1. Introduction

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At the beginning of the twenty-first century the world economy is experiencing a very rapid pace of change, particularly change associated with the integration of national markets into a global economy. Change offers the potential for substantial growth and development across both rich and poor countries, but it also poses challenges in the form of volatility, as witnessed by the Asian economic crisis of 1997, and widening inequality, as has been emerging both within and across countries.

A difficulty with analysing these opportunities and challenges is that the concerns raised do not fit conveniently within a single sub-discipline of economics. International economics deals with the linkages between national economies, the trade branch focusing on the pattern (size and composition) of flows of products and productive resources across countries and the finance branch focusing on the mechanisms for balancing these flows through exchange rates, relative interest rates and international financial organizations. However, much of the analysis in international economics is based on static equilibrium and fails to deal directly with the process of change that is commonly emphasized in globalization discussions.

The economics of growth is more directly concerned with the process of change, but its focus is on growth within a national economy. International linkages affect growth only indirectly through accumulation of productive inputs, transfer of technology or competition that encourages efficiency by domestic producers. In international comparative studies there is evidence that some of these indirect linkages are important. However, the mechanism by which growth is achieved is generally not directly examined. Also, while the focus is on growth, there is no direct consideration of the developmental impact of growth in terms of changes in the structure of production, changes in the skill mix of the labour force, and so on. This restricts understanding of the evolving character of the economic system.

The contributions in this volume draw on analysis and empirical results not only from international economics and the economics of growth, but also from evolutionary economics (for example, the role of entrepreneurship in technical progress), development economics (for example, the impact of the declining international terms of trade for commodity producers), public economics (for example, tax and spending competition within an economic union), industrial organization (for example, the use of the threat of antidumping actions as a deterrent to price cutting by foreign rivals), macroeconomics (for example, the role of the balance of payments as a constraint on expansionary monetary or fiscal policy), and so forth. Each contribution is written by a specialist and reflects the particular approach that characterizes a sub-discipline of economics. Taken separately, each contribution deals with some aspect of the process of economic change; explores implications for the functioning of domestic markets in a rapidly changing global economy; investigates the determinants of national economic growth within this global context, or considers how national governments and international organizations can best achieve growth and development without instability and widening inequality. However, there has been an exchange of ideas among the authors, which is reflected in links between the papers as well as the openness of the authors to ideas outside their own sub-discipline. As a group the contributions are meant to provide a starting point to building linkages for a more coherent analysis of growth and development in the global economy.

THE PROCESS OF CHANGE

In economic theorizing change is generally treated as externally generated, so that the process leading to change is not explicitly analysed. Stan Metcalfe (Chapter 2) argues against this treatment. Instead, he suggests that change is a fundamental and integral characteristic of economic life under capitalism. Indeed, he attributes the success of capitalism as an economic system to its ability to foster change and then deal with its impact in an efficient, adaptive and progressive manner.

Metcalfe notes that incorporating the process of change into the analysis of growth and development has substantial implications for the conduct of the analysis. In particular, he notes that growth and development through innovation imply structural transformation, a distinctly non-equilibrium process, invalidating the reliance placed in mainstream economics on equilibrium analysis. Metcalfe also criticizes the analytical use of the representative firm and the modelling of economic growth at an aggregate level, as these treatments are inconsistent with the central role of structural transformation. Instead, Metcalfe argues for an analysis based on the perspective of evolutionary economics, emphasizing the role of heterogeneity among firms and industries in the structural transformation of the economy.

Analysing change from an evolutionary perspective, Metcalfe raises the question of how the capitalist system sustains order and stability in the presence of innovation and structural transformation. In particular, the observation that growth with structural transformation is uneven suggests a need to carefully consider the impact of innovation on growth and development. This is done in several of the other contributions to this volume. For example, Sam Tang (Chapter 8) considers this question in his study of the relationship between technical progress and the volatility of economic growth. Also, David Sapsford and V.N. Balasubramanyam (Chapter 9) examine the impact on developing economies that is due to relative price changes associated with structural transformation, estimating the trend and volatility in the national terms of trade across samples of developing countries.

A second question that emerges from Metcalfe's evolutionary analysis is that of what role institutions play in knowledge accumulation. Metcalfe notes the complexities of the relationship between personal information and social understanding, emphasizing that information needs to have a social context to become knowledge. Oliver Morrissey and Doug Nelson (Chapter 14) give a particular application of this in their study of the role of the World Trade Organization (WTO) in transmitting knowledge about the impact of trade and competition policies to developing countries.

