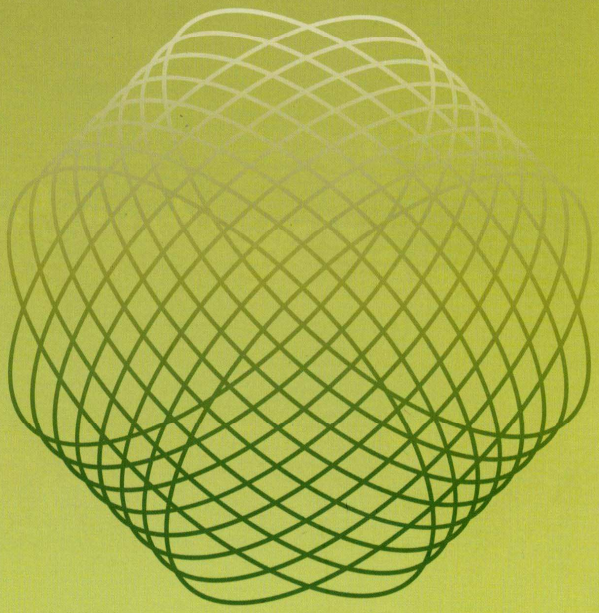
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INTERNATIONAL CONFERENCE ON GLOBALIZATION AND ITS DISCONTENTS

İzmir University of Economics and SUNY Cortland



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2007





International Conference on Globalization and Its Discontents

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The Challenge for Global Women Poverty: Microfinance (or Microcredit) as a Solution for Women Poverty in Turkey

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Poverty is increasing around the world while the world appears to globalize. Even the wealthiest nation has the largest gap between rich and poor compared to other developed nations. In many cases, international politics and various interests have led to a diversion of available resources from domestic needs to western markets.

The fight against poverty is interest in as a social goal and many governments have some dedicated institutions or departments. In general, the government can directly help those in need. However, another method in helping to fight poverty is to use microfinance system. Microfinance tries to fight global poverty and bring opportunities to the world's poorest people. Of course, microfinance approach does not offer sufficient solutions reduce to poverty. Otherwise, with tiny loans and financial services, it helps the poor, mostly women, start businesses and escape poverty. Micro-finance programs targeting women have become a major plank of donor poverty alleviation strategies in the 1990s and funding is set to further increase into the next century under governments, Non-Governmental Organizations (NGO's), some initiatives and donor agencies activities. This study focuses on some solutions for global poverty problem such as mikrofinance approach. In addition, it examines Turkish conditions the aspect of microfinance practices.

Introduction

Economic globalization is exerting more power throughout a few corporations and international financial agencies, and greatly responsible for the women poverty. When women work outside, generally they earn, on average, far less than men do. They are also more likely to work in more unsafe forms of employment in terms of work guarantee, with low wages, little financial security and few or no social benefits. Women not only earn less than men earn but also tend to own fewer assets. Smaller wages and less control over household income constrain their ability to articulate. Gender biases in property and inheritance laws and in other channels of acquiring assets also leave women and children at greater risk of poverty. Finally, the "feminization of poverty" is a phenomenon that is unfortunately rising. Women are increasingly the ones who suffer most from the poverty. In other words, today, women undertake most of jobs with low returns, and this working condition still prevails.

Yet women often have little perception on market economy and entrepreneurship. It is very difficult for these to get the financial resources required to buy equipment etc, since many societies still do not accept, or at least realize, that there is a change in the "traditional" roles of men and women. In such a condition of social myopia, the main task to ease entrepreneurship for women should been undertaken by governments, and microcredit or microfinance that might be initiated by governments and continued by for example commercial banks and some NGO's on women, can be used as a tool on this aim. Microfinance is a term for the practice of providing financial services, such as microcredit, microsavings or microinsurance to poor people. Microfinance allows poor people to protect, diversify, and increase their sources of income, the essential path out of poverty and hunger. The ability to borrow a small amount of money takes advantage of a business opportunity. Loans, savings, and insurance help smooth out income fluctuations and maintain consumption levels even during lean periods. Various studies both quantitative and qualitative document increases in income and assets and decreases in vulnerability of microfinance clients. Microfinance programs generally target women as clients. The aim of this endeavor is to make women access financial services. Appropriate program design can have a strong, positive effect on women's empowerment, by giving women more chance about owning more assets, giving a more active role in family decisions, and increasing investment fort he future of family well-being.

The Women's Empowerment Program in Turkey started strongly after 2000's. In Turkey, it may include urging a woman to work producing or selling some products at her entrepreneur. In general microcredit should help poorest especially women that it tends to reduce economic dependency on her husbands, family and society and thus help enhance self-confidence. This study focuses on some solutions for global poverty problem such as microfinance approach. Also it examines Turkish conditions the aspect of poverty and microfinance practices in nowadays.

Global Women Poverty Problem and Challenge for Poverty with Microfinance System

Poverty is for many categories of poor not simply an economic phenomenon; it is also a social, cultural and psychological phenomenon. Poverty alleviation can be seen not only as increasing the income and assets of households or individuals, but also as enabling or empowering individuals to get themselves out of poverty. When the definition of poverty

alleviation involves including social dimensions, there are profound implications for the design of microfinance institutions and programs for poverty alleviation. It implies a social intermediation and even a confidence-building role for programs.

Global decisions, policies, and practices have influenced by the rich and powerful. These can be leaders of rich countries or other global actors such as multinational corporations, institutions, and influential people. In these new condition, the governments of poor nations and their people are often powerless and unsafely. Poverty is increasing around the world while the world appears to globalize. It is generally accepted that globalization the cause and increase poverty and especially women's poverty. Women constitute the majority of people living in poverty conditions like children and adults.

The international community understands that it is not possible to reduce poverty and reach these goals through donor funds alone. Capital formation within the developing world is also considered necessary therefore; microfinance plays an important role within this process. United Nations declared 2005 as the year of "microcredit". Microfinance is considered an important tool in achieving the Millennium Development Goals of solving (or reduce) poverty in the world by the year 2015. Still, reduced poverty will not be possible through the channeling of external resources alone. A process of capital formation within development countries is considered necessary if the Millennium Goals are to be reached.

Many factors influence the objectives of microfinance (Liljefrost, 2005: 14): ideas of how financial services can be utilized for the sake of poverty reduction, and who should be targeted by microfinance services. Some of these factors are general theories of economic growth and development, referred to in the process of creating poverty reduction strategies. Considering the landscape of microfinance, a variety of actors is involved. There are donors who provide funds, as well as organizations supported by voluntary work and funding. At the local level, there are microfinance providers of different kinds and backgrounds, targeting individuals through a variety of concepts, reaching out to the vulnerable but still economically active poor (ibid).

Microfinance programs generally target women as clients. The aim of this endeavor is to make women access financial services. Appropriate program design can have a strong, positive effect on women's empowerment, by giving women more chance about owning more assets, giving a more active role in family decisions, and increasing investment fort he future of family well-being. Microfinance as an entry point for women is economic, social and political empowerment. It is presently promoted as an almost magic solution for women poverty. Innovative institutions and programs in Asia and Latin America, some operating as long as 40 years, have demonstrated that providing credit and savings services to the poor can be a powerful and efficient tool for poverty alleviation. The poverty alleviation paradigm underlies many NGO integrated poverty-targeted community development programs. Models of microfinance promoted since the mid-1990s by most

donor agencies and the Best Practice guidelines promoted in publications by USAID[1], World Bank, UNDP[2] and many independent researchers.

Microfinance (Or Microcredit) Programs For Women

Microfinance, the practice of giving very small loans to poor people to help them start or expand their businesses, is very trendy in the development community these days. Microfinance programs for women are increasingly seen by development agencies as an effective poverty alleviation intervention, with a positive impact on economic growth and a number of social development indicators. Microfinance is provided financial services to the previously disserved group of low-income households that it refers to as the "microfinance revolution" (Swain & Liljefrost, 2005).

Microfinance is increasingly being touted as a miracle cure for poverty. If it is, why is not it more widespread, and how can it be extended? Although microfinance has been around in various forms for thousands of years, its modern incarnation is most closely tied to Mohammed Yunus, the Grameen Bank[3] founder. In his autobiography, he described how, as a professor in Bangladesh, he came to understand the importance of finance for the poor. Horrified by the consequences of a recent famine, he left the sheltered walls of the university to find out how the poor made a living (Rajan, 2006).

Microfinance has been proven effective in fighting poverty by providing entrepreneurs with the necessary capital to start and expand their entrepreneurial activities. Microfinance is also associated with a positive impact on social and human development (Sebstad, et al., 1996). For example, impact assessments have found positive changes in microenterprise output, assets, employment and income. In additional to these effects on the entrepreneurial activity of the poor, microfinance is being attributed with positive effects on issues such as household income, savings, children's education, health and nutrition, and women's empowerment.

The Swedish International Development Cooperation Agency (SIDA) contributes with a summary abstract of their microfinance guideline, produced in Kenya in October 2004(SIDA, 2004). They argue that as microfinance services become more sophisticated and microfinance markets more competitive, microfinance must be seen in a broader context – namely that of the financial system. In order to build an inclusive financial system, it comprises all financial institutions, markets and instruments, the legal and regulatory framework governing the functioning of financial markets, and the public authorities mandated to oversee compliance with regulation. The spectacular growth of the microfinance industry (MFI) has been fuelled not by market forces but by conscious actions of national governments, NGOs, and donors who view microfinance as an effective tool for alleviating poverty. Since much of the impetus behind this large and increasing

[1] USAID: The United States Agency for International Development is the U.S. government organization responsible for most non-military foreign aid.

[2] UNDP: United Nations Development Program that focuses on poverty, crisis, recovery, information and Communication Technology development, communication, energy, environment, HIV, AIDS, women, gender, equity etc.

[3] Grameen Bank of Bangladesh has emerged as a successful NGO credit program for rural poverty alleviation. It has inspired similar efforts not only in other developing countries, but also in the United States. Human Poverty Index has been introduced in the 1997 Human Development Report of UNDP.

support for microfinance hinges on the assumption that its economic and social impacts are significant, it needs to be examined more closely.

The Aims of Microfinance System

Microfinance system (or approach) has covered some aims for to challenge poverty especially women poverty problem in all over the world. It focuses on two main aims as follows:

- the aim to reduce poverty especially for women;
- Determine an individual's ability to make use of different financial solutions. Donors have to relate to a framework of political, economical and organizational structures making it necessary to make poverty measurable.

In this case we can ask a question such as "what is the aim of to choose poor women". More researchers and some central and local government officials and members of the some NGO's accept that the Microfinance system is especially beneficial for women, by

-leading to higher income that will help women to perform their reproductive role as brokers of the health, nutritional, and educational status of other household members,

-increasing women's employment in micro enterprises and in improving the productivity of women's income-generating activities, and

-enhancing their self-confidence and status within the family, they play as independent roles such as producers and providers of valuable cash resource to the household economy.

Microcredit should help poor women in three ways.

- First, by providing independent sources of income outside home, microcredit tends to reduce economic dependency of the women on husbands and thus help enhance autonomy.
- Second, the same independent sources of income together with their exposure to new sets of ideas, values and social support should make these women more assertive of their rights.
- Finally, micro credit programs - by providing control over material resources - should raise women's prestige and status in the eyes of husbands and thereby promote intersperse consultation.

Some Problems of Microfinance

Microfinance system has some problems and difficulties. One of them is to determine of level of poverty and of poor or poorest people in the part of society (urban and rural). Other difficulty is high interest rate level of microcredit. Moreover, it provides some changes between men and women relations. Finally, microfinance approach has some problem to understand clearly. It is meaning that more than credit for the small and micro entrepreneurship.

Microfinance: Designed for the poor or poorest?

We should start to critics to ask some main questions.

Is microfinance as practiced exclusively for the poor?

How many of the poor do they reach?

In addition, what kind of poor?

Some researchers (Kamal, 1998: 32) on microcredit programs claim that it cannot easily to reach the poorest people. This raises very serious questions about donor rhetoric and appraisal processes. It is very clear that the poorest women either exclude themselves from credit groups, because they know that they will never be able to meet weekly inflexible repayment rates at 10–15 per cent interest, or group members, for the same reason, exclude them. With 15 per cent of households headed by women in rural Bangladesh, and 25 per cent among the landless, it is remarkable that NGOs are not reporting on this aspect of group membership, and few donors are requiring this type of monitoring. Yet women-headed families are most likely to be among the very poorest in the community (ibid).

However, donors and implementing agencies need to improve the design and monitoring of microfinance programs to ensure that they support the empowerment of women significantly. More reflection and documentation needs on specific program strategies, which assist women to take greater control of decision-making and life choices. Microfinance must also been re-assessed in the light of evidence that the poorest families and the poorest women are not able to access credit.

High Income Rate of Microfinance

Microfinance clients cannot save if most of their business proceeds just go to high interest payments. Obviously, the only way for microfinance clients to grow out of credit dependency is to accumulate savings. If they have savings, they can use these as additional capital to expand their business, and in time, they will be able to graduate from the Microfinance program. However, their attitudes towards interest rates seem to depend on the context. According to the PUNLA/NCRFW (2004), interest rates become an issue in areas where access to credit is no longer a problem, where cheaper credit alternatives are available, and where the economic environment is such that borrowers cannot easily recover the cost of money from their actual or expected income.

There should be different loan packages designed to meet the needs of women from different socioeconomic groups. They should have interest-free loans, group loans, and loans at 5 per cent interest rates, and loans with long grace periods before repayments are due, with women graduating to market rates once they have received enough training and gained enough regular income to be able to repay (Ofreneo, 2006: 12). Donor agencies have a clear obligation to investigate the impact of microfinance on the poorest families, and implementers need to acknowledge that one microfinance package cannot possibly meet the needs of all rural poor(Hulme, 2000: 26-28).

Usually some researchers believe that low level of interest rate of microcredits caused increase in income. Than it caused increase in labour utilization, accumulation of physical and financial capital, build-up of human and social capital means more children in school.

Changes in Gender Relations

Gender awareness starts from recognizing that a project will always affect men and women differently. No intervention is neutral when the players do not start as equals. Even if the project proposes that it treats women equally, the ability of men and women to use and respond to the services offered will differ in practice. This difference in response may then reinforce existing differences and result in unintended (and usually un-monitored) negative consequences for women.

Table 1: The impact of an intervention can be thought of as follows:

	Expected	Unexpected
Positive	what is planned for and looked for in evaluation	"hoped for" - some may be identified in evaluation but are rarely systematically assessed
Negative	sometimes identified in log frames as constraints or obstacles but rarely evaluated	wish to minimize these, they may be identified but are rarely systematically assessed

Source: Johnson, S., (1997), "Report of a Workshop on Microfinance Schenes: Models fort he Empowerment of Women and Poverty Reduction Held by UNDP in Bangladesh", mimeo, ACTIONAID: http://staff.bath.ac.uk/hsssaj/gender.htm

It is often the case that a microfinance intervention is found to have some beneficial effects for women that were not envisaged. These "unexpected" but positive effects are applauded and then used to justify the intervention in gender terms. This still does not mean that the program has taken on gender concerns. Gender awareness is a way of working and needs to be systematically incorporated (ibid).

The matrix below combine constraints identified from a wide range of cultural contexts and would need to be systematically worked through for a specific cultural context. Once they have been identified, strategies to address them can be developed.

Table 2: Gender Based Obstacles in Microfinance and Microenterprise

	Individual	**Household**	**Wider community/ national context**
Financial	Women lack access to banks/financial services in own right	men's control over cash income men's expenditure patterns	perception of men as controllers of money/loans
Economic	women undertake activities which	gender division of labour unequal access and control of	women underpaid for equal work women locked in low

	produce low returns women have a heavy domestic work load	land, labour and inputs unequal control of joint household produce and income stream from this	paid jobs stereotypes of appropriate roles for women in the economy women lack access to markets for inputs and outputs if mobility constrained due to social norms
Social/cultural	women not literate or educated; girls education not prioritized	limited role for women in household decision making polygamy results in conflict/competition and discrimination between wives violence towards women	banks and financial institutions do not view women as a potential market women's mobility constrained by social norms
Political/Legal	women lack confidence to claim political/legal rights	women lack legal rights to jointly owned household assets	women's legal rights to household assets not defined in law or useful for collateral women lack political positions to establish appropriate laws women lack legal rights to land both traditional and formal

Source: Johnson, S, Gender and Microfinance Guidelines for Good Practice Centre for Development Studies, University of Bath, http://staff.bath.ac.uk/hsssaj/gender.htm

Thus, where men control the main sources of cash income, for example, because they undertake paid employment, if a program offers a woman credit, which she uses to buy household necessities, the husband's income is the most likely source of repayments. The woman's ability to access this is often dependent on the quality of her relationship with him. In this way social norms operate in ways that leave her vulnerable in such a relationship, rather than in one where she has socially sanctioned rights to claim the money for repayment. There are many more such constraints that she might face (ibid).

Hunt and Kasynathan (2002) found on changes in gender relations with microcredit that only a minority of women receiving credit from poverty-oriented microfinance programs are controlling their loans (Hunt & Kasynathan, 2002: 2). According to them many women attitudes such as "post-boxes". They passes on the full amount of their loans directly to their husbands, sons or sons-in-law, with little or no access to the income generated and receiving back only enough money to make weekly loan repayments. In other cases, loan management and control within the family is more complex, with some women keeping part of their loans for their own enterprises and passing on the remainder to men (ibid). In this case we have to bring some questions for determine a place poor women in microfinance programs and for understanding changes in gender relations and the contribution of microfinance to women's empowerment:

•Who controls decision making regarding the use of credit?

- Who manages enterprises supported by credit, and whose paid or unpaid labour is used?
- Who controls the purchasing of inputs for these enterprises and the marketing of products?
- Who keeps, decides on and uses any income generated?

The answers to these questions are highly hard and control over loan use and its relationship to empowerment is highly complex. It is important to acknowledge this complexity in household gender relations, and to reflect on the mix of structural, individual and program factors, which influence the degree of control women are able to take over their loan (Mayoux, 1998: 39-50). However, there are some researchers such as Goetz and Sen Gupta (1996: 49) distinguish between full control over every aspect of the productive process, significant control, partial control, very limited control and no involvement whatsoever. They found that, on average, women, where significant control does not include control over marketing, and may thus imply little control over the income generated, either fully or significantly controlled only 37 per cent of loans provided by four different Bangladeshi credit organizations. They also indicated that only 28 per cent of loans controlled by women (Goetz & Gupta 1996: 60)

However, some traditional female income-generating activities yield extremely poor returns for labour, particularly where there is no technical assistance provided to help women to increase their productivity. Abroad in Sri Lanka shows that, at best, women gain very little for their labour for many traditional income-generation activities, particularly paddy husking. Very few agencies have evaluated their programs from this critical perspective, despite the fact that some of them target "traditional" women's activities as a way of encouraging higher levels of female control (Kabeer, 1998: 363).

A number of studies in Asia suggest that poor households generally use a combination of savings, credit, and increased wage employment to cope with income volatility and unexpected expenditure requirements. Access to credit and saving services makes it feasible for households to borrow during, or save for, adverse times; thus, access to financial services has an important impact on the welfare of the poor. The importance of access to financial services increases with the severity of income downturns. When households confront severe events such as floods or drought that depress their incomes temporarily, access to financial services, especially in the informal sector, enables them to buy enough food to maintain the nutritional status of their children and finance other important activities such as education. The insurance cover provided by access to credit and savings also has an impact on the efficiency with which household resources are managed. For example, with the insurance cover, poor households may be emboldened to undertake more efficient, albeit riskier, projects to increase household income, such as adoption of new agricultural technology or off-farm microenterprise. Insurance benefit studies show evidence of consistent positive impact (Sharma, 2000: 4). Actually insurance benefits, unlike investment benefits, are conditioned less by access to or ownership of other complementary inputs.

Commercial Microfinance

Commercial Microfinance refers to profitable financial intermediation between borrowers with loans up to a cut-off point set by the institution and all locally available savers. Commercial microfinance is already becoming absorbed into the financial sector in some countries. Large new markets, especially in India and China, will open to commercial microfinance, and the roles of donors and foundations will be more in the form of industry development and funding institutional capacity building. Some economists believe that commercial microfinance is the democratization of finance.

Today some of the major characteristics of the emerging microfinance industry, where interest rate spreads permit institutional profits; ongoing subsidies for loan portfolios are no longer needed; regulated MFIs want to fund their loan portfolios from voluntary savings; competition has developed and improved efficiency, and industry standards are being developed – for the first time in history (Robinson, 2005).

MCIs may choose to serve only poor clients. But regulated MFIs that want to fund their loan portfolios from voluntary savings must collect savings from a wide cross-section of clients. Commercial microfinance refers to profitable financial intermediation between borrowers with loans up to a cutoff point set by the institution and all locally available savers. Where competition has developed, efficiency and client service have typically improved.

Microfinance has come a long way in the last two decades that it is still an emerging industry with many bottlenecks and challenges. A few of these challenges include repressive financial systems and inappropriate regulations for commercial MFI, lack in the capacity for public supervision of deposit-taking institutions that serve microfinance clients, and poor management of many MFIs at the institutional level.

In the future, this process will continue to grow, and loans will be financed from capital markets, public savings, investments, and other commercial sources. Major players will be large regulated financial institutions, and commercial microfinance providers will operate in increasingly competitive environments, leading to improved efficiency and better client service.

Practices in Some Countries

As pointed out in the previous statements that microfinance approach started in Bangladesh with just the field of study on alleviation of poverty. During years, namely Grameen Bank or Muhammed Yunus Banks developed as a financial institution in the legal framework. After 1980's some less and developing countries, also some part of the developed countries such as United States, started to apply little financial instruments to middle and under class people in a legal and official terms which is calling commercial microfinance system. But, public works programs provide a significant amount of income at the micro level in some Asian like Pakistan, India, Indonesia and Chine. In some African countries such as Benin, Burkina Faso, Burundi, Nigeria, Rwanda, Senegal, Sudan, Malawi and South Africa that women parliamentarians are mobilizing to intensify their advocacy for active political and economic participation of women, with a focus on education.

In these countries, in order to reach rural women, a microfinance pilot project will be set up, in collaboration with a qualified civil society organization, which will serve as executing agency; Parliament will ensure orientation and oversight. Moreover, Parliament will formalize the Gender Network between NGO's on women studies. In Bamako, the participants (from Benin, Burkina Faso, Ghana, Kenya, Mali, Niger, Nigeria, Uganda and Senegal) had discussed the role of parliamentarians and had come up with a detailed action plan in the year of the microfinance 2005. One year later, the time was ripe to re-examine the action plan, take inventory of actions undertaken and revisit Parliament's role in facilitating microcredit and ensuring it benefits the poor and women. In addition, there were close to 20 various parliamentary committees from 15 countries have committed to the network, with the potential of more countries to join. The network includes key poverty-related committees from Benin, Burkina Faso, Burundi, Ethiopia, Kenya, Ghana, Mali, Malawi, Niger, Nigeria, Senegal, Tanzania, Uganda and Zimbabwe.

Microfinance in two Caribbean countries like Jamaica and Trinidad-Tobago has adopted and innovated some of the lending methods of informal finance, and by doing so has also reinforced the indigenous informal institutions. Interestingly, a researcher finds that although indigenous savings and credit organizations (so-called Roscas) have a long history in the countries, the group-lending model introduced in Jamaica through microfinance has not fared very well (Malaki, 2005). This is so for macroeconomic reasons, as well as for reasons specific to the urban borrowers. Finally, microfinance in Jamaica and Trinidad-Tobago continues to be dependent on government and non-governmental sources of funding, and that these countries still have not entered the microfinance revolution.

Microfinance Policies and Practice in Turkey

This section introduces microfinance practices in Turkey. It aims at laying the foundation for understanding the environment in women status, women poverty situation and some projects on microfinance which are supported, designed and implemented some NGO's, UN(UNDP) and government.

Women Status in Turkish Society

Turkey remains far from the desired levels in terms of basic development indicators, including women's participation in decision-making in market and political process. In general, women are increasing represented in Turkey's parliament in last elections around percentage 10. Of course, it is still under-represented in general women populations. Advancements are also being overshadowed by growing socio-economic and regional disparities: inequality and poverty are more prevalent in the rural part of the country, in low educated versus highly educated (UNDP, 2007).

More than half a million girls do not attend school each year even though in Turkey it is mandatory to get education for at least 8 years. Government activities in education include rewarding the poorest families for registering their children with a school, giving more for girls than for boys. Education is crucial in order to get the illiteracy rate in Turkey down (currently about 25% among women), which in turn is crucial in order to allow women to participate in the labour market and in politics (Bozkurt, 2005: 11-12).

According to studies by the European Foundation for the Improvement of Living and Working Conditions (ibid), only 27% of women in Turkey currently participates in the labour market, whereas in 1998 this was still 35%. The fact that the number of women in the labour force is still dropping is therefore worrying and surprising since in some areas women are doing very well, with around 30% of lawyers, academics and doctors being women. The sectoral employment data shows that a great proportion in the fields of university teaching staff, medicine, dentistry and law represents professional women.

It seems too high level the women managers in some sectors like Advertisement, Housing and Renting, Airlines, Leasing and Marketing Sectors.

Table 3: Women Managers in Some Sectors

Advertisement Sector	% 58.28
Housing and Renting Sector	% 56.2
Airlines Sector	% 53.7
Leasing Sector	% 49.23
Factoring Sector	% 1.65
Marketing Sector	% 41.6
Retail Sector	% 27.51
Otomotiv Sector	% 8.9
Public Sector	% 11

Source: www.insankaynaklari.com., 2001: 1-2

The great majority of women within the labour force work in the agricultural sector as non-paid family workers. Actually, the rate of unemployment for urban, educated women (28.6%) with those of their male counterparts (30%) displays a parallelism. It is possible to talk about a positive correlation between the education and the employment of women UNDP (2007a). Although a consensus has been reached from the aspect of the importance of women's participation in the labour force in Turkey, problems continue in practice.

However, for many years the position of women in society has improved gradually. The number of Women's Studies Centers set up in universities have reached 13 a Woman's Library was founded and a number of projects were put into practice by the governmental and non-governmental organizations. Most importantly, sensitivity has been created on the subject of discrimination against women, and this issue began to be perceived as a problem, which should be discussed.

The acceptance of women's issues as an independent political and planning problem was discussed for the first time in the Fifth Five Year Development Plan (1985-1990), and "the General Directorate for the Status and Problems of Women" was established as a national mechanism in 1990.

Women Activities and Entrepreneurship and Microfinance

The women's activities (movement), which gradually makes its voice heard in Turkey, became influential in having women enter into every field in the life of the community.

In 1980s, when women's movement gained impetus all over the world, there observed an increase in the number of voluntary women institutions established in Turkey. Through the mobilization of the general public, these women's institutions have played a significant part in leading the amendment and abolition of certain items discriminating women in both Civil Law and Penal Code and also have taken an active part in their consciousness-raising endeavours on women' problems.

In recent years, alongside with the increase in the number of the centers for helping women who were victims of violence or abused, it is noticeable that the associations with special tasks of supporting and reinforcing the women's participation in politics have also come into being. The Foundation for the Advancement and Recognition of Turkish Women, The Women's Shelter Foundation of Purple Roof, the Association of Women's Rights Protection, the Association for the Support and Training of Women Candidates are just a few names among more than 150 voluntary women's organizations working nationwide.

Turkey tries to implement an integrated program with EU. The more recent Framework Plan for Women has a three-pronged agenda:

- Economic empowerment,
- Human rights, and
- Gender-responsive governance.

Its number one objective under economic empowerment is "to enhance sustainable access of women to capital, market, information, technology and technical assistance and among the strategies mentioned is "improve credit policy environment for women".

Women in Turkey are recognized as an important segment of entrepreneurship development programs. Various public agencies and NGOs have taken some roles to design and implement these programs as follows.

Table 4: Women Entrepreneurship Organizations in Turkey

KOSGEB (Small and Medium Industry Development Organization)	It initiates a study to identify organizations with a mission to develop women in Turkey. KOSGEB has also initiated contacts with a number of NGOs to provide support services of KOSGEB to women entrepreneurs under their portfolios.
KAGİDER(Women Entrepreneurs Association)	37 prominent Turkish female entrepreneurs chartered KAGIDER in September 2002 as a non-profit and non-governmental organization. It has grown steadily over the past two years as other successful executives have joined its ranks.
GAP-GİDEM (SouthEastern Anatolian Project-Entrepreneurship Development Centre)	GAP-GİDEM has conducted a survey in the South Eastern Region to identify the state of women entrepreneurs in the region, international donor funds available for support organizations, convenient business sectors for women and available loan programs. The results have been compiled into a comprehensive document. Specific implementation plans have been prepared and put into practice for 4 provinces in the region encompassing training and consulting programs and the "Encouraging Young Women Entrepreneurs" project directed towards female university students.
TURKISH	The objective of the project is to lay institutional foundation for a non-

GRAMEEN MICRO CREDIT PROJECT	banking credit system to eliminate poverty in Turkey. The Project is being implemented based on a contract signed between the Bangladesh Grameen Trust and for Prevention of Wastefulness Foundation (Israfı Önleme Vakfı) under the auspices of Diyarbakır Governor. The main target group being poor women, as of 29 January 2005, approximately 500,000-euro credit has been extended to 293 solidarity groups comprising 1444 women in the province of Diyarbakır and the towns in its vicinity.
TESK (Turkish Confederation of Craftsmen and tradesmen)	The Project entitled **"Supporting Women Entrepreneurs",** supported by the European Commission has been completed in June 2004 after 2 years of implementation under the organization of TESK. As of June 2004, 1630 women had been given business start up training, and 359 of them have already become self-employed. 5 Training and Consultancy Centers have been established in 5 different provinces to provide services to women entrepreneurs after the completion of the project. A new project is being negotiated with the EC to cover 20 more provinces.
MATRA (Women For Women" Project)	Supported by the MATRA Program, the project was started in April 2004, and it is being implemented by Nehem International (Netherlands) and Mamak Contemporary Women and Youth Foundation (Turkey). The objective is to set up a sustainable "Women Training and Employment Centre" in Mamak-Ankara and to move at least 120 women every year into the labour force following the completion of the project. In 2004, 500 women were trained in different vocational areas and entrepreneurship.
MAYA (Enterprise for Microfinance).	The first women supported program after 1999 earthquake.

Source: Wes (2004), Wes Report 2004 Activities to Develop Women Entrepreneurship (Turkey), February 2005 1

In addition to above, various organizations, NGOs and public agencies have carried small scale, generally local activities on women entrepreneurship. Furthermore, UNDP[4] supports increasingly for women activities and entrepreneurship in Turkey. UNDP's contributions to gender equality in Turkey have been recognized by the Turkish Government, NGOs, academia, and beneficiaries.

Microfinance Services and Commercial Microfinance

The primary suppliers of microfinance services currently are the state-owned banks, Halk Bank and Ziraat Bank. The legacy of directed and subsidized credit programs, however, has rationed the delivery of credit through these channels, and resulted in supply-driven products and services that do not respond well to the financial service needs of clients. In contrast to most early stage microfinance sectors, NGOs are virtually absent from the market in Turkey. Several are experimenting with microcredit delivery at this time, such as the "Grameen Bank Initiative in Diyarbakır" and "Maya Enterprise for Microfinance".

There is no clear policy for facilitating the access of the un-banked majority to the population as well as small business to the formal financial sector. There is a continued

[4] UNDP initiated its assistance in 1992, with the launch of the National Program for the Enhancement of Women in Development. Over the years, this umbrella technical assistance program has supported the capacity building of government offices (including the General Directorate on the Status and Problems of Women) as well as of independent experts to advance research in gender studies; awareness raising, advocacy and support for NGOs; and the establishment of international linkages.

lack of clarity in government policies regarding microfinance and there is no common understanding on microfinance among government, NGOs and private sector.

Microfinance types of activities are usually used in Turkey as a tool for government incentives or a tool for income generating activities. Turkey's policy makers and planners concerned that there is still very little knowledge in Turkey on microfinance and the possibilities microfinance can provide for poverty reduction by expanding access of the poor and the un-banked to financial services. Because of this limited knowledge there has been little discussion or debate within the government, private sector, and NGOs on microfinance as an effective mechanism for addressing poverty in Turkey and there are questions regarding the relevance and applicability of microfinance in Turkey.

UNDP's Support for Women Activities, Entrepreneurship and Microfinance Program in Turkey

UNDP's contributions to gender equality in Turkey have been recognized by the Turkish Government, NGOs, academia, and beneficiaries. UNDP initiated its assistance in 1992, with the launch of the National Program for the Enhancement of Women in Development. Over the years, this umbrella technical assistance program has supported the capacity building of government offices (including the General Directorate on the Status and Problems of Women) as well as of independent experts to advance research in gender studies; awareness raising, advocacy and support for NGOs; and the establishment of international linkages.

Since 2001, UNDP has been gradually adopting gender mainstreaming as its policy to combat gender inequalities in Turkey. In its next phase of country programming, 2006-2010, UNDP[5] will remain committed to supporting gender equality goals in its programmes as well as through an active participation in the UN Gender Theme Group.

Local Ajanda 21 (LA-21) has special focus on gender empowerment. Within this perspective, the LA-21 increases women's influence in decision-making first locally and later in the national decision-making structure. Within this context, specific and focused campaigns and festivals have been organized to promote the development and endorsement of common principles for the establishment and functioning of the women's councils, and the means of cooperation among women organizations in different cities. Several cities across Turkey have taken the lead to set up Women's Consultancy and Cooperation Centers and Women's Guest Houses (UNDP, 2007a).

Poverty reduction has been highlighted on UNDP agenda for Turkey since the 1990s and the agency's National Human Development Reports have been effective in focusing media and public interest on problems relating to the issue (UNDP, 2007b).

UNDP Turkey is supporting the Turkish Government's own poverty reduction goals. The ultimate aim is to create sound policies for reducing the disparities between Turkeys regions. In particular, UNDP Turkey helps to design and finance projects that complement

[5] UNDP has made a Project which name of it "Microfinance Sector Development". http://www.undp.org.tr/Gozlem2.aspx?WebSayfaNo=28

the Government's Southeast Anatolia project (GAP) and its Eastern Anatolia project (DAKAP).

