, en general, de su forma funcional. En este trabajo se estudia la existencia de una relación específica, que responde a una forma definida y característica («Hipótesis L»), la cual se contrasta mediante la utilización de indicadores de pobreza como medida de la distribución de la renta, para un conjunto de países de América, África y Asia. Un aspecto interesante aquí suscitado es la mayor capacidad explicativa de la relación que poseen los indicadores de pobreza humana del PNUD.

### **Efficiency, Equity, and Generalized Lorenz Dominance**

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### **Abstract**

We decompose the generalized Lorenz welfare order into a size and a distribution component. The former is represented by stochastic dominance, the latter by the standard Lorenz order. We show that it is always possible, given generalized Lorenz dominance between two income distributions  $F$  and  $G$ , to find distributions  $H_1$  and  $H_2$  such that  $F$  stochastically dominates  $H_1$  and  $H_1$  Lorenz-dominates  $G$ , and such that  $F$  Lorenz-dominates  $H_2$  and  $H_2$  stochastically dominates  $G$ . We also show that generalized Lorenz dominance is characterized by this property and discuss the implications of these results for choice under risk.

## **Changes in Economic Advantage by National Origin After German Unification**

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### **Abstract**

We use recently developed procedures to decompose German Lorenz curves for post-government incomes among East Germans, West Germans, and foreign guest workers after German unification. The decomposed Lorenz ordinates permit us to construct interdistributional Lorenz curves, which in turn allow dominance comparisons of changes in economic advantage in different years. Using interdistributional Gini indices to capture the magnitude of these changes, we find that the economic advantage of West Germans over East Germans diminished by more than one-third between 1992 and 1996. Over the same period the advantage of West Germans over guest workers increased by about one-fourth, while the advantage of guest workers over East Germans virtually vanished.

### **Geometría de la Desigualdad**

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## **Resumen**

En este trabajo se presentan los aspectos fundamentales en la medición de la desigualdad estática empleando la geometría y los espacios normados como nexo conceptual y, posteriormente, se examinan las implicaciones dinámicas de las normas filosóficas más representativas. La principal conclusión del trabajo es que la elección de una norma social de desigualdad requiere, por una parte, garantizar a priori el libre albedrío y, por otra, una información precisa sobre sus consecuencias en cada estado concreto de la economía.

## **Educational Impacts and Rising Inequality in the US**

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## **Abstract**

This study integrates two bodies of work to explore how changes in human capital have impacted the distribution of household permanent income. Introducing a human capital accumulation model, a framework is established utilizing the special properties of the Gini coefficient which maps changes in human capital into changes in the distribution of household permanent income. Using US data from the Panel Study of Income Dynamics, the results indicate that changes in the level of and return to schooling are not major contributors to the recent rise in household permanent income inequality in the US.

## **On Rightist, Centrist And Leftist Generalizations Of The Gini Index**

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### **Abstract**

Based on the idea that the Gini Index depends on the income as well as on the rank of an individual in the overall income distribution, new generalizations of the Gini Index are proposed. The new indices are classified as "rightist", "leftist" or "centrist", depending on the view of inequality one holds.

## **Regional Empirics For Economic Disparities In Italy: 1951-2001**

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### **Abstract**

This paper presents empirical evidence on the magnitude and evolution of economic disparities across Italian provinces in the last fifty years. According to the kernel density estimates of the per capita income distribution for each decade are firstly yielded. The empirical cross-sectional distribution of the provinces are further fitted by a mixture of normal distributions. The components, whose number is selected by a bootstrap test, represent a group of poor and a group of rich provinces.

Finally, the intra-distribution dynamic over  $t$  periods of time from a given income value in period  $t$  is modelled by the stochastic kernel, following Quah (1996). The findings reveal the tendency of the real GDP to spread according to a two-peaks distribution and the persistence of bimodality.



