

## Regression Analysis Using Constrained Coefficient-component and Analysis of the Influence of Temperature on Productivity of Rice Production in Hokkaido

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In regression analysis a traditional approach, the so-called constrained coefficient approach, is usually used for model selection. We propose a new approach, named as constrained coefficient-component approach, instead. The constrained coefficient-component approach is developed based on a basic model which contains all of the explanatory variables that may be available and will be meaningful for practical applications. The procedure for the constrained coefficient-component approach is as follows. Firstly, we define a vector of coefficient-components by using an orthogonal transformation of the vector of regression coefficients in the basic model. Then, we construct a number of contending models by constraining some coefficient-components to be zeros. Further, the best model among all the contending models is selected by using Akaike information criterion, AIC. The constrained coefficient-component approach has many advantages, e.g., (1) the total number of the contending models can be reduced so that the process of model selection becomes really easy; (2) by using the newly-proposed approach we can obtain more stable estimation for parameters and a model that has better performance measuring by AIC. The constrained coefficient-component approach is applied to analyzing the influence of temperature on productivity of rice production in Hokkaido as an example.

## ABSTRACT

Faunal survey of bats in Asahikawa area, Hokkaido, Japan III

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A faunal survey of bats was conducted in Asahikawa area, Hokkaido Japan, during the period June 2003 to February 2005. One hundred and fifty three specimens and the observation records of four hundred and fifty two individuals consisting of ten species; *Rhinolophus ferrumequinum*, *R. cornutus*, *Myotis frater*, *M. ikonnikovi*, *M. macrodactylus*, *Nyctalus aviator*, *Plecotus auritus*, *Murina ussuriensis*, *M. leucogaster* and *Eptesicus nilssonii* were collected by mist nets and observation. Two specimens of *Murina leucogaster* were newly recorded in Asahikawa area.

On the basis of this survey twelve species of bats were recorded in Asahikawa area.

Key Words bats, fauna, Asahikawa area, *Murina Leucogaster*

## Effect of Leases by Impairment Accounting Standards (2)

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Accounting Standards Board of Japan (ASBJ) published "Opinions of Impairment Accounting Standards" in 2002 and "Guidelines of Impairment Accounting Standards" in 2003.

This paper continues from "Effect of Leases by Impairment Accounting Standards (1)" (The Journal of Asahikawa University No. 57-58 Dec. 2004). The purposes of this paper are to survey the construction of impairment accounting, to clear that a book value of the non-transfer ownership finance leases is the amount of re-measurement.

The efficiency of extraordinary depreciation as an impairment is not enough. The land is not the object of depreciation. Therefore, the land needs impairment accounting.

The amount of impairment loss is calculated the difference of a book value and the recoverable amount. Usually the book value based on the cost price.

Applying impairment accounting to the capital treatment (the transfer ownership finance leases), a book value is non-depreciated cost price. When the recoverable amount decrease than the book value, the difference becomes impairment loss.

Applying impairment accounting to the rental treatment (the non-transfer ownership finance leases), a book value is present value of lease fee. When the recoverable amount decrease than amount of the present value, the difference becomes impairment loss.

Under decreasing interest rates, to be applied impairment accounting to the rental treatment, it adds the difference to impairment loss. Therefore, it increases impairment loss. In addition, after impairment, the difference and lease fee offset each other.

Impairment Accounting Standards will introduce fresh start measurements.