A central feature of UNDP's presence in Turkey is poverty reduction. UNDP's government partners recently acknowledged the Assessment of Development Results recognition of UNDP's programmatic and policy impact on poverty-related issues. Government partners further supported UNDP's continued and enhanced role in poverty related programming, including the small and medium enterprise (SME) programs in South Eastern Anatolia and its increased emphasis on engaging the private sector to achieve the Millennium Development Goals (MDGs). This high-level recognition of UNDP's role is supported at the more detailed level through UNDP's current programs that are focused on Achieving the MDGs and Reducing Human Poverty through local poverty initiatives, including micro-finance, and pro-poor policies for achieving the MDGs.

UNDP's emphasis on reducing poverty will continue to be core to its presence in Turkey. As agreed with government and other national counterparts, the United Nations Development Assistance Framework for 2006-2010 highlights poverty and disparity reduction as one of the UN's three priorities for this next programming period, in line with the Government's development and reform agenda including EU Accession. UNDP[6] specifically is highlighted support for local level initiatives to be implemented, including microfinance, with civil society and private sector partnership for social and economic empowerment of the poor.

Conclusion

Poor women and men in the developing world need access to microfinance and donors should continue to facilitate this. Research suggests that equity and efficiency arguments for targeting credit to women remain powerful: the whole family is more likely to benefit from credit targeted to women, where they control income, than when it is targeted to men.

Given the range of papers and discussions, questions remain about the best way forward in the microfinance process – and about what the future will hold. There is a need for continuous dialogue, and exchange of knowledge and experience, among practitioners and scholars. By way of the some symposiums and publications, discussing that urge the microfinance issues in an attempt to create and support the best possible options for those living in less advantageous environments.

The final conclusion is that even though the microfinance movement reached Turkey in the 2000s(after earthquake in 17 August).Turkey have yet to enter the microfinance revolution and commercial microfinance has not sufficient in the country, and the programs are still dependent on a few NGO's and external funding to a large extent. Mainstreaming gender and empowering women in microfinance would necessitate concrete measures in terms of integration in the vision, mission, goals, and objectives of microfinance policies and programs; awareness raising and capability building, with special focus on the government financial institutions in Turkey.

[6] The UNDP Country Office (CO) in Turkey has commissioned the United Nations Capital Development Fund (UNCDF) to undertake a sector assessment on microfinance in Turkey. http://www.undp.org.tr/pdf/MicrofinanceSectorAssessment_UNDP-Turkey.pdf.

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Do Foreign Investors Chase or Impact Returns in Turkey?

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There are variant findings regarding whether the foreign investors' trading decisions have a significant impact on emerging markets' future stock returns or whether their decisions are primarily driven by past returns.

This study attempts to determine the bilateral interaction between foreign investors' trading activity and returns in Turkish stock market by utilizing Granger-causality and OLS methodologies.

The results gathered from VAR analysis imply a strong Granger-causality between foreign net portfolio inflows and stock returns in Turkish stock market. The results indicate that foreign investors follow a negative (contrarian) feedback strategy by buying (selling) past losers (winners).

The results gathered from OLS analyses further support the VAR analysis findings indicating that, contemporaneously, there is a significant bilateral interaction between foreign portfolio inflows and stock returns reflecting the existence of price pressure effect and return chasing behavior in Turkish stock market.

Overall, both analyses demonstrate that current and lagged stock returns are important determinants in foreign investors' asset allocation strategies. Furthermore, the findings of this study reveal that foreign investors frequently change their positions on majority of the stocks in Turkish stock market which might basically stem from the absence of exit barriers in Turkish financial markets.

Introduction

There has been a growing interest of international investors, particularly in the last decade, in emerging countries owing mainly to the low correlation of these financial markets with those of developed countries resulting in significant risk diversification opportunities in these markets. Moreover, the higher economic growth of these emerging economies was translated into higher stock returns which in turn led to a further liberalization of financial markets and has also paved the way to growing interest by foreign investors.

Subsequently, the trading behavior and the impact of foreign portfolio investors in this segment of international capital markets have been of perennial interest to professionals, academicians and domestic policymakers.

However, this phenomenon has also led to an ongoing debate on the impact and behavior of foreign investors in emerging markets.

Specifically, there are two major empirical facts about the trading behavior of foreign investors in international capital markets:

First, majority of the empirical findings assert that foreign investors are engaged in positive feedback strategy by chasing returns, which in turn creates excess volatility and drives the stock prices away from their fundamental values. Furthermore, the same studies also claim that this irrationality might end up with destabilization of the financial markets.

The second set of findings illustrate that the current foreign portfolio inflows/outflows have a predictive power and impact on future stock returns and occasionally leads to the destabilization in these markets. The proponents of this argument support their assertion with the global financial crises experienced particularly in the last decade.

This study concentrates on this issue by aiming to reveal the trading behavior of foreign investors and their impact on Turkish stock markets.

Turkish stock market is chosen because, particularly following the European Union (EU) accession negotiation meetings on December 16th and 17th, it has been alleged that the foreign portfolio investors started considering Turkey as a highly promising market for the upcoming years.

The current statistics strongly support this fact in the sense that the market value of foreign investors' investment in Turkish stock market have reached to 64 billion New Turkish Lira as of May 16th 2007 and the foreign investors' share in overall trading surged up to slightly higher than 70%. This figure corresponds to an overall trading volume of approximately 9.4 million shares by foreign investors as of May 16th 2007 and represents an approximately 40% increase when compared to May 2006. Indeed, many authorities relate the surge in stock prices experienced since January 2005 to the growing interest of foreign investors, stemming particularly from the relative stability achieved in the exchange rate and major economical indicators, such as inflation and interest rates.

Some authorities on the other hand claim that one of the major causes of the financial crisis experienced in 2001 was the sudden and massive capital flight from the Turkish stock market. Accordingly, they further propose that stemming from the destabilizing effect of

"hot money" and sudden capital flight, foreign investors' trading should cautiously be monitored and required measures should be taken to prevent any other possible crisis in Turkey.

In light of these arguments, this particular study attempts to discover the relationship between foreign portfolio flows and stock returns in Turkish stock market by examining the cross- sensitivity of these factors. Furthermore, the general debate in literature regarding whether foreign investors' trading behavior change during crises will also be tested in Turkish stock market by using a sub-sample covering the period of 2001 financial crisis in Turkey.

In terms of methodology, the relationship between foreign portfolio flows and returns will be tested by the use of Vector Auto regression (VAR) and Ordinary Least Squares Regression (OLS) models. The findings from VAR and OLS tests will shed a light on the simultaneous interaction as well as Granger-causality effects of returns and net foreign portfolio inflows in Turkish stock market.

The lack of any other comprehensive study on this topic signifies the contribution of this particular study. In addition, the findings from this study may also be utilized by policymakers in setting up future regulations regarding foreign portfolio investment and ownership restrictions in Turkish stock market. This issue will further be addresses in the concluding remarks of this paper.

Literature Review

There are a number of studies that investigate the foreign investors' trading behavior in international markets. Majority of these studies have concentrated on detecting the presence of positive feedback strategy and price pressure effects[1] on international financial markets.

As a pioneer theoretical study on this topic, DeLong, Shleifer and Summers (1990) have asserted that positive feedback investment strategies (noise traders) might have a significant destabilizing effect and might augment the volatility in stock markets, particularly if rational investors also follow positive feedback traders.

Stemming from these arguments, recent literature includes many studies attempting to reveal the existence of positive feedback strategy as well as the impact of foreign investors in international markets, particularly in emerging markets where volatility is much higher compared to their developed counterparts.

Froot, Connell and Seasholes (2001) have tried to identify the patterns of foreign portfolio inflows into and out of 44 countries between 1994 and 1998 by utilizing a bivariate VAR model. They have revealed the existence of positive feedback strategy and price pressure effect indicating that inflows are strongly influenced by past stock returns and that the inflows predict future stock returns negatively.

Similarly, Pavabutry and Yan (2003) have investigated the presence of price pressure effect and positive feedback trading using the largest 25 stocks in Thai stock market. Like

[1] Price pressure effect is characterized as the significant of lagged inflows on stock returns.

Froot et al., they have also found a significant price pressure effect in Thai market and they have also documented that the price pressure effect is increasing in crisis periods and is stronger for large size firms.

Using the same sample, Worasinchai (Bangkok University research paper) has also indicated that foreign investors were influential in Thai stock market before and during the crisis periods and that the influence was much stronger before the crisis period. He has also concluded that foreign investors were engaged in positive feedback strategy before and during the crisis periods.

Korean stock market has been another focal emerging market for studies on foreign portfolio inflows and returns.

As such, Choe, Kho and Stulz (1998) and Kim and Wei (1999) conducted a detailed research on foreign investors' trading behavior in Korean stock market. Both studies have found evidence in favor of the positive feedback trading but did not find any evidence of a destabilizing effect of foreign investors before, during and after the crisis periods.

Park and Park (2000) have also failed to extract a clear evidence of a destabilizing impact of foreign investors before and during the crisis periods in Korean stock market. They have attributed the enormous volatility during the crisis largely to the trading pattern of domestic investors.

Wei (2000) has reached similar results for Korean stock market and proposed that the non-resident investors increased their intensity of positive feedback trading during non-crisis periods.

Some studies have examined the relationship between foreign investors' behavior and stock returns covering a larger sample of emerging markets.

Griffin, Nardari and Stulz (2003) tested the relationship using nine emerging market countries and found that portfolio flows are significantly influenced by host country stock returns; finding consistent with positive feedback strategy.

Koutmos and Saidi (2001) have examined the existence of positive feedback strategy in six Asian markets. They have also demonstrated that feedback trading is an important factor in determining short-term stock returns in these markets. However, they have also found that positive feedback trading is observed during market declines but not during market advances.

Some studies have attempted to observe the relationship using emerging market mutual funds.

Kaminsky, Lyon and Schmukler (2002) have investigated trading strategies of mutual funds in Latin American mutual funds. They have depicted the existence of positive feedback strategy. However, lagged positive feedback strategy was much stronger during non-crisis periods whereas contemporaneous positive feedback trading was much more intense during crises.

Using a very comprehensive database, Borenztein and Gelos (2000) have also concluded that positive feedback trading was dominant in most of the emerging market mutual funds between 1996 and 1999. However, like Kaminsky et al., they have also demonstrated that positive feedback trading was less visible during Asian crisis leading to the conclusion that foreign investors' trading behavior was not driven by sudden irrational panics and by mimicking other investors' behavior.

As a summary, by using various data, sample and methodology, most of the studies find evidence of positive feedback strategy. Majority of these studies have also found evidence supporting the price pressure effect although the findings are somewhat weaker compared to those of the feedback strategy.

Data and Descriptive Statistics

The dataset consist of monthly returns and net foreign portfolio inflows[2] for 20 large size stocks traded in Istanbul Stock Exchange (ISE) and span from January 1997 to April 2006. 17 of these 20 stocks in the sample are being traded in ISE-30 Index which is comprised of 30 largest size firms' stocks. The largest size firm stocks were included simply because the foreign investors have the largest trading volume in ISE-30 Index stocks and thus these stocks provide the highest liquidity in terms of foreign investor trading. This approach is similar to Pavabutr and Yan (2003) and is expected to provide more consistent and robust results.

The monthly return for a single stock was calculated by averaging the sum of daily returns for the associated month:

$$\sum_{i=1}^{N} \frac{r_i}{N}$$

where r_i = daily return for stock i

N = number of trading days in associated month

The primary reason for using average daily returns instead of differencing the end-of-month and start-of-month prices is the fact that interim price effects of the foreign investors' trading during the month are better captured by averaging daily returns. This issue is even particularly important in OLS analysis since the key rationale in using OLS method in this study is to extract the contemporaneous interaction of stock returns and foreign investor's trading for the selected months.

The monthly return and foreign portfolio inflow figures for the sample stocks span from January 1997 to April 2006 for most of the stocks in the sample. Thus, there are 112 monthly observations for majority of the stocks in the sample. However, either due to data availability or late IPO by some firms, some stocks have shorter sample[3].

[2] Net foreign portfolio inflow = Gross purchases by foreign investors- Gross sales by foreign investors

[3] The list of stocks included in the sample and the observation period for these stocks are provided in Appendix 1.

The data have been obtained from two major sources; ISE website and www.bigpara.com, an online financial site that include various financial market data compiled from various sources. The return and foreign inflow data gathered from ISE and www.bigpara.com was matched and cross- checked to ensure the accuracy of the data. The foreign portfolio purchase and sale figures from these sources were provided in gross terms and gross purchases and sales were netted to reach net foreign portfolio inflows for each stock covered in the sample.

Table 1 provides the aggregate foreign investor trading figures in ISE for the sample period.

Table 1: Foreign Investor Trading Volume in ISE (Million $)

Year	Total Foreign Investor Trading Volume
1997	8,219
1998	11,645
1999	17,837
2000	33,365
2001	12,134
2002	12,781
2003	17,324
2004	37,356
2005	78,479
2006 (January- April)	33,325

From Table 1, it can be clearly observed that the foreign investor trading volume figures in ISE display various patterns for the sample period. More specifically, the figures exhibit an upward trend from 1997 up until 2000 with a more than 300% increase during that period. However, in 2001, there is a sudden reversal in trading volume figures resulting in a 63% decrease compared to 2000. This remarkable change in foreign trading figures can mainly be attributed to the effect of the deep economical and financial crisis experienced in 2001 which led to a massive amount of sell off during that year. The devaluation of the Turkish Lira in February 2001 has amplified this trend and the annual trading volume of foreign investors has declined from $33.3 million to $12.1 million between 2000 and 2001. Starting from 2003, another turnaround in foreign investor trading volume pattern can be observed. Specifically, between years 2003 and 2005, the trading volume increases by approximately 350%. This significant upsurge in trading volume can mainly be attributed to the relative stability achieved in the major economic indicators such as inflation, interest and exchange rate owing mainly to the tight economic policies applied following the 2001 crisis period. Coupled with the commencement of negotiations with EU officially, positive developments in Turkey have led to a relative optimism among foreign investors attracting their interest back in Turkish stock market. In 2006, even four-month trading volume figure has significantly surpassed the annual volume figures for the pre-crisis periods.[4]

Table 2 provides the mean and standard deviation values for returns and foreign net portfolio inflows for the selected sample.

[4] Some of the authorities link the short turmoil experienced in Turkish financial markets in May 2006 to this tremendous increase in foreign investor trading volume alleging that a massive and sudden capital flight during May 2006 following this rising trend has deeply unsettled ISE and resulted in more than 10 billion $ loss in total market value.

As Table 2 portrays, for almost 80% of the stocks in the sample, foreign investors appear to be net buyers for the sample period observed. However, inflow figures for individual stocks also display a large disparity ranging from – 1,235,642 $ to a maximum of 9,350,254 $ whereas the standard deviation of inflows range between 2,411,193 to 53,926,574. This finding is in fact commensurate with the other studies' findings regarding emerging market statistics indicating an excessive level of volatility in foreign investors' trading in this market segment.

On the other hand, the monthly return figures for the stocks in the sample vary within a tighter band ranging from a minimum of 0.161 % to a maximum of 0.336 %. Accordingly, the standard deviation of returns ranges from 0.688 % to 1.538%. This result stems from using the method of averaging daily returns instead of taking the difference between end and beginning of the month figures.

Jacque-Bera and skewness statistics provided in Table 2 indicate that for almost all of the stocks in the sample, net foreign investor inflow and return series do not follow a normal distribution. The only exceptions to this conclusion are the return series for Beko and Eregli for which the normality assumption cannot be rejected at 10% significance level.

Table 2: Descriptive Statistics

Stock	Net Foreign Inflow				Return			
	Average	Std.dev	Skewness	Jarque-Bera	Average (%)	Std.dev (%)	Skewness	Jarque-Bera
Akbank	4786394	33286683	0.493	283.49 (0.000)	0.186	1.149	-1.666	397.98 (0.000)
Aksigorta	738297	5463801	-2.655	1479.24 (0.000)	0.295	1.020	-0.577	39.911 (0.000)
Alarko	286207	4820710	3.211	3901.91 (0.000)	0.244	0.981	-0.195	8.631 (0.000)
Beko	-130423	2411193	0.456	67.956 (0.000)	0.194	0.973	0.276	1.898 (0.387)
Dogan Holding	283562	20933338	-0.579	249.72 (0.000)	0.198	1.538	-1.462	201.67 (0.000)
Enka	1002164	6814036	-0.075	115.28 (0.000)	0.320	0.902	0.029	16.45 (0.001)
Eregli	-888651	18884717	-1.163	108.02 (0.000)	0.240	0.903	0.184	2.314 (0.314)
Finansbank	1677560	9605199	3.289	2133.29 (0.000)	0.336	1.035	0.173	10.988 (0.004)
Ford	488705	6643029	0.066	83.018 (0.000)	0.274	0.945	0.273	26.532 (0.000)
Garanti Bankası	5080194	31826395	4.011	4044.79 (0.000)	0.304	1.049	0.089	4.986 (0.083)
Hurriyet	285349	6109897	-0.009	6.717 (0.035)	0.297	1.241	-0.722	194.08 (0.000)
Is Bankası C	7206139	45470938	-1.016	1048.18 (0.000)	0.290	0.989	0.616	18.976 (0.000)
Koc Holding	787821	20929114	0.409	40.806 (0.000)	0.219	0.983	0.486	9.368 (0.009)
Migros	-605254	8806391	-1.697	177.39 (0.000)	0.214	0.688	0.422	8.491 (0.014)
Petrol Ofisi	12321	9392897	1.924	933.28 (0.000)	0.274	1.157	0.352	6.936 (0.032)

Sabanci	2597318	39099856	0.031	462.22 (0.000)	0.231	0.937	0.179	6.849 (0.033)
Sisecam	626617	6425298	-0.036	57.229 (0.000)	0.237	0.955	0.375	12.511 (0.002)
Tansas	-1235642	9774002	-6.699	15953.59 (0.000)	0.161	1.334	-1.818	305.91 (0.000)
Tofas	309690	8732160	-0.138	65.76 (0.000)	0.243	1.110	0.419	5.797 (0.056)
Tupras	9350254	53926574	6.843	14199.61 (0.000)	0.204	1.058	-0.890	135.98 (0.000)

These statistics indicate that the return figures display a relative homogeneity among the stocks in the sample. On the contrary, a very high degree of heterogeneity in foreign net inflow figures can be observed among the same stocks in the sample. This finding can be interpreted as the frequent rebalancing and position change of foreign investors' portfolio investments in ISE stocks.

Methodology and Results

This section, at the outset includes a concise discussion of methodology used in examining the joint dynamics and interaction between individual stock returns and foreign investor inflows in Turkish stock market. Subsequently, the results from these analyses as well as their interpretations will be discussed.

Granger-Causality and VAR Analysis:

As previously stated, the primary objective of this study is to examine whether foreign portfolio investors are engaged in positive feedback strategies or whether inflows have a significant impact on future returns. Thus, the primary question addressed and tested in this study is: "Do returns and inflows Granger-cause each other?"

The existence of Granger-causality relationship between returns and inflows will be tested by utilizing the following bivariate unrestricted VAR model:

$$\begin{bmatrix} r_{i,t} \\ f_{i,t} \end{bmatrix} = \begin{bmatrix} \alpha_r \\ \alpha_f \end{bmatrix} + \begin{bmatrix} \beta_{11}(L)\beta_{12}(L) \\ \beta_{21}(L)\beta_{22}(L) \end{bmatrix} \begin{bmatrix} r_{i,t-1} \\ f_{i,t-1} \end{bmatrix} + \begin{bmatrix} \varepsilon^r_{i,t} \\ \varepsilon^f_{i,t} \end{bmatrix} \quad \text{(Equation 1)}$$

where $r_{i,t}$ is the time t return on stock i and $f_{i,t}$ is the net foreign inflow (purchase) to stock i at time t. The alphas represent intercept terms, which can also be interpreted as the unconditional mean return and foreign net inflows for stock i, respectively. $\beta(L)$ represents the polynomials in the lag operator L and include the autoregressive coefficients. The off-diagonal coefficients β_{12} and β_{21} represent the conditional positive feedback trading and the price-pressure effect of flows on returns, respectively.

$\varepsilon^r_{i,t}$ and $\varepsilon^f_{i,t}$ are error terms that are assumed to have zero mean and are serially and contemporaneously uncorrelated.

VAR framework is considered as the most appropriate framework due to the following reasons:

First, VAR estimation procedure aims to determine the interrelationships among the variables in hand ignoring the parameter estimates. Properly, this study tries to merely test the existence of positive feedback and price-pressure effects of foreign portfolio inflows and returns without concentrating on the magnitude of cross impact between these two variables.

Secondly, contrary to the standard estimation techniques, VAR estimation in standard form does not require the regressors to be uncorrelated with the error term.

Thirdly, by use of a VAR system, it is also possible to test the imposed restrictions on the variables.

In addition to using VAR framework, the large number of observations even by using monthly data provides better power and allows us to conduct a sub period analysis and to account for possible structural break points such as the crisis period. However, even though the relative low frequency of monthly data to daily stand as a potential problem, this problem can be disregarded for this study since the forecasting power of returns and flows is not the primary concern of this study.

By using the formulation in Equation 1, the following hypotheses will be used for Granger-causality tests to assess the joint significance of lagged returns and flows:

$$H_0 : \beta_{12} = 0$$

(Equation 2)

$$H_0 : \beta_{21} = 0$$

Particularly, the first null hypothesis in Equation 2 indicates that past foreign portfolio flows have no significant effects on current stock returns. Likewise, the second null hypothesis in Equation 2 above indicates that past stock returns do not have any significant effect on current foreign portfolio flows. In another saying, the null hypotheses specify that past returns (flows) do not Granger cause current flows (returns) and the rejection of both hypotheses imply a significant mutual impact between these variables.

OLS Analysis:

In literature, price-pressure effect is characterized as the significant impact of the past trading volume in current prices. As one of the objectives in this study, price-pressure effect in ISE will be tested by the use of Equations 1 and 2 described above. However, since almost 70% of the trading volume in ISE is realized by foreign investors, it is also possible that the volume effect might be more apparent on current prices and returns.

OLS model will be utilized to test the contemporaneous interaction between net foreign inflows and returns by using the following formation:

$$A_{i,t} = \alpha + B_{i,t} + \varepsilon_t$$

where $A_{i,t}$ and $B_{i,t}$ represent returns and net foreign inflows on stock i in month t, respectively.

The existence of any possible significant interaction between net foreign investor inflows and returns contemporaneously could also have some implications for the existence of a herd behavior by individual investors in Turkish stock market. More specifically, as previously suggested, individual investors, whether rationally or irrationally have more tendency to herd the trading behavior of institutional investors simply because institutional investors have much more extensive resources to process any information. (Kim and Wei, 1999). Thus, due to any possible informational asymmetry, domestic investors might mimic the trading behavior of foreign investors causing prices to deviate from their fundamental values. This issue however, is beyond the scope of this study and the results to be gathered from this study could pave the way for a future research concentrating on determining the existence of herd behavior in Turkish stock market.

Diagnostic Tests:

Before moving on to the analysis and hypothesis testing, some diagnostic tests were applied on the data and the results from these tests are discussed in the following section.

As the first diagnostic test on the data in hand, a unit root test has been applied to ensure the stationarity of the net foreign flow and return data.

Table 3: ADF and KPSS Unit Root Test Statistics

Stock	Net Foreign Inflow	Return	Net Foreign Inflow	Return
	ADF Test Statistics	ADF Test Statistics	KPSS LM Statistics	KPSS LM Statistics
Akbank	-7.413671 (-3.4906) *	-7.653777 (-3.5200)	0.1014	0.0955
Aksigorta	-7.175372 (-3.4911)	-7.887836 (-3.5200)	0.1154	0.1046
Alarko	-6.088325 (-3.4906)	-7.783954 (-3.5200)	0.0592	0.0731
Beko	-6.229298 (-3.4906)	-6.392757 (-3.5200)	0.0679	0.0451
Dogan Holding	-4.663983 (-3.4911)	-6.859197 (-3.5200)	0.1275	0.1187
Enka	-8.604214 (-3.4906)	-7.570995 (-3.5200)	0.0628	0.0714
Eregli	-5.081166 (-3.4906)	-5.6497 (-3.5200)	0.0785	0.0463
Finansbank	-8.376003 (-3.4922)	-6.652868 (-3.5200)	0.1371	0.1306
Ford	-5.231700 (-3.4952)	-6.439506 (-3.5200)	0.0876	0.1131
Garanti Bankasi	-8.987555 (-3.4906)	-7.654760 (-3.5200)	0.0544	0.1056
Hurriyet	-7.088134 (-3.4906)	-8.121050 (-3.5200)	0.0458	0.0722
Is Bankasi C	-6.675480 (-3.4906)	-9.677226 (-3.5188)	0.1132	0.1137
Koc Holding	-10.28440 (-3.4906)	-11.35860 (-3.5188)	0.0618	0.0601
Migros	-5.607438 (-3.4906)	-6.851990 (-3.5200)	0.0676	0.1460
Petrol Ofisi	-6.687479 (-3.4906)	-3.666738 (-3.5226)	0.0630	0.1059
Sabanci	-4.758314 (-3.4952	-4.821244 (-3.5239)	0.0882	0.0904
Sisecam	-5.688316 (-3.4906)	-7.733528 (-3.5200)	0.1327	0.0564
Tansas	-7.613583 (-3.4906)	-6.000759 (-3.5239)	0.0992	0.1381
Tofas	-6.921429 (-3.4906)	-9.726238 (-3.5188)	0.0608	0.0477
Tupras	-6.422642 (-3.4906)	-5.698629 (-3.5213)	0.0577	0.0831

The unit root test results, shown in Table 3, indicate that for all of the stocks in the sample, both the return and net inflow series were stationary. The stationarity of the net inflow series is commensurate with the former claim that foreigners frequently rebalance their investments in most of the stocks in ISE and hence do not seem to follow a consistent pattern in their trading strategies.

Results:

The test results from VAR and OLS analysis are provided in Table 4. The results indicate a significant interaction and Granger causality between foreign portfolio flows and stock returns at 5% significance level for almost half of the stocks in the sample. However, for the same stocks, the direction of Granger causality is unilateral originating from returns towards net inflows indicating that past month's returns have a significant impact on the foreign investors' decision to trade in the current month. Reverse causality, however, is not existent for all the sample stocks. This result implies that net purchases by foreign investors' in the past month do not Granger cause current month's returns. The intercept term is not significant when current month's net inflows is on the left hand side in Granger causality equation , but it is significant in the equation when return is the on the left hand side of Equation 1. This result implies that there is an unconditional risk premium in stock returns independent of past flows and returns.

These findings further confirm that the explanatory power of lagged foreign investor flows in affecting present stock returns is weaker owing mainly to the effect of other possible idiosyncratic risk factors.

When the lag-lead relationship between flows and returns are analyzed, the coefficients of lagged values for both flow and return equations are negative and significant. In terms of flow equation, this result specifies that foreign investors in Turkey follow very dynamic asset allocation strategy and thus frequently reverse their long and short positions on the stocks that they hold. Particularly, an inflow in certain stocks in the present month is usually followed by an outflow or vice versa in the following month, which further leads to instability, and unwarranted volatility in major stocks traded in ISE.

Table 4: VAR and OLS Results

Stock	**Type of Analysis**					
	Granger Causality Test		VAR Analysis		OLS	
	H_0 = Returns Do not Granger-Cause Net Inflows	H_0 = Net Inflows Do not Granger-Cause Returns	$r_t = \alpha + f_{t-1} + \varepsilon_t$	$f_t = \alpha + r_{t-1} + \varepsilon_t$	$r_t = \alpha + f_t + \varepsilon_t$	$f_t = \alpha + r_t$
Akbank	**5.315 * (0.0231)**	0.614 (0.4351)	2.71E-09 ** (0.7834)	**-6628808 (-2.3054)**	**1.19E-08 (3.8747)**	**10713206 (4.1552)**
Aksigorta	**7.940 (0.0058)**	0.113 (0.7377)	5.84E-09 (0.3356)	**-1352793 (-2.8178)**	1.70E-08 (0.9661)	6016423 (1.1823)
Alarko	**3.313 (0.0715)**	0.123 (0.7261)	-6.85E-09 (-0.3511)	**835587 (1.8202)**	-1.16E-08 (-0.5958)	-262394 (0.5769)
Beko	0.013 (0.9083)	0.019 (0.8896)	5.34E-09 (0.1391)	-26829.93 (-0.1154)	**9.14E-08 (2.3955)**	**548422 (2.3877)**
Dogan Holding	1.514 (0.2153)	1.092 (0.3558)	1.17E-08 (1.5898)	**-2243707 (-1.7281)**	**1.81E-08 (2.7085)**	**2790423 (2.2212)**
Enka	**8.762 (0.0038)**	2.281 (0.1338)	-1.89E-08 (-1.5104)	**-2078005 (-2.9599)**	1.50E-08 (1.1592)	7650899 (1.0281)
Eregli	1.740 (0.1899)	0.010 (0.9220)	4.66E-10 (0.0981)	-2749984 (-1.3189)	**1.67E-08 (3.8986)**	**7900893 (4.1878)**
Finansbank	0.289 (0.8845)	0.348 (0.8445)	-5.11E-09 (-0.5009)	-387834 (-0.4121)	**2.50E-08 (2.5348)**	**2084224 (2.3219)**
Ford	**2.528 (0.0345)**	**2.112 (0.0712)**	**-3.49E-08 (-2.3254)**	**-1971592 (-3.0961)**	**-2.83E-08 (-1.8638)**	**-1167245 (-1.7634)**
Garanti Bank	1.118 (0.2927)	0.346 (0.5575)	3.35E-09 (1.0573)	-1740112 (-0.5883)	**6.30E-09 (2.0389)**	**5784538 (2.0389)**
Hurriyet	0.774 (0.3810)	0.202 (0.6539)	-9.20E-09 (-0.4496)	-442219 (-0.8795)	**6.98E-08 (3.8393)**	**1693213. (3.8393)**
İs C	**9.671**	0.210	9.68E-10	**-13377218**	**5.93E-09**	**12537537**

	(0.0023)	(0.6476)	(0.4583)	**(-3.1098)**	**(2.9736)**	**(2.9736)**
Koc	0.392	0.015	3.75E-10	-2048018	**2.09E-08**	**9472591**
	(0.6765)	(0.9854)	(0.0773)	(-0.8772)	**(5.2133)**	**(5.2133)**
Migros	**15.068**	0.786	6.74E-09	**-4352447**	**1.43E-08**	**2383093**
	(0.0001)	(0.3771)	(0.8868)	**(-3.8817)**	**(1.8415)**	**(1.9860)**
Petrol	0.873	0.224	-1.12E-08	-376984	**3.17E-08**	**2092628**
Ofisi	(0.3520)	(0.6367)	(-0.9346)	(-0.4735)	**(2.7976)**	**(2.7976)**
Sabanci	10.802	0.021	-3.55E-10	**-13613795**	**6.06E-09**	**10552649**
	(0.0013)	(0.8847)	(-0.1453)	**(-3.2867)**	**(2.6537)**	**(2.6537)**
Sisecam	1.349	0.211	-6.42E-09	-684608.5	7.19E-09	325641
	(0.2480)	(0.6470)	(-0.4591)	(-1.1613)	(0.5080)	(0.5080)
Tansas	1.549	1.179	-1.62E-08	-768391.2	2.00E-08	1070816
	(0.2160)	(0.2801)	(-1.2443)	(-1.0856)	(1.5500)	(1.5500)
Tofas	0.055	1.483	-2.98E-09	-960124.6	**4.51E-08**	**2793453**
	(0.8147)	(0.2259)	(-0.2348)	(-1.2179)	**(3.9841)**	**(3.9841)**
Tupras	0.072	0.321	4.97E-10	-2793344.	-2.96E-10	-87528.
	(0.7891)	(0.5724)	(0.2681)	(-0.5662)	(-0.1595)	(-0.0176)

r_t = Monthly stock returns
f_t = Net foreign investor inflows
* Represents Granger-Causality coefficient for the associated variable. The numbers in parentheses represent the probability of rejecting the null hypotheses that returns (inflows) do not Granger-cause inflows (returns).
** Represents the VAR coefficient for the associated variable. The numbers in parentheses represent t-statistics.
- Bold figures in the table indicate significance at 10% level.

These findings have very important implications for policymakers, too. Since the existing trading behavior of foreign investors might have a serious destabilizing effect on Turkish stock market, particularly in turbulent periods, it is essential for the policymakers to closely monitor foreign investors' trading patterns to prevent a sudden capital flight from Turkish stock market.

The test results also reveal that change in past returns significantly Granger-cause the change in present flows at 5% significance level. These results further support the existence of feedback strategy in foreign portfolio investor and are consistent with the earlier findings in terms of correlation coefficient between the change in returns and the change in flows. However, the sign of the Granger-causality coefficient is negative which leads to the inference that foreign portfolio investors in Turkey follow a negative (contrarian) feedback strategy and thus sell past month's winner stocks and buy past the previous month's losing stocks. Even though this finding is contrasting with the seminal literature which document the existence of positive feedback strategy in majority of the emerging markets, it is in parallel with the findings in lead-lag flow relationship suggesting a high volatility of returns caused by the foreign investors' inverse asset allocation strategies on monthly basis. This finding is analogous to the perception that foreign investor's massive selling and a sudden capital outflow from emerging markets trigger the financial crises by leading to sharp declines in domestic stock prices and moving stock prices away from their fundamental values.

From VAR test results, it can also clearly be observed that present month's stock returns are significantly affected by past month's returns as well as past foreign portfolio flows on these stocks, however with opposite signs.

Specifically, in bivariate VAR equation, it can be seen that when taken as the endogenous variable, the coefficient of lagged monthly return is negative whereas the coefficient of lagged flow, when taken, as the exogenous variable is positive.

The positive coefficient between past flows and present stock returns indicate that foreign investors' trading in previous month is influential in determining current month's stock returns in general and has a positive impact.

These results also support the argument of tight monitoring of foreign investors' trading in Turkish stock market and accordingly take necessary precautionary measures to halt a sudden and massive capital outflow from the country. The policymakers in Turkey has initiated such an action in January 2006 by imposing a withholding tax on capital gains from all marketable securities and other capital market instruments.[5] The main ration for such an act was to discourage foreign investors from changing their positions frequently, albeit at a possible cost of reduced foreign portfolio inflow to Turkish stock exchange. However, notwithstanding the prevailing global market conditions has been the predominant trigger for an unprecedented massive shock experienced in Turkish markets in May 2006, the policymakers have removed the withholding tax on capital gains for foreign investors to shun a possible further destructive effect of taxes on existing turmoil.

