



NORTH-HOLLAND

Journal of Policy Modeling
24 (2002) 561–590

*Journal of
Policy
Modeling*

FUGI global modeling system (FGMS200) Integrated global model for sustainable development

Akira Onishi*

*Center for Global Modeling, FOST (Foundation for Fusion of Science and Technology),
1-4-24 Hiyoshi-honcho, Yokohama 223-0062, Japan*

Received 1 June 2001; received in revised form 1 December 2001; accepted 1 March 2002

Abstract

The FUGI global model has been developed as a media of providing global information to the human society and finding out possibilities of policy coordination among countries in order to achieve sustainable development of the world economy under the constraints of changing global environment. The FUGI global model 9.0 M200 classifies the world into 200 countries/regions where each national/regional model is globally interdependent through international trade, export/import prices, financial flows, ODA, private foreign direct investment, exchange rates, stock market prices, and policy information, etc. The purpose of this article is twofold; the one is to introduce the outline of the FUGI global model 9.0 M200PC which might be expected to open a new frontier of economic science in the 21st century and the other is to make the baseline projections of the world economy during the period 2001–2010 as well as some policy scenario simulations using the FUGI global modeling system (FGMS). This modeling system is officially used by the United Nations Conference on Trade and Development (UNCTAD) for the projections of the world economy and policy scenario simulations since 2000. The latest software of FGMS (*FGMS200*) for the Windows 98/2000/xp is also available.

© 2002 Society for Policy Modeling. Published by Elsevier Science Inc. All rights reserved.

Keywords: FUGI global model 9.0 M200PC; FUGI global modeling system (FGMS200); Integrated global model for sustainable development

* Tel.: +81-45-562-5432; fax: +81-45-562-6132.

E-mail address: onishi@cgmfost.org (A. Onishi).

0161-8938/02/\$ – see front matter © 2002 Society for Policy Modeling.

PII: S0161-8938(02)00127-8

1. Introduction

In the 21st century it is expected that integrated progress of science, technology, and new economic development will be seen in the human society where a globally interdependent complex system is. The information technology innovation will give tremendous impacts on human life, culture, and economic development. Historically speaking, human behaviors under the global cultural changes imposed by the increasingly interdependent global human society are a rather new experience and challenge for the human society.

Under these circumstances, the *Futures of Global Interdependence (FUGI)* global model seems likely to play a significant role in efforts to envisage the future of global interdependence and to provide global information on the economic development and environmental changes under alternative policy scenarios for the sustainable development.

Project FUGI was started in 1976 with the cooperation of three Japanese institutions, namely, the University of Tokyo, Osaka University, and Soka University, under the sponsorship of the National Institute for Research Advancement in Tokyo. The original FUGI model consisted of three parts: a Global Input–Output Model (GIOM), a Global Resources Model (GRM), and a Global Economic Model (GEM), Types I, M15. Yoichi Kaya (Faculty of Engineering, University of Tokyo, Yutaka Suzuki, Faculty of Engineering, Osaka University) and the author coordinated the designing of these models, respectively (Onishi, 1977). Work in progress was reported at the IIASA global modeling symposium in 1977 and the years following (Onishi, 1980). The first generation FUGI global economic model (Type I, M15) designed by the author was the development of the Multi-Nation Economic Model which was originally designed by the author in 1965 and applied the 15 countries in Asia for the purpose of projections of the Asian economy (Onishi, 1965). Drawing on experiences with global modeling in the 1970s, the author developed a fourth-generation FUGI global economic model (Type IV, M62) that divided the world into 62 countries/regions and consisted of approximately 30,000 equations. It was first made public at a seminar on comparative simulations of global economic models held at Stanford University, June 25–26, 1981 (Onishi, 1981). The United Nations Secretariat, Department of International Economic and Social Affairs, Projections and Perspective Studies Branch for the purpose of long-term projections and policy simulations of the world economy soon afterward adopted this model for use. It was used from 1981 to 1991, when it was replaced by the new generation FUGI global model, Type VII, M80.

For the period 1985–1986, a new generation of the FUGI global model was designed as a *global early warning system for displaced persons* (Onishi, 1986a, 1986b, 1986c, 1986d, 1987, 1990). During the period 1990–1995, the FUGI model 7.0 M80 was designed as an integrated global model for sustainable development (Onishi, 1993, 1994a, 1994b, 1995a, 1995b).

During the period 1991–1999, the author designed a significant new software system for global modeling. This expert software system, named as FUGI Global

متن کامل مقاله

دریافت فوری ←

ISIArticles

مرجع مقالات تخصصی ایران

- ✓ امکان دانلود نسخه تمام متن مقالات انگلیسی
- ✓ امکان دانلود نسخه ترجمه شده مقالات
- ✓ پذیرش سفارش ترجمه تخصصی
- ✓ امکان جستجو در آرشیو جامعی از صدها موضوع و هزاران مقاله
- ✓ امکان دانلود رایگان ۲ صفحه اول هر مقاله
- ✓ امکان پرداخت اینترنتی با کلیه کارت های عضو شتاب
- ✓ دانلود فوری مقاله پس از پرداخت آنلاین
- ✓ پشتیبانی کامل خرید با بهره مندی از سیستم هوشمند رهگیری سفارشات