



# UNIVERSITY OF THE PHILIPPINES SCHOOL OF ECONOMICS

and

**PCED** | Philippine Center for  
Economic Development

*present a seminar on*

## **A generalization of the quantity equivalence result in procurement auction**

by

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**22 September 2017, Friday**

**4:00-5:00 p.m. – Rm 303**

### ***Abstract:***

This brief study considers a procurement auction with endogenous quantity. The firm who submits the lowest price quotation secures the contract of selling its product to the auctioneer, subject to a given market demand. This practice which is common in public sector procurements allows the winning firm to sell an amount of good that is contingent on the buyer's demand at the winning bid.

This mechanism that incorporates demand function in the assessment of a profit-maximizing bid is now a common theme in procurement auction theory. For example, Dastidar (2008) introduces the idea of a fixed-budget procurement auction that allows a government agency to procure an amount of good by exhausting its entire preset budget allocation. His result claims that for a given fixed-budget  $A$  (which consequently takes on a demand function  $q=A/p$ ), the expected quantity sold between first price (FPA) and second price auction (SPA) formats are equal.

Our goal in this note is to show that while this strong equivalence result does not hold for most types of demand functions, it nonetheless accommodates many other functional forms apart from the  $q=A/p$  used by Dastidar. This study therefore provides a complete characterization of all negatively-sloped demand functions that satisfy the quantity equivalence result.

### ***About the author:***

Dr. Romeo Balanquit is an Assistant Professor at UPSE. His research interests include auction theory, portfolio theory application, and game theory. He obtained his PhD in Economics from Jawaharlal Nehru University, New Delhi.



**Free and open to the public**

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