Similarly, during Asian crisis, Malaysia has been less affected from the Asian crisis by imposing modest restrictions on the borrowing and lending by non-residents to prevent a sudden capital outflow.[6]

The results obtained from OLS analysis are analogous to those obtained from VAR analysis. Particularly, the results suggest a significant contemporaneous interaction between current month's returns and foreign investor flows for 14 stocks, which correspond to 70% of the whole sample. These findings elucidate the existence of contemporaneous price pressure effect by foreign investors in Turkish stock market. Specifically, the results show that foreign investors' net inflows in stocks seem to augment the prices of these particular stocks during a particular month. This result is not surprising considering the massive trading power of foreign investors in IMKB.

Nevertheless, unlike the results gathered from VAR analysis, when the current month's return is taken as the independent variable in OLS equation, the sign of the coefficients is positive. These results further confirm the evidence that, foreign investors flow a very dynamic asset allocation strategy in Turkish stock market and the stock returns seem to be an important factor in foreign investors' trading strategy. In particular, the results indicate that even though the foreign investors seem to be net buyers for the winning stocks in a particular month, they reverse their positions for the following months and sell their holdings, most likely for profit realization purposes. This result is likewise not surprising, since exit barriers like capital gain tax is not existent in Turkish stock market allowing a free reallocation of financial assets in Turkish stock market.

Overall, the results obtained from VAR and OLS analyses can be summarized as follows:

- For majority of the stocks in the sample, past period stock returns do seem to Granger-cause current foreign portfolio inflows; results consistent with the findings in earlier studies on emerging markets.
- The sign of the Granger-causality coefficient between past stock returns and present foreign portfolio flows on the associated stocks as well as the sign between past and

[5] The investors who hold their stocks for at least two years would be exempt from the tax.
[6] In Malaysia, borrowing and lending in foreign currency from/to nonresidents was freely allowed subject to a net overnight open position in foreign currencies.

present flows is negative specifying that foreign investors frequently switch their positions on largest size stocks and tend to buy (sell) previous month's losing (winning) stocks. These findings also reveal the existence of a significant negative feedback in Turkish stock market. This is somewhat in contrast with the findings of the studies on emerging markets where positive feedback strategies were found to be more dominant in foreign investors' portfolio decisions.

- The results also indicate that past month flows do not seem to Granger cause present month returns except some few stocks in the sample.
- There is a significant bilateral contemporaneous interaction between foreign investors inflows and stock returns in Turkish stock market, as pronounced in OLS test results. Unlike VAR results, the sign of the interaction coefficient is positive pointing out the fact that stocks with an increasing price trend seem to foster the appetite of foreign investors leading to a further increase in net inflow of these stocks in a particular month. Furthermore, the significant positive impact of foreign investor inflows on current month stock returns denote the existence of contemporaneous price pressure effect in Turkish stock markets, which basically stems from the manipulative power of foreign investors on stock prices in Turkish stock market.
- There are very crucial implications of these results for Turkish policymakers. The significant influence of foreign investors trading on stock returns, imply that a sudden and massive capital flight could result in major fluctuations and destabilization in Turkish stock markets, as recently experienced in 2001 and 2006. This possible destruction in financial markets can be avoided by taking certain precautionary measures or restrictions on foreign investors' trading that has been moderately applied in some emerging markets such as Malaysia during the Asian crisis.

Conclusion

International finance literature contains numerous studies examining the foreign investors' trading patterns, particularly in emerging markets. Majority of the studies have documented that foreign portfolio investors display a return-chasing behavior and positive feedback strategy in their portfolio investment decisions on emerging markets.

Some of these studies have also attributed the causes of major global crises to foreign investors' massive selling behavior before and during the crises resulting in a sudden capital outflow while some studies have found no significant interaction between non-resident investors' trading behavior and stock returns during the crisis periods.

This study, particularly, attempts to examine the portfolio investment patterns of foreign investors in Turkish stock market, which stands as one of the most appealing emerging stock markets for international investors revealed by the noteworthy surge of portfolio inflows by non-residents in the past months, owing mainly to the relative stability in major economic indicators and remarkable progress in European Union membership access.

The interdependence between foreign portfolio inflows and returns has been tested by a bivariate VAR analysis.

The results gathered from VAR analysis are indicative of a significant Granger-causality relationship between foreign flows and returns. Specifically, the results show that while foreign investors are engaged in negative (contrarian) feedback strategy by buying (selling) past month's losers (winners), their trading behavior in past month also have a strong price

pressure effect on associated stocks for the full sample period. Similar results have been obtained for the sub sample of 2001 crisis period, too.

These results carry very vital propositions for Turkish policymakers stating that enforcing some control on foreign capital flows might be effective in monitoring and preventing sudden capital outflow from the country which in turn might be detrimental in achieving short and long run stability in financial markets, as experienced recently in 2001 crisis.

Appendix 1: List of Sample Stocks and Observation Periods:

Stock Name	Observation Period
AKBANK	January 1997- April 2006
AKSIGORTA	January 1997- April 2006
ALARKO	January 1997- April 2006
BEKO	January 1997- April 2006
DOGAN HOLDING	January 1997- April 2006
ENKA	January 1997- April 2006
EREGLİ	January 1997- April 2006
FINANSBANK	January 1997- April 2006
FORD OTOSAN	January 1997- April 2006
GARANTI BANK	January 1997- April 2006
HURRIYET	January 1997- April 2006
IS BANK (C)	January 1997- April 2006
KOC HOLDING	January 1997- April 2006
MIGROS	January 1997- April 2006
PETROLOFISI	January 1997- April 2006
SABANCI HOLDING	July 1997- April 2006
SISECAM	January 1997- April 2006
TANSAS	January 1997- April 2006
TOFAS	January 1997- April 2006
TUPRAS	January 1997- April 2006

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Wages and Bottlenecks: Home-Based Work and Factory System in İstanbul

Information Structures of Employment and Rigidities Embedded in the Organization of Home-Based Work

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Analyzing two research projects on the industrial home-based work (HBW) in 2003 and 2006 in Istanbul, Turkey, this paper argues that two forms of rigidities shape the organizational characteristics of the HBW: limited physical mobility of the homeworkers and the in-built pressures within the labor process of the factory system.

On one hand, the rigidities regarding the mobility of homeworkers determine the conditions of the labor process of the HBW. Among some dimensions of the labor process of HBW, mechanisms for the distribution of piecework, the training of homeworkers, or storage of the piecework are directly related with the physical mobility of homeworkers. On the other hand, the co-existence of labor- and capital-intensive processes in the factory system unavoidably creates management bottlenecks, which account for another form of rigidity. HBW appears as the solution for such management problems.

These corresponding rigidities characterize the organizational variety of the HBW. Negative work conditions of the homeworkers such as low piece-wages and precariousness in the employment practices are accounted for by these rigidities.

As much as the low piece-wages generally associated with the HBW in the literature. Thus, investigation of the HBW should go beyond the argument about the low piece-wages and start to analyze the actual conditions of organization resulting in the deteriorating conditions of work for homeworkers.

The literature emphasizes the centrality of the low piece-wages turning this form of labor into an alternative for the factory system. Although the research projects analyzed in this paper verify this consensus, two forms of rigidities motivate both workers and employers to 'get into the HBW-nexus':

Homeworkers shape the organizational arrangements significantly, given that HBW does not pertain to a formal form of employment. Thus, their conditions of physical mobility account for a key element in the organization of HBW. Since the state of mobility by homeworkers is rather one of rigidity than an advantage, their regarding condition should be the focus to understand the mindsets of the homeworkers.

Introduction

The centrality of information structure of employment is one of the key themes in the literature on the structure of labor markets (Shapiro and Stiglitz, 1984). The analysis of home-based work (HBW) provides in this regard precious insights, because the investigation of the organization of this form of labor reveals significant dynamics of the dissemination of information in the labor market. In this context, this paper will investigate the organizational characteristics of HBW through the analysis of two dimensions.

First, most of the homeworkers are women suffering from the social limitations on their physical mobility: HBW signifies this group of workers with limited physical mobility within an informal form of employment. Thus, their attempts to bypass their disadvantages in this sense characterize the organization of the HBW. *Second*, HBW complements or substitutes for the factory system. Inasmuch as market conditions of a particular industry shape the organization of the labor process within the factory, factories in labor- and capital-intensive industries have different relations with the HBW: in the easy-entry sectors, HBW provides advantages related with the product differentiation. Another striking outcome emerges in labor processes of factories combining various activities of differential capital-intensiveness under one roof. The coexistence of these activities yields management bottlenecks. Home-based work appears as a solution for this problem.

In other words, two kinds of rigidities shape motivations on the part of homeworkers and factory managers: *limited physical mobility of homeworkers* yields complex organizational arrangements for the distribution of piecework and for the organization of the respective labor process. *The in-built pressures within the labor process of the factory system*, such as difficulties to organize various processes of differential labor-intensiveness within a single labor process, accounts for another rigidity characterizing the conditions of home-based work.

The argument of this paper is that these two forms of rigidities characterize this segment of the labor market. In other words, in order to have a realistic understanding of the information structure of this form of labor, the motivations related with these rigidities should be investigated. The paper will summarize the research findings of two projects. This author was the research assistant for the project conducted for United Nations Development Program in 2003 (Bugra and Keyder, 2003). In 2006, Esra Sarioglu and this author conducted another research for Social Policy Forum in Istanbul (Balaban and Sarioglu, forthcoming in 2007). The setting for these projects was Istanbul, Turkey.

The focus is on the organizational aspects of HBW that assure the control over labor process. The investigation of the organizational arrangements for labor control reveals the characteristics of the target rigidities. The piece wage is in the literature widely regarded as the primary means of labor control of HBW. However, our observations buttressed the argument that organizational means embedded in the HBW are as important as the piece wage in the control of labor.

Basic Concerns in the Literature[1]

[1] For a more detailed review, see Balaban and Sarioglu, forthcoming in 2007.

in the characteristics of the distributive mechanisms. Thus, the conditions of the information dissemination are the key for the organization of the work. Analysis of these distributive mechanisms accounts for an essential part of any investigation of HBW.

The increasing volume of international trade has prioritized this particular form of industrial labor, since the flexibility provided by the HBW is a precious asset for the Turkish firms competing with bigger capitals, always one step ahead in terms of technology and the knowledge of the markets. The organizational dynamics of this particular form of industrial labor determines the chances of the firms located in the middle-income countries such as Turkey in the global markets. Despite the recent significance to the global industrial relations, HBW should not be exclusively associated with the contemporary globalization.

In a historical context, HBW is essentially related with the proto-industrialization: it appeared as one of the predecessors of the modern factory system and assigned an important role to merchants in inchoate modern industry (Mendels, 1972; Kriedte et al., 1981; Coleman, 1983; Berg et al., 1984; Mathias and Davis eds, 1985). In this regard, the analysis of organizational characteristics of Kaufsystem and Verlagsystem in particular and cottage industry in general helps to understand the historical conditions for the particular mode of control usually associated with the factory system (Safley and Rosenband, 1993).

The HBW also played a significant role in the Industrial Revolution of the 19th century. The Revolution gave rise to a new boom for industrial production at home: the putting-out system flourished rapidly in the small towns and even villages of England, Continental Europe, and Northern America. In other words, the factory system boosted the putting-out system (Bythell, 1978; Jones, 1971; Scranton, 1984). That is, industrial production at home and other workplaces were not mutually exclusive and, especially in the 19th century, complementary.

The HBW with the expansion of the contemporary global commodity chains has been having a new role in the global industrial relations. The HBW in the 19th century mostly contributed to the innocuous modern industry. Thus, the factory system cannot be regarded as the ultimately unique form of industrial labor eventually replacing the HBW and other forms of industrial labor. With the increasing importance of informal economic activities since the 1970s, the 'rebirth' of the HBW proved this argument once again: industrial production at home is now the key to understand the characteristics of the vertical structure of the commodity chains (Beneria and Roldan, 1987), the extent of the informal economic activities in the national development (Benton, 1990; Hsiung, 1996; Mehrota and Biggeri, 2002), and the role of 'teleworking' in high-income countries (Pratt, 1984; Coates, 1988).

The HBW in most of the cases pertains to a relatively horizontal form of work organization. Thus, in order to understand the role of the HBW in the vertical industrial coordination, it is necessary to understand the conditions of the mediation between homeworker women and organizers of various sorts (Beneria and Roldan, 1987; Dangler, 1994; Lui, 1994; Hsiung, 1996). Women predominantly constitute the work force of contemporary HBW (Tomei, 2000). Thus, 'household dynamics' characterize the labor process of HBW: these dynamics usually appear to limit the physical mobility of women and deteriorate their work conditions. The current organizations of HBW reflect the efforts of homeworker women to evade these

difficulties. Thus, the characteristics of distribution of piecework is the key to decipher the mobility-related problems on the part of homeworkers women.

However, one of the silences in the literature investigating the contemporary conditions of the HBW is about the links organizing the distributive mechanisms (Lui, 1994). Firms and their middlepersons have to develop creative organizational strategies around the prevalent social norms controlling the physical mobility of homeworker women: the locally shaped patriarchal relations characterize the organization of the HBW (Gringeri, 1994). These relations not only shape the conditions of HBW, but also affect the labor process of the related factory system, although as the HBW is the satellite form of labor for the factory system.

The difficulty to theorize the role of the HBW in this context does not only derive from the fact that it represents a form of horizontal industrial coordination in a vertical system of industrial control. It is also related with the attempt to conceptualize organizationally distinct activities as a singular activity ranging from the teleworking in the Global North to the industrial HBW in the Global South.

For the sake of conceptual clarification, Prugl and Tinker derive 'from empirical descriptions four categories of home-based work'; industrial homework, crafts production, food producers and vendors, and new homework (or teleworking) (1997, p. 1472-1473). 'Homeworker' is accordingly the dependent employee working at home within an industrial division of labor, while 'home-based worker' covers all those who work at home for pay, including industrial homeworkers, the self-employed, crafts producers, and subsistence homeworkers' (Prugl, 1999, p. 159). In the literature, another tendency is to make a distinction between 'dependent' or 'subcontracted' workers and 'own-account workers' (Pearson, 2004).

These conceptual interventions reveal the multifarious nature of our subject matter: the organizational variety characterizes the working conditions of worker women. In this regard, the HBW should not be taken as a 'satellite' activity only. Although it is an extension of the global value chains and the labor processes of other forms of industrial labor such as factory system are also central to the internal organization of the HBW, it has its own independent dynamics. These independent dynamics produce this organizational variety, which in return bears the need for further attempts for classification. This paper will not elaborate on these conceptual issues about multidimensional nature of the HBW. It rather aims to touch the organizational ingenuities as the product of the local organizers, homeworker women, and factory managers.

In short, regardless of how it is categorized, the dynamism of the HBW is underestimated: 'the dual-market theory' (e.g. Lui 1994) or 'the global value chain debate' (e.g. Carr et al, 2000) usually fails to theorize the potentiality for change and, hence, causes for variety. One of the concerns to focus on the motivations of homeworkers and management of the factories is to deepen our understanding of the information structure pertaining to this form of industrial labor.

The organizational mediation is not necessarily structured by the firms: homeworker women use their creativity to establish networks and resort to their knowledge of the local. Thus, the conditions leading to the local organizational differences shape the motivations of the firms as

well as the conditions of cooperation among homeworker women: the investigation of the factors yielding these differences reveals the conditions of the information dissemination.

Conditions of Control: Mobility of Homeworkers and the Characteristics of the Labor Process

In most of the cases, homeworkers are homeworkers, since they cannot find a better opportunity in the labor market. The vulnerability of homeworkers, as the very reason for the existence of HBW, is reflected on the wage levels of homeworkers: in our sample for the research in 2006 comprising seventy-five homeworkers, only the earnings of three homeworkers catch the minimum wage level (Balaban and Sarioglu, forthcoming in 2007).

Our observations, in this regard, verified the widespread conviction that the relative disadvantage of homeworkers is closely associated with the social conditions restricting their physical mobility such as the gender dynamics and the burden of house chores. In other words, HBW exists in Istanbul as a result of this rigidity in the labor market. Its source is the relative physical immobility of a significant portion of labor force; women.

Thus, this very rigidity accounts for the organizational characteristics of the form of labor perhaps more than any other single factor. However, the same relative immobility of homeworkers also gives rise to significant organizational problems on the part of firms, since the control over the labor process turns out to be a major challenge. Firms in Istanbul use middlepersons for the distribution of the piecework. These middlepersons work with complex networks of HBW.

Generically, control over the labor process of HBW requires the control over urban space. These networks are intended to provide this control. However, to keep the integrity of these networks is a major challenge for their organizers. Many orders require training of homeworkers and the turnover periods are usually short. Thus, HBW organizers need to establish certain mechanisms facilitating constant training for homeworkers, assuring fewest defects on processed materials, and guaranteeing on-schedule returns by homeworkers. The structural difficulty is to provide the flexibility in order to expand or narrow down the size of HBW network instantly following the size of orders. Thus, HBW organizers keep close relations with homeworkers and intervene in their labor practices.

On the part of HBW networks, two dimensions analytically distinguish between different HBW practices in terms of mechanisms of control: distribution mechanisms and characteristics of tasks.

Mechanisms of Distribution

There are two mechanisms of distribution of piecework in Istanbul; street networks and HBW-shops:

i) Street networks are organized as sub-networks of city-wide HBW organizations. The materials are distributed with the motor vehicles of organizers. Each city-wide organization is capable of employing up to 1,000

homeworkers. Though this form generates flexibility, it is not suitable for training. Some orders require processing bulky materials leading to problems of storage. The control is assured mostly through the heads of street-networks operating as 'foremen' of their streets. These networks sometimes organize themselves as gangs strictly complying with the delivery and pick-up times of the orders.

ii) HBW-shops provide orders for homeworkers in the same neighborhood and operate as both storage and training facilities. Employment capacity of an individual HBW-shop is limited, yet it assures more direct control on homeworkers thanks to the face-to-face relationship between HBW-shop owners and homeworkers. Successful HBW-shop owners open branches in other city-quarters and enlarge their networks. The gist of success in this business is to manage to organize the largest pool of homeworkers possible. This enhances the organizational complexity. Enlargement of the network for this form is usually a slower process than organizations controlling street networks.

Characteristics of the Tasks

The second dimension determining the conditions of control is the characteristics of tasks. Two categories characterize different HBW orders:

i) *Tasks related to the increase of market price of finished goods.* Industries experiencing a fierce global competition use the HBW for product differentiation. Especially for the labor-intensive industries with low-entry barriers such as the textile industry, skilled labor of women adds significant value to the final product: embroidery on finished garments is a good example. Tasks under this category cannot be integrated to the conventional factory system, since the very nature of such processes makes it impossible to turn them into routine acts. That is exactly why HBW gives the firms in such industries enormous competitive advantage as a result of the high pace of product differentiation.

ii) *Tasks related to the assembly of semi-finished products.* Such tasks are more bound to the location: proximity to the industrial area/factory/sweatshop is certainly an advantage for homeworkers. HBW-practices within this scope appear as 'satellite' activities and extension of the labor process of the factory system: HBW complements the factory system with the motivation to optimize the output within the factory, while the value-added by the HBW-related activities might be low. In other words, HBW is part of the overall organizational arrangements, an extension of the factory system.

These mechanisms of distribution and characteristics of tasks are particularly related with the characteristics of industries and the positions of the firms within those industries.

Conditions of Management: Wages or Bottlenecks?

Certainly, 'the wage factor' accounts for the willingness of the firms controlling factories to use the HBW as an informal form of industrial labor. Our research experience proved this point once again. However, this should not deflect our attention from the organizational motivations of the firms, which extend their operations from their factories under their direct control to the fuzzy zone of HBW; a sphere, where the control is shared with the HBW-shops and street networks.

In order to understand the motivations of the firms to use the HBW despite their decreasing control over the labor process, we should analyze the differences in technical problems between capital- and labor-intensive industries.

i) *In labor-intensive sectors* such as textile sector, global competition yields a constant tendency of the profit rate to fall. Thus, skilled labor is used for product differentiation. In this case, HBW appears as a phase exogenous to the labor process of the factory. The internal organization of work at the factory is not harmonized with the conditions of the HBW-related processes. Given the labor-intensive nature of the overall supply chain, the labor process of the HBW is not necessarily more labor-intensive than the labor process of the factory.

ii) *In capital-intensive sectors*, the tendency to use the HBW is related with the reluctance of management to keep processes of different productivity under the same roof: this increases the organizational rigidity in the factory due to time losses for transfer of workers among departments. In such an environment, flexible management strategies are difficult to implement. Under these circumstances, HBW signifies the use of unskilled labor for routine processes. This distinction in the characteristics of tasks impacts the methods of distribution, training, and storage. Since there is a generic difference in skill requirements, the first kind of tasks implies a closer supervision. Thus, HBW-shops usually organize tasks requiring skilled labor, while street networks fulfill more routine tasks.

These two major motivations appear to account for the increasing use of HBW in various industrial activities in Istanbul, besides the low piece wages paid to the homeworkers. Some repercussions in regard to the organization of the labor market can be summarized as the following:

i) The organization of HBW is closely associated with the organization of work of the factories using the HBW as a 'satellite' form of labor.

ii) In labor-intensive industries, HBW signifies the use of skilled labor. Skilled homeworkers suffering from their incapacity of physical mobility turn this situation into a bargaining chip. Their skills cannot be incorporated into the labor process at the factories within such industries. In other words, the labor process of the HBW and the factory system are not integrated.

iii) In capital-intensive industries, HBW is organically linked to the labor process of the factory. Factories of capital-intensive industries house various processes

of differential labor productivity. This variety creates significant management problems: the transfer of products between departments of differential productivity causes bottlenecks in terms of the time management and procurement of the materials. One way of ameliorating this generic problem is to subcontract especially the processes of low productivity. HBW comes into the picture at this point and alleviates the complexity of the factory system.

iv) In relation with the organization of work at a factory, there is a relationship between the capital-intensiveness of the factory and the organizational characteristics of the HBW. If the HBW is used in order to subcontract the labor-intensive processes out of a factory for the integrity of its internal labor process, the labor processes of the HBW and the factory system are closely connected. One of the reflections of this connection is the physical proximity of the HBW activities to the factories. Throughout the projects in 2003 and 2006, we observed that, almost without any exception, HBW networks processing piecework from capital-intensive factories are close to those factories.

HBW and Factory System in One Unitary Supply Chain

Taking the motivations of and organizational requirements for organizers of HBW and factory managements, it is possible to have a comprehensive picture of the way that information is disseminated and used for the organization of the work. The restrictions on the physical mobility of homeworkers limit the geographical scope of the distribution of the piecework. Thus, the relevant mechanisms of distribution in an industrial district determine the applicability of management strategies relying on the extensive and systematic use of the HBW. Similarly, factories housing processes of differential levels of variety in terms of capital-intensiveness of those processes resort to the HBW under different circumstances, with different expectations, and through different means.

In the presence of various possibilities of distribution for the factory-owning firms, a few parameters play an important role about which mechanism of distribution is to be chosen.

i) Difficulty of the task: HBW-shops provide training for homeworkers: in some cases, the shop owner deals with each homeworker individually. In the absence of such a need to train the homeworkers, street networks provide a faster distribution of items and a wider spatial scope for the distribution net.

ii) The size and weight of the piecework: given the limited physical mobility of homeworkers, bulky and/or heavy piecework cannot be distributed from the HBW-shops. Street networks should be accessed by the motorized distributors organizing both the distribution and the final delivery.

iii) The storage-related problems: in certain cases, piecework dirties the homes. Thus, homeworkers want to return them as soon as possible. In other cases, the piecework should be immediately returned, since items are easily spoilt. Under these circumstances, HBW-shops provide a safe solution for such problems.

iv) The value of the piecework: street networks provide a closer supervision for individual homeworkers. Hence, the more valuable the piecework is, the higher the tendency to use the street networks.

If the factory uses the HBW in order to oust the labor-intensive tasks out of its labor process, the HBW-tasks usually do not require skills. Similarly, if the factory organizes mostly the labor-intensive tasks, then the HBW is used for product differentiation. Thus, although this mental map gives us some sense of the rationalities of different factory managements with different motivations in their decisions of which distribution mechanism to use, other factors related with the content of the piecework and the related labor process are equally important in this decision.

These technical concerns, however, also reflect the internal organization among homeworkers. There are multiple factors affecting which form of distribution is to be relevant in a particular district and which form of tasks (completion of the assembly of semi finished products *or* addition of value to the completed products) are to be preferred by homeworkers. We do not touch this subject in this paper. However, apparently these organizational choices on the part of the homeworkers are equally important to determine the extent, the scope, and the characteristics of the HBW.

A factory manager trying to oust the labor-intensive processes at her factory through the HBW might find out that she can only utilize the networks within the district of her factory, given multiple problems of logistics and organization. Furthermore, she might be surprised by the fact that the distribution mechanisms in that district are not capable of providing the kind of service, which her factory needs. In such a case, this factory manager has basically two choices: to continue with the conventional labor process at her factory or to aggressively push on the middlepersons in order to build the intended HBW networks. The second alternative means higher piece wages.

Similarly, a factory manager suffering from the cutthroat competition within his industry needs to find ways to differentiate his products, if the increasing capital-intensiveness is not necessarily to bring about competitive advantage. HBW provides a relatively cheap solution: nice embroidery on a blouse would add tens of dollars to the final value of the product. In this case, the piece wage again might be a secondary concern. Thus, in the absence of an elaborate system of HBW-networks, the primary aim would be the creation of such a workforce with increasing wages.

Conclusion: The Tension within the Home-Based Work

Characteristics of the information dissemination for the HBW reflect the diverse interests of the homeworkers and the factory managements. Once these two sets of interests meet each other, we observe successful HBW networks *substituting for* certain tasks normally associated with the factory system. In other cases, HBW organizations fulfill tasks not suitable to the factory system. In other words, these networks *complement* the factory system.

On the part of the homeworkers, most of whom are women, the limitations on their physical mobility put them in a vulnerable position in the labor market. Thus, they constantly develop strategies in order to turn their disadvantages into bargaining chips: the cooperation among homeworkers within informal networks of HBW is the primary means to have a stronger position vis-à-vis the middlepersons and ultimately vis-à-vis the firms using the HBW as a satellite form of industrial labor. Our research in 2003 and 2006 prioritized two forms of

distribution, which emerge as a result of the efforts by homeworkers for networking: HBW-shops and street networks. These networks either finish the assembly of semi-finished products or reprocess the completed products for the sake of product differentiation. The former kind of tasks is usually low-skilled in comparison to the latter.

On the part of the firms operating large-scale places of production such as factories, HBW appears the solution for two distinct problems corresponding to two categories of HBW-tasks: firms in the sectors with low entry barrier need economical ways for product differentiation. They resort to the skilled labor of homeworkers. Other firms in the capital-intensive sectors use the HBW in order to have a 'lean conveyor belt' composed of processes with similar level of capital-intensiveness and, hence, productivity. This alleviates the bottlenecks within the overall labor process, eases the calculation of the externalities, and reduces/minimizes the transaction costs.

The characteristics of the information dissemination are essentially associated with the conditions of how these two dynamics are engaged with each other. This engagement structures the HBW networks. At this juncture, a dilemma characterizes the fuzzy nature of this form of industrial labor: in order for the HBW-networks to function effectively, homeworkers should enjoy a fairly free flow of information about the piece wages and the content of the operations. That is why homeworkers strive to organize themselves in these quite elaborate organizations. However, by the same token, the very reason why they are homeworkers is that they suffer from a very imbalanced and stratified information structure. This stratification turns them into a malleable source of labor. Thus, as a result of the perfection of the HBW-networks, HBW ceases to be 'the best solution' for the firms operating factories and using the HBW as a satellite form of industrial labor.

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Free Trade, Ethics and Information: Reconciling International Trade with National Ethical Standards

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Increasing globalization and free trade agreements have generated a number of controversies. One significant issue is the potential conflict between free trade and ethical standards. While free trade in theory need not be antithetical to ethical standards, as defined in practice by major trade organizations free trade conflicts with national ethical standards for issues such as labor standards, environmental impact, and animal welfare. The concerns of trade organizations on this issue have some merit. However, the one-sided position of trade organizations is both flawed and politically unsustainable. A balance must be achieved between legitimate ethical issues and minimizing trade barriers. Guidelines or principles are presented for how trade organizations can balance legitimate ethical issues against free trade considerations. In addition, it is argued that the provision of *information* valued by consumers should be allowed as a matter of general principle. In fact, the rather than information provision being a trade barrier, the *prohibition* of information provision is in fact a trade barrier.

Introduction

Increasing globalization and free trade agreements have generated a number of controversies. One significant issue is the potential conflict between free trade and ethical standards. This issue has received some attention, though the extent of the discussion has been very limited relative to other concerns about trade policy. While free trade in theory need not be antithetical to ethical standards, as defined in practice by major trade organizations free trade conflicts with national ethical standards for issues such as labor standards, environmental impact, and animal welfare.

The objective of this paper is to reconcile free trade objectives with ethical considerations. The sources of conflict and its relevance are described, followed by suggestions for possible solutions. Solutions include a set of guidelines for reconciling ethics and trade, as well as advocating a general rule in favor of the provision of full information.

The Problem: Why Ethical Standards and Free Trade Conflict

Conflict arises between nations' desire to regulate their own markets and trade organization rules when countries attempt to implement ethical standards or ethically-relevant labeling and these ethical standards are not related to the observable attributes of the final product. How something is produced matters for a variety of ethical reasons. It matters for the environment (e.g. pollutants, carbon emissions, and habitat destruction), for labor standards (e.g. child labor laws, wage levels, abuses of worker rights), animal welfare issues (e.g. tuna bycatch of marine mammals, minimum space standards in animal agriculture, agricultural practices deemed cruel), as well as other ethical issues.

While free trade in theory need not be antithetical to ethical standards, as defined in practice by major trade organizations free trade conflicts with national ethical standards for issues such as labor standards, environmental impact, and animal welfare. Trade organizations such as WTO, NAFTA, and GATT explicitly state that only final product attributes are relevant and production process is irrelevant. According to WTO rules, even labeling for process and production method information is not legitimate unless it is related to product safety (Hobbs, et al., 2002).

There have been some discussions relevant to this topic including Hobbs et al (2002), which discusses animal welfare regulations in relation to the WTO, and Gasiford et al (2001) which discusses the role of product attributes that are ethical rather than utilitarian in nature and notes that they have become more important lately. However, in general the discussion of the conflict between ethics and trade has been very limited relative to the amount of attention paid to numerous other concerns economists have expressed regarding trade policy. In fact, it appears likely that many economists in the area of trade policy have never given serious thought to this issue.

Generally, trade organizations have held that production process is irrelevant and cannot be a basis for regulation if the final product remains unaffected. Economists in general frequently appear to also implicitly assume that production processes are irrelevant if they do not affect the tangible attributes of the final product. Although most economists do not explicitly state

that production process factors are *not* part of the relevant attributes of a good, the assumption is often implicitly made by exclusion when economists state what dimensions of a good *are* relevant. For example, when describing what qualities affect consumer demand for food products, Caswell and Mojduszka (1996) describe product quality as "a bundle of characteristics (attributes) that determine the product's performance". The authors draw their approach from a text on consumer demand (Lancaster, 1971). When discussing the validity of the contingent valuation methodology, multiple arguments are made in Hausman (1993) that ethical dimensions of value should be excluded from total value. But ethical dimensions of value do exist, and do affect demand even if they are not visible in the final product. Frank (2005) argued that ethical issues in the production process are valid attributes for consumer consideration even when final products are identical. If economists follow the principle "De gustibus non est disputandum", then these attributes are relevant because consumers place value on them.

Even if an attribute does not affect a good's performance, it is relevant as long as consumers care about it. The key test for whether an attribute is relevant is whether it would affect demand in a perfect information environment. For example, Teisl *et al* (2002) found "dolphin safe" tuna labels to be relevant to consumers, even though the product itself would be indistinguishable without the label. Yet despite the relevance of the dolphin safe label to consumers, it has nevertheless been ruled to be a "trade barrier". Although the "dolphin-safe" attribute of the good cannot be observed without labeling or outside knowledge and though it does not affect the good's performance, it is embedded in the good in the sense that it is associated with the process required to create and bring the good to market.

Embedded ethical attributes are much more common in goods than generally realized (Frank, 2005). For any good in which at least some consumers change buying behavior based on ethics, the market price of that good is at least partially ethically determined. Consumers boycott brands based on where they advertise, company dealings with certain other firms, union contracts or labor practices, environmental practices, testing of products on animals, country of origin, and countless other reasons. It is not unreasonable to say that the prices of the majority of goods contain an embedded ethical dimension.

People in the United States have been shown repeatedly in surveys to care about ethical factors in good purchases that may not be apparent in final products. A 1991 study by the Environmental Protection Agency (EPA) concluded that American consumers consider the environmental consequences of their purchase decisions (EPA, 1991) while USA Today poll found that 57 percent of people said they would pay 15 percent more for groceries package in recyclable material, and 52 percent of people said they had stopped buying from companies that they believed were polluting the environment (USA Today, 1990). RoperASW conducted a poll that found 33 percent of the population bases their spending in part on environmental values. A survey by the Natural Marketing Institute found that about 33 percent of the population takes environmental and social issues into account when making purchases (Cortese, 2003). In a 1983 survey, 15 percent of people said they had boycotted a company or product because they were believed to harm animals (DDB Needlam, 1983). In a Gallup poll, 62% of people said that there should be strict laws passed regarding the treatment of farm animals (Moore, 2003).

There are clearly some valid reasons for allowing nations to regulate trade based on their ethical norms. Even economists associated with a laissez faire perspective acknowledge importance of public ethical standards. For example, Milton Friedman is well-known to have argued that firms should only focus on maximizing shareholder value. But in order to do so and maintain some ethical standards within a nation, Friedman argued that ethical constraints must come from societal rules and consumer choices.

So if there are to be any ethics, society must be able to control market constraints.

Virtually all economists acknowledge that ethics outside of market forces have at least some place in society. This in turn implies that nations must have some legal control over ethical rules and standards.