Information generally plays a central role in the analysis of innovation and change. This has been particularly true in recent years, with developments in information and communications technology (ICT) generating much of the structural transformation of the global economy. Don Lamberton (Chapter 3) provides an overview of key issues in the economics of information that are impacting on the global economy at the start of the twenty-first century.

Lamberton revisits the arguments introduced by Kenneth Arrow concerning the need for property rights in information if there is to be adequate incentive for information production by private enterprise. In particular, Lamberton notes the nature of information as a structured quantity, whose usefulness in the production process depends on the possession of related information. The complementary nature of elements of the information base suggests that neither exclusive property rights nor secrecy is an optimal policy towards the supply of information.

Lamberton also argues for considering the demand for information. This leads to emphasis on the social aspects of information use, particularly issues of coordination and control, as well as raising issues of unequal access. Finally, Lamberton discusses the design of policy for hi-tech industries, drawing on information-theoretic analysis.

PRODUCTION, PRICING AND WAGES IN DOMESTIC MARKETS

The functioning of markets alters with the process of change arising from innovation, structural transformation and the integration of national economies. These changes are largely ignored in traditional trade theory, which examines static equilibrium outcomes based on assumptions of fixed technology and consumer preferences as well as given endowments of productive resources, perfect competition and homogenous products. The contributions in this part of the volume do not employ these assumptions. Instead, each allows for at least some type of technological change, imperfect competition or heterogeneity in either products or production processes, while undertaking an empirical examination of an aspect of the operation of domestic markets in the context of a global economy.

Traditional international trade theory explains the pattern of specialization of production across countries as resulting from differences in either the endowment of productive resources or preferences of consumers. Yet, modern industrialized economies tend to have very similar patterns of productive resources and consumer preferences. This suggests the need for alternative explanations of the pattern of specialization.

Jeffrey Cohen and Cathy Morrison Paul (Chapter 4) examine economies of agglomeration as a technological influence on the geographic pattern of specialization in production. They estimate production functions for countries within the European Union to determine the importance of spillover effects. Spillover effects are found to occur with relation to other producers in the same industry within a country. They then evaluate the implications for the geographic concentration of production as barriers between the markets of member countries are reduced during the process of integration into a single market.

Prices for identical products tend to equalize across countries with integration of national markets following the reduction in trade barriers and improvement in communications technology. However, the geographic specialization of production of particular types of goods, such as that due to economies of agglomeration, reduces the similarity of the products across national economies. Thus, divergent forces work on the degree to which product prices move together or separately across countries.

Harry Bloch and Michael Olive (Chapter 5) estimate the degree to which domestic prices in major industrialized countries are determined by prices of foreign competing products as compared to domestic influences, such as production costs and the strength of domestic demand. They estimate pricing equations for each of 24 separate manufacturing industries in the US, UK, Germany and Japan over the period 1970–1991. Domestic production costs are invariably found to be the dominant influence on domestic prices, as the elasticity of domestic price with respect to cost is estimated to average from about 0.7 in Germany to 1.0 in Japan. Some positive influence is found for both foreign competing prices and the strength of domestic demand in many country/industry pairs, but the magnitude of impact is generally small.

While the influence of foreign competing prices is generally small, Bloch and Olive find that this influence increases substantially in industries more exposed to imports. Further, there is a corresponding decrease in the influence of domestic production costs in these industries. Thus, there is evidence that openness, in the form of a large share for imports in the domestic market, alters the balance between domestic and foreign influences on pricing. In this sense, pricing becomes more interdependent in the global economy, as long as intra-industry trade does not diminish with the geographic concentration of production.

The strong influence of domestic production costs on domestic prices means that domestic cost influences play a key role in the determination of the competitive position of a domestic industry vis-à-vis foreign competitors. John-ren Chen and Herbert Stocker (Chapter 6) examine movements in labour costs in Taiwanese manufacturing following trade liberalization over the period since 1968. They find that wage rate movements have been similar across industries, although there is evidence of a positive impact of liberalization on wage levels overall. They also find substantial differences in the movement of labour productivity across industries. Thus, unit labour cost movements have differed substantially across industries, with consequent impact on the relative growth of output and employment across industries (with the output growth rate negatively related to the growth in unit labour cost). Chen and Stocker attribute the differences in labour productivity growth across industries, at least in part, to a technological progress effect of liberalization, suggesting that liberalization has had a dynamic influence leading to the structural transformation of Taiwanese manufacturing in addition to the more traditional Samuelson-Stolper effect associated with wage changes.

