

Summaries

Queues with Random Arrival Acceptance Windows

Hideo Osawa

This paper analyzes queues with random arrival acceptance windows (RAAW). RAAW systems attempt to prevent the convergence of systems by establishing windows to control the flow of arrival to ordinary queues. These queues were proposed by Doi, M. et. al. (1997) and Osawa, H. et. al. (2000). This paper introduces their results and summarizes new results.

RAAW control the flow of arriving customers by opening and closing. They are able to accept the arriving customers when open, but unable to accept them when closed. Services continue in both spaces as long as there are customers. Various methods are possible for accepting customers, but here consideration is given simply to a system accepting only one customer at most. The server is also assumed to be a single individual.

First, an $M|M/M/1$ queue, which randomly sets the point for opening RAAW in accordance with the Poisson process, is analyzed and the stationary queue length and waiting time distribution are assigned. Next, the results related to stationary queue length and waiting time distribution are introduced in relation to $GI|GI/M/1$, which sets RAAW in accordance with the renewal process. Then, RAAW systems that introduce costs are considered. Applying the above results, consideration is given to optimal window length so that system compensation is maximized. As a result, it is evident that optimal window size is uniquely decided for several systems according to numerical example. Finally, there will be a discussion of some further issues that need to be addressed in the future.

Numerical Analysis of the Hoggard-Whalley-Wilmott Equation for Option Pricing with Transaction Costs

Masaaki Nakamura

The Black-Scholes equation is obtained by attaching conditions to a basic log normal distribution model for asset prices, and is used in various forms. The original equation was introduced and analyzed without considering the costs that accompany transactions. However, the impact of such costs is important for those who actually use the equation in practice. As those effects cannot be ignored, various analyses have been conducted to factor them in. This paper looks at the Hoggard-Whalley-Wilmott equation, which expands on the Black-Scholes equation by considering such transaction costs.

The Hoggard-Whalley-Wilmott equation was introduced as an extension of the Black-Scholes equation in order to describe European options, which involve transaction costs. It is a non-linear partial differential equation, and the impact of transaction costs is evident as a non-linear term.

In traditional research, analyses have been conducted on the assumption that the solution to this non-linear equation is, in terms of its mathematical treatment, either concave or convex. It is evident that this assumption can hardly be called practical.

We indicate the solution's existence and analyticity without assumptions about its concavity or convexity, instead using more realistic assumptions for the parameters. This paper introduces this proposition and, based on the result, searches numerically in order to handle infinite region and unbounded solutions, and makes a comparison with the theory.

Mean Ruin Time for the Risk Reserve Process

Makoto Doi

In this paper we investigate the mean ruin time for the risk reserve process with an upper boundary. If the risk reserve level becomes 0 then the system is ruined. For the process the large-scale demand may occur according to the exponential distribution. We make a mathematical model for the process to get the mean time until the ruin occurs. Unless the process has large-scale demand, the reserve level increases at a rate decided by the present reserve level. We consider the mean ruin time for the process with initial level x , and constitute the integro-differential equation with respect to the mean ruin time. In order to get the solution of the equation above, we use the theory of regenerative process discussed by Cohen, J. W. ; Doi, M. and Osawa, H.; Tijms, H. C.; Doi, M., Nagai, H. and Osawa, H. and so on. In this paper, we have a solution of this equation and consider the ruin problem of the risk reserve process.

Globalization and National Identity: Citizenship in Multicultural Societies

Koichi Kanada

This paper examines multiculturalism, which has been accelerated by globalization, and the issues that this phenomenon creates, looking at the example of the United Kingdom, a typical society with characteristics of multiculturalism. The paper considers modern normative political theory surrounding this subject.

The United Kingdom, as a remnant of the British Empire, is actually a multicultural society, but multiculturalism has yet to be taken up as a political tradition. However, the nation does in fact like to think of itself as a society where the various ethnic groups and cultures that comprise the British Commonwealth, or formerly the British Empire, have existed together in one community. It is also true that social integration has been promoted from the perspective of maintaining social stability and managing race relations. However, when the London Terrorist Attacks were committed by citizens born and raised in the UK, the nation's people started to wonder if their harmonious self-image was nothing more than a mirage. In addition, the enactment of the Scots Law seems to have shaken the national identity of the British. It seems that people have been forced to ask what it means to be British.

This paper outlines the characteristics of British immigration policy and the changes to that policy in the wake of EU integration, and then introduces a segment of the debate surrounding multicultural conditions, touching on globalization led by the economy and the politics surrounding national identity, especially issues concerning policies of integrating ethnic groups and coexistence.