At the same time, the concerns of trade organizations on this issue have some merit. A country could create a law ostensibly based on a moral principle as a method to limit foreign competition. Trade barriers can easily be created and legitimized under a facade of ethics. Strict labor policy or wage standards could exclude all developing world imports. For example, if the United States decided that it will only allow goods into the country produced by workers making at least $6/hour on average, it could position such a law as a moral issue based on labor standards while effectively eliminating competition from the developing world. Trade organizations do have a legitimate concern that ethics-based regulations do not get abused in order to intentionally create trade barriers. However, the one-sided position of trade organizations is both flawed and politically unsustainable. A balance must be achieved between legitimate ethical issues and minimizing trade barriers.

How to Balance Ethical Considerations and Free-Trade

A set of guidelines or principles are needed for how trade organizations can balance legitimate ethical issues against free trade considerations. The goal here is to create a set of preliminary guidelines as a starting point for further discussion and analysis. It is likely that trade organizations themselves will be responsible for judiciously weighing these competing factors. But this is not a new role for them. Just as trade organizations have taken the judicial role of "finders of fact" regarding, for example, whether genetically modified foods are a legitimate health concern, trade organizations must make more of an effort to judiciously balance ethical issues against free trade considerations.

There are probably many who would be skeptical of trade organizations' ability to fairly balance these competing interests. The institutional structure of trade organizations arguably works against an equitable consideration of these issues. It is possible that an alternative organizational structure is necessary to address these topics. For example, an independent judicial process could be created with membership partially controlled by NGO advocacy groups on the ethical issues in question. The optimal organization of the judicial process is beyond the scope of this paper. However, some such process appears to be necessary to balance trade vs. ethical interests just as it is with a number of other issues where multiple valid goals at times conflict.

The control mechanisms that nations use regarding enforcing ethical principals can be divided into two basic categories: (1) Laws/Regulations, and (2) Consumer ethical preferences. In the case of laws/regulations, in order to have an effective ethical control mechanism, countries must be able to establish laws that make sure goods and services sold in their country conform to their prevailing ethical standards. This is source of conflict since trade organizations have ruled these ethical standards to be barriers to free trade. In order to have an effective ethical control mechanism through consumer ethical preferences, consumers need to have access to information regarding product attributes they deem to be relevant to their consumption choices. Once again, this is a source of conflict since trade organizations have ruled even the provision of information to be a barrier to trade when it cannot be proven to be related to product safety or quality (e.g., labeling of GMO's in products, labeling of dolphin-safe tuna, labeling of animal welfare standards) even when there is clear evidence that consumers value that information.

In the past, trade organizations have resolved this conflict using one-sided policies/rulings that give credence to eliminating barriers while giving no weight to ethics or consumer sovereignty. What should be done instead is a judicious balancing of free trade concerns versus the other conflicting values (as trade organizations in theory do on other issues such as safety). How this balancing should take place will be split into the two control mechanisms described above.

Balancing issues involving consumer ethical preferences/provision of information

When it comes to allowing consumers in a nation to express their own ethical preferences in the market place, there does not seem to be any valid economic argument against allowing this to take place. Since consumers are allowed to freely choose what they consume in the market, the issue comes down to the provision of information. In other words, are mandatory, or even voluntary, labels a barrier to trade. Trade organizations have taken surprisingly strong stands against providing consumers information that consumers clearly find relevant (such as labeling GMO foods, milk with growth hormones, etc.).

Generally, economists favor markets that maximize the information provided to agents. In fact, the welfare arguments for free and open markets both domestically and globally are strongly linked to an assumption that agents function with perfect information. The only counterargument to labeling is really one of consumer ignorance and irrationality, where providing more information to consumers will supposedly cause them to behave irrationally. For example, the debate regarding GM food labeling focused on whether food safety concerns were scientifically legitimate (Scandizzo, 2002). If the safety concerns were not valid, the argument was that consumers would use the label to "irrationally" decrease their consumption of these foods. Studies have found that the majority of the American public was found to be opposed to the use of both rGBH and GM foods (Buttel, 2000 and Giannakas and Fulton, 2002). Therefore, the failure to label these facts goes against the concept of consumer sovereignty and assumes that consumers will act ignorantly against their own interests. Interestingly, the public is largely ignorant of the extent of the technology's prevalence, with only 43% of people in recent surveys even knowing that genetically modified food was available in U.S. supermarkets (Scandizzo, 2002).

A conclusion that consumers are acting ignorantly simply indicates that a group of institutionally defined "experts" disagree with the opinions of consumers. Experts can be wrong, both due to human error and due to the influence and interests of the institutions that support them. Furthermore, the consensus of experts in different countries on topics such as GM foods can differ substantially. Consumers have a right to disbelieve a particular panel of experts. They also have a right to extend a greater precautionary principle on safety issues when it comes to their own safety or other issues. While a case could be made for providing consumers with more accessible information on what experts have to say, there is very little economically valid basis for keeping consumers ignorant of facts they believe to be relevant. The idea that consumers are so irrationally that we must keep important (to them) facts about food out of their hands also runs strongly counter to the entire argument for free trade in the first place. If consumers are this irrational, then any economic argument that reducing trade barriers unequivocally raises welfare has no theoretical validity.

There is some evidence that information overload can be a problem. For example Jacoby *et al* (1974a & 1974b) found that agents can make worse decisions if they get too much information. However an experiment by Grether and Wilde (1983) do not find this to be true. If information overload is a serious consideration, then this suggests that we should be scientific and thoughtful in how information is provided; it is not a valid argument for leaving consumers uninformed regarding issues they find relevant.

In conclusion, regarding labeling and provision of information, the consumer sovereignty argument is overwhelming. There appears to be no valid counterargument why consumers should not be allowed to choose based on any information they deem valuable. While it is important to minimize the potential for misleading the public with labels and other information sources, the way to do this should be to expand information provision rather than to restrict it. Rather than being a barrier to free trade, providing consumers with relevant information is consistent with free trade—in fact it is the definition of free trade. The provision of *information* valued by consumers should be allowed as a matter of general principle. Rather than information provision being a trade barrier, the *prohibition* of information provision is in fact a trade barrier.

Balancing issues involving ethics-based regulations

For national laws and regulations, the answer is not as clear cut as it is for information considerations. Some judicial process must balance legitimacy of ethical considerations against de facto trade barriers. This should be done through a set of guidelines to aid in the balancing act. Among the factors that should be included in the judicial balancing act are: (1) Evidence of a strong ethical norm, (2) Scope of ethical norm, (3) Depth of belief in ethical norm, (4) Specificity of norm, (5) De facto barrier impact, and (6) Presumption of national sovereignty in ethical standards.

Evidence of a strong ethical norm: Generally, the stronger an ethical norm is for a nation, the more weight it should be given relative to the competing consideration of free trade. A number of sub-factors go into defining the strength of an ethical norm. One is the *history of that ethical norm*. Has it been existing or evolving in society for a considerable length of time (such as growing concern about child labor laws in the last century)? Does it show consistency

over time? *Evidence of strong advocacy groups* is a sub-factor that suggests a strong ethical norm. Strong advocacy groups are a sign that public concern over an issue is legitimate. Furthermore, when these advocates are largely independent of those with interests in restricting trade, this lends further credence to the concern. For example, if labor organizations whose members are likely to benefit financially from restricting trade are the dominant advocates of a restrictive rule, then this is less credible than advocacy by a party that has no other interest in the outcome of trade (such as an animal advocacy group trying to prohibit imports of dog and cat fur). An additional sub-factor relating to evidence of a strong ethical norm is the presence of *evidence of evolution toward norm in internal law.* If a nation seeks to prohibit imports of products of a certain type, if the ethical concern is genuine (rather than merely an excuse to restrict trade) there is likely to be internal laws at a national or local level preventing a practice that grow in strength and prevalence over time. A final sub-factor suggesting a strong ethical norm is *evidence of internal sacrifice to meet norm.* In other words, if firms within a country suffered significant costs to meet a standard and then that standard is extended externally, or both internal and external firms would suffer from the restriction if it is added simultaneously, this is more credible than if primarily foreign firms would suffer from a rule being put in place, and domestic firms would have used an alternative production process anyway.

Scope of ethical norm: An ethical norm that is widely held within a country is more credible as the basis for a law than one which is based on a value that is only held by a small group.

Depth of belief in ethical norm: An ethical norm that is deep-rooted and central to the belief system of many people in a nation is more credible as a basis for a law than one which is of minor concern.

Specificity of norm: A rule that is closely tied with the production process of a good or service is more credible than one that is more general. For example, a regulation that is about the general practices of a country such as boycotting all products in South Africa when apartheid was in practice may have an ethical basis but it is also quite clearly an intentional barrier to trade. On the other hand, a prohibition that is limited in scope to a specific production process or labor practice is more tightly defined, and can be consistent with free trade in general.

De facto barrier impact: The impact of a regulation on trade is also an important factor to weigh. This involves several sub-factors. The first sub-factor is *how much of international competition is excluded?* Rules that have less impact on the quantity of international trade are less of a de facto barrier. A second sub-factor is *which international competition is excluded.* Does the rule cut out imports from all of developing world for example while leaving developed countries unaffected, or does the impact cut across categories? A final sub-factor here is *whether international competition can reasonably adjust to meet new standard.*

Presumption of national sovereignty in ethical standards: One of the most important principals here is that the burden of proof is on those seeking to stop implementation of an ethical standard. There is a presumption of national sovereignty, and unless the trade barrier impact is clearly stronger than the ethical basis for a rule, then the rule should be allowed. This is just the opposite tendency from that currently practiced by trade organization, which have a strong presumption against any national laws or practices that impact trade in any way. The

impact as a de facto trade barrier should clearly outweigh its importance as a legitimate ethical standard for an international body to step in and overrule the presumption of national sovereignty. There are many legal principals parallel to this logic, but one similar practice in US courts in criminal trials is judges weighing the prejudicial value of evidence being possibly presented against its probative value when considering whether to exclude evidence. Evidence is generally allowed in unless the prejudicial value clearly outweighs its probative value.

Furthermore, even if a practice creates a temporary barrier to trade, this is not an adequate basis to prevent a law if producers can reasonably be expected to adjust. Producer adjustment while maintaining competitive balance must be unreasonable to expect for a trade organization to act to prevent a nation from establishing a law based on genuine ethical standards. Also, the consumer sovereignty principle should be held to overrule expert opinion. In other words, consumer beliefs are taken seriously in determining whether a law is appropriate, regardless of whether a majority of experts disagree.

Conclusion

This discussion has argued that ethical factors matter to consumers, even if they only affect the production process and not the tangible characteristics of the final product. Trade organizations have often acted to prevent nations from establishing certain ethical rules for products sold within their borders, and have even discouraged the flow of information rather than encouraged it. From an economic perspective it seems quite clear that public policy on this issue should push for the full provision of relevant information to consumers, and it is difficult to think of a case where requiring information can legitimately be considered a real barrier to trade. On the other hand, laws that seek to outright prohibit a practice require judicious review, balancing the ethical issues and the trade impact. A number of factors to consider have been provided here, but the presumption should go in favor of national sovereignty. A very strong case that a law primarily creates a barrier to trade and that this outweighs any ethical value should need to be required in order to overrule the will of a nation.

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Globalization of National Economies, 1975-2005*

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Recent studies on economic globalization have used various indicators, such as the ratio of trade-to-GDP and the ratio of FDI-to-GDP, to analyze the globalization performances of national economies. Although each indicator is useful in itself, our contention is that a single composite indicator (index) can provide more comprehensive information and would enable policy-makers and researchers to compare and rank the globalization performances of different countries, country groups and regions in a given year (or period) and over time. Accordingly, in this paper, we developed the economic globalization index to measure the extent of globalization of national economies.

We have constructed the economic globalization index for the period 1975-2005. The overall results indicate that rich countries tend to be more globalized than poor countries. Furthermore, rich countries have improved their globalization –relative global integration level- from 1975 to 2005; however, many of poor countries' relative levels of global integration have deteriorated during the same period. Our results seem to be in line with studies that characterize the recent situation in the world as "truncated globalization" or simply "triadization".

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Introduction

"Globalization" has been the most fashionable term in the world economy during the last two decades. Nearly all countries, willingly or unwillingly, have become a part of the globalization process. Some policy makers and researchers frequently argue that while some group of countries, particularly the high income countries, have rapidly integrated into the global economy others have fallen way back behind in this global race.[1] The question is, how can we test these claims and more importantly, can we rank countries according to their level of economic globalization?

Some researchers have attempted to shed some light on these questions by measuring the performances of single or group of countries on the specific dimensions of global integration, such as trade[2] and production (see, for example, Cook & Kirkpatrick, 1997; Hirst & Thompson, 1996; World Bank, 1998; Wade, 1996; among many others).[3] Without any doubt these studies provide us with useful information on the specific dimensions and provide us with general, albeit crude, information on economic globalization performance. But, if we need precise information for more accurate evaluation or ranking of national economies according to their globalization performances, unfortunately these studies are insufficient. Thus, a more efficient way would be to construct an index that could give us single but comprehensive information on the global economic integration. To accomplish this task it is essential to have a clear definition of economic globalization. Generally, economic globalization, or global economic integration, can be defined as a process of integration of domestic economies into the global economy through trade, investment (production) and finance.[4] In other words, economic globalization has three main pillars: trade, investment and finance.

Accordingly, in this paper, in line with the above definition of economic globalization, we developed the economic globalization index to measure the relative level of global economic integration of a particular economy through trade, investment (production) and finance; in other words, we attempt to develop a composite indicator to determine the extent of economic globalization of national economies.

This paper is organized as follows. Following section provides information on the components and construction of the proposed index. Next section applies the index to a sample of 156 countries for the period 1975-2005 and evaluates the main results. Finally, the last section presents the summary and concluding remarks.

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[1] See, for example, Held and McGrew (2000) among many others for an overview of the arguments on economic globalization.
[2] These studies, for example, used trade-to-GDP ratio to measure the trade dimension.
[3] See also Held and McGrew (2000) for more studies.
[4] See Held and McGrew (2000) for similar as well as other definitions of (economic) globalization.

The Proposed Index

This study is a substantially revised version of our previous work (Ismihan *et al.*, 1998, 2001).[5] Prior to Ismihan *et al.* (1998), World Bank (1996) attempted to develop an index to measure speed of integration. This index, which is called the "integration index", is based on FDI-to-GDP ratio, trade-to-GDP ratio, institutional rating and manufacturing exports as a share of exports. It is computed by taking the simple average of the standard scores of these four indicators. World Bank (1996) measured the speed of integration (as an index) by taking the simple average of the changes in these four indicators (expressed as standard scores) over the sample period. Nevertheless, as we shall make it clear below there are methodological differences between World Bank (1996) index and our index. As we explained before, we have different purposes for constructing the EGI.

In general, two broad approaches are used to measure global economic integration (World Bank, 1998; p. 303). The first approach aims to evaluate the barriers to integration, such as average tariffs and indicators of capital controls, and the second approach aims to evaluate the outcomes of integration, such as trade-to-GDP ratio, FDI-to-GDP ratio and private capital flows-to-GDP ratio.[6]

Many recent studies that we mentioned in the introduction have used these (and other) indicators to analyze the specific dimensions of the economic globalization. Although each indicator is useful in itself, our contention is that a single composite indicator (an index), which measures the relative level of integration of a particular domestic economy to the global economy in a given year and over time, can provide more comprehensive information and would enable policy-makers (both at national and international level) and researchers to compare and rank the globalization performances of different countries, country groups and regions in a given year (or period) and over time.

In constructing the economic globalization index, we use outcome indicators of global integration, namely the ratios of gross FDI-to-GDP, foreign trade[7]-to-GDP and gross private capital flows (minus gross FDI)[8]-to-GDP.[9] Roughly speaking, these three indicators capture the three main dimensions of economic globalization process: investment (production), trade and finance, and hence fit into the above definition of economic globalization.

Although all of these indicators are in same units they have different ranges, i.e., they have different minimums and maximums. So we use the Human Development Index (HDI)

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[5] Quite recently, A. T. Kearney / Foreign Policy Magazine developed the globalization index to measure the integration of ideas, peoples and economies (Foreign Policy, 2001). Dreher (2006) developed a similar index. These studies use similar (outcome-based) indicators - to measure economic dimension of globalization - to ours.

[6] It should be noted that the outcome indicators of integration can also look at prices, such as prices of products and financial assets (World Bank, 1998; p. 304).

[7] It includes exports and imports of services as well as goods since many countries are highly involved in the former.

[8] Since the gross private capital flows figures include gross FDI values, we deducted the latter from the former in order to avoid the double counting in our index. Also note that *gross* flows (e.g. gross FDI values) includes inflows as well as outflows (see World Bank, 1998, 2007 for more detail).

[9] As we have mentioned in the introduction section, some studies (cited there) have used these indicators to measure the specific dimensions of economic globalization.

methodology[10] in order to get common ranges. That is, we set a minimum and a maximum bound to each one of the three indicators (ratios) and then determine the position of each country (in each and every year) within these boundaries; that is, we obtain a number (index value) for each observation (of these indicators) between 0 and 1000.[11] Formally speaking, with this conversion the three indicators become indices which we label as the foreign trade index (FTI), the foreign direct investment index (FDII) and the private capital flows index (PCFI). More precisely, the following formulas (Eq. 1-3) are used to calculate the three indices for each and every country under consideration:

$$\mathbf{FTI_{it} = \frac{FTR_{it} - Min_{FTR}}{Max_{FTR} - Min_{FTR}} \ x\ 1000\ ,} \qquad \textbf{(Eq.1)}$$

where FTI_{it} is the foreign trade index value of the i-th country in year t, FTR_{it} is the foreign trade-to-GDP ratio of the i-th country in year t and Min_{FTR} (Max_{FTR}) is the minimum (maximum) bound, which is determined by finding the minimum (maximum) value from all FTR values across countries and over time.[12]

$$\mathbf{FDII_{it} = \frac{FDIR_{it} - Min_{FDIR}}{Max_{FDIR} - Min_{FDIR}} \ x\ 1000\ ,} \qquad \textbf{(Eq.2)}$$

where $FDII_{it}$ is foreign direct investment index value of the i-th country in year t, $FDIR_{it}$ is the gross FDI-to-GDP ratio of the i-th country in year t and Min_{FDIR} (Max_{FDIR}) is the minimum (maximum) bound, which is determined by finding the minimum (maximum) value from all FDIR values across countries and over time.

$$\mathbf{PCFI_{it} = \frac{PCFR_{it} - Min_{PCFR}}{Max_{PCFR} - Min_{PCFR}} \ x\ 1000\ ,} \qquad \textbf{(Eq.3)}$$

where $PCFI_{it}$ is the private capital flows index value of the i-th country in year t, $PCFR_{it}$ is the gross private capital flows (minus gross foreign direct investment) -to-GDP ratio of the i-th

[10] The methodology of converting actual values into an index values ranging between 0 and 1 is used to calculate the sub-indices in the construction of Human Development Index (HDI), which was developed to measure countries' performances in human development. See the Human Development Reports of the United Nations Development Programme (UNDP) for more detail (see, for example, UNDP, 1992).

[11] In order to increase the interpretability of the index values, they take values between 0 and 1000 rather than between 0 and 1. That is we only change the scale of the index values without changing the essence of the methodology of calculating the index values.

[12] It should be noted that, in line with UNDP (1992), we select a minimum and a maximum bounds from all values across countries and over time, but not from the values in a given year for any ratio (indicator). That is, we use the same minimum and maximum bounds in the calculation of the respective index values in all years. Our aim here is to make the respective index values comparable both across countries and over time. This is necessary for any indicator aimed at measuring globalization which is a dynamic phenomenon. However, one may also construct a single year index (e.g. for 1996) by finding a minimum and a maximum from the values specific to that year for making cross-country comparisons but the index values are not comparable with another year's (e.g. 1986) index values constructed in similar way (by finding a minimum and a maximum from the values specific to that year, e.g. 1986) since they have different bounds (minimums and maximums). Thus, UNDP's (1992) methodology is useful for both purposes: cross-country and over time comparison.

country in year t, and Min_{PCFR} (Max_{PCFR}) is the minimum (maximum) bound, which is determined by finding the minimum (maximum) value from all PCFR values across countries and over time.

Note that each sub-index determines the position of a given country in a given year relative to the maximum bound; hence, these indices are not measuring "absolute" but "relative" levels. This is also true for the economic globalization index, which we shall consider next.

We can easily obtain an economic globalization index (EGI) by taking the arithmetic average of the three sub-indices (FTI, FDII and PCFI).[13] Formally, EGI can be written as:

$$\mathbf{EGI_{it} = (FTI_{it} + FDII_{it} + PCFI_{it}) / 3,} \qquad \textbf{(Eq.4)}$$

where EGI_{it} is the economic globalization index (EGI) value of the i-th country in year t.

The economic globalization index (EGI) defined in Eq.4 is a composite of the three sub-indices which roughly captures the three main dimensions of economic globalization. Therefore, the EGI shows the relative integration level of a particular country to the global economy. Roughly speaking, countries with an EGI value close to 0 (1000) will have low (high) levels of global integration. The EGI can also be used to rank countries. A country with a higher EGI value can be considered to be more integrated than a country with lower EGI value. Furthermore, EGI can be used to analyze the performance of a given country over time. If country X has a higher EGI value in year 2 (t=2) compared to year 1 (t=1) [i.e. $EGI_2 - EGI_1 > 0$], then we may say that country X has improved its integration. Unfortunately, this may not indicate a positive change in the ranking (see next section).

In sum, EGI is constructed so as to analyze both cross-country and over time performances of a given country (or country group). This accords with the fact that globalization is an ongoing dynamic process and must be analyzed over time and across countries. Ideally speaking, due to the nature and the purpose of the EGI we should construct the EGI for all the countries and all the years. But, in practice there are some difficulties in achieving this ideal. The most important difficulty is data-related: Data is unavailable for some countries. Unfortunately, we can do nothing to remedy this but to construct EGI for those countries with available data. Similarly, data is available for certain years for some countries. Thus we can construct EGI for the available years for such countries.

Another problem is that there might be some "outliers" -extreme values- within the data of each indicator, due to the heterogeneity of the countries under consideration, which will indirectly affect the calculations of the EGI values. Since the EGI is computed as an arithmetic average of the three sub-indices, each sub-index naturally has equal weight (=1/3). However, extreme values may indirectly affect the sub-indices' relative weights in the construction of

[13] We define the EGI as the simple average of the three sub-indices since, to our knowledge, there exists no a priori information to assign different weights to different indices. EGI could also be constructed by taking the weighted average of the three sub-indices and the weights of the sub-indices could be calculated by using the method of principal components (see, for example, Alesina & Perotti, 1996). However, the problem with this method is that it is a pure statistical approach.

the EGI. In other words, FTI, FDII, PCFI and EGI will have lower values in the presence of the extreme values since they affect the maximum values (Max_{FTR}, Max_{FDIR}, Max_{FCFR}). For example, suppose that there is only one "outlier", in the FTR data. In this case, the maximum bound (MAX_{FTR}) will be extremely high; hence, FTI values will be very low, compared to the case with no extreme value within the same data. This will, in turn, lower (indirectly) the weight of the FTI in the construction of the EGI. Nevertheless, this problem can be solved either by omitting those "outliers" based on certain rules or making adjustments[14] and/or transformations based on certain procedures. Alternatively, we may construct the EGI for certain group of countries, i.e. for the members of the OECD. Technically speaking, there is no difference whether we construct the EGI either for certain group of countries or for all countries. However, we must be careful while evaluating the results.

The Application of the Index and the Overall Results

In this study, we have constructed the EGI for the period 1975-2005, for which the data was readily available for many countries in World Bank (2007) (Appendix-1 illustrates the computation of the index values as well as related technical details).

[14] For example, based on a certain method and purpose, per capita incomes (above the threshold), which is one of the underlying indicators of the HDI, were discounted or adjusted in the construction of the income sub-index of the HDI (See UNDP, 1992)

Table 1: Overall Results[a]

Country[e] Name	Popu-Lation[b] 75-05	Per Capita Income[c] 75-05	Economic Globalization Index (EGI)[f] Period averages[d] 75-9	80-4	85-9	90-4	95-9	00-5	*75-05*	Ranking (R) 75-9	00-5	Change[h] Rank 75-9/ 00-5	EGI 00-5/ 75-9
Ireland	3.6	18,153	197	204	211	293	643	804	392	10	1	9	607
Netherlands	15.0	22,986	228	239	286	284	515	676	381	5	2	3	447
UK	57.7	21,621	161	221	292	283	409	494	316	18	3	15	333
Iceland	0.3	23,927	114	121	115	122	195	476	203	32	4	28	362
Seychelles	0.1	12,113	390	300	291	238	339	415	330	2	5	-3	25
Finland	5.0	21,038	99	128	133	201	304	412	219	39	6	33	313
Malaysia	18.2	6,072	174	230	205	348	349	400	284	15	7	8	226
Sweden	8.6	22,069	97	116	171	221	451	399	248	40	8	32	302
Swaziland	0.8	3,664	293	311	381	394	368	388	357	3	9	-6	94
Grenada	0.1	5,146	183	190	235	236	278	367	244	12	10	2	184
Denmark	5.2	23,691	106	134	168	205	231	365	213	36	11	25	259
Austria	7.8	23,052	131	165	138	150	225	363	201	26	12	14	232
Portugal	10.0	13,616	74	116	136	173	259	362	192	54	13	41	289
Jamaica	2.4	3,276	126	161	160	217	227	349	214	29	14	15	223
Lesotho	1.5	2,102	184	217	220	218	..[g]	336	..[g]	11	15	-4	152
Spain	39.0	17,470	51	67	84	144	202	321	150	62	16	46	269
Kuwait	1.8	20,729	205	206	211	300	267	314	252	8	17	-9	109
Trin.&Tob.	1.2	8,600	182	154	134	202	..[g]	298	196	13	18	-5	116
Jordan	3.5	4,179	180	197	157	282	203	287	219	14	19	-5	107
Norway	4.3	26,612	167	152	177	177	245	273	201	17	20	-3	107
Germany	80.0	20,851	73	86	114	128	207	273	151	55	21	34	200
France	56.5	21,546	96	98	113	145	187	270	155	43	22	21	174
Barbados	0.3	..[g]	228	246	205	187	226	264	227	6	23	-17	36
Chile	13.3	6,484	100	155	155	160	244	260	182	37	24	13	160
Canada	27.7	22,859	122	130	128	140	221	251	165	31	25	6	129
Thailand	54.0	4,593	78	96	112	187	219	239	158	50	26	24	162
Israel	5.0	18,464	217	186	172	158	172	232	191	7	27	-20	15
Mali	9.2	764	60	62	77	91	137	220	104	58	28	30	160
Botswana	1.4	5,474	416	306	238	188	163	214	254	1	29	-28	-202
Philippines	61.7	3,802	94	86	107	138	219	211	148	46	30	16	117
Dominican R.	7.0	5,002	87	77	113	136	..	210	124	47	31	16	122
Togo	4.0	1,490	250	211	177	135	149	201	189	4	32	-28	-49
Costa Rica	3.1	6,811	144	177	107	136	182	201	160	22	33	-11	57
Greece	10.2	15,205	74	87	80	77	103	198	107	53	34	19	125
Australia	17.0	21,081	54	74	128	110	139	197	117	61	35	26	143
Honduras	5.0	2,827	137	114	94	139	180	191	144	23	36	-13	54
New Zealand	3.5	17,793	96	128	165	197	203	183	161	44	37	7	87
Nicaragua	4.0	3,613	171	..[g]	73	133	189	182	143	16	38	-22	12
Ecuador	10.2	3,317	97	105	104	142	..[g]	182	..[g]	41	39	2	85
Paraguay	4.2	4,240	97	82	103	150	199	177	136	42	40	2	80
Tunisia	8.0	5,006	145	169	130	177	170	175	162	20	41	-21	31
El Salvador	5.3	4,175	136	90	67	68	123	171	110	25	42	-17	36
Ghana	15.7	1,756	54	29	..[g]	90	136	170	95	60	43	17	115
Bolivia	6.8	2,311	128	131	81	96	190	168	134	27	44	-17	40

TABLE 1
(cont'd)

Country[c] Name	Popu-Lation[b] 75-05	Per Capita Income[c] 75-05	Economic Globalization Index (EGI)[f] Period averages[d] 75-9	80-4	85-9	90-4	95-9	00-5	75-05	Ranking (R) 75-9	00-5	Change[h] Rank 75-9/ 00-5	EGI 00-5/ 75-9
Italy	56.7	20,834	77	85	74	106	157	167	113	51	45	6	90
Cote d'Ivoire	12.6	1,881	144	126	107	102	152	160	133	21	46	-25	16
Venezuela, RB	19.7	6,224	108	86	96	179	170	156	133	35	47	-12	48
Oman	1.8	10,537	199	160	128	120	141	153	151	9	48	-39	-46
Guatemala	9.1	3,687	99	75	80	89	..[g]	151	..[g]	38	49	-11	52
Korea, Rep.	42.6	10,411	113	117	113	101	169	150	128	33	50	-17	36
Colombia	35.2	5,425	50	62	73	79	115	147	90	64	51	13	97
Argentina	32.5	11,006	49	75	46	80	121	147	91	65	52	13	98
Sudan	26.4	1,287	34	43	22	..[g]	51	143	..[g]	70	53	17	110
Turkey	56.0	5,399	28	38	55	77	98	139	75	71	54	17	111
Morocco	23.7	3,245	85	80	83	102	93	139	98	48	55	-7	54
Sri Lanka	16.8	2,559	94	124	132	171	154	137	135	45	56	-11	43
Syria	12.9	2,929	76	61	75	179	184	129	120	52	57	-5	53
Senegal	8.1	1,408	136	149	101	104	129	128	124	24	58	-34	-7
United States	253.3	28,058	41	50	62	60	107	118	73	67	59	8	77
Egypt	55.7	2,749	147	127	111	108	93	117	115	19	60	-41	-30
Benin	5.4	914	123	133	94	143	124	114	122	30	61	-31	-9
Sierra Leone	4.0	770	85	86	189	99	..[g]	109	..[g]	49	62	-13	25
Brazil	148.2	6,637	42	47	36	50	89	106	63	66	63	3	64
Peru	21.7	4,749	59	60	53	74	123	100	80	59	64	-5	41
Kenya	23.5	1,051	113	95	83	104	101	99	99	34	65	-31	-14
Japan	122.2	21,881	40	61	60	61	91	95	70	68	66	2	55
Madagascar	12.5	947	51	40	52	63	..[g]	76	..[g]	63	67	-4	25
Haiti	6.7	2,051	72	78	59	45	..[g]	75	65	56	68	-12	3
India	850.8	1,752	11	13	14	29	46	69	29	72	69	3	58
Niger	8.9	829	127	106	76	92	63	69	90	28	70	-42	-58
Pakistan	109.9	1,562	39	47	54	69	69	58	57	69	71	-2	19
Rwanda	6.4	1,031	69	64	46	47	41	49	52	57	72	-15	-19

a. We used the data in World Bank (2007) in our calculations. See World Bank (2007) for more information on the definitions of the relevant data and other information. **b.** Overall (1975-2005) period average in millions. **c.** Overall (1975-2005) period average of Per Capita PPP GDP in 2000 international $. **d.** 5-year averages (75-9, 80-4, 85-9, 90-4, 95-9, 00-05 (only this is 6-year average due to the sample period)) and overall period average (75-05). We calculated 5-year (or 6-year) average for a given country only if that country has at least 3 observations. Similarly, we calculated the overall period (1975-2005) average for a given country only if that country has at least 25 observations. **e.** Countries reported in this table are those with available data for ranking purpose. See Appendix-2 for the results of other countries. Note that, the countries are ranked based on the EGI values in 2000-5 sub-period. **f.** We have used the formulas in equations 1-4 for computing the EGI values. **g.** ".." means that data are either unavailable or insufficient for calculating the relevant period average (see note **d**). **h.** "/" represents subtraction; therefore, "00-5/75-9" should be read as "the change in EGI from 1975-9 to 2000-5".

Source: Authors' calculation.

Table 1 and the Appendix-2 report the values for the economic globalization index (EGI) for the six sub-periods (1975-9, 1980-4, 1985-9, 1990-4, 1995-9 and 2000-5)[15] and the overall period (1975-05), and the change (or difference) between the initial sub-period (1975-9) and the final sub-period (2000-5) for 156 countries[16] and country income groups. Table 1 also provides the EGI ranking for 72 countries, for which the required data is available, for the initial and final sub-period as well as the change in the ranking between the initial and final sub-period. Furthermore, Table 1 and the Appendix-2 provide data on per capita income (real PPP GDP per capita) and population levels for the overall period.

The main conclusion emerging from our results (see Table 1 and the Appendix-2) is that there are disparities in the relative level of global integration across countries, across country groups, across developing regions and over time.

As is seen from Table 1, rich countries tend to be more globalized than poor countries.[17] Furthermore, Table 2 and Figure 1 provide evidence on the economic globalization of country income groups[18] from 1975 to 2005.

Table 2: Economic Globalization of Country Income Groups, 1975-2005

Country Income Group	EGI (Period averages)							Change
	75-9	80-4	85-9	90-4	95-9	00-5	*75-05*	*00-5 / 75-9*
Low income (LI)	31	34	37	58	75	92	54	61
Middle income (MI)	69	74	72	107	141	160	108	92
High income (HI)	77	91	104	113	179	234	133	158
Gap (HI vs LI)	45	57	67	55	104	142		97
Gap (HI vs MI)	8	17	32	6	38	74		66

See Table 1's notes (**a – g**)

[15] In order to facilitate more healthy comparisons of the index values we provide the results as a 5-year average for 6 sub-periods. This is important in the sense that it will help us to eliminate distortionary single year effects, such as those characterized by terms of trade shocks or financial crises. However, the full (yearly) dataset for the EGI and sub-indices can be obtained from the first author upon request.

[16] There are 156 countries with some available data in 1975-2005 period for the three indicators in World Bank (2007).

[17] However, there are some exceptions; for instance, USA and Japan performed poorly in EGI rankings. Similar results -in terms of economic integration- are reported for these countries by Foreign Policy (2001). It would be useful to analyze country-specific globalization experiences (as well as providing policy implications) but this is beyond the aim and the scope of this paper.

[18] Country income groups are as defined in World Bank (2007).