DETERMINANTS OF ECONOMIC GROWTH AND VOLATILITY

A major concern is that globalization has made the process of growth in national economies more volatile, increasing vulnerability to external shocks. This is true for advanced industrial economies that increasingly rely on trade as an outlet for their manufactured goods and source of manufacturing inputs, as well as for those developing countries that still rely on primary product exports and manufactured goods imports. The contributions in this part of the volume empirically examine various factors that impact on the rate of production growth and its volatility across a broad cross-section of countries.

Financial markets have been the focus of many discussions of the perils of globalization. This focus has been encouraged by the Asian economic crisis in the late 1990s and the periodic crises in Latin America and transitional economies of Eastern Europe. A particular concern is that domestic economic stability is increasingly subject to external shocks transmitted through international financial markets.

Angela Black, Pat Fraser and Garry MacDonald (Chapter 7) address this concern by examining the link between stock market movements and the growth of gross domestic product (GDP) in Britain over the very long period, 1830 to 1991. In particular, they regress the annual rate of change in GDP against lagged changes in stock market prices. They find evidence of a direct relationship, which is stronger for stock market upswings than downturns. Further, the strength of the positive impact of stock market booms on subsequent economic activity is found to have increased in the post-World Wide Two period. Thus, there is evidence that financial markets do impact on production and employment, with the impact strengthening in the period of globalization since WW2. However, the weaker influence of stock market busts than stock market booms provides some comfort against the prediction of dire consequences for the real economy from crises in financial markets.

Technological progress is emphasized as a necessary ingredient for sustainable economic growth in modern growth theory. A major portion of the growth of the advanced industrialized countries is shown to come from technical advance rather than accumulation of productive resources. Yet some developing countries, such as Singapore and Korea, have been able to grow at very rapid rates, even though there is little evidence that improved technology has contributed to their growth. Taking the full range of industrialized and developing countries, there is wide variation in the relative importance of indigenous technological progress as a driver of economic growth.

In spite of the large number of cross-country empirical studies of the determinants of economic growth, an issue that remains relatively unexplored is whether the growth process is more or less stable when technological progress accounts for a larger portion of overall growth. Sam Tang (Chapter 8) examines this relationship. He estimates regression equations with the standard deviation of growth in GDP per worker as the dependent variable and the share of growth due to technological progress as an independent variable, using data over recent decades for several different samples of countries and for several alternative measures of technological progress. In each regression, a negative statistically significant relationship is found, providing clear evidence that growth based on technological progress is conducive to economic stability.

Volatility is also a major concern in the study by David Sapsford and V.N. Balasubramanyam (Chapter 9). However, their concern is with volatility in the international terms of trade rather than volatility in output. In particular, they examine both the degree of volatility and the trend in the terms of trade faced by the world's poorest countries over the period since 1960.

These poor countries generally rely on a small number of primary commodities for the bulk of their export earnings. Prices for many of these commodities are subject to violent fluctuations, leading to volatility in the terms of trade for exporters. Further, their prices have tended to decline relative to the price of the manufactured goods that the poor countries import, so there is generally a downward trend for their terms of trade. Sapsford and Balasubramanyam find such a downward trend for most of the poor countries in their sample. Further, where there is evidence of a shift in the trend rate of growth, the shift is toward a worsening in that rate in over two thirds of the countries. Finally, the worsening in trend is accompanied by an increase in volatility in over half the countries where a worsening occurs. Thus, there is every indication that the position of the poor countries in the structure of international trade is deleterious to their development.

A final question examined by Balasubramanyam and Sapsford is whether there is a link between the impact of the financial crises of the 1990s on the late industrializing countries (LICs) and the deteriorating terms of trade for the poorest countries. Did the financial crises induce increased exports of primary commodities from the LICs, further depressing the prices of these commodities for both the LICs and the poorest countries? Here, they can only provide anecdotal evidence, as there is no set of well-defined supply functions for primary commodities from the LICs. However, at least some of the available evidence shows positive supply responses from the LICs, which suggests that the poorest countries have suffered indirectly from financial instability in the global economy.

POLICY MAKING IN THE GLOBAL ECONOMY

A key issue in discussions of globalization is the role of national governments versus international organizations. One extreme view is that globalization of markets so restricts the ability of national governments to conduct independent economic policy that international organizations must be relied upon to achieve any social objectives not automatically provided by unregulated world markets. This then raises the question of whether international organizations can be expected to respond to the interests of member states, much less to the interests of the citizens of those states.

Peter Kriesler and John Nevile (Chapter 10) consider the constraints imposed by globalization on the ability of national governments to conduct monetary and fiscal policy aimed at achieving economic stability. They build on the analyses of John Maynard Keynes and Michal Kalecki to establish a bias towards stagnation in the global economy, which results from the asymmetry of adjustment to balance of trade surpluses versus deficits. Deficit countries are pushed toward a policy of contraction to adjust their external payments, whereas surplus countries are not under any corresponding pressure to adopt expansionary policies.