Globalization and the Environmental Problems The Possibility of Fair Trade which Considers Laborers and the Environment

Shihoko Nemoto

This paper focuses on “fair trade” movements which give high-level consideration to laborers and the environment. In the context of labor and environmental issues surrounding the production of primary goods in developing countries, the role of consumers in the importing nations has come into question. The producers in those countries face imperfect markets due to such factors as weak negotiating capacity, limited market access, lack of funds and credit, and difficulties converting crops. However, some kind of environmental trade measure to address this situation could potentially infringe on current GATT/WTO principles, and an international agreement has yet to be reached on the formation of integrated rules. In response, there has been an increase in “fair trade” movements that give consideration to labor and the environment.

These movements rely on four types of support from fair trade organizations. The first is the introduction of mechanisms to stabilize the purchasing price of primary goods, for example, the acquisition of those goods at a price above ordinary prices and long-term contracts with producers. The second is the provision of information for funds, credit guarantees and consumer preferences. The third is improvements in labor and environmental standards through education on conservation technology and implementation of social projects. Lastly, there is the introduction of various certification systems for consumers, such as reliable fair trade labels.

Due to the unification of certification standards, indiscrimination in treatment by the government, and the freedom of consumers to choose, these measures make it unlikely that there will be an infringement of GATT/WTO rules. As a result, some of these products have managed to secure a large market share, especially in Europe. In the producer nations as well, there are reports of certain achievements in such areas as income, quality of life and environmental conservation. The remaining issues include low levels of participation among developing nation producers, costs to producers due to unified labeling standards, limited confidence in the labeling system, drops in quality due to expanded sale routes and distribution volume, and limits on consumer information awareness and interest. The greatest possibility for “fair trade” lies in maximizing the use of market mechanisms. But even if it is a “supplement” to ordinary trade and existing regulatory measures, it may not become a “substitute.” Though under the current economic system marked by globalization and an increasing

emphasis on the role of markets, this experiment can provide more flexibility and a broader scope of applicability than the setting of individual regulations by specific countries or rules within international institutions.

Globalization and the Future of Work

Yuko Ogasawara

This paper examines how globalization will affect the future of work. It is argued that the advancement of information technology and acceleration of global economic activities give rise to new forms of employment variously called free agency, e-lancing, and boundaryless career. The new arrangements give some workers unprecedented flexibility and freedom in designing their work and life, but the majority of non-standard employees suffer from unstable employment, low wages, and lack of social security. Such bipolarization of the work force calls for policies that provide flexibility without compromising security.

Globalization and Japanese Investment in the Czech Republic

Shuichi Ikemoto

This paper discusses the role of Japanese FDI in the Czech Republic within the context of globalization. Since 2000, with the Czech Republic's introduction of the investment incentive policy and accession to the EU, an interest in Central European Countries has been triggered among Japanese investors. The case of Japanese Excellent car company, Toyota's investment in the Czech Republic and taking a lot of its affiliate companies is one notable example. This paper focuses on the impact of Toyota's investment in the Czech Republic.

The paper consists largely of two parts. The first section focuses on the economic policy of the Czech Republic from the perspective of corporate restructuring and outlines features of the Czech manufacturing industry. Also discussed is the important role of foreign controlled enterprises in the Czech economy. This section compares the stances towards corporate restructuring of the Klaus cabinet and cabinet of the Social Democrats. The second section discusses FDI in regards to Japanese automobile investors in the Czech Republic and the implications of this investment. Among other things, the potential for the adaptation of Japanese management systems (such as the "Toyota Way") in the Czech Republic and in other Slavic countries is considered.

A Comparative Analysis of the Effects of Foreign Exchange Intervention in the late 1980s and 1990s: Reported Intervention and Oral Intervention

Yasuyuki Komaki
Yosuke Takeda

This paper analyses whether actual intervention and oral intervention in foreign exchange markets were effective in the late 1980s. In Japan, official data on intervention operations are only available from 1990, so where official data falls silent, we use the reports of interventions in the financial press. We collect the reports of actual intervention that we call ‘reported intervention’ and ‘oral intervention’. Previous studies indicate that reported interventions are relatively inaccurate. But official data may not be enough to derive an accurate picture either, since it does not indicate the form of intervention, or the markets, and time of implementation.

Newspapers, meanwhile, may be less accurate in terms of reporting on actual interventions, but even when the reports are false, information on intervention can impact on market pricing nevertheless. This paper examines the effect of intervention information on pricing in the foreign exchange market using an event-study approach. The impact of intervention information in the late-1980s was as follows:

(1) The effects of reported intervention were significant, but oral interventions were more significant and sustainable.

(2) In the Tokyo market, reported intervention was significant in case of the US dollar (bought), the Japanese yen (sold). Intervention, after the Plaza Accord, had significant effects in the markets of other countries.

(3) The effects of oral intervention were significant and highly sustainable in the New York market. As for the source of that oral intervention, remarks from government authorities exerted a stronger impact on the currency exchange market than did those from central banks.

Despite the large volume of information on actual and oral interventions reported in the Tokyo market, the effects of communication in the foreign exchange market was not effective in influencing exchange rate, because of the policy inconsistency between different countries.