Figure 1: Economic Globalization of Country Income Groups, 1975-2005

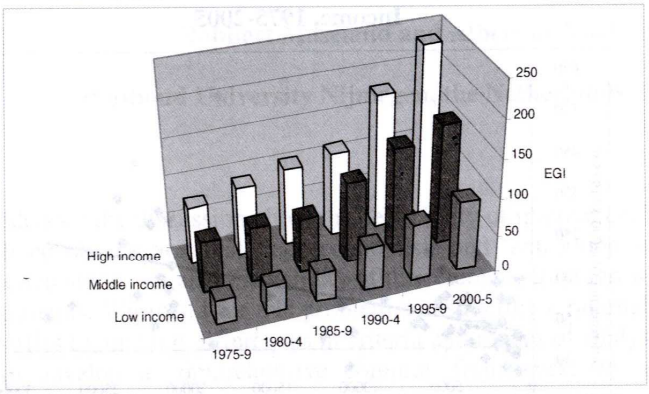


Figure 1 reveals that the high income countries were more integrated than the low and middle income countries during the period 1975-2005.[19] Also, as can be seen from the last two rows of Table 2, the gaps between high income (HI) countries and low (LI) and middle (MI) income countries have been widening since the early 1990s.

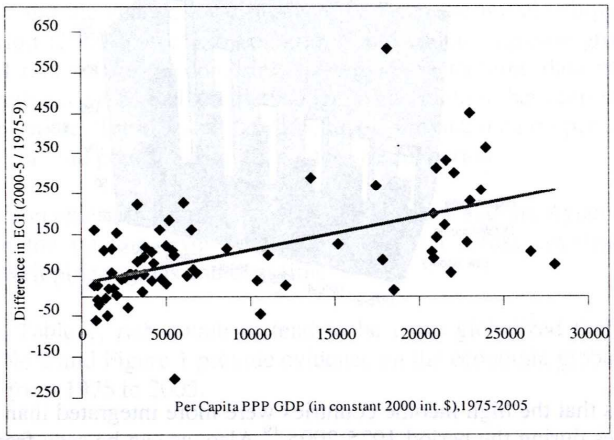
Moreover, countries do not appear to integrate into the global economy at the same speed over time. Figure 2 is a scatter plot of the difference (change) in EGI (2000-5/75-9)[20] and real per capita income for 71 countries[21] (coefficient of correlation between the two variables is +0.548). This figure clearly shows that rich countries, on average, have improved their integration to the global economy from 1975 to 2005.

[19] For 72 countries from 1975 to 2005, there is a positive relation between the average economic globalization performance and the average real per capita income. The correlation coefficient between these two variables is +0.239 (please note that all reported correlation results in this study are statistically significant at 5% level of significance unless otherwise indicated). Furthermore, in line with our expectations there is a negative correlation between population levels and the EGI values for 73 countries (the coefficient of correlation between these variables is –0.306) during the same period. Nevertheless, besides per capita income and population size, other factors -such as geographic location, membership of a regional bloc and natural resource endowments- also play a crucial role on globalization performance. Therefore, it should be mentioned at the outset that there is a need for a formal empirical analysis for estimating and testing the empirical relationships mentioned in this study. However, the use of descriptive analysis is in line with the aim and the scope of this paper.

[20] "/" represents subtraction; therefore, "00-5/75-9" should be read as "the change in EGI from 1975-9 to 2000-5".

[21] Data availability determines the number of countries in our analyses (see Table 1 and the Appendix-2).

Figure 2: The Cross-Country Relation between the Change in EGI and Per Capita Income, 1975-2005



Nevertheless, it should be noted here that even if a country has a positive difference in its EGI over a time period, its ranking position might have deteriorated or stayed the same. For example, Norway achieved a positive difference (107 points), but lost three places in its ranking position from 1975-9 to 2000-5. Therefore, a positive difference value indicates an "improvement" over the earlier period, but it is not an indicator for improvement in ranking position. As a result, we also look at the change in the ranking value (1975-9/2000-5)[22] in Table 1, which indicates that from 1975 to 2005 poor countries' ranking positions were highly volatile and many of these countries ranking positions have deteriorated. Figure 3 -which shows the cross-country relation between the rank change and average real per capita income for the period 1975-2005 for 71 countries-, provides visual evidence. The coefficient of correlation between the two variables is +0.481. Therefore, the positive correlation between the two variables shows that improvements in the ranking position tend to be associated with increases in real per capita income.

[22] Note that, in order to have valid interpretation, we subtract 2000-5 rank values from 1975-9 rank values. Therefore, positive rank change indicates an improvement in the ranking position.

The Debate about Trade: Some Small Steps towards One

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This paper addresses the discussion about the desirability of international trade. It starts out from the stylized observation that trade economists and 'anti-globalists' not only reject each others conclusions, but also the validity of the reference frame in which the other side makes its arguments. We mend for this problem, constructing a rational dialogue between the various parties by making differences in criteria and modes of analysis explicit. Instead of seeking to develop a comprehensive common framework, we adopt a 'pluralist' position, in which we only create a common structure in so far as necessary for meaningful dialogue. We judge the effects of trade as they follow from both the analytical models used by proponents and opponents and from the perspectives of both the criteria used by proponents and opponents. Applying different criteria to both standard and poverty-sensitive trade models, we find that both camps have valid cases, but also that diagonally opposite positions do not necessarily lead to different judgements regarding the desirability of trade. Once differences in preconceptions and criteria are cleared, a fruitful debate is therefore possible. We conclude that the debate about free trade cannot be settled by economics and should in the end take place in the moral and political arena.

Introduction

Ever since Adam Smith wrote his groundbreaking The Wealth of Nations, economists have debated the desirability of international trade. In this discussion, opponents have continuously brought in numerous specific cases in which free trade might not be desirable. Many of these convincing cases notwithstanding, the idea that free trade is beneficial in general has been increasingly accepted among economists, even to the extent that one prominent economist in 1998 could claim that the case for free trade has been settled (Bhagwati et al., 1998). Outside the habitat of trade economists, however, the case for free trade is far from being settled. For decades, development economists and sociologists have pointed at structural weaknesses specific to poor countries that would render protection desirable (ECLA, 1950; Frank, 1969). In addition, in recent years, the debate has increasingly been taken to the streets, with highly visible 'anti-globalists' protesting against the 'neoliberal' ideology of market economy and free trade, endorsed by organizations like the WTO and IMF. Free trade thus continues to be a controversial issue.

Upon a closer look, it seems that the differences of opinion run deeper than just the verdict on international trade. The old and especially the new breed of opponents to free trade generally do not use the sophisticated mathematical analyses of neo-classical economists, but tend to use more intuitive arguments claiming that free trade is not fair given the weaker bargaining position of people in poorer countries. Moreover, different parties in the debate about trade not only tend to cling to different analytical approaches, but to different evaluative criteria as well. Economists and 'anti-globalists' seem to appreciate the same consequences differently when passing their verdicts on international trade. Finally, as we will argue, various parties in the debate about trade at times seem to be talking at cross-purposes, simply because are not asking the same questions.

Lack of sophisticated technical analysis and a failure to make other differences explicit might induce economists to dismiss the opposition as being simply misguided; if these protesters only understood what we, economists, understand they would not oppose free trade anymore. A similar lack of tolerance and understanding is often exhibited by the other side. The consequence is that there seems to be hardly any meaningful debate between the various camps.

A more fruitful angle to enter the discussion, we believe, is neither to start out from the idea that one side must be right and the other side wrong, nor from a priori privileging one set of arguments above the other for settling the case. The main aim of this paper is to enable dialogue between the various positions on trade by specifying underlying assumptions and ideas, and translating the arguments of both parties into the framework of the other. Subsequently, by assessing trade from within these various frameworks, we can establish to what extent differences in opinion between various parties are due to underlying differences in perspective rather than analytical flaws or misconceptions by one party. Thus, we hope to facilitate meaningful discussion.

The remainder of this paper is as follows. In Section 2, we discuss our strategy of translating arguments, and try to reveal the differences perspective behind the various positions in the debate about trade. Sections 3 to 5 deal with the assessment of trade from various perspectives. In Section 3, we stick to standard models of trade, but apply various criteria to assess its effects. Section 4 translates the analytical arguments against free trade into a trade model that explicitly takes into account the consequences of poverty. We

analyze the effects of trade on basis of this model, and judge them on basis of the same set of criteria as we applied to the standard models. Section 5 moves on from the question about the desirability of trade towards the question how trade ought to be conducted. Section 6, finally, concludes.

The Debate about Free Trade: Bridging the Gap

If we acknowledge underlying differences in perspectives, there are two possible directions we can take to foster meaningful discussion. First, we could seek a comprehensive common framework on basis of which we can evaluate trade, examining both positions under the same lens and holding them up to some common standard. A problem with this solution is that it is hard to see what sets apart the moral, methodological and analytical position taken by such a common framework from others; in other words, we would be wanting an argument why this common framework is in fact the right one. Establishing what the 'right' criteria and analytical angles are for a comprehensive framework would take us far into the highly complex and contentious fields of moral philosophy and epistemology, which might be argued not to be preferred within the scope of this discussion.[1] Alternatively, we might adopt a more 'pluralist' position, in which we only create a common structure in so far as this is necessary for meaningful dialogue. Instead of privileging one position, we then look upon the issue from all possible positions that can be distinguished. In other words, we judge the effects of trade as they follow from both the analytical models used by proponents and opponents, from the perspectives of both the criteria used by proponents and opponents and ask the questions asked by various parties. Table 1 delineates this range of perspectives. By discussing trade from each of these perspectives rather than privileging one or two of them, meaningful communication and discussion between the various parties in the debate about international trade becomes possible. Only thus, we can come to a balanced verdict on the desirability of trade.

[1]Although ongoing discussions about the right way to analyze and judge economic processes are to be welcomed, they are unlikely to result in such a level of consensus that a meaningful discussion about the desirability of free trade becomes possible (certainly in the short run). For this reason, this paper seeks to separate the discussion about criteria and analyses with which to answer questions of trade from the discussion about free trade itself.

Table 1: Potential Perspectives

HOW TO TRADE?	*Criterion applied*	
Analytical focus	*Trade advocates*	*Trade opponents*
TRADE OR NO TRADE?	*E*	*F*
	G	*H*

TRADE OR NO TRADE?	**Criterion applied**	
Analytical focus	**Trade advocates**	**Trade opponents**
Trade advocates	A	B
Trade opponents	C	D

To cool down any overheated expectations, it is perhaps useful to begin with pointing out some of the limitations of our approach. Although we have explicitly taken a pluralist stance that seeks an open, meaningful discussion rather than final verdicts on basis of a common unifying framework, it should be noted that the difference between the two approaches is one of degree rather than kind. For any meaningful discussion about various positions to arise, some kind of common framework is needed. However, here it is stated that this common framework is only necessary on the level of structuring the dialogue rather than on the level of common analytical models or criteria. It is possible to allow a plurality of arguments, verdicts, criteria, questions and analytical models in our discussion, as long as they are formulated into some kind of common language so as to make communication possible. We use the first part of this section to elaborate on this, after which we will delineate the stylized positions we allow to enter our discussion.

Common language

As noted, when looking at the debate about free trade, one is confronted with the discrepancy between the qualified consensuses about the desirability of free trade within the economic community on the one hand, and the widespread resistance to opening up trade in public debates on the other. The arguments that have convincingly 'settled the case' within the economic discipline seem to have failed to equally convince the world outside it, which turns out to be less susceptible to economic argumentation. In the same way that economists are often less easily swayed by the reasoning of many critics of free trade, economic analytical arguments are not always recognized and accepted as valid by non-economists. The underlying problem here is that, although Bhagwati (1998) can perhaps convincingly claim that economic analysis shows free trade to be welfare-enhancing, economic analysis cannot make the case for economic analysis to be able to provide valid arguments in a discussion about trade. This is simply assumed on beforehand. In their rejection of free trade and current globalization in general, however, most critics of free trade do not share this assumption. Rather than entering dialogue on basis of economic analytical arguments, they often challenge the economic way of thinking itself, denying its ability to provide valid arguments in this discussion. Similarly, whereas

some of the arguments made by critics of free trade might suffice to convince anyone who is ready to be convinced by interpretive, context-conscious reasoning, they do not convince those economists who reject this type of analysis as valid. In short, the problem of the current discussion about free trade is that people seem to be speaking different languages.

This implies that, in order to take the discussion about free trade forward, what is needed is a translation of argumentation of proponents and opponents into some sort of common language on basis of which debate can emerge. Only thus, genuine dialogue can come about. Inevitably, something goes lost in this translation. In our case, for example, we translate the position of opponents of free trade into the language of economic models, which is not the language in which the position has originally been formulated. This might cause a bias in the discussion in favor of the pro-trade cause, for their position is more readily associated with analytical economic models (although such models are not the exclusive domain of free trade advocates) [2]. The need for a common structure along which dialogue is possible also requires us to translate the respective positions of proponents and opponents of free trade into consistent, 'stylized' positions, whereas reality is far more complex and heterogeneous on this matter. Although this puts our endeavor at risk of being dismissed as creating caricatures, the advantage of stylization is that if we are able to overcome the gaps between such extreme 'caricaturized' positions, this renders our insights useful in reality where things are less extreme as well.

Filling in the cross-table

We can now turn to the task of filling in the cross-table, by establishing the stylized positions which we will allow to enter our discussion. First, with regard to differences in analysis, the issue we focus on is the stress laid by many free trade-critics on the consequences of poverty, leading to unequal starting positions. The argument here is that being poor and less industrialized puts one at a disadvantage in the competition of free trade, so that initial inequalities are reproduced, if not worsened. By contrast, neoclassical models generally tend to predict convergence, because unequal starting positions are looked upon as 'opportunities for arbitrage', so to speak, rather than as structural weaknesses. Although this is by no means the only analytical disagreement between proponents and opponents of free trade, we limit ourselves to this stylized opposition since it serves to structure the dialogue and makes our analysis manageable.

With respect to criteria, the main difference we focus on is the point that economic analysis tends to evaluate actions in first instance on basis of their effects regarding efficiency, whereas other criteria such as fairness are also possible. If efficiency is the criterion, any action will be assessed on basis of the welfare it brings about; if total welfare increases by opening up trade, it is positive. Efficiency does not take distribution issues into account. In the case of free trade, the appropriate example is the assessment of situations in which everyone gains, but the rich gain disproportionately more than the poor. From the point of efficiency, this would be considered an improvement. Too many people, however, the increase in inequality in this situation seems unfair. On the other hand, also few people would prefer a situation in which everyone enjoys equal, very low incomes above a situation in which some inequality exists but all incomes are higher. Thus, notions of fairness in the discussion about trade seem to be formed to a large extent by a concern with

[2] In order to find out whether such a bias is present, it would be an interesting project to take up the same project as we undertake here coming from another side---translating neoclassical trade models into interpretive, contextual analytical terms, for example.

what happens to the incomes of the poor.[3] We translate this observation into the stylized position that if trade implies that those that were worst off prior to trade gain, it is considered fair; if they lose because of trade, it is not. We label this criterion poverty alleviation fairness.[4]

A third issue is about the question to be asked about trade. As Bhagwati (1993, 32) has noted "it is only a mild caricature to say that, ever since Adam Smith invented the case for the Invisible Hand (and hence also for free trade), economists have made their reputation by inventing reasons why the Invisible Hand fails." However, although this debate among economists might have been settled more or less in favor of trade, it could be said to be an example of the general principle that "everything 'anti' thinks in the spirit of that against which it is anti" (Heidegger 1928, 52-3). To economists, the question has almost exclusively been 'to trade or not to trade'. When dealing with this question, both proponents and opponents of trade have generally conceived trade in a similar way, as a process in which parties try to maximize their own utility by exchanging goods and adapting production. The question how to trade has rarely been addressed. This is all the more interesting since it is the manner in which trade is conducted rather than the existence of international trade itself that is questioned by many of globalization's critics. Many critics of international trade do not so much want it to be abolished as conducted differently. Advocates of fair trade, for example, allege that international trade should be handled in a more just manner—abstaining from the use of child labor, paying decent prices, fostering personal relations between producer and consumer—rather than not at all. All this results in the filled-in table of perspectives that are to be discussed (Table 2). The next step to take is to discuss the desirability of trade from each of these positions, one by one.

[3] Fairness, of course, can be interpreted in many alternative ways. The reduction of the whole range of possible criteria to two different positions as has been done here is far from exhaustive or doing right to the literature. Moreover, in the following discussion we limit ourselves to poverty in terms of income exclusively; since this is the one thing the models applied here can say something about. To discuss poverty outside the limited reality of our models, a myriad of more complex, inclusive poverty measures is available in the literature (see Sen 1976; Foster et al 1984; Seidl 1988; Zheng 1997; Kakwani 1995 among others). However, here we are not concerned with developing or discussing different criteria and measures of fairness, but by identifying potential differences in terms of references between the pro-trade and anti-trade camps, as sources of their being at cross-purposes. It is by no means implied that economists are only concerned with efficiency, and anti-globalists only with poverty alleviation; for one thing, both are far from homogenous groups. However, by specifying and recognising these two different criteria, this paper takes a small first step towards clearing the room for meaningful dialogue. The authors would welcome any further attempt to expand upon this approach, by identifying other positions and criteria and constructing a more exhaustive cross-table.

[4] This criterion shows some resemblance to the principle formulated by Rawls (1971) in a Theory of Justice. An important difference, however, is that we are considering income distribution only, whereas Rawls' principle applies to freedoms.

Table 2: Perspectives Used

	HOW TO TRADE?	*Criterion applied*	
	Analytical focus	***Efficiency***	***Poverty Alleviation***
TRADE OR NO TRADE?	**Criterion applied**	*E*	*F*
Analytical focus	**Efficiency** / **Poverty Alleviation**	*G*	*H*
Standard Trade Models	A	B	
Poverty-Sensitive Framework	C	D	

Assessing Standard Trade Models

Now that we have explicitly established the evaluation criteria that we will use in this paper, we can start discussing the desirability of trade in standard trade models (perspectives A and B in Table 2). We will focus on the two analytical angles that are central to international trade theory, comparative cost differences and economies of scale. This choice is also appropriate because of the different implications they have regarding the consequences of liberalizing trade. In comparative cost based models, trade is typically superior to no-trade at a country level of analysis, but there are strong income distribution effects within countries. In models where economies of scale prevail, the income distribution effects are absent or less pervasive, but then the gains from trade are uncertain. To get a complete view on how trade models perform on our evaluation criteria therefore warrants a discussion of both types of models. As we also did this in Maseland and de Vaal (2002), be it for a different purpose, we will use the remainder of this section to briefly reiterate the main results we obtained there.[5] We used the Heckscher-Ohlin factor abundance model of trade to investigate the desirability of trade in comparative advantage based models, while to analyze the desirability of trade when economies of scale prevail we used the static, trade-only version of the new economic geography model of Fujita, Krugman and Venables (1999, FKV from now on).[6]

[5]In Maseland and de Vaal (2002) we investigated the claim made by fair trade organizations like Oxfam that their way of organizing international trade is fair compared to the normal practice of trade. To that purpose we used trade models to compare their trade regime with free trade and protectionist trade regimes on its compliance with the criteria set by the fair trade movement itself.

[6]This particular model was chosen since it not only incorporates scale economies at the firm level and intra-industry trade, but also economies of scale that are external to the firm. As such, the model is a good representation of new trade theory.

It is well-known that comparative cost differences between countries lead to mutually beneficial trade.[7] Trade makes it possible to achieve a more efficient division of labor across countries and both countries will gain. This is irrespective of the reason for comparative cost differences between countries and thus also applies to Heckscher-Ohlin based trade. By the efficiency criterion, therefore, trade based on comparative advantages is desirable. Alternatively, in trade models that are based on economies of scale it is not necessarily true that countries gain from trade. In the trade literature this has been shown to be primarily true when the economies of scale are external to the firm; that is, when the average costs of production depend on sectoral output levels instead of output at the level of the firm.[8] This could imply that the country which is the high cost producer for each conceivable scale of production may in fact be the low cost producer in autarky because of a higher scale of sectoral operations compared to its low-cost counterpart. Upon trade, the high cost country may therefore actually export the good, which reinforces its scale advantage over the other country and leads it to completely specialize in it. Such an outcome is not efficient, as the optimal allocation of resources would have called for specialization in the low cost country. In the presence of (external) economies of scale, trade may thus not be desirable by the efficiency criterion and temporary protection can be optimal. This judgement, however, implicitly applies the efficiency criterion to long-run outcomes. That is, we compare the outcome where the production related externalities overturn the given comparative advantage of a country to an outcome where production externalities reinforce a country's given advantage.[9] But trade is obviously efficient at a given moment in time, as it is always the actual low-cost producer that exports the good. This implies that when differences in starting positions start playing a role, we should make a difference between short-run efficiency and long run efficiency. Whereas the former notion takes all differences between countries as given, the latter allows these differences to change over time. For now, this distinction is not so relevant as the trade models we discuss typically do not model the reason behind externalities. In the framework we develop later, it will have a central place in the analysis though.[10]

When dealing with the criterion of poverty alleviation fairness, the verdict on the desirability of trade is diverse. For the Heckscher-Ohlin model it follows that under reasonable conditions trade is fair because it helps alleviate poverty. Where trade is solely based on differences in factor endowments --- as in the Heckscher-Ohlin model --- a country's abundant factor will gain from trade, whereas the scarce factor will lose. Since a factor is always less rewarded in the country in which it is relatively abundant than in the country in which it is relatively scarce, the group that is worst off before trade must be the abundant factor in either of the two countries.[11] Since abundant factors gain from trade, it

[7]See any standard text book on international trade theory for the basic argument. An advanced treatment can be found in Bhagwati et al. (1998) and Bowen et al. (1998).

[8]External economies of scale are either directly modeled (e.g. Ethier, 1979), or come about as a result of pecuniary externalities that are generated by the interaction of returns to scale at the firm level and the existence of transportation costs (e.g Krugman, 1991, Krugman & Venables, 1995). For the outcome on efficiency the way the externalities are modeled is irrelevant though.

[9]In the literature this has become known as the difference between 'first nature' and 'second nature', see Krugman (1993).

[10]Of course this is a drawback of our choice to restrict our discussion to the part of the trade theory literature that focuses on the comparative static analysis of trade, where in the literature the concept of endogenous comparative advantage has also received considerable attention. We would argue however that most proponents of free trade still base their opinions on comparative static approaches, so that for the purpose of this paper not much is lost by not taking into account these models.

[11]This reasoning holds when factor ownership is distributed such that the poorest group also represents the poorest individuals. If this were not the case, a production factor could be worst off before trade when

follows that trade in a Heckscher-Ohlin setting is always poverty alleviation fair. For the trade-only version of the FKV model we employed in Maseland and de Vaal (2002), the verdict is less clear and becomes highly case dependent. This is a feature that is inherent to the presence of several nonlinearities in such models, which precludes analytical outcomes and requires computer simulations to get results. Doing so for a standard exposition of the FKV model[12], it appears that which group is worst-off before trade depends highly on the exact parameter configuration that is chosen.[13] Consequently, also the verdict on the desirability of trade becomes highly case specific. For instance, for the case where the parameter setting is such that before trade agricultural labor has the lowest real income, opening up to trade is poverty alleviation fair as it raises the real reward of agricultural labor. When, in contrast, the parameter setting is such that manufacturing labor has the lower income before trade, opening up to trade may be unfair, depending on the extent to which trade is freed.[14] Only when the opening up to trade reduces trade barriers by enough, manufacturing labor will gain from trade and trade is poverty alleviation fair.

Fairness and Poverty

The standard models of international trade that were discussed in the previous section do not address a main point of critique that opponents of free trade bring in, namely that free trade might be unfair because of the disadvantaged starting position that poverty leads to. Although specifically comparative advantage models do acknowledge differences between countries that engage in international trade --- indeed, in such models these differences are the prime source of trade and welfare gains --- these differences only apply to differences in endowments or technology that are given and are not seen as consequences of the level of development at a particular point in time. The trade literature that sees comparative advantage as a dynamic phenomenon obviously departs from this static perception of differences between countries, but fails to include poverty-related aspects.[15] These

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rewards are measured in per unit terms, while its owners of the production factors are not worst off. It is in the spirit of the perfect competitive nature of goods and factor markets in the Heckscher-Ohlin model to assume that ownership structures do not differ between factors of production.

[12]The standard FKV model involves a world that consists of two countries, each producing homogeneous agricultural goods and heterogeneous manufactured goods. Agricultural goods are produced under constant returns to scale, while manufactured goods incur increasing returns to scale. Labor is sector-specific and in the static version also immobile between countries. Trade in agricultural products is costless, while trade in manufactured goods carries a transportation cost. Both countries are equally large in terms of agricultural labor, but not in manufacturing labor.

[13]These results are based on an extensive sensitivity analysis of the benchmark parameter setting of the FKV model. The benchmark parameter setting is such that the large country has 60% of world manufacturing labor and that consumers world-wide spend 60% of their income on manufactured goods. With a substitution elasticity of five, the economies of scale in manufacturing are intermediate. See Maseland and de Vaal (2002) for all details.

[14]The model used features a parameter that represents the transportation costs of goods and services across borders. The value of this parameter can take any value between 0 (prohibitive transportation costs) and 1 (no transportation costs). The particular value of the transportation cost parameter has been shown to be crucial for explaining relative wage differences between countries in models where scale economies prevail, see e.g. Fujita et al. (1999). In models where economies of scale are absent, as in the Heckscher-Ohlin model of trade, the importance of distance to explain international trade and income patterns is null and void and can be ignored.

[15]The literature on endogenous comparative advantage for instance tries to explain how comparative advantages evolve when there are no inherent differences between agents, see Yang and Ng (1998) for an early overview. Also the relation between exogenous and endogenous comparative advantage has received due attention, of which an early and seminal contribution is Yang (1994). The new economic geography literature that was initiated by Krugman's (1991) seminal paper also lends itself to deliberations on

approaches therefore share the implicit assumption that the way economic mechanisms work out is independent of development level or context. In line with many contributions in the sub-discipline of development economics, we would argue that this might not be the case and that economic mechanisms might work out differently under poverty than under relative affluence. If decision making under poverty leads to different outcomes than decision making under affluence, economic actions will be dependent upon outcomes of previous actions, and thus to some extent endogenous.[16] Note that the argument is not that the economic reasoning people apply is different --- we do not contest the economic rationale of decision making --- but rather that the same way of reasoning might lead to completely different outcomes under different circumstances.

In this section we integrate these insights from development economics in trade theory. We develop a framework that explicitly incorporates the consequences of low levels of income and development for economic decision making, thus creating the possibility of self-reinforcing poverty. We will then use this framework to judge free trade from the perspectives C and D in Table 2.

How Poverty Matters

The starting point for our undertaking is two empirical observations, one at the micro-level, and one at the macro-level. First, it is observed that especially people with low incomes often tend to set their labor force participation so as to achieve the income necessary for survival (Kochar, 1995; Moser, 1998; Jacoby and Skoufias, 1997; rather similar 'target earning' behavior has been observed among New York cab drivers (Camerer, Babcock, Loewenstein and Thaler 1997). These observations are at odds with neo-classical theory, which would predict labor force participation to decrease if rewards for labor fall.[17] The second observation is the wide price-swings and periodic bouts of overproduction that characterize many of the products produced by developing economies (coffee being a prime example).

These observations can be brought together in a framework in which the effects of poverty on labor supply decisions are taken into account. To do so, we first concentrate on the micro-level. We assume an untrained laborer who faces the choice between working in the agricultural sector and alternative activities; we can think of schooling, unpaid household labor, community services or simply rest. Laborers face two constraints in this decision. First, they are constrained by the limited number of hours in a day. Secondly, they are constrained by the fact that a laborer needs to gain an income equal or exceeding a minimum subsistence level of consumption in order to survive.

This implies that agricultural incomes influence the decision whether or not to supply labor to paid work in two ways. First, the decision to work is dependent upon the desirability of work, determined by the ratio of the utility gained by wage income relative to the utility

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endogenous and exogenous comparative advantages; see e.g. Ricci (1999) and Fujita et al. (1999). Neither of these approaches however relates the endogeneity of comparative advantage to poverty-specific issues.

[16]See for example efficiency wage theory (Dasgupta, 1997), which shows that self-reinforcing income differences may occur between initially identical individuals. A similar idea is endorsed by Sen who regards development as an increase in freedoms or entitlements (Sen, 1999). The corollary of this idea is that lack of development means a lack of freedoms and capabilities, which will make decision making qualitatively different.

[17]Except possibly for very high levels of income, when income effects might start overtaking substitution effects; this is called the backward-bending supply curve of labor.

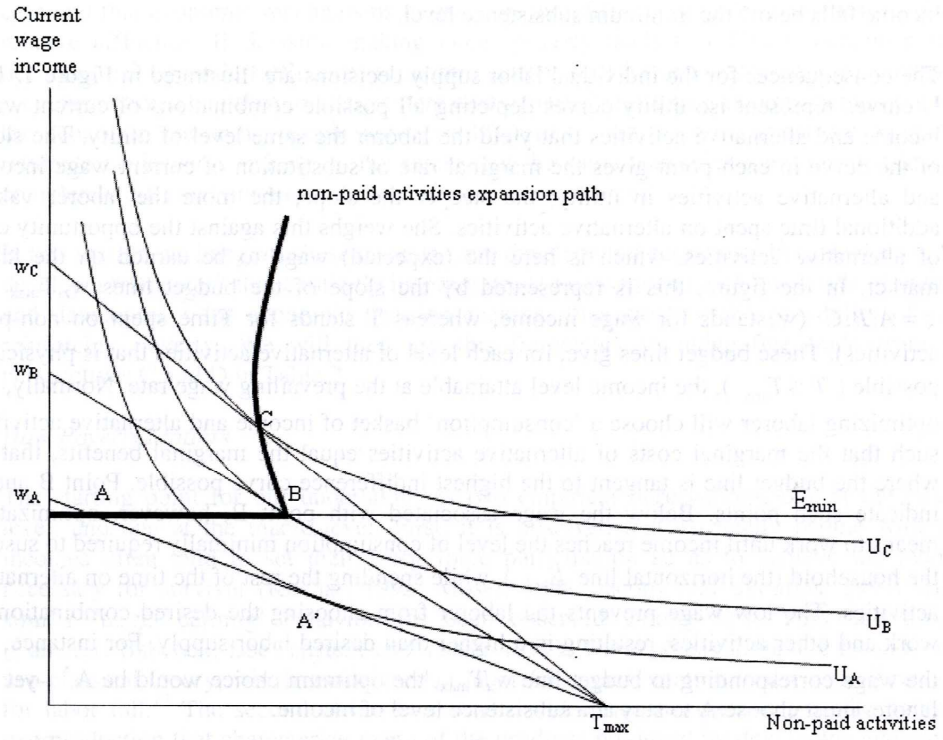
gained by alternative activities. Secondly, the decision to work is dependent upon a laborer's possibilities for alternative activities given the necessities for survival. More specifically, a laborer cannot spend such amounts of time on alternative activities that income falls below the minimum subsistence level.

The consequences for the individual labor supply decisions are illustrated in Figure 1. The U-curves represent iso-utility curves depicting all possible combinations of current wage income and alternative activities that yield the laborer the same level of utility. The slope of the curve in each point gives the marginal rate of substitution of current wage income and alternative activities in utility; the steeper the slope, the more the laborer values additional time spent on alternative activities. She weighs this against the opportunity cost of alternative activities, which is here the (expected) wage to be earned on the labor market. In the figure, this is represented by the slope of the budget lines w_z, T_{max} for $z = A, B, C$ (w stands for wage income, whereas T stands for Time spent on non-paid activities). These budget lines give, for each level of alternative activities that is physically possible ($T \leq T_{max}$), the income level attainable at the prevailing wage rate. Normally, the optimizing laborer will choose a 'consumption' basket of income and alternative activities such that the marginal costs of alternative activities equal the marginal benefits, that is: where the budget line is tangent to the highest indifference curve possible. Point B and C indicate such points. Below the wage associated with point B, however, optimization means to work until income reaches the level of consumption minimally required to sustain the household (the horizontal line E_{min}), while spending the rest of the time on alternative activities. The low wage prevents the laborer from choosing the desired combination of work and other activities, resulting in a higher than desired labor supply. For instance, for the wage corresponding to budget line $w_a T_{max}$, the optimum choice would be A^* , yet the laborer must choose A to stay at a subsistence level of income.

In the presence of poverty, therefore, the non-work expansion path is depicted by the bold solid line in the figure. Up until point B, any rise in the wage rate will increase the possibilities for alternative activities, and, thereby the level of it. It is the room for alternative activities that determines the amount of time spent outside paid labor activities, not their preferences. At wages above the wage corresponding to budget line $w_b T_{max}$, however, a laborer is no longer constrained by the need to survive and the level of alternative activities is determined by the normal marginal cost-benefit analysis. Under such conditions, the optimal level of paid labor will be higher than upon subsistence, though if wage levels become high enough non-paid labor activities may increase again. This leads to the 'bend' in the non-paid labor expansion path.[18]

[18]That is, we implicitly assume that the wages just above subsistence are not high enough to lead to a situation in which higher wages lead to a lowering of the number of hours worked. The latter phenomenon is a well-known possibility in the literature on labor markets, where it leads to the backward bending part of the individual labor supply curve. It seems a reasonable assumption as backward bending supply curves are usually considered to occur in situations of relative affluence.

Figure 1: The Working Time Decision



What consequences does this have on a macro-level? In order to link decision-making at the micro-level to wage determination at the macro-level, we need to make some extra assumptions. First of all, we assume decreasing returns to wage labor. You might think of this as in a context of peasantry, in which labor inputs are added to a fixed stock of fertile land. With each extra unit of labor spent on paid work, wages fall. Secondly, we assume that laborers do not have access to credit markets and there are no options available to them for bringing forward future income. Thirdly, we assume only one kind of paid activity. Workers cannot move to another sector or profession, no matter how badly paid their wage labor is—the only alternative exists of non-paid activities.

These assumptions are not very implausible in the context of developing economies. Especially in the countryside, many poor people do indeed not have sufficient access to credit markets. Moreover, for many peasants, moving to another sector or profession means also leaving one's region, moving to the city or even beyond. This implies giving up one's land, which is often the main capital one owns and not seldom an important constitutive part of one's identity. To assume that laborers are 'tied to the land', or more generally 'stuck in their sector', is therefore not an unreasonable assumption.