Kriesler and Nevile then consider the implications of the integration of financial markets for the efficacy of monetary and fiscal policies. The pressure towards interest rate parity is identified as a substantial constraint on the exercise of independent monetary policy. As for fiscal policy, the constraints of financial integration are more indirect. Fiscal discipline is cited as a key requirement for avoiding the displeasure of financial markets, with the ultimate penalty of a currency crisis. However, many examples of countries with large government sectors or sustained balance of payments deficits are noted, suggesting there is considerable scope for activist fiscal policy. Kriesler and Nevile conclude that ‘a change in the “international financial architecture” is required to reduce the risk of worldwide increased unemployment’. Here, a clear role is indicated for international organizations in providing coordinated stimulus to overcome the bias toward stagnation in the global economy.

Jeffrey Petchey and Perry Shapiro (Chapter 11) also examine implications of globalization for fiscal policy. However, their focus is on the concept of ‘fiscal competition’ among countries. In particular, they ask whether the tax and spending policies of national governments are influenced by the ease of migration of productive resources across economies. They derive general conditions for the existence of an equilibrium outcome in this ‘fiscal competition’ and then consider the efficiency implications both for the provision of public goods and for rates of taxation and subsidy. In general, they find that inefficiency can be expected for both spending and taxation.

In general, sub-optimal outcomes associated with competition can be avoided by coordinating decision making through collusion or merger. In the case of political entities, this is achieved through intergovernmental cooperation or political unions, respectively. Decision makers at the higher level achieve optimal outcomes by taking account of the spillovers in impacts of actions across component jurisdictions. However, there is a cost in terms of removing the decision makers further from the individuals whose interests they are representing. Thus, there is generally a tension that develops over the degree of centralization in decision making.

We have limited experience with coordination of taxation and spending policies across nations through supra-national economic institutions. The issue is clearly recognized in the context of the European Union, as noted by Petchey and Shapiro, but there is not yet a sufficient history to allow statistical analysis. However, we can gain some guidance from studying the fiscal relations between national governments and their constituent state, provincial, regional or local units. This is the approach taken by Harry Campbell (Chapter 12).

Campbell notes that variation in tastes across groups within a country provides a *prima facie* case for decentralization of spending decisions to more effectively reflect local preferences and thereby provide a more efficient provision of public goods. Against this is the need for greater centralization in nations with more diverse populations in order to hold the nation together politically. He then examines the statistical relation between an index of fiscal decentralization and an index of cultural diversity for a sample of OECD countries, including additional economic and political control variables that might affect the degree of fiscal decentralization.

Campbell finds a negative relationship between fiscal decentralization and cultural diversity, which is robust to changes in the measure of cultural diversity and to changes in the set of additional control variables. The implication is that the requirements for political control or cohesion are more powerful than the pursuit of economic efficiency. This is a worrying finding for those who see supra-national institutions as a mechanism for avoiding the inefficiencies that Petchey and Shapiro associate with fiscal competition among nations. However, the finding is perhaps encouraging for those who see a role for supra-national institutions in the pursuit of global objectives, such as the avoidance of a bias toward stagnation identified by Kriesler and Nevile

In Chapter 13 Melinda Acutt and Caroline Elliott switch attention to the analysis of policy implementation. In particular, they consider the use of threat-based regulation to modify behaviour in compliance with a policy objective. The key distinctions characterizing threat-based regulation are that its application is uncertain and that the amount of sanction imposed is endogenously determined (responding to some observed aspect of the behaviour of the regulated entity). The contrast is a sanction that is predetermined in amount and certain in its imposition.

Acutt and Elliott analyse the implementation of threat-based regulation using the example of a policy that seeks to reduce the price charged by a monopolist. They show that the monopolist's price is set below the unregulated monopoly level provided that the fine threatened by regulator is such that either the probability of imposition or the amount of the fine increases with the level of price set by the monopolist. They contrast this outcome with that in which the unregulated monopoly price is set when the monopolist is faced with a fine that is certain in its imposition and fixed in amount (as in the case of a license fee charged for the right to operate as a monopolist).

To illustrate the functioning of threat-based regulation, Acutt and Elliott consider the examples of penalties imposed under competition policy and anti-dumping rules, both of which are also examples used by Morrissey and Nelson (Chapter 14). In each example, there is some uncertainty about the imposition of a sanction and some scope for altering the size of the sanction with the perceived magnitude of the infraction. Thus, it is concluded that in both cases it is possible to achieve policy objectives through threats rather than sanctions that are certain in their imposition and predetermined in their amount. Acutt and Elliott argue that there is a wide variety of circumstances in which threat-based regulation can be a superior mechanism to achieving policy objectives. Notably in keeping with the general theme of this volume, these circumstances include structural transformations that lead to changes in either production costs or the extent of market competition.