## **Food Subsidies and Consumption Inequality in Mexico**

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### **Abstract**

In the second half of the 1990s, the Government of Mexico fundamentally changed its programs for the reduction of poverty. Costly universal price subsidies for the consumption of tortilla were terminated, and well targeted investments in the human capital of the rural poor providing long-term benefits were promoted instead. Not all food subsidies were terminated however. The Government is still funding means-tested subsidies for tortilla and milk. Combining information from household surveys for the years 1996 and 1997, and relying on measures of the marginal impact of food subsidies on consumption inequality as an evaluation criteria, this paper assesses whether terminating universal subsidies and keeping targeted subsidies was right.

## **Los Condicionantes Socioeconómicos de la Pobreza y la Persistencia de los Desequilibrios Territoriales: Un Análisis Dinámico Para España**

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Guillermina Martín Reyes

### **Resumen**

En este artículo se emplea la metodología propia de los procesos de Markov para estudiar la relación dinámica entre un indicador de pobreza y un conjunto de variables socioeconómicas en el ámbito de su distribución provincial, dada la evidencia empírica entre dichas variables y los niveles provinciales de pobreza. Se efectúa un análisis dinámico de las disparidades existentes en los niveles de pobreza de las provincias españolas en los dos últimos decenios, con un especial interés en la localización geográfica de aquellas provincias que presentan mejores y peores resultados. Entre las conclusiones destaca la rígida estructura que presenta el indicador de pobreza en cuanto a las posiciones relativas de las provincias, también detectada en algunas de las variables socioeconómicas analizadas, lo que explica la elevada persistencia de las provincias en sus posiciones de partida, principalmente en lo que respecta a las posiciones extremas.

# **Desigualdad y Pobreza en los Ambitos Rural y Urbano en España: Un Enfoque Paramétrico**

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## **Resumen**

En este trabajo se ajusta el modelo de Dagum a la distribución del ingreso familiar equivalente en los ámbitos rural y urbano en España, con los datos procedentes de la Encuesta Continua de Presupuestos Familiares de 1996. Se ha empleado el método de estimación máximo verosímil, que ha ofrecido grados de ajuste muy notables, y se han derivado diversas herramientas con las que se ha realizado el análisis de la desigualdad y la pobreza en los ámbitos estudiados, tales como las contribuciones a la desigualdad y la pobreza de cada ámbito o las elasticidades crecimiento y desigualdad de los índices de pobreza estimados. Se ha constatado que la desigualdad, medida con el índice de Gini, es superior en el entorno urbano, mientras que la pobreza, evaluada con los dos primeros índices de Foster, Greer y Thorbecke, es más acusada en el medio rural.

## **Dagum's Decomposition of the Gini Ratio and the Contribution of Population Subgroups to the Mean Difference of the Logarithms of Incomes**

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## **Abstract**

This paper indicates how it is possible to estimate the contribution of various population subgroups to the within and between groups mean difference of the logarithms of wages as well as to the overlapping component. In addition, since the contribution of a given population subgroup to the various components of inequality previously mentioned depends on the relative size of this group, the paper proposes a technique which in a way neutralizes this population size effect. An empirical illustration analyzes the changes in wage dispersion that took place in Israel between 1982 and 1998.

## **Decomposition of Inequality Measures Based on Aggregate Units**

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### **Abstract**

Given a distribution of incomes in a population, subdivided in  $k$  groups according to geographical or functional characteristics, there is often the problem of evaluating the portion of the total inequality due to between and within-groups inequalities. If these inequalities are defined so as to additively reproduce the total inequality by the use of the same kind of inequality measure for total, between and within inequality, only a very restricted set of measures could be available, not possessing substantive economic properties; in any case, all normalized measures should be excluded. In order to suggest a method of general applicability, this paper deals with the preliminary evaluation of the within-groups inequality, which is assessed by working out a fixed number of aggregate units for all groups as well as the whole population; this turns out to be equivalent to averaging the group Lorenz curves; then the between-groups inequality is obtained as a residual with respect to the total inequality. This procedure is justified by recourse to Lorenz ordering, and is applicable to any index used for the whole population and for the distribution of aggregate units.