To make our point, we focus on the case in which income levels are at subsistence levels but in which the room for non-wage activities is positive. In other words, we assume that

laborers are able to survive, although they are not capable of working as little as they would prefer to. Under such circumstances, any equilibrium in the labor market is unstable.

What happens if wages rise marginally? Laborers react to a wage rise by withdrawing labor and increasing their alternative activities. Given the higher wage they get, they need to spend less time working to reach the minimum income needed for survival. Since all laborers react in this way, total labor supply falls and, due to decreasing returns to scale, wages rise further, spurring further decreases in labor supply. This spiral goes on until incomes are high enough for laborers to set their ratio of labor and alternative activities according to their preferences rather than on basis of the room for alternative activities. Beyond this point, markets function normally.

Similarly, consider the effects of a marginal fall in wages. Laborers are forced by necessity to compensate for this fall in wages by working more hours. Only thus they can still achieve the same minimum income level needed for survival. However, if all laborers react in this way, the consequence is that total labor supply increases and, due to decreasing returns to scale, wages fall further. This sets of a spiral of ever-further falling wages and increasing labor supply.

This analysis shows that poverty, defined as a situation in which people make decisions on basis of necessity rather than on weighing preferences, indeed alters the way markets function. But does it also affect our verdict on international trade?

Trade in a Poverty-Sensitive Framework

We are now in the position to make a judgement about trade in the presence of poverty (perspectives C and D in Table 2). We employ our framework to analyze trade on basis of efficiency and poverty alleviation fairness.

First, we discuss efficiency. In standard models of trade, free trade has been shown to be efficient always (in comparative advantage based models), or in most cases (in economies of scale ridden models). These models did however not take into account poverty-induced differences between countries, nor the fact that economic mechanisms may work out differently when income levels are at subsistence. Our 'trade under poverty' framework explicitly models these issues, which has major implications for the functioning of markets. What does this imply for efficiency? If the question is whether to trade or not to trade, all this does not really affect our verdict. Although poverty certainly has consequences for the way markets function, none of this stands in the way of the efficiency gains of international trade. Rather to the contrary: if we assume the laborers of our analysis to work in the sector that enjoys a comparative advantage, trade might set-off a positive spiral of wage gains and reduced labor supply, until laborers are lifted out of poverty and are able to make decisions based on their preferences rather than by force of necessity. From the point of view of efficiency, therefore, trade is beneficial.[19]

[19]Using trade policy will typically also not be the most optimal way of stimulating working time decisions, as it also distorts production and consumption decisions. A better alternative seems to tax agricultural production, and to use these tax revenues to lower the costs of non-labor activities. In a development context, however, also the implementation costs carry a heavy weight in the ultimate selection of policies, which might shift the balance in favor of using trade policy any ways.

With regard to poverty alleviation fairness of trade, the same conclusion holds. Strictly speaking, our analysis is not capable of providing any verdicts on this account. After all, poverty alleviation fairness—as we have formulated it—is a distributive criterion, whereas a partial equilibrium analysis such as the one above is incapable of providing any insights about distributive effects. However, it should be noted that the poor in our model are living on an absolute minimum income. Since they earn the lowest possible income still compatible with survival, there can be no groups outside the focus of our partial equilibrium analysis that are poorer. It is therefore fair to state that since trade is likely to be beneficial to the poor in our analysis, it can be classified fair on basis of poverty alleviation fairness.

How to Trade?

Until now, we have focused on the question 'to trade or not to trade'. To many critics of the current globalization, however, that is not the question. Rather than no trade, they seek a kind of ethical trade. In order to assess such ethical trade, we have to acknowledge that there are many proposals and ideas about what constitutes fair trade. However, whether dealing with prohibitions of child labor, minimal working conditions, or paying 'decent' prices, the main effect of any such ethical trade vis-à-vis 'standard' trade conduct is that it is trade limiting. Paying a higher price for goods, for example, has an effect similar to imposing a quota (Maseland and de Vaal 2002). Imposing conditions about the way goods are produced does the same. Since the effects of ethical trade are thus similar to those of limiting trade, for standard trade models and efficiency the conclusions of the comparison between trade and no trade can be translated to the comparison between standard trade and ethical trade. Standard trade is generally superior when it comes to efficiency, although in economies of scale-setting, a case might be made for applying ethical trade to manufacturing goods. For poverty alleviation, a case might be made for ethical trade in the form of paying above-market prices for goods produced by the poor. The question there is whether the negative welfare effects of limiting trade are offset by the subsidy to the poor in the form of higher prices. As we have argued in Maseland and de Vaal (2002), this depends on the price elasticity of the good in question; how much limitation of trade does the imposition of ethical trade result in?

When it comes to the poverty-sensitive framework, the case for ethical trade becomes stronger. In the previous section, we have shown that poverty on the one hand has very important consequences for producers' decisions about labor inputs. On the other hand, however, we have argued that this does not invalidate our verdicts about the desirability of trade. The real question, then, is not so much whether to trade or not to trade, but how to trade. Although there is nothing in our analysis of trade under poverty that disqualifies the potentially positive effects of international trade, the fact that poverty results in unstable equilibria implies that it might not be optimal for the economy as a whole if parties engaged in trade do so always exploiting opportunities to increase their own utility to the fullest. As long as producers are poor and buyers always seek to pay the lowest price possible, the specter of getting into a spiral of falling prices, increased production, further falling prices and ever further increasing production is always looming. A 'fair' trading rule like paying producers a minimum price for their goods (translating in a minimum wage) can prevent such destructive spirals. Ethical trading, in which buyers take the interest of sellers into account by paying a higher price than would strictly be possible given the market circumstances, can even trigger positive spirals, lifting producers out of poverty and normalizing markets.

Conclusion

This paper has sought to disentangle the debate about the desirability of international trade, which has become rather entrenched over the years. It has argued that unspoken differences in criteria and analytical approaches have caused proponents and opponents of free trade to be at cross purposes. Worse still, at times they even seem to be asking different questions. Arguments from each of the camps therefore fail to make an impact on the position of the other, because they seem to be formulated in different languages. This paper has sought to solve this problem and clear the ground for a meaningful discussion by translating the arguments of trade advocates and antagonists into each other's language.

In order to do so, we have constructed a stylized pro-trade argument and a stylized anti-trade argument, on basis of differences in criteria and analytical angles. We have argued that advocates of free trade are often implicitly concerned with efficiency as a criterion, whereas many of free trade's opponents focus on poverty alleviation. In addition, many antagonists of free trade are focusing on the impact of being the poorer and less industrialized party in a trade relationship, arguing that this puts one in a disadvantaged position, so that initial inequalities are reproduced or worsened. Advocates basing themselves on neoclassical models, by contrast, tend to argue that trade leads to convergence because they view initial inequalities as 'opportunities for arbitrage' rather than as structural weaknesses. Finally, we have noted that there seems to be a deviation in the questions asked. Whereas economists generally seem to assume the debate is about the question whether to trade or not, many opponents want the debate to be about the question how to trade. Although these stylized positions are by no means meant to represent the plurality of positions that can be found in the actual debate, as we have argued they serve to structure the debate and make meaningful comparison possible.

Subsequently, we have assessed the desirability of trade from the various perspectives that arise from this confrontation of positions. The results of our discussion are summarized in Table 3.

Table 3: Desirability of Trade from Various Perspectives

		HOW TO TRADE?		*Criterion applied*		
		Analytical focus		*Efficiency*		*Poverty Alleviation*
TRADE OR NO TRADE?		**Criterion Applied**				
Analytical Focus		Efficiency		Poverty Fairness	Alleviation	*Context-dependent*
		Short-Run	Long-Run	Short-Run	Long-Run	*Ethical*
Standard Trade Models	Comparative Advantage-based models	**Yes***		**Mostly yes***		
	Economies of Scale-based models	**Yes**	**Case-specific**	**Case-specific**	**Case-Specific**	
Poverty-Sensitive Framework		**Yes**		**Yes**		

* Since the comparative advantage models discussed here only deal with comparative static analysis, distinguishing between a short and long run perspective is irrelevant in these cases.

As can be seen in this table, differences in perspective indeed matter significantly for the verdict on trade. Unsurprisingly, when we look at the stylized free trade position, which combines a focus on efficiency with standard trade models (the upper left corner of the first leaf of the table), trade is for the most part beneficial. The only exception is that when taking economies of scale into account, trade might in the long run cause locked-in specialization patterns that are sub-optimal, so that temporary protection could be preferable. Shifting in criterion does not alter these verdicts significantly. Trade is alleviating poverty according to comparative advantage based models, under certain reasonable conditions (most importantly, factor ownership must be distributed so that the poorest group also represents the poorest individuals). In economies of scale-based models, it is impossible to draw general conclusions about poverty alleviation fairness, because who is the poorest group in the world economy is highly dependent upon specific cases and time.

If we make a concession to the position of trade opponents and move to a model that takes the impact of poverty-related unequal starting positions into account, the verdict remains that trade is both efficient and (likely to be) fair from the point of view of poverty alleviation. It is only by moving completely to the critic's point of view—that is, both in framework, criteria and question asked—that critics of current international trade have a strong case. For poverty does have an impact. We have shown that poverty can affect the functioning of markets in such a way that although trade by itself might be beneficial, gains can be made by addressing the way in which we conduct trade. Exploiting all opportunities for improvement of the own position can result in destructive cycles of overproduction and falling wages, whereas 'ethical' trading principles might help markets function properly by lifting people out of poverty.

To conclude, what these results show is that the differences in opinion between advocates and opponents of free trade indeed seem to be related to differences in perspectives. These differences in perspectives have various dimensions; focusing on only one is not enough to fully understand the point of view of an opponent in the debate. The trade advocates case is strongest when applying standard trade models, the efficiency criterion and focusing solely on the question to trade or not to trade. Conversely, the trade critics' case is strongest when applying a poverty sensitive framework, a poverty alleviation criterion and when the choice is between standard trade and ethical trade.

All in all, the paper suggests that Bhagwati's claim that the case for free trade is settled has been rather premature, at least when trade between advanced and poor countries is concerned. In fact, the findings indicate that the case for free trade is likely to never be settled. Arguments, perspectives, and criteria will always differ and therefore verdicts are always subject to debate. Rather than closing off this debate by privileging one type of analysis and set of criteria, we should work to make differences explicit in order to foster rational discussion between various positions. After all, it is not the job of economics to settle cases. It is to provide analyses and insights that can bring about and inform meaningful political debate.

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Introduction

One of the essential national policy decisions of past two decades has been globalization. Policy makers all around the world as part of adjustment programs promoted by the International Monetary Fund and the World Bank have pushed for liberalization of their economic policies as a means for globalization and economic growth. Thus, the relationship between globalization and economic growth has received considerable attention in recent years. At the theoretical level, Mckinnon (1973), and Shaw (1973) established that financial globalization has positive impact on the development of the real sector with possible causation from financial globalization to economic development and growth. At the empirical level, many studies have shown positive correlation between financial globalization and economic growth (see, for example, World Development Report 1989, King and Levine 1993, and Odedokun 1996). Bekaert et al. al (2001) find that a financial globalization leads to a one percent increase in annual real per capita GDP growth over five year period, and find this increase statistically significant (Bekaert: 34). Using recently developed time series causality test techniques, studies have provided little support for the view that financial globalization leads the process of economic development (Demetriades and Hussein, 1996).

Many empirical studies have concentrated on the relationship between financial globalization (as opposed to broader issue of economic globalization) and economic growth. In recent years, the focus of empirical studies has been on the relationship between globalization and income inequality. The experiences of many countries with financial liberalization as a subset of globalization have been mixed -- some succeeded while others failed. For example, the financial liberalization in Argentina, Brazil, Mexico, and Uruguay ended in financial failure, which precipitated imposition of regulation. In contrast to the financial liberalization spree in Latin America, the financial sectors of most Asian developing countries remained relatively regulated in 1980s. Many of these countries have shown rapid GNP per capita growth in 1990s. The varying experiences with financial liberalization around the world indicate that financial liberalization is not a remedy for all economic ills. In fact, current policy recommendations of international organizations reconsider various aspects of financial liberalization including broader issues.

The ultimate goal of economic activities is improvement in quality of life and the primary objective of economic growth is to benefit people. Most countries emphasize social well-being of people as the fundamental goal. Consequently, the problem faced by the policy makers is to increase social benefits. However, it is not clear whether the indicators of economic progress and measures of wealth such as growth in GNP per capita are the primary determinant of social and economic well being of the masses. Growth in GNP per capita may be insufficient for human development and increasing social benefits. In fact, Mazumdar (1996) examined the causal relation between social development and economic growth and concluded that there is no uniform relation. The quality of people lives can be poor even with rapid economic growth. In fact, the transformation of economic growth to human development depends on several factors. Fosu (2002) concluded that political instability adversely affected the transformation of growth in Sub-Saharan Africa.

Introduction

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Although there are many studies investigating the link between financial liberalization or globalization and economic growth, the relation between economic liberalization and quality of people's lives has not been examined rigorously. The purpose of this article is to investigate the social impact of globalization as measured by economic liberalization. This study attempts to answer the following questions:

a) Does financial globalization spur human development?
b) Is financial globalization related to gender related economic development?
c) Does financial globalization exacerbate income inequality?
d) What is the impact of financial globalization on different income groups?

This paper is different from previous attempt in two respects: (a) using a broader measure of globalization, which reflects current recommended adjustment policies, (b) examining the impact of the globalization on social indicators in general and the needs of women in particular as opposed to GNP per capita exclusively.

The organization of this paper is as follows: Section two describes proxies employed for financial globalization and human development, section three provides results, and conclusion is explained in the last section.

Measurements and data

The indicators for human development and globalization are complex as both are multidimensional and to some degree qualitative. Instead of creating new indices for measuring globalization and human development, for the purpose of this paper, already constructed indices are used.

Globalization

Globalization is an extremely complex phenomenon and is measured by its various indicators. To some people globalization insinuates spread of culture and ideas, impoverish workers in poor countries, damaging the environment or faster spread of disease. Globalization for some non-economists is equivalent of the extension of the mechanisms of capitalism at the world level. On the other hand, many economists view globalization as increase in international trade of both financial assets and goods that comes from a decrease in transaction costs. In the empirical literature, several variables tend to serve as indicators of globalization, for example: Capital flows measured by relative size of FDI; Trade measured by ratio of total trade to GDP, which is perhaps the most extensively used measure of economic globalization; Flows of Labor (movement of workers between countries over long periods); policy restrictions on international capital movements, and even tax policies. Since for the purpose of this study a quantitative measurement is needed, the Economic Freedom Index (EFI) developed by the Heritage Foundation is employed is employed (Kane et. al, 2006). The Index of Economic Freedom, which started in 1995, is an average of 10 freedoms that is considered important to the development of personal and national prosperity. Many variables included in this index are very good proxies for globalization. Countries with high degree of economic freedom are indeed pioneer of globalization.

Briefly the ten indicators of economic freedom are:

1. **Business:** the ability to create, operate, and close an enterprise quickly and easily. The variables included in the business indicator include: time and cost of starting new business, and ease of starting and closing a business.

2. **Trade:** a composite measure of the absence of tariff and non-tariff barriers that affect imports and exports of goods and services.

3. **Fiscal**: a measure of the burden of government from the revenue side. The variables included are mainly individual and corporate tax rates.

4. **Government:** includes all government expenditures as a percentage of GDP and revenues generated by state-owned enterprises as a percentage of total government revenue.

5. **Monetary:** this indicator combines a measure of price stability with an assessment of price controls. Both inflation and price controls distort market activity. Price stability without microeconomic intervention is the ideal state for the free market and financial globalization.

6. **Investment**: an assessment of the free flow of capital, especially foreign capital. Degree of government, measured by degree of government encouragement of foreign investment. Scale of 0 to 100 (qualitative measurement).

7. **Financial Sector**: the relative openness of each country's banking and financial system Government control of financial sector (Banks, Central Bank, etc.). Scale of 0 to 100 (qualitative measurement)

8. **Property Rights:** An assessment of laws that permit property rights. Scale of 0 to 100 (qualitative measurement).

9. **Corruption:** based on quantitative data that assess the perception of corruption in the business environment, including levels of governmental legal, judicial, and administrative corruption.

10. **Labor:** is a composite measure of the ability of workers and businesses to interact without restriction by the state. It includes variables such are minimum wage, rigidity of hours, and difficulty of firing redundant employees.

All 10 factors are equally weighted and are graded using a scale from 0 to 100, where 100 represent the maximum freedom. The advantage of EFI is inclusion wide range of variables related to economic liberalization and globalization in addition to the coverage. The index is available for large group of countries. For the year 2006, one hundred sixty seven countries are rated according to the above economic and policy variables in scale of 0 to 100 and then ranked according to five categories of economic liberalization. Countries receiving a score between 80-100 are considered free, countries scoring between 70-79.9 are ranked mostly

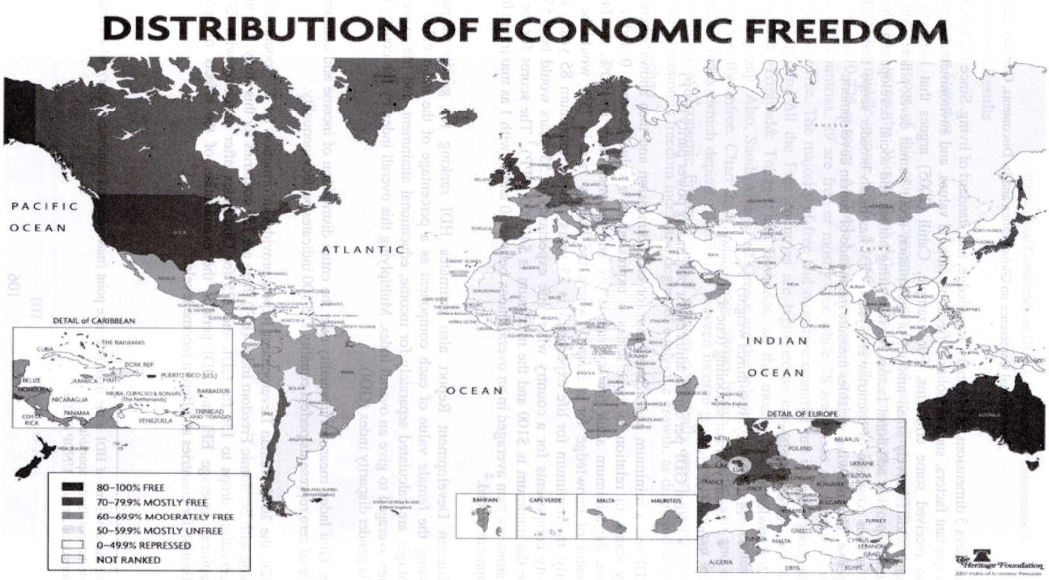
free, countries with score of 60 to 69.9 are ranked moderately free, countries with score of 50 to 59.9 are considered mostly unfree, and economies that obtain score of 0 to 49.9 are considered repressed (Kane 2006).

The ranking according to EFI indicates that Hong Kong is the freest country (score of 89.3) and North Korea with score of 3 is the most repressed. As chart 1, following page, shows most of world's freest economies are in North America and Europe, while most of the world's economically repressed countries are in Africa and Middle East. Asia has a mixture of free and unfree economies. As a whole, sub-Saharan Africa is economically unfree and by far the poorest area in the world.

Human Development Dimension

It has been argued that GNP pre capita, the standard measure of economic growth, is a poor measure of human development. Consequently, several multidimensional indicators such as Index of Well Being, Index of Quality of Life, and Social Development Index have been constructed (see Pillarisetti 1997 for details). Among all these new indicators, Human Development Index (HDI) developed by the United Nation Development Program has been most successful and received acceptability among development economists. For the purpose of this paper, 3 variables from *Human Development Report* are taken into account: Human Development Index (HDI), Factors related to gender development known as Gender Disparity Index (GDI), and Gini Index (GI).

Chart 1


DISTRIBUTION OF ECONOMIC FREEDOM
PACIFIC
OCEAN
ATLANTIC
OCEAN
INDIAN
OCEAN
DETAIL of CARIBBEAN
DETAIL OF EUROPE
80–100% FREE
70–79.9% MOSTLY FREE
60–69.9% MODERATELY FREE
50–59.9% MOSTLY UNFREE
0–49.9% REPRESSED
NOT RANKED
BAHRAIN
CAPE VERDE
MALTA
MAURITIUS
The Heritage Foundation

HDI considers 3 dimensions of longevity, knowledge, and standard of living. Since HDI excludes many important factors, such as political freedom, cultural values, and environmental factors, it has also received some criticisms. For example, Cahill (2005) argues that longevity and knowledge adds relatively small amount of information about human development. Although other studies provide additional factors for measuring human and social development, they are limited in their coverage of countries and years. HDI has much broader scope than GNP per capita per se. The following variables measure magnitude of human development:

1. Longevity
   - Life expectancy
2. Knowledge
   - Adult literacy (two-thirds weight)
   - Mean years of schooling (one-third weight)
3. Standard of Living
   - Real GDP per capita adjusted for purchasing power parity (PPP)

The HDI sets a minimum and a maximum for each dimension and then shows where each country stands in relation to these scales -- expressed as a value between 0 and 1. For example, the minimum adult literacy rate is 0% and the maximum is 100%, the literacy component of knowledge for a country where the literacy rate is 75% would be 0.75. Similarly, the minimum for life expectancy is 25 years and the maximum 85 years, so the longevity components for a country where life expectancy is 55 years would be 0.55. For income the minimum is $100 and the maximum is $40,000 (PPP).[1] The scores for the three dimensions are then averaged in an overall index between 0 and 1, with 1 as maximum human development record.[2]

The Human Development Report also estimates HDI ranking for gender disparities, expressing the female value of each component as a percentage of the male value. These percentages are calculated separately for income, educational attainment, and life expectancy, and then averaged to give an overall index. Multiplying this overall index by the country's HDI result is gender disparity index (GDI).

Finally, Gini Index measures inequality over the entire distribution of income and consumption. A value of zero represents perfect equality and 100 indicates perfect inequality.

For HDI, the 2006 Human Development Report provides information for 177 countries. After matching with Economic Freedom Index (EFI) there are 155 countries for this study. The number of observations drops to 130 for GDI, and 125 for Gini Index after matching with EFI. The geographical coverage EFI and HDI permits the examination of the effects of economic globalization for countries at different income levels.

[1] One of the criticisms of HDI is the fixed reference point (maximum and minimum vector), which makes HDI only intertemporally comparable.
[2] For more detail, refer to UNDP (2007).

Empirical Results

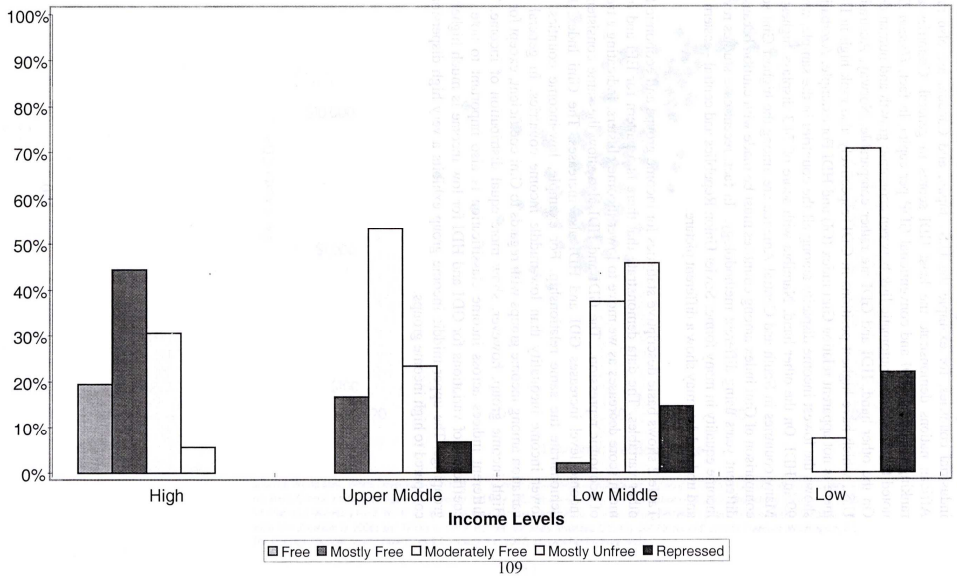
Descriptive Statistics

For the purpose of this study economies are divided according to 2005 GNI per capita, calculated using the World Bank Atlas method. The groups are: low income, $875 or less; lower middle income, $876 - $3,465; upper middle income, $3,466 - $10,725; and high income, $10,726 or more. As Table1 exhibits, most of world's economies are still unfree. Of the 155 countries, 29 are free or mostly free while 78 are unfree or repressed, and 48 are moderately free. The majority of free and most free countries are in high and upper middle-income group. All the Free countries are high-income countries. Except, Chile, Estonia, Lithuania, Trinidad& Tobago, and Barbados, all the mostly free countries are also high income group. Also, Saudi Arabia and Greece are the only high income economies classified under mostly unfree. Chart 2, following page, shows income classification and economics freedom index, which depicts relationship between income group and economic freedom. In fact, Index of Economic Freedom annual editions consistently report a strong correlation between economic freedom index and degree of economic growth, as displayed with a scatter diagram in chart 3.

Table 1: Economic Freedom and GNP per capita Classifications

Income levels	Levels of Economic Freedom					
	Free	Mostly Free	Moderately Free	Mostly Unfree	Repressed	Total
High Income - Number - Percentage	7 19%	16 44%	11 31%	2 6%	0 0%	36 100%
Upper-Middle Income - Number - Percentage	0 0%	5 17%	16 53%	7 23%	2 7%	30 100%
Low Middle Income - Number - Percentage	0 0%	1 2%	18 37%	22 46%	7 15%	48 100%
Low Income - Number - Percentage	0 0%	0 0%	3 7%	29 71%	9 22%	41 100%
Total - Number - Percentage	7 4%	22 14%	48 31%	60 39%	18 12%	155 100%

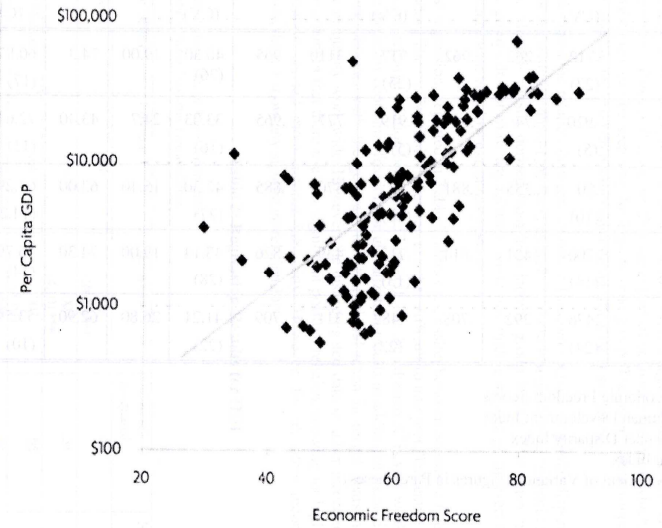
Chart 2: Economic Freedom and Income Classifications



According to *2006 Human Development Report*, Norway with score of 0.965 has the highest human development, and Niger with score of 0.311 is the lowest of all. Other high-income industrial countries, for example the U.S., Japan, and Canada, are also ranked high in HDI. African nations demonstrate the least HDI scores in general. Countries also show different ranking regarding HDI and conventional GDP per capita. In fact, *Human Development Report* noted that there is no automatic link between economic growth and human development criteria. On the other hand, HDI and GDI are rather comparable. Norway, Australia, Canada, and the U.S., which have highest positions in GDI respectively also rank high in HDI scale. However, there is not apparent relation Gini index (GI) and HDI For example, Azerbaijan with score of 19 shows the lowest income disparity among all the countries in the sample, while it ranks number 99 in HDI. On the other hand, Namibia with score of 74.3 displays highest income inequality. Many countries in South and Central America are among the highest Gini scores. Nevertheless, comparison of Gini index among countries must be made with caution because the surveys cover different years using different methodology. In fact, recent case studies reveal deterioration of income equality in many former Soviet Union Republics and central –eastern European countries and updated data may show a different picture.

Table 2 shows basic descriptive statistics for income groups and economic freedom scores and other variables. The data demonstrate that there is a pattern for EFI and income groups. The mean score decreases as we move to lower income clusters, indicating a trend in the direction of economic repression. The GDI and HDI also show the same consistent pattern that is as income level increases GDI and HDI also increases. The Gini Index, however, does not demonstrate the same relationship. For example, low-income counties, on average, show lower income inequality than low-middle income countries. In general there is not much variation among income groups with regards to Gini coefficient, except for high-income level. High income group, however, show more equal distribution of income. The dispersion for different indices across income classification is also important to note. For example, the coefficient of variations for GDI and HDI for low income is much higher than other income groupings. The upper-middle income group exhibits a very high dispersion for all indices as compared to high income groups.

Chart 3: Economic Freedom vs. Per Capita GDP



Sources: World Bank, *World Development Indicators Online*, at publications.worldbank.org/subscriptions/WDI (October 19, 2006, subscription required); Central Intelligence Agency, *The World Factbook 2005*, at www.cia.gov/cia/publications/factbook/index.html (October 19, 2006); International Monetary Fund, World Economic Outlook database, April 2006, at www.imf.org/external/pubs/ft/weo/2006/01/data/ 24 index.htm (October 19, 2006); and Tim Kane, Kim R. Holmes, and Mary Anastasia O'Grady, *2007 Index of Economic Freedom* (Washington, D.C.: The Heritage Foundation and Dow Jones & Company, Inc., 2007), at www.heritage.org/index.

Table 2: Description of Variables

Income Levels	GDI			HDI			GI			EFS		
	Mean (CV)	Min	Max	Mean (CV)	Min	Max	Mean (CV)	Min	Max	Mean (CV)	Min	Max
All Levels	.712 (27)	.262	.962	.717 (25)	.3110	.965	40.30 (26)	19.00	74.3	60.87 (17)	29.68	89.29
High	.920 (5)	.74	.96	.919 (5)	.777	.965	33.03 (16)	24.7	43.40	72.64 (11)	57.65	89.29
Upper-Middle	.80 (10)	.555	.881	.80 (10)	.570	.885	42.30 (27)	15.40	63.00	63.29 (14.29)	34.48	78.29
Lower Middle	.700 (14)	.431	.814	.713 (13)	.439	.826	43.14 (28)	19.00	74.30	56.79 (14)	29.68	70.31
Low	.476 (24)	.292	.708	.482 (22)	.311	.709	41.21 (22)	26.80	62.90	53.54 (10)	35.81	63.41

EFS = Economic Freedom Scores
HDI = Human Development Index
GDI = Gender Disparity Index.
GI = Gini Index
CV = Coefficient of Variation (Figures in Parentheses)

Regression Results

The HDI, GDI, and GI were regressed against economic freedom scores for all countries as well as different income groups. The results reported in tables 3-6. Table 3 shows that HDI is influenced by degree of economic freedom for all countries. The adjusted R-squared also shows relative high degree of explanatory power. However, this significant relation is only true for high income group. This result indicates that the impact of economic freedom, which can be viewed as globalization, can be seen only for high income group. The other groups (upper-middle, low-middle, and low income) do not demonstrate significance at any level.

Table 4 shows the relation between economic freedom scores and gender disparity index. The result of regression is almost the same as table 3. There is high significant relation for all income groups, which is mostly derived from high income group impact. The upper middle and low income groups do not show any relation, while low-middle income group exert some degree of significance with very low explanatory power.

The last regressions reported in Table 5, shows regression between economic freedom score and Gini index. The result of this regression is rather difficult to interpret. The entire group shows a significant negative relation between EFI and GI, but the adjusted R^2 is very weak. The negative relation indicates economic freedom or globalization results in additional income disparity. This result corroborates with the general view that globalization in recent years has exacerbated income inequality worldwide. However, the disaggregated data is rather inconclusive. For high income group, in fact there is a low significant positive relation, showing for high income group globalization created more income inequality. However, for all other income groups the regression did not show any significant relationship.

Table 3: Regression Results for HDI

Dependent Variable: Human Development Index
Independent Variable: Economic Freedom Score

Income Levels	Constant	Coefficient	Adjusted R-squared	N
All levels	.04	.01 (10.27)***	.40	155
High	.69	.003 (4.10)***	.31	36
Upper-Middle	.64	.003 (1.64)	.05	30
Low-Middle	.59	.002 (1.22)	.01	48
Low	.31	.003 (1.04)	.002	41

t-ratios in parentheses
*** Significant at 1% level

Tablo 4: Regression Results for GDI

Dependent Variable: Gender Related Development Index
Independent Variable: Economic Freedom Score

Income Levels	Constant	Coefficient	Adjusted R-Squared	N
All Levels	-.15	.014 (11.43)***	.5	130
High	.62	.004 (4.72)***	.41	32
Upper-Middle	.63	.003 (1.21)	.02	25
Low-Middle	.39	.005 (2.27)*	.10	37
Low	.22	.05 (.1.29)	.02	36

t-ratios in parentheses
*** Significant at 1% level
*Significant at 10 % level

Table 5: Regression Results for Gini Index

Dependent Variable: Gini Index
Independent Variable: Economic Freedom Score

Income Levels	Constant	Coefficient	Adjusted R-Squared	N
All Levels	52.50	-.2 (-2.09)**	.03	125
High	15.72	.23 (1.71)*	.07	26
Upper-Middle	36.32	.09 (.27)	-.05	22
Low-Middle	24.27	.32 (1.01)	.00	39
Low	65.42	-.45 (-1.56)	.04	38

t-ratios in parentheses
** Significant at 5% level
* Significant at 10 % level

Conclusion

Although for many years policy makers have voiced their concern that economic growth is not the end in itself, only a few studies have considered the impact of adjustment policies on other aspects of development. This study analyzed the impact of globalization on human, gender development, and income equality. The regression analysis indicates, although there is a strong relation between EFI and GDI, HDI for entire counties, only high-income group show a significant relation. One impression emerges from the study is that the key consideration in determining a country's position in human development ranking is not related to globalization for developing countries at low or low-middle income groups. Globalization perhaps is important for human development only after certain level of income growth. Also, the general view that globalization exacerbates income inequality need to be addressed researched in more detail. Of course, the validity of data and the appropriateness of HDI as a measure of human development are questionable. For example, the EFI may not capture the development of globalization. A country may pass laws for liberating financial sector, but it does not create actual integration of the market. The changes in policies do not attract foreign direct investment or international trade. In addition, the impact of globalization on human development takes time to establish. Many countries recently have liberalized their economies and entered the global market economy and the effect of these policies does not appear in this analysis. Another problem could be the synchronizing of data sets HDI and EFI. The economic freedom data are mainly based on 2006 information while HDI and GDI are calculated on the basis of 2006 data.