Oliver Morrissey and Doug Nelson (Chapter 14) consider a different role for regulatory institutions, namely the role of transmitters of knowledge about policy impacts. In this contribution each national government is treated as having a set of prior beliefs about the impact of their policy actions. These prior beliefs are modified in response to information provided, leading to learning about the true impacts of the policies (or unlearning of incorrect ideas of the type noted by Don Lamberton in Chapter 3). Morrissey and Nelson note that when national governments learn from the observed outcomes of the policies of similar government, there is a tendency toward herding (the universal adoption of a particular policy), without guaranteeing that the chosen policy is optimal. A supra-national institution may encourage an outcome with herding on the optimal policy.

The particular context of policy learning examined by Morrissey and Nelson is the influence of the WTO on the policies of less developed countries concerning trade and competition. Here, the WTO could collect and disseminate information on the outcomes (good or bad) following policy actions by WTO members, thereby expanding the information set on which prior beliefs of each member are based. The WTO could also influence the choice of strategy for any particular set of priors by offering rewards (improved prospects of being granted membership) or insurance (assistance in the event of a bad outcome from the recommended policy).

Morrissey and Nelson suggest that the impact of the WTO as a transmitter of policy knowledge can be for good or ill, illustrating their point with two examples. In the case of anti-dumping policy, they argue that the actions of the WTO in condoning the widespread use of anti-dumping rules to protect domestic producers from foreign competition have encouraged herding on a bad policy option. In contrast, they suggest there are more encouraging signs for the influence of the WTO on the adoption of investment liberalization policy, adding a cautionary note that there is no guarantee that the policy option of unrestricted foreign investment is the optimal policy.

CONCLUDING OBSERVATIONS

A recurrent theme in this volume is that globalization is a process of change. It is argued that, as a result, evolutionary analysis is appropriate to understanding globalization rather than relying on an equilibrium approach (Metcalfe, Chapter 2). Further, this means that learning (and unlearning) is critical to participation and success in the global economy (Lamberton, Chapter 3), including learning in policy making through international organizations, such as the WTO (Morrissey and Nelson, Chapter 14). Even basic mechanisms of the economy are subject to change, including the degree to which equity market movements provide information on future changes in economic growth (Black *et al*., Chapter 7).

Technical change is a key aspect of the process of change in the modern global economy. Links between globalization and technical change are identified in terms of the effect of economic integration in the EU on technical progress through spatial spillovers (Cohen and Paul, Chapter 4), and in terms of the effect of trade liberalization on growth in labour productivity in Taiwanese manufacturing (Chen and Stocker, Chapter 6). Technical change can also introduce shocks to economic growth, but it is found that there is in fact less volatility of economic growth in economies in which technical progress accounts for a greater proportion of economic growth (Tang, Chapter 8).

In any process of change there can be losers as well as winners, making the concept of progress problematic (Metcalfe, Chapter 2). With globalization some industries prosper while others decline, as is shown for manufacturing industries in Taiwan following trade liberalization in the 1980s (Chen and Stocker, Chapter 6). Further, the terms of international trade for a country can move adversely, as has been the case for most of the seriously poor countries that depend on primary commodity exports (Sapsford and Balasubramanyam, Chapter 9).

A common complaint against globalization is that nations are deprived of their economic sovereignty. Tax and spending policies may be constrained by their impact on the international migration of factors of production (Shapiro and Petchey, Chapter 11). Monetary and fiscal policies may also be constrained by the prospect of capital flight, particularly in countries running current account deficits (Kriesler and Nevile, Chapter 10). However, governments can apply lessons learned from the domestic economy to dealing with globalization, as indicated by applying the analysis of the use of threat as a means of regulating behaviour to anti-dumping actions as well as domestic competition policy (Acutt and Elliott, Chapter 13).

While the impact of globalization is ubiquitous, it is useful to end on a cautionary note. First, the global economy is far from fully integrated, as is shown by the modest impact of competing imports on prices of domestic manufactures in the major OECD countries (Bloch and Olive, Chapter 5). Second, economic and political behaviour interact in ways that might ameliorate impacts of globalization, as is suggested by the negative relationship found between cultural diversity and fiscal decentralization (Campbell, Chapter 12). Finally, the analysis of a global economy is not wholly different from that of a national economy. In particular, change is a fundamental characteristic of capitalism on a national scale as well as on a global scale.