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Trend of Legal Globalisation and Stock Market Development

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The purpose of this paper is to analyze some leximetric data for a number of developed and less developed countries hitherto unavailable to examine (i) the changing state of shareholder protection and (ii) its connection with stock market development and capital accumulation. It finds a strong evidence of legal globalisation but no evidence of its favourable link with stock market development and capital formation.

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Introduction

Gone are the days of state investment in a mixed economic framework. New *mantra* of the present day world under the so-called Washington Consensus is liberalization, privatization and globalisation (LPG). Countries that already have a large public sector are advised to privatize by selling shares of the public sector to private individuals and/or companies. The role of government is to provide a proper legal framework under which stock market can flourish and provide the necessary private finance for capital formation and growth. One aspect of this is to provide an adequate protection of the rights of the shareholders under the aegis of corporate governance. Since the end of the 1980s or the beginning of the 1990s, both the developed and the less developed countries have been trying to improve their laws relating to shareholder protection. Apart from the capitalist ethics concerning property rights there is a concern for stock market development for the sake of capital accumulation and growth.

The purpose of this paper is to analyze some leximetric data for a number of developed and less developed countries hitherto unavailable to examine (i) the changing state of shareholder protection and (ii) its connection with stock market development and capital accumulation.

Shareholder Protection and Stock Market Development

Following mainly the pioneering work of LLSV (La Porta et al., 1998), some legal scholars are now-a-days involved in quantifying the laws for easy comparability across different countries over time – known as leximetric study. One such project has been undertaken by a team of legal scholars at the University of Cambridge (Centre for Business School, CBR). It has produced a comprehensive dataset for shareholder protection in four developed countries such as France, Germany, UK and USA and one less developed country, India over a long span of time, 1970-2005 (see Lele and Siems, 2006 for details). For each country time series data for 60 indicators of stock market development are available. Subsequently ten important indicators were chosen to reflect the changing state of shareholder protection and these data are available for 20 countries (including the above mentioned 5 countries) over the period, 1995-2005. Details of the procedure of constructing these series are available in Appendix.

The sample of 20 covers 9 developed countries-DCs (that include the above mentioned four and Canada, Italy, Japan, Spain and Switzerland) and 11 other less developed countries-LDCs (Argentina, Brazil, Chile, Czech Republic, China, India, Latvia, Malaysia, Mexico, Pakistan and South Africa). In Table 1 the average state of shareholder protection (simple aggregation of 10 variables in each point of time averaged over 1995-2005) is shown for each country. These data show that Canada has the highest level of shareholder protection with a score of 7.25 (out of the maximum possible score of 10) followed by Japan, UK, France and USA (the last three countries are very close to each other). Among the LDC group Malaysia has the highest level of protection with a value above 6 followed by China, South Africa and India.

In Figure 1, the trends in the over-all shareholder protection in the 9-country group of DCs, the 11-country group of LDCs and all of the 20 countries are shown. The graph shows a clear improvement in shareholder protection in both DCs and LDCs. There is a clear evidence of intra-DCs and intra-LDCs convergence between 1995 and 2002 as the graph of the coefficients of variation shows (Figure 2). There was a strong tendency towards convergence

across the DC-LDC divide between 1997 and 2002 followed by a slight tendency towards divergence. In fact law changes in the DCs with an eye to better corporate governance and improved shareholder protection and the LDCs follow with a lag. Legal globalisation is thus another facet of the present LPG regime.

In this perspective we examine the link between shareholder protection (SP) and development of stock market in these countries. From World Bank Financial Structure Dataset we get data on stock market turnover ratio. It is one of the most important indicators of stock market development. It is constructed by deflating the value of stock trade by real market capitalization and so it contains the information of the general price level, stock market capitalization and also the value of stock trading. No other indicators are considered, as the relevant data are not available for all the countries for all the years.

From World Bank World Development Indicators we get capital accumulation data - gross capital formation as percentage of GDP (GKFGDP) up to 2002. All these data averages are presented in Table 1 along with the data on shareholder protection.

With the aid of STATA program we have considered two alternative types of panel regression analysis between the turnover ratio (log-values) and the shareholder protection index: the country-fixed effect model (FE) and the random-effect model (RE). The FE is designed to control for omitted variables that differ across countries but are constant over time. This is equivalent to generating dummy variables for each country-cases and including them in a standard linear regression to control for these fixed country-effects. The RE is used if there is a reason to believe that some omitted variables may be constant over time but vary between cases, and the others may be fixed between cases but vary over time. The Breusch-Pagan Lagrange Multiplier test has been conducted to choose the appropriate model. It strongly supports the RE model.

The estimates are reported in Table 2. These show that there is no significant relationship between the turnover ratio and the shareholder protection index. We have re-run the regression with intercept and/or slope dummy for the developed countries (DC and SDC). None of the dummies is significant and the basic conclusion of no relationship between the turnover ratio and the shareholder protection index remains unaltered (in these cases also the RE model is found to be appropriate).

Instead of using binary dummy variable, DC, we have also considered the 1990-94 average per capita GDP (measured in internationally comparable purchasing power parity constant dollar), PCY90-94 (available from World Bank data on World Development Indicators), in the regression. Inclusion of this initial condition of high income (developed countries tend to have higher initial per capita income) in our analysis does not tell a different story and it also does not have an effect on the turnover ratio.

It appears from our analysis that the shareholder protection law and stock market development as indicated by the turnover ratio are not related at the cross-country level – even across the developed countries (with more shareholder protection) covered in our sample. Our earlier time series analysis involving four developed countries (France, Germany, UK, USA) and

India over a long span of time, 1970-2005 also observed the same thing for a more detailed dataset of shareholder protection laws (Fagernäs et al., 2007 and Sarkar, 2007).

Next we examine whether stock market developments as measured by the turnover ratio has any relationship with fixed capital formation - gross capital formation as percentage of GDP (GKFGDP). We replicate the earlier study with and without dummies for developed countries and the initial per capita GDP (PCY90-94). In each case the RE model is found to be the appropriate one. In no case do we get a significant relationship between the stock market developments and capital formation even after taking into account the development status of the countries and the initial per capita income (Table 3).

Conclusion

To sum up our study, the country-wise variation in shareholder protection has no relationship with the turnover ratio. It cannot be said that the countries belonging to this DC group having a higher shareholder protection tend to have a higher stock market development. Nor can we say that a higher stock market development is associated with a higher rate of capital formation (GKFGDP). So our study contradicts the convention wisdom in this field (as reflected in Djankov et al., 2005)

As the data on shareholder protection is available only for a short period, 1995-2005, no time series study of individual countries is done. It is available for a long period 1970-2005 for five countries and these data are analysed elsewhere and these studies show (Fagernäs et al., 2005, Sarkar 2007) that shareholder protection does not have a positive long-term link with stock market development. It is also observed that stock market development has by and large no long-term positive relationship with capital accumulation for a number of less developed countries (Sarkar, 2006).

Table 1: Per Capita GDP, Capital Formation, Shareholder Protection and Stock Market Turnover Ratio: Selected Countries

(annual averages)

Countries	Per Capita GDP (Purchasing Power Parity Constant Dollar (1990-94)	GKFGDP (1995-2002)	Shareholder Protection Index[1] (1995-2005)	Turnover Ratio[2] (1995-2005)
Developed Countries				
Canada	23000	20.05	7.25	61
Japan	23900	26.58	7.16	66
UK	20300	17.23	6.75	77
France	22300	19.36	6.64	74
USA	29000	19.22	6.59	135
Spain	16300	23.89	5.07	159
Germany	23000	21.05	4.73	107
Italy	22200	19.46	4.49	92
Switzerland	28100	22.48	4.05	89
Less Developed Countries				
Malaysia	6340	31.52	6.05	39
China	1980	21.88	5.93	138
South Africa	9430	16.32	5.49	92
India	1760	22.96	5.35	140
Brazil	6490	21.12	4.89	47
Argentina	10400	16.96	3.91	19
Czechoslovakia	11700	22.00	3.48	53
Chile	6630	24.22	3.25	10
Latvia	6700	24.6	3.14	20[3]
Mexico	7760	22.76	2.67	30
Pakistan	1680	16.88	2.23	262

1 Legal scholars of Centre for Business Research (CBR), University of Cambridge have compiled a large time-series dataset on shareholder protection as a part of the ESRC project on Law, Finance and Development. For details of the construction of these leximetric data see Lele and Siems (2006). In these CBR data, originally 60 indicators of shareholder protection were considered and finally these were reduced to 10 important (judged by the legal scholars involved in the project) variables. We have derived the aggregate index of a particular country by adding each of the legal variables at a point of time (year). Then it is averaged over the period for which the data are available. For maximum protection the index would assume the value 10 (as 1 is the maximum value for each of the 10 indicators). So the lower the value the lower is the level of protection.

2 Value of Stock trade as percentage of real market capitalization.

3 Average of 1996-2005.

Sources: GKFGDP from World Bank World Development Indicators, Turnover Ratio from World Financial Market Dataset of World Bank and Shareholder Protection Index from the CBR project mentioned in the note 1 of this table.

Table 2: Shareholder Protection and Stock Market Development1: Panel Data Analysis, 1995-2005

c	Shareholder Protection Index (SP)	Intercept Dummy for Developed Countries (DC) [2]	Slope Dummy for Developed Countries (SDCSP)	Initial Per Capita Income-log values (PCY90 -94)	R-Sq	LM test statistic for RE Model[3]
-1.01**	0.09				0.06	491.85
-1.19**	0.06	0.7			0.17	436.94
-0.46	0.09			-0.06	0.07	483.46
-0.91*	-0.01	-0.31	0.19		0.12	412.23

* Significant at 5 per cent level.
** Significant at 1 per cent level.
1 As stock market development indicator, we have used stock market turnover ratio. Its log value is the dependent variable.
2 Intercept dummy, DC = 1 for developed countries and = 0 for less developed countries. Slope dummy, SDCSP = DC x SP.
3 The Breusch-Pagan Lagrange Multiplier (LM) test statistic. It supports the random-effect model (RE) model in every case.

Table 3: Stock Market Development and Capital Formation1: Panel Data Analysis, 1995-2005

c	Turnover Ratio-log values (LTURN)	Intercept Dummy for Developed Countries (DC) [2]	Slope Dummy for Developed Countries (SDCTRN)	Initial Per Capita Income –log values (PCY90 -94)	R-Sq	LM test statistic for RE Model[3]
3.11**	0.02				0.01	381.57
3.17**	0.03	-0.12			0.08	361.54
3.17**	0.03	-0.13	-0.03		0.09	361.68
3.71**	0.02	-0.06		-0.06	0.08	370.79

* Significant at 5 per cent level.
** Significant at 1 per cent level.
1 Log value of gross fixed capital formation as percentage of GDP is the dependent variable.
2 Intercept dummy, DC = 1 for developed countries and = 0 for less developed countries. Slope dummy, SDCTRN = DC x LTURN.
3 The Breusch-Pagan Lagrange Multiplier (LM) test statistic. It supports the random-effect model (RE) model in every case.

Figure 1: Aggregate Shareholder Protection Index, 1995-2005: Groups of 20 Countries

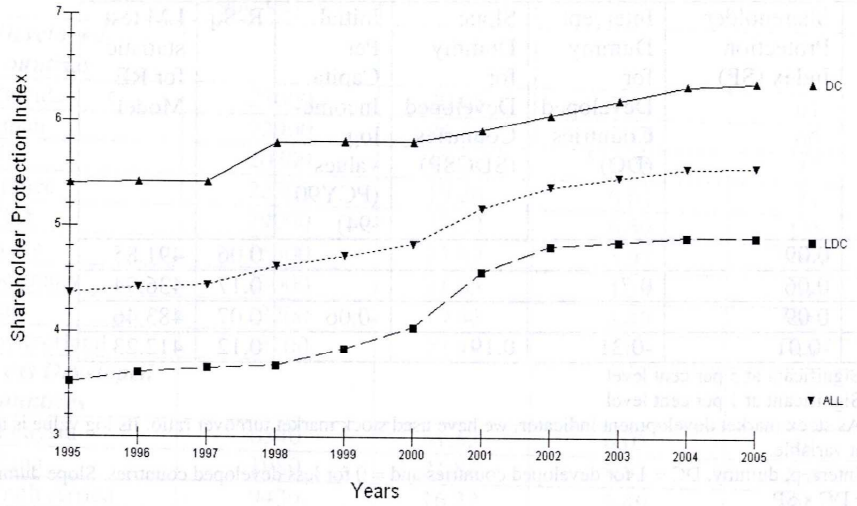
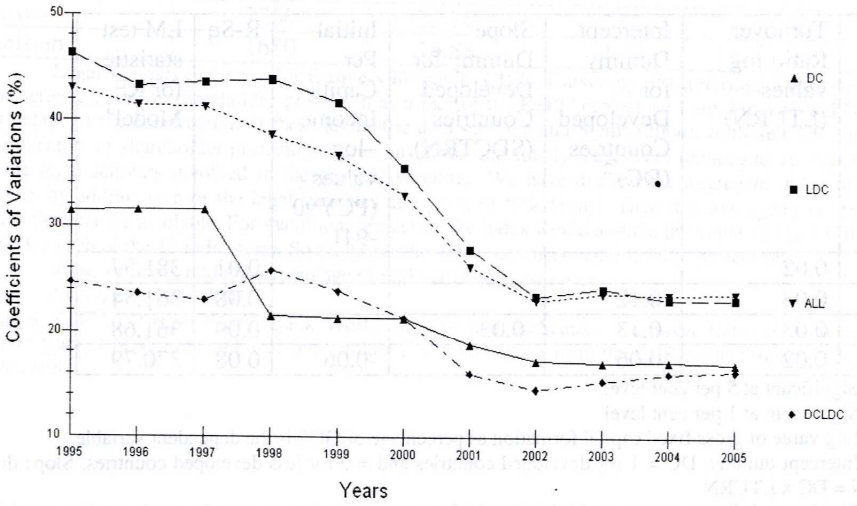


Figure 2: Variations in Shareholder Protection Index within and across the Different Groups of 20 Countries, 1995-2005



Appendix: Coding Shareholder Protection

Variables	Description
1. Powers of the general meeting for de facto changes[1]	If the sale of more than 50 % of the company's assets requires approval of the general meeting it equals 1; if the sale of more than 80 % of the assets requires approval it equals 0.5; otherwise 0.
2. Agenda setting power[2]	Equals 1 if shareholders who hold 1 % or less of the capital can put an item on the agenda; equals 0.5 if there is a hurdle of more than 1 % but not more than 5%; equals 0.25 if there is a hurdle of more than 5% but not more than 10 %; equals 0 otherwise. Please also indicate the exact percentage
3. Anticipation of shareholder decision facilitated[3]	Equals 1 if (1) postal voting is possible or (2) proxy solicitation with two-way voting proxy form[4] has to be provided by the company (i.e. the directors or managers); equals 0.5 if (1) postal voting is possible if provided in the articles or allowed by the directors, or (2) the company has to provide a two-way proxy form but not proxy solicitation; equals 0 otherwise.
4. Prohibition of multiple voting rights (super voting rights) [5]	Equals 1 if there is a prohibition of multiple voting rights; equals 2/3 if only companies which already have multiple voting rights can keep them; equals 1/3 if state approval is necessary; equals 0 otherwise.
5. Independent board members[6]	Equals 1 if at least half of the board members[7] must be independent; equals 0.5 if 25 % of them must be independent; [8]equals 0 otherwise
6. Feasibility of director's dismissal	Equals 0 if an important or good reason is required for the dismissal of directors; [9] equals 0.5 if there are no such requirements but the directors can claim for compensation on dismissal; equals 1 if dismissal of directors is easily feasible.
7. Private enforcement of directors duties (derivative suit, shareholder action) [10]	Equals 0 if this is typically excluded (e.g., because of strict subsidiarity requirement, hurdle which is at least 10 %; cost rules); equals 0.5 if there are some restrictions [e.g., certain percentage of share capital (unless the hurdle is at least 10 %); cost rules; demand requirement]; equals 1 if private enforcement of directors duties is readily possible.
8. Shareholder action against resolutions of the general meeting	Equals 1 if every shareholder can file a claim against a resolution by the general meeting; [11] equals 0.5 if there is a threshold of at least 10 % voting rights; equals 0 if this kind of shareholder action does not exist.
9. Mandatory bid[12]	Equals 1 if there is a mandatory public bid for the entirety of shares in case of purchase of 30% or 1/3 of the shares; equals 0.5 if the mandatory bid is triggered at a higher percentage (such as 40 or 50 %); further, it equals 0.5 if there is a mandatory bid but the bidder is only required to buy part of the shares; equals 0 if there is no mandatory bid at all.
10. Disclosure of major share ownership[13]	Equals 1 if shareholders who acquire at least 3 % of the companies capital have to disclose it; equals 0.75 if this concerns 5 % of the capital; equals 0.5 if this concerns 10 %; equals 0.25 if this concerns 25 %; equals 0 otherwise

1 Other powers of the general meeting (e.g. for amendments of the articles, mergers and division) are not included because they usually do not differ between countries.

2 If the law of a country does not provide the right to put an item on the agenda of a general meeting (including annual general meeting), one may code the right to call an extraordinary general meeting provided the minority shareholders can utilize this right to discuss any agenda.

3 It is not enough that proxy voting is possible (which is the case in most countries).

4 A two-way proxy form refers to a form which can be used in favor and against a proposed resolution.

5 This may be regulated in securities law (including listing requirements).

6 This may be regulated in a corporate governance code.

7 It is to be noted: (1) in a two-tier system this concerns only member of the supervisory board (not the management board); (2) legal scholars involved in data compilation are only interested in the composition of boards, not in the independence of members of committees.

8 Other intermediate scores are also possible. They are calculated in the same way, i.e. *score = percentage of independent board members*/2; If the law requires a fixed number of independent directors (e.g., always 2 independent directors), the (estimated) average size of boards is used in order to calculate the score.

9 If the law of one country follows a two-tier-system, both the management and the supervisory board are considered.

10 Variables 7 and 8 only concern the law. The efficiency of courts in general are not considered while coding these variables.

11 The substantive requirements for a lawful decision of the general meeting are not coded.

12 This may be regulated in securities law or take over code/law.

13 This may be regulated in securities law.

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Does Price of an Essential Non-Renewable Resource Necessarily Grow?

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Dasgupta and Heal's 1974 paper extends Hotelling's 1931 partial equilibrium model into a dynamic general equilibrium model. Both papers show that nonrenewable resource prices do grow exponentially, which is called the Hotelling's rule in the literature. Empirical evidence on the contrary shows that most nonrenewable prices are constant in the long-run. The controversy between theory and empirical regulatory perhaps may be called the Hotelling's Paradox. This paper, based on Dasgupta and Heal (1974), shows that nonrenewable dependent growth does not always generate skyrocketing resource prices. In particular, this paper shows that resource price converges to a constant under Cobb-Douglas technology and that the model economy dies out under a particular value of elasticity of marginal utility.

Introduction

In his seminal article, Hotelling (1931) showed that price of a nonrenewable resource must grow at the real interest rate at optimum, a result known as the 'Hotelling's rule' in nonrenewable resource economics.[1] The Hotelling's rule is in partial equilibrium nature: a nonrenewable sector solves the dynamic problem of maximizing discounted profits over an infinite horizon, constrained by the initial stock of the nonrenewable. The dynamic profit maximization problem yields that the resource price must grow at the (real) rate of interest, the discounting factor, when extraction is costless and the market is perfectly competitive. Since interest rate is taken constant in a partial equilibrium solution, resource price grows infinitely.

Professors P. Dasgupta and G. Heal overcome partial equilibrium nature of the rule by publishing their seminal paper "the optimal depletion of exhaustible resources" in 1974. In their paper, Dasgupta and Heal (1974), henceforth D-H, integrated a final-good market with a nonrenewable resource market in a Ramsey setup, and analyzed the optimal depletion of nonrenewable resources. One unfortunate assumption made in their paper however precluded D-H to unveil the distinguishing characteristic of general equilibrium version of the rule from its partial equilibrium version. In particular, D-H ignored differentiating between the rental rate of capital and the interest rate. This was a critical misspecification because a growth setup with a depleting resource as an input in final-good production technology has a peculiar characteristic that the time paths of rental rate of capital and resource price can be determined by the resource sector's efficiency condition independently from the rest of the model. This happens because resource price and rental rate of capital can be expressed in terms of their respective marginal productivities, which can be further defined in terms of capital/resource extraction ratio. Hence, mathematically speaking, when rental rate of capital and interest rate are assumed to be one and same thing, it allows the differential equation derived from resource sector efficiency condition grow infinitely in terms of capital/resource extraction ratio (which can be expressed also in terms of rental rate of capital or resource price). Clearly, the distortion is fed back to resource price and rental rate of capital, and hence these results also become distorted. In the final analysis, the partial equilibrium version of the Hotelling's rule is reproduced by Dasgupta and Heal (1974).

It has been well documented that the Hotelling's rule is not supported by the empirical regularity. Looking at real price behaviors of several nonrenewables like aluminum, copper, iron ore, lead, silver, and tin prove that there is no apparent trend in rate of growth of resource prices in the last century.[2] Given the (existing) theory, the reaction to this paradox in the literature has been twofold: (i) incorporating additional elements into the partial equilibrium model such as exploration costs, capital investment and capacity constraints, ore quality variations, (ii) modifying econometric techniques and/ or data. Nobody ever however, to our knowledge, has ever questioned the partial equilibrium nature of the Hotelling (1931) or misspecification in Dasgupta and Heal (1974).

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[1] A good exposure to this literature can be attained by the following studies. First, Gordon (1967) can be read to get a good sense of the pre-Dasgupta and Heal (1974) literature. Smith (1968) can be also useful in that respect. Second, Dasgupta and Heal (1974) and Stiglitz (1974a, 1974b) must be read as they incorporate a nonrenewable resource sector into a growth framework. Third, surveys of Peterson and Fisher (1977) and Krautkraemer (1988) can be read for a good exposure to the post-Dasgupta and Heal literature.

[2] Interested readers may find rich data at http://minerals.usgs.gov/minerals/pubs/of01-006/ on nonrenewable prices. See also e.g., Krautkraemer (1998).

This study presents the true general equilibrium version of the Hotelling's rule and shows that resource prices will converge to a constant under Cobb-Douglas (henceforth, C-D) technology.[3] In that respect, this study argues that the paradox between the theory and empirics may indeed be a fictitious one. The second contribution of this study is the advancement towards a full analytical solution of the D-H setup. This study presents the complete analytical solution under a specific elasticity of marginal utility assumption. We know that assigning a particular value to elasticity of marginal utility may distort the behavior of real economy (physical capital, output, and the nonrenewable resource). Nonetheless, having a complete analytical solution still generates useful information to reveal rules for sustainable consumption and growth.

A short summary of the model is as follows. Two factors of production, a reproducible capital and a nonrenewable resource, are used to produce a final output, which can be consumed or invested. We assume the final-good production technology is C-D, which implies that both factors are essential. Our main motivation for relying on C-D technology is analytical tractability. Profit-maximizing firms operating in the good market imply a unique resource price/rental ratio and a corresponding optimal capital/resource ratio. A nonrenewable resource extracting sector solves the dynamic problem of maximizing discounted profits over an infinite horizon, constrained by the initial stock of the nonrenewable. The main difference between D-H and our approach appears to be our differentiation between rental rate of capital and of loans. Our results diverge substantially by this single assumption, nonetheless. In particular, we demonstrate that the price of the nonrenewable does not grow in the long-run, albeit the resource is essential in production. Our explanation to this finding is as follows: Economic agents with perfect foresight in a depleting economy recognize that there is no way to sustain consumption and production in the long-run, when a depleting resource is essential. In such a case, optimal behavior is to plan a smooth depletion of an economy instead of accepting rising prices of the nonrenewable, just to sustain consumption and production for a while. Hence, contrary to what Hotelling's rule suggests, it is optimal to observe resource prices increasing at decreasing rates or decreasing at decreasing rates, depending on the ratio of initial extraction to initial capital stock. That is why we observe constant resource price in the long-run.

The organization of the paper is as follows. The second section presents the basic model and the simulations under a specific elasticity of marginal utility value. We show that the real economy peters out in time under this constraint. The fourth section presents concluding remarks.

The Model

We assume that total consumer utility of a representative consumer consists of the present value of an infinitely long stream of consumption of final output, as given by the standard constant intertemporal elasticity of substitution utility function:

[3] Heuristically speaking, we may argue that similar results would hold for a CES technology with inelastic substitution, due to Gaitan, Tol, and Yetkiner (2004), henceforth G-T-Y. Though GTY (2004) is developed under exogenous saving assumption, results would not change in the long-run. It must be noted that the genuine weakness of such an assumption is that the (critical) role played by the impatience of economic agents on depletion and on the rest of the economy is ignored.

$$U = \int_0^{\infty} e^{-\rho t} \frac{C(t)^{1-\theta} - 1}{1-\theta} dt \qquad \theta, \rho > 0 \qquad (1)$$

In equation (1), U represents total utility, $C(t)$ is the flow of consumption at time t, ρ is the subjective rate of discount, and $1/\theta$ is the elasticity of substitution between flows of consumption at different points in time. For simplicity, we assume that the family size of the household does not change in time. Households hold assets in the form of ownership claims on capital and nonrenewables. Households are competitive in that each takes as given the real rental rate of capital $r(t)$ and the real price of nonrenewable resource $q(t)$. The flow budget constraint for the household is

$$\dot{A} = q(t) \cdot R(t) + \big(r(t) - \delta\big) \cdot A(t) - C(t) \qquad (2)$$

In (2), $r(t) - \delta \equiv i$ is the real rate of interest, and $r(t)$ is the rental rate of capital. The equation states that assets rise with income $q(t) \cdot R(t) + i(t) \cdot A(t)$ and fall with consumption $C(t)$.

The household's optimization problem is to maximize U in equation (1), subject to the budget constraint in equation (2), the stock of initial assets $A(0) = A_0$, and the transversality condition (see below). As the momentary utility function satisfies the Inada (1963) condition that the marginal utility of consumption becomes infinite when $C(t) \to 0$, the inequality restriction $C(t) \geq 0$ does not apply. The present-value Hamiltonian is

$$J = e^{-\rho t} \frac{C^{1-\theta} - 1}{1-\theta} + \mu\{qR + (r - \delta)A - C\} \qquad (3)$$

We omit time subscripts in the subsequent analysis whenever no ambiguity results. The variable μ is the present-value shadow price of income. It represents the value of an increment of income received at time t in units of utils at time 0. The first order conditions for a maximum of U, in addition to (2), are

$$\frac{\partial J}{\partial C} = 0 \Rightarrow e^{-\rho t} C^{-\theta} = \mu \qquad (4)$$

$$\dot{\mu} = -\frac{\partial J}{\partial A} \Rightarrow \dot{\mu} = -\mu\{r - \delta\} \qquad (5)$$

where the transversality condition is $\lim_{t \to \infty} [\mu(t) \cdot A(t)] = 0$. The reduced form of the canonical system turns out to be

$$\frac{\dot{C}}{C} = \frac{1}{\theta}\{r - \delta - \rho\} \qquad (6a)$$

$$\dot{K} = qR + (r - \delta)K - C \qquad (6b)$$

under the assumption that total assets A is equal to total capital stock K, which must hold in a closed economy without government. This completes the household side of the model. Let us turn to the production and extraction sides now.

We assume that output Y is produced by using physical capital K and a nonrenewable resource R. Production technology is represented by $Y = K^{\alpha}R^{1-\alpha}$, where α is production elasticity of capital.[4] Notably, $F(\bullet)$ is increasing, strictly concave, twice differentiable, and homogenous of degree one. Each input is essential under C-D technology, and the Inada conditions guarantee that $K > 0$ and $R > 0$. Under a perfectly competitive market assumption each factor will be paid (in real terms) its marginal contribution to production:

$$F_K = r \tag{7a}$$
$$F_R = q \tag{7b}$$

In (7), r and q are, respectively, the rental price for a unit of capital services and the nonrenewable resource price, and F_K and F_R are the marginal productivities of K and R. This constitutes the production side of the economy. Let us now consider the extraction sector.

Suppose that the resource market is a perfectly competitive one (hence, prices are given) and that extraction is costless. Under these assumptions, the representative firm would solve the following maximization problem:

$$\begin{aligned} &Max \quad \int_0^{\infty} [qR]e^{-\int_0^t i(\tau)d\tau}\,dt \\ &s.t. \quad \int_0^{\infty} R(t)dt \le S_0 \end{aligned} \tag{8}$$

In (8), i is the (endogenously determined) real interest rate, S_0 is the initial stock of the nonrenewable, and $i \equiv r - \delta$. Equation (8) is an *isoperimetric problem* of calculus of variations. The *Lagrangian* integrand becomes

$$\Gamma = q\,\mathrm{Re}^{-\int_0^t (r(\tau)-\delta)d\tau} - \lambda R \tag{9}$$

where λ is *Lagrange multiplier* and *constant* by definition, and the respective transversality condition is $\lim_{t\to\infty} q\,\mathrm{Re}^{-\int_0^t (r(\tau)-\delta)d\tau} = 0$. The solution of the isoperimetric calculus of variations problem leads to:

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[4] A relatively broad production function specification would be a CES technology such as $Y = \left(\alpha K^{\sigma} + (1-\alpha)R^{\sigma}\right)^{1/\sigma}$, where α is the *distribution parameter* and $\varepsilon = 1/(1-\sigma)$ is the *elasticity of substitution* between K and R. Unfortunately, it is *not* possible to derive an analytical solution under the CES specification. Furthermore, we know since G-T-Y (2004) that the case that factors of production are complements yields similar results to CD and that the case in which factors of production are substitutes yields results analogous to what D-H found. Therefore, exploiting the CD form to derive, to solve, and to study the dynamic economic system is sufficient.

$$q(t) = \lambda e^{\int_0^t (r(\tau)-\delta)d\tau} \quad . \tag{10}$$

Equation (10) is a non-arbitrage condition saying that the nonrenewable is essentially an asset and therefore its (real) price must increase at the real interest rate:

$$\dot{q}/q = r - \delta \tag{11}$$

Equation (11) is the well-known Hotelling's rule in its simplest form.[5] Recall that in partial equilibrium r is presumed constant, and therefore q grows at the constant rate $r-\delta$. In our model, r is determined endogenously. In D-H, r is also determined endogenously. The difference between our model and their model arises from the fact that interest rate i and rental rate of capital r are identical in their model, which implies an unconstrained growth on physical capital/resource extraction rate. Therefore, their results reproduce partial equilibrium result of the Hotelling's rule.

The solution procedure of the model is as follows. Firstly, from (7), it is straightforward to show that

$$r(t) = \alpha\left(\frac{1-\alpha}{q}\right)^{\frac{1-\alpha}{\alpha}} \tag{12}$$

Using this information in equation (11) leads to the following differential equation:

$$\dot{q} = \alpha(1-\alpha)^{\frac{1-\alpha}{\alpha}} q^{1-\frac{1-\alpha}{\alpha}} - \delta q \tag{13}$$

This is an ordinary non-linear differential equation. Its solution is:

$$q(t) = \left(\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta} + \left((q(0))^{1-\alpha} - \frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right) * e^{-\frac{(1-\alpha)}{\alpha}\delta t}\right)^{\alpha/(1-\alpha)} \tag{14}$$

Remarkably, the initial value of q, $q(0)$, provides critical information in determining the exact path of q. If $(q(0))^{(1-\alpha)} > \left[\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right]$ ($(q(0))^{(1-\alpha)} < \left[\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right]$), then the $q(t)$ path converges to $\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}$ from above (below). If $(q(0))^{(1-\alpha)} = \left[\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right]$,

---

[5] Notably, this is exactly what D-H find in their paper, $\frac{\partial F_R}{\partial t}\frac{1}{F_R} = F_K - \delta$ (obviously, their model does not include capital depreciation).

then the $q(t)$ path is constant. We remind the reader that the $q(t)$ path approaches infinity in D-H due to the fact that their version of (13) does not discriminate between rental rate of capital and interest rate (see Annex B for the complete derivation of D-H model).

Using this solution, it is straightforward to determine the time path of $r(t)$:

$$r(t)=\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}\left(\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}+\left((q(0))^{1-\alpha}-\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right)*e^{-\frac{(1-\alpha)}{\alpha}\delta t}\right)^{-1} \qquad (15)$$

Observe that rental rate of capital converges to $r^*=\delta$ and price of nonrenewable to $q^*=(1-\alpha)\left(\frac{\alpha}{\delta}\right)^{\alpha/(1-\alpha)}$, irrespective of whether q approaches its steady state from above or below.

Some comments are in order due to (14). Firstly, the fact that nonrenewable price converges to a constant in the model is a substantial divergence from what the Hotelling's rule implies. Secondly, though the price of nonrenewable converges to a constant in the steady state, it does not imply that all nonrenewables and all countries (representing closed economies) have identical dynamics. Suppose that there are two completely closed countries, owning the same resource but have substantially different $q(0)$ values (which are function of elasticity of marginal utility and subjective rate of discount as much as technology parameters). In that case, the same resource will show different price dynamics in different economies. Thirdly, elasticity of marginal utility θ and subjective rate of discount ρ have no effect on the time path of q and r (though they have in $q(0)$, $r(0)$, K and R). In other words, q and r are independent of household's time-patience and desire for consumption smoothness preferences, except their initial values. This result is due to the fact that the Hotelling's efficiency condition imposes a solution for q and r independent from the rest of the model.

The rest of the model can be solved as follows. First, from (6a)

$$C(t)=\left(\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}+\left((q(0))^{\frac{1-\alpha}{\alpha}}-\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right)*e^{\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{\alpha}{(1-\alpha)\theta}} e^{-\frac{\rho}{\theta}t}(q(0))^{\frac{1}{\theta}}c(0) \qquad (16)$$

where $c(0)$ is a constant. The most interesting characteristic of consumption path is the finding that consumption peters out and approaches zero in time, irrespective of parameter values and initial value. Secondly, when consumers are very concerned with smoothing consumption over time or are very patient, the fall in consumption slows down. Finally, the fact that consumption peters out in time implies that utility is bounded from above irrespective of parameter-value assumptions.[6]

[6] Checking for bounded utility is not algebraically straightforward. By intuition, nevertheless, we know that utility is bounded from above because consumption is declining in time. This result can be more clearly seen for, say, $\theta=\alpha/(2-\alpha)$ assumption.

Second, we may simplify the differential equation in (6b) as follows:[7]

$$\dot{K}-\left(\frac{r(t)}{\alpha}-\delta\right)K=-C(t) \tag{17}$$

A first step in solving (17) is to note that it is a linear first-order differential equation.[8] Hence, multiplying both sides of (18) by the *integrating factor* $\pi(t)=\left(\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}+\left((q(0))^{1-\alpha}-\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right)e^{-\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{-1}{(1-\alpha)}}e^{-\frac{1-\alpha}{\alpha}\delta t}$ allows us to write (17) as follows

$$\pi(t)K(t)=-\int\left[\left(\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}+\left((q(0))^{1-\alpha}-\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right)*e^{-\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{\alpha-\theta}{(1-\alpha)\theta}}e^{-\frac{\rho}{\theta}t}e^{-\frac{1-\alpha}{\alpha}\delta t}c(0)\right]dt+c_2 \tag{18}$$

In (18), c_2 is a constant that comes out from integration. We will drop it from the equation as its value must be zero for satisfying the transversality condition. To our knowledge, it is not possible to solve the integration problem on the RHS of (18), unless a specific value for θ is assumed. It should be noted that a restriction on θ may change time behavior of K and R but not of q, r, and C (except their initial values). We will assume that $\theta=\frac{\alpha}{2-\alpha}$ in (18). By this assumption, we force θ to be $0<\theta<\alpha<1$ and that the household does not have a strong preference for a smooth consumption pattern. Hence, a simulation of consumption path would show a hump-shaped pattern with a very steep decay towards zero.

Under the specific θ assumption, the power of the first term in the integrand becomes unity and hence solution becomes possible. In particular, we find the capital path as

$$K(t)=\frac{a\cdot(q(0))^{-\frac{1}{\theta}}c(0)}{\left[\frac{\rho}{\theta}+\frac{(1-\alpha)\delta}{\alpha}\right]}\left(a+b*e^{-\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{1}{(1-\alpha)}}e^{-\frac{\rho}{\theta}t}$$

$$+\frac{a\cdot(q(0))^{-\frac{1}{\theta}}c(0)}{\left[\frac{\rho}{\theta}+\frac{2(1-\alpha)\delta}{\alpha}\right]}\left(a+b*e^{-\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{1}{(1-\alpha)}}e^{-\frac{\rho}{\theta}t}e^{-\frac{(1-\alpha)\delta}{\alpha}t} \tag{19}$$

[7] Use equation (7a) to see this.
[8] See Annex A for the derivations.

In (19), $a = \frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}$ and $b = \left((q(0))^{1-\alpha} - \frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta} \right)$. Notably, capital stock converges to zero at the limit, $\lim_{t\to\infty} K(t) = 0$. The faster the petering out of capital stock, the more impatient the consumers are.

The respective path of nonrenewable resource follows from (19) and (7):

$$R(t) = \left(\frac{r(t)}{\alpha} \right)^{\frac{1}{1-\alpha}} K(t) \qquad (20)$$

Obviously, nonrenewable resource depletes smoothly towards zero in time. Again, the petering out of nonrenewable is faster, the more impatient the consumers. Notably, the transversality condition of problem (9), $\lim_{t\to\infty} q \mathrm{Re}^{-\int_0^t (r(\tau)-\delta)d\tau} = 0$, is satisfied. Finally, $R(0)$ and $C(0)$ are determined via (19) and the resource constraint equation in (8), that is, $S_0 = \int_0^\infty R(t)dt$, for $K(0) = K_0$ (see Annex A). Hence, we derive the complete analytical solution.

The utmost important finding of our derivations is that resource price q is *constant* in the long run under a C-D production technology. Mathematically speaking, this is due to the fact real rate of interest $r - \delta$ is approaching zero at the steady state. Economically speaking, this result is due to the fact that economic agents with perfect foresight find a smooth depletion of resource and economy optimal. This is in sharp contradiction with the prediction of partial Hotelling's rule that an economy will "resist" depletion by offering increasingly higher prices to the resource to enhance higher consumption and production temporarily.

Stability

Equations (6a), (6b), and (11) form the canonical system in the model. Equation (11) can be solved separately. It directly implies a solution for (6a). Consequently, (6b) can be solved. Hence, the stability of the canonical system is indeed defined by (11). It is straightforward to check the stability of (11) and show that it is indeed stable.

Monopoly

An alternative market structure assumption in the resource market is monopoly. In our model, a monopolist who owns the only deposit takes into account the relationship between q and R, so that the necessary condition in (10) becomes marginal revenue equal to marginal user cost. Hence, marginal revenue (and not price) will rise at the rate of interest (in case of zero extraction costs). But this in itself does not tell us whether the resource will be extracted more or less rapidly than by competitive producers. Some, following Hotelling (1931, p.153), might assume that the rate of resource extraction is reduced because of "the general tendency for production to be retarded under monopoly". However, as Weinstein and Zeckhauser (1975), Sweeney (1977), Stiglitz (1976), and Kay

and Mirrlees (1975) discussed and showed, the deviation in the extraction behavior of monopolist with respect to the perfectly competitive case depends on the price elasticity of demand. In particular, under the constant elasticity demand schedules, with zero extraction costs, monopoly prices and competitive equilibrium prices will in fact be identical, and hence the rate of utilization of the resource. Since our analytical model exploits a Cobb-Douglas technology, it implies a constant elasticity demand and therefore monopoly and perfectly competitive cases are identical.

A Tabular Summary of Results

We present at Annex B the full solution of D-H. A comparison of results is as follows:

Table 1. Comparison of Steady-states

Variable	D-H (δ=0)	Yetkiner (δ>0)
r	0	δ
q	∞	$(1-\alpha)(\alpha/\delta)^{\alpha/(1-\alpha)}$
K	0	0
R	0	0
C	0	0
$\chi = K/R$	∞	$(\alpha/\delta)^{1/(1-\alpha)}$

As Annex B and Table 1 reveals, the D-H assumption that rental rate of capital and interest rate are equal forces capital-extraction ratio χ to grow infinitely. Since r and q (and C) are solely function of χ, it also results in distorted factor prices in the model. Our market solution of the same problem shows that indeed resource price converges to a constant in the long-run. When we consider technology in the model, we find that the model-economy can generate sustainable consumption within the system.

Simulations

In this subsection, we will compare the three solutions via simulations. The advantage of this approach to the tabular summary is the fact that we fully exploit the power having complete analytical solution by also comparing transitional dynamics of the three cases. Let us assume that $\alpha = 0.5$, $K_0 = 1000$, $S_0 = 1000$, $\delta = 0.1$, $\rho = 0.02$, $\theta = \alpha/(2-\alpha) = 0.6$. It must be noted that we need to take up high values of K_0 due to the fact that the economy is depleting. Other parameter-value assumptions are quite common in the literature. The initial step on simulations is to determine $C(0)$ and $R(0)$. In the Appendix, we indicate how they are calculated.

Figure 1a: Time path of resource price

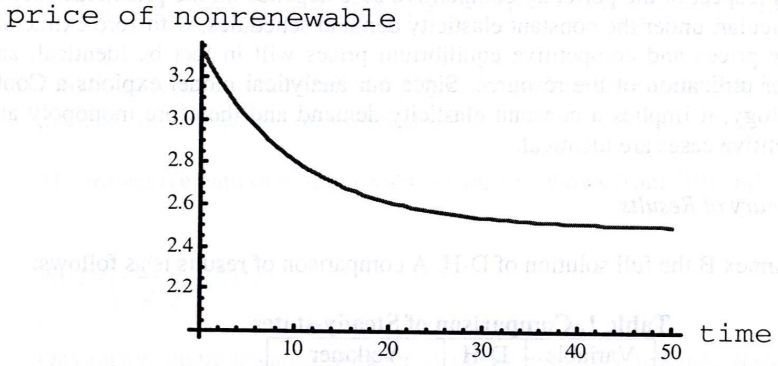


Figure 1b: Time path of rental rate of capital

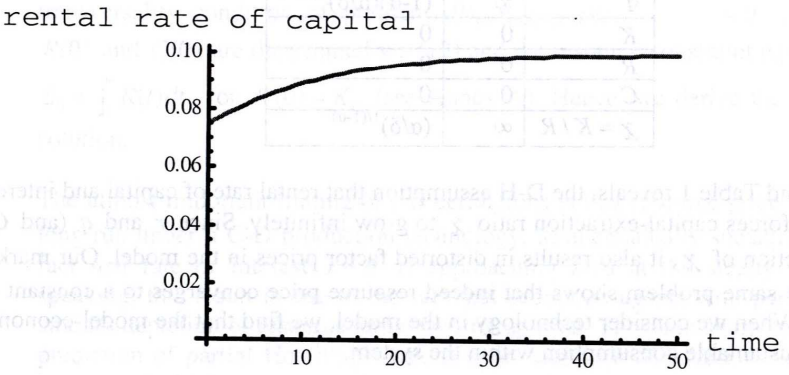


Figure 1c: Time path of consumption

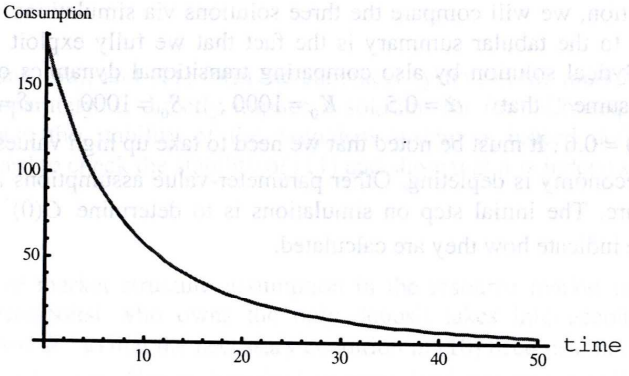


Figure 1d: Time path of capital

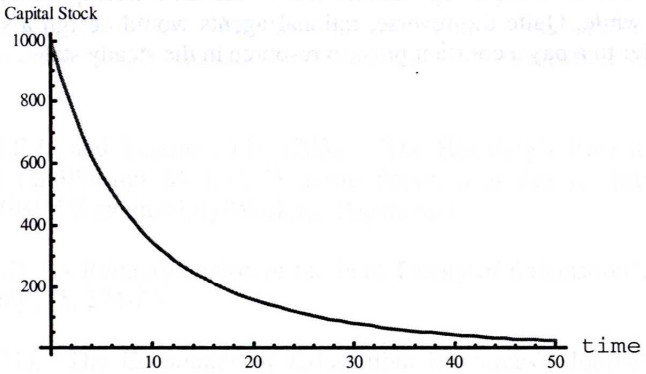
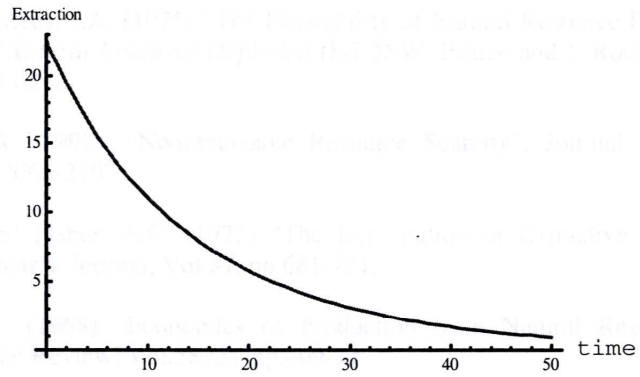


Figure 1e: Time path of resource extraction

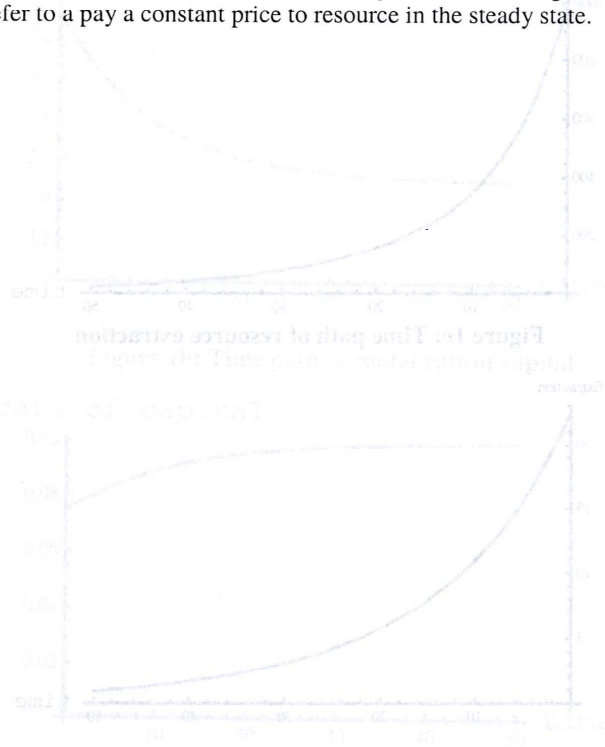


The clear impact of the true formulation of the Hotelling's Equation is seen on the behavior of resource price, when we compare D-H and our results. We observe that resource price is indeed converging to a constant in the long-run, contrary to what D-H suggests. A second observation about the difference between D-H and our results is that D-H model show non-smooth (hump-shaped) behavior in consumption, capital and resource depletion, which we believe is due to the fact that the model is forced to offer rising prices to the resource that disturbs the optimal behavior of aforementioned quantities.

Conclusion

In this paper we studied the growth impact of a nonrenewable resource in a Ramsey framework. Our study is inspired very much by the seminal paper of Dasgupta and Heal (1974). The main difference between our model and their model is that we differentiate between rental rate of capital and interest rate in the model. The distinguishing property of a growth model with an essential depleting resource in production is that resource price, rental rate of capital and consumption are determined independently from the rest of the model. Since, Dasgupta and Heal's approach forces capital extraction ratio to grow infinitely, the approach also distorts the input price movements and reproduces partial equilibrium Hotelling's rule. Our approach on the other hand showed that the price of the nonrenewable converges to a constant in the long run under the Cobb Douglas case. Indeed, we find this result quite intuitive under the perfect foresight assumption. If an

economy has to decline sooner or later, why economic agents has to prefer to pay higher and higher prices for a depleting resource just to sustain consumption and production a bit higher for a while. Quite the reverse, rational agents would design a smooth contraction path and prefer to a pay a constant price to resource in the steady state.



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Annex A

Recall that equation (19) is

$$K(t)=\frac{a\cdot(q(0))^{-\frac{1}{\theta}}c(0)}{\left[\frac{\rho}{\theta}+\frac{(1-\alpha)\delta}{\alpha}\right]}\left(a+b*e^{-\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{1}{(1-\alpha)}}e^{-\frac{\rho}{\theta}t}$$
$$+\frac{a\cdot(q(0))^{-\frac{1}{\theta}}c(0)}{\left[\frac{\rho}{\theta}+\frac{2(1-\alpha)\delta}{\alpha}\right]}\left(a+b*e^{-\frac{1-\alpha}{\alpha}\delta t}\right)^{\frac{1}{(1-\alpha)}}e^{-\frac{\rho}{\theta}t}e^{-\frac{(1-\alpha)\delta}{\alpha}t} \quad \text{(A.1)}$$

where $a=\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}$ and $b=\left((q(0))^{1-\alpha}-\frac{\alpha(1-\alpha)^{\frac{(1-\alpha)}{\alpha}}}{\delta}\right)$. Given that $K(0)=K_0$, (A.1) yields

$$K_0=\frac{a\cdot(q(0))^{-\frac{1}{\theta}}c(0)}{\left[\frac{\rho}{\theta}+\frac{(1-\alpha)\delta}{\alpha}\right]}(a+b)^{\frac{1}{(1-\alpha)}}+\frac{a\cdot(q(0))^{-\frac{1}{\theta}}c(0)}{\left[\frac{\rho}{\theta}+\frac{2(1-\alpha)\delta}{\alpha}\right]}(a+b)^{\frac{1}{(1-\alpha)}} \quad \text{(A.2)}$$

The two unknowns in (A.2) are $q(0)$ and $C(0)$. The second equation for solving these two unknowns comes from resource constraint equation, $S_0=\int_0^\infty R(t)dt$. After simplification, we find these equations as follows:

$$K_0=(q(0))^{-\frac{1}{\theta}}c(0)\alpha\theta\left[\frac{a}{\rho\alpha+\theta(1-\alpha)\delta}+\frac{b}{\rho\alpha+2\theta(1-\alpha)\delta}\right] \quad \text{(A.3)}$$

$$S_0=(1-\alpha)^{\frac{1}{\alpha}}\theta(q(0))^{-\frac{1}{\theta}}c(0)\alpha\theta\left[\frac{1}{\rho}\frac{a}{\rho\alpha+\theta(1-\alpha)\delta}+\frac{a}{\rho\alpha+\theta(1-\alpha)\delta}\frac{b}{\rho\alpha+2\theta(1-\alpha)\delta}\right] \quad \text{(A.4)}$$

Annex B

The Dasgupta and Heal (1974) model implies the following results for $\chi = K/R$, r, q, and C:

$$\chi(t) = \left((1-\alpha)t + (\chi(0))^{1-\alpha}\right)^{1/(1-\alpha)} \quad \text{(B.1)}$$

$$r(t) = \frac{\alpha}{(1-\alpha)t + (\chi(0))^{1-\alpha}} \quad \text{(B.2)}$$

$$q(t) = (1-\alpha)\left((1-\alpha)t + (\chi(0))^{1-\alpha}\right)^{\alpha/(1-\alpha)} \quad \text{(B.3)}$$

$$C(t) = \left((1-\alpha)t + (\chi(0))^{1-\alpha}\right)^{\frac{\alpha}{\theta(1-\alpha)}} e^{-\frac{\rho}{\theta}t} e^{c_1} \quad \text{(B.4)}$$

For solving K, we follow the same procedure. First, recall that the capital accumulation function is

$$\dot{K} - \left(\frac{r(t)}{\alpha}\right)K = -C(t) \quad \text{(B.5)}$$

First, let us define the integrating factor $\pi(t) = e^{\int P(t)dt}$, where $P(t) = -\left(\frac{r(t)}{\alpha}\right)$. The solution of this integration yields that $\pi(t) = u^{\frac{1}{1-\alpha}}$, where $u = ((1-\alpha)t + (\chi(0))^{1-\alpha})$. Next, multiply both sides of (B.5) by the integrating factor $\pi(t)$, which allows one to re-formulate the problem as follows:

$$K(t) * u^{-\frac{1}{1-\alpha}} = -e^{c_1} \int \left((1-\alpha)t + (\chi(0))^{1-\alpha}\right)^{\frac{\alpha-\theta}{\theta(1-\alpha)}} e^{-\frac{\rho}{\theta}t} dt + c_2 \quad \text{(B.6)}$$

It is not possible to solve the integration in (B.6) analytically, unless a specific value is assigned for θ. Suppose that $\theta = \frac{\alpha}{2-\alpha}$. Then, K is found as:

$$K(t) = e^{c_1} u^{\frac{1}{1-\alpha}} e^{-\frac{\rho}{\theta}t} \left((1-\alpha)t - 1 + (\chi(0))^{1-\alpha}\right) + c_2 u^{\frac{1}{1-\alpha}} \quad \text{(B.7)}$$

Transversality condition that $\lim_{t\to\infty}[\mu(t)\cdot K(t)] = 0$ implies that c_2 must be zero. Hence, we found $K(t)$ as

$$K(t) = e^{c_1} (\theta/\rho) u^{\frac{1}{1-\alpha}} e^{-\frac{\rho}{\theta}t} \left((1-\alpha)t - 1 + (\chi(0))^{1-\alpha}\right) \quad \text{(B.7`)}$$

Notably, the term in the parenthesis on the right hand side can be negative for low values of t and $\chi(0)$. Therefore, we need to assume that $\left((1-\alpha)t - 1 + (\chi(0))^{1-\alpha}\right) > 0$. Given the fact that this economy is depleting over time, $\chi(0) > 1$ is not a strong assumption. The value of R can be found by using profit maximizing factor employment conditions of K and R. It follows that

$$R(t) = e^{c_1}(\theta/\rho)e^{\frac{\rho}{\theta}t}\left((1-\alpha)t - 1 + (\chi(0))^{1-\alpha}\right) \tag{B.8}$$

Finally, from the resource constraint, we find that

$$S_0 = e^{c_1}(\theta/\rho)^2\left((1-\alpha)((\theta/\rho)-1) + ((\chi(0))^{1-\alpha} - 1)\right) \tag{B.9}$$

Equations (B.7`) and (B.9) determine values of $R(0)$ and $C(0)$. Hence, full solution is found.

A Macroeconomic Analysis of the Role of Trans-national Corporations in a Monetary Theory of Production

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This paper aims to put forward an original conceptual framework and a renewed perspective on monetary analysis applied to trans-national corporations based on some of the views of Bernard Schmitt developed over the last forty years. After reviewing the terminological principles of the theory of money emissions, we show that Bernard Schmitt's theoretical insights have enabled the successful integration of money and output at the conceptual level along the lines of a Keynesian monetary theory of production. We then examine the issue of the definition of the trans-national corporation and its exponential rise in the world economy with regard to the globalisation process. Finally, the inclusion of trans-national corporations in the theory of money emissions allows us to redefine transnational production as an additional conceptual level in monetary macroeconomics, with far-reaching implications as far as the monetisation of trans-national production and the subsequent reform of international payments are concerned.

"Trans-national: Reaching beyond or transcending national boundaries"
The American Heritage- Dictionary of the English Language (2000)

Introduction

The trans-national corporation (hereafter TNC) has obviously become a major actor in the global economy of the twenty-first century. Commentators usually agree on the decisive nature of its socio-economic contribution to the globalisation process. However, the increasingly important role of TNCs is not easily apprehended by economic science, which is generally not at ease with those gigantic, multi-dimensional and stateless institutions. As a consequence, they are very often stereotyped: "[TNCs] *stand at the heart of the debate over the merits of global economic integration. Their critics portray them as bullies, using their heft to exploit workers and natural resources with no regard for the economic well-being of any country or community. Their advocates see [TNCs] as a triumph for global capitalism, bringing advanced technology to poorer countries and low-cost products to the wealthier ones* (The Economist, 1997)". Therefore, analytical discussions involving TNCs are often blurred in a discourse determined by the underlying assumptions concerning their perceived benefits or their negative effects on the world economy. Surprisingly, no convincing attempt has been made to analyse TNCs thoroughly within the theoretical framework of a monetary theory of production advocated by Keynes (1933). In this article, we attempt to adopt such a perspective in order to analyse the role of TNCs in a global economy. Let us remind our readers that a monetary theory of production is one that takes money into account, from the outset, in the economic process (Barrère, 1990, p.28) and which refuses the neoclassical dichotomical approach assuming the neutrality of money (Schmitt, 1975, pp. 9-10). An interesting heterodox approach, which might help us avoid the aforementioned shortcomings of classical monetary economics, is the theory of money emissions (hereafter TME), whose theoretical framework will be widely referred to in this article.

Money having been defined as the numerical form of output in the TME (Schmitt, 1975, p.15, Cencini, 2001, p.76), we are interested in some of the determinants of world economic output that might account for the deep and complex transformations of the economic system at the global level. In fact, in the light of the recent evolution of the world economy, characterised by the exponential rise of TNCs, we argue that the aforementioned integration of money and output, as established by the TME, needs to be pushed one step further, by taking into consideration the trans-national nature of production. We are therefore interested in this paper by the recent evolution of world output and the identification of the main actors in the global economy. We will particularly insist on one actor who seems of utmost importance namely the trans-national corporation. The TNC (along, of course, with the workers it employs) is arguably, in a global economy, the main creator and transferor of newly created and often intangible assets (Dunning, 1997). Those assets may be considered to be the essential drivers shaping world economic output[1]: "*more than any other single institution, it is the trans-national corporation which*

[1] The following quote illustrates the current weight of TNCs, which have become the new major players in the global economy: "*Today, 47 of the top 100 economies in the world are actually TNCs, 70% of global trade is controlled just by 500 corporations* (Clarke, 2003, p.70)". The sheer concentration of economic power within TNCs is another key characteristic of the new global economy: "*a mere 1% of the TNCs on this planet own half the total stock of* FDI (ibid.)". The acknowledgement of the paramount importance of the

has come to be regarded as the primary shaper of the contemporary global economy" (Dicken, 2003, p. 198). Without being exhaustive, in the first section we will survey the main theoretical contributions of the TME as far as the integration of money and production is concerned. Before we address the macroeconomic consequences of the "*global shift*"[2] entailed by the rise of TNCs, it might be useful to provide a more rigorous definition of the trans-national corporation, in order to apprehend its role and analyse its evolution over the last decades. This will be the object of section two. The third section will deal with the consequences of the inclusion of trans-national corporations in the TME (one of the theoretical frameworks that best captures the essence of a monetary theory of production, according to us), with the subsequent definition of the concept of "*trans-national production*" and its possible impact on the study of the world economy. We will conclude by sketching out possible theoretical evolutions of the TME, fully taking into consideration the increasingly dominant position of TNCs in the world economy.

The Integration of Money and Production in the Theory of Money Emissions

It is impossible to go, exhaustively, through forty years of conceptual progress in the understanding of bank money as achieved by the TME, which is the cornerstone of the so-called Schmitt school (or Dijon school), owing to the decisive influence of Bernard Schmitt (1966, 1975, 1984, 1996) in the development of the TME. Nevertheless, it might be possible to sum up the key features of the TME without distorting its fundamental insights as far as the definition of bank money as well as the integration of money and production are concerned. Firstly, the TME is based on a renewed conception of money viewed as an instantaneous event, that is to say a circular flow that does not survive the payment occurring during a transaction between two economic agents in a capitalist economy (Cencini, 2001, p.76, Rossi, 2006). The fact that money does not survive the payment is precisely linked to the idea that "*money and payments are one and the same thing*" (Schmitt, 1996, p.88). As Rossi (1998a, p.37) points out, "*the distinguishing feature of modern banking - in contrast to non-bank financial intermediation - is to issue payments within the economy. Precisely, the monetary aspect of any payment is a wave-like emission; it is a flux-reflux occurring instantaneously.*" Hence, the emission of money (which is viewed here as a flow) occurs only within payments and can therefore be considered as an instantaneous event (Rossi, 2006, p.124). Rossi (ibid.) argues that, "*strictly speaking, money never leaves the bank issuing it. The payment order that the payer (say client I) addresses to the bank in favour of the payee (say, client II) is carried out by this bank through a simple double-entry in its books, by means of which money can be viewed as a flow from and to its source (money hoarding is impossible)*". As Cencini (1995, p.18) points out, the instantaneous reflux of money to its point of origin cannot be identified with an equilibrium condition that might be satisfied (or not). It is, in fact, a fundamental law of bank money that will always be logically true, regardless of the behaviour of economic agents. Between payments, bank deposits do not cease to exist but it is preferable here to talk about money balances (here viewed as a stock) rather than money *per se*. It is crucial to stress the accounting nature of money in the TME. The role of double-entry book-keeping in the recording of monetary transactions and the financing of production had already been stressed by Keynes (1937a) in his articles on the finance motive published after the *General Theory* (1936): "'*Finance' and 'commitments to finance' are mere credit and debit book entries, which allow entrepreneurs to go ahead*

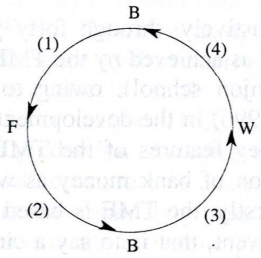
TNC as the primary shaper of the global economy is the object of a consensus among economists and is to be found in mainstream as well as heterodox circles such as in Post-Keynesian literature (Arestis, 1992, p. 89).

[2] To borrow the title of Peter Dicken's book (2003)

with assurance" (Keynes, 1937a, p.209). But while double-entry bookkeeping is the activity that consists in recording payments, the actual visible accounts only show the resulting money balances (whether positive or negative), which are the mere outcome of payments (and therefore of the wave-like emission of money) and not money *per se*. Bank entries may therefore be viewed as the result of instantaneous events corresponding to payments in modern capitalist economies[3]. *"As Bernard Schmitt put it [...], 'double-entry accounting records the result of monetary flows and not the flows themselves'* (Rossi, 1998, p.36)". We now need to investigate the wave-like emission of money, which occurs and is defined simultaneously on three different poles, namely firms, wage earners and banks (Gnos & Rasera, 1985).

The circular flow of money in the TME

Figure 1



The circular flow depicted in Figure 1 can be broken down into four simultaneous and instantaneous flows (F and W stand respectively for the payer (say, a firm) and the payee (say, wage earners)). The payment is aborted if the circular flow is not simultaneously defined on B, F and W. The result of the whole operation is nil if the emission is not complete (and therefore not circular). Hence if flows (1) and (2) are emitted, this is the typical situation of a line of credit opened by a bank for a firm. However, as long as no payment has been made, one cannot talk about the existence of money *per se*. If flow (3) is now emitted but if the corresponding deposit is not immediately deposited in B, that is to say if flow (4) is left out, or if it is issued later than flows (1), (2) and (3), then the payee (W in the case at hand) receives a mere promise to pay. If (4) is not emitted, the bank acknowledges its debt towards W but without the possibility of an actual payment, since a promise to pay cannot be identified with a payment. In order to be paid, the payee must obtain a claim over a bank deposit, certifying that (s)he has received a drawing right on a fraction of output in a numerical (or monetary) form. In fact, flow (4) represents the completion of the payment when the payee is credited with the deposit that demonstrates the restitution to the bank of the means of payment (the money here has flown from and to its source but without leaving the bank).

The concept of production in the TME

Intuitively, it seems that any production process has a positive duration in time. In economic terms, however, Schmitt (1984, p.51) has shown that production is a very specific action that defines a real emission that comes into existence and can only be

[3] "It takes no more than an instant to enter a payment in a bank's ledger" (Rossi, 2006, p.124).

captured at the very moment the production process is fully completed. This means that production (in economic terms) is nil until the production process has been totally completed when it becomes a positive action. Considering the set of firms as a whole, a product can only be defined by the social relationship between labour and output. This relationship enables the conceptual integration of money and output through the payment of production costs, which are identical to wages from a macroeconomic point of view owing to the fact that intra-firm purchases cancel out (Rossi, 2006, p.124). At the very instant wages are paid, production is defined by its end-result namely the physical product itself (ibid.). Furthermore, production ceases to exist in continuous time at the very instant following the end of the production process. The nature of the real emission hence defined by production is therefore instantaneous. Now that we have described the sequence leading to the conceptual definition of the product in the TME and outlined the instantaneous nature of production, we can infer that the payment of wages enables the integration of money and output, which fuse in a single macroeconomic object, namely money-income, wherein money has acquired a real content and output a numerical form (Cencini, 1995, p.15).

The instantaneous nature of production also raises the question of the integration of time in macroeconomic theory. As a matter a fact, the previous analysis of production requires a conception of time which is specific to economics and which differs from the intuitive and observable continuous (or historical) time in which the production process takes place. Since production cannot be defined in any finite and indivisible interval of continuous time – owing to its aforementioned instantaneous nature -, it can only be defined on a quantum of time. As Cencini (1985, p.74) puts it, quanta of time are a logical necessity, which stems from the fact that production does not *take place in time* but rather *is* an indivisible and finite period of time, that is to say a quantum of matter and energy moulded by human beings (Schmitt, 1984, p.54). This logical necessity enables economists to define a conception of time that allows them to define production in purely economic terms by transforming a continuum of time (a given interval [*to, tn*] in continuous time) into a quantum of time. Every production defines a quantum, a real and instantaneous emission, which 'quantises' time (ibid.). That means that economic reasoning requires continuous time to be withheld in order to put forward an economic conception of time that captures the very instant at which production becomes a positive action in economic terms. The product is the end-result of the production process that takes place in continuous time [*to, tn*] but only comes into existence, as an economic event, in *tn*. The instantaneous existence of production in *tn* absorbs the whole period [*to, tn*], which leads to this fascinating and logical conclusion: on a quantum of time, production does not *take place in* time but it actually *is* time (ibid.). We now consider how this definition of a quantum of time perfectly fits into the framework of a monetary theory of production advocated by Keynes (1933) in order to study capitalist economies (Barrère, 1990, p.28) since production may be considered as the primary economic operation that necessarily precedes any exchange (Schmitt, 1975, p.11). As soon as the production process is completed in *tn*, it becomes a positive action and it is instantaneously deposited in continuous time where it can be defined as a product (Schmitt, 1984, p.54). However, the fundamental feature of the stock of products deposited in continuous time is its heterogeneous nature (and its "conversion" into a measurable whole is probably one of the fundamental questions in monetary economics). In the TME, a fundamental proposition is that each emission of money is necessarily coupled with a real emission – that is to say production (Gnos & Rasera, 1985). As pointed out by Rossi (2001, p.5), "*money can be seen as the organic result of two intimately related actions (or flows): (1) creation, on the monetary side, of the numerical*

form of payment (2) production, on the real side, of physical output [...] by firms and workers taken together". The content of a real emission defines physical output, which, however, has no intrinsic value-substance, which was wrongly assumed by neoclassical economists (Cencini, 1985, p.91). The misleading concept of utility was probably the biggest error of classical economics along with the false idea of the neutrality of money (Schmitt, 1975, pp. 9-10). The object of a real emission is merely the social form of the stock of products (Cencini, 1985, p.216) that have been primarily conceptualised and physically brought about by human labour. We can see why labour is conceptually the sole source of economic value (the only factor of production in the economic process). The etymology of the word "factor" is "creation"[4] (The American Heritage Dictionary of the English Language, 2000), which is precisely what labour is: an intellectual and physical endeavour that gives its social form to any physical output with the help of money units. Keynes (1936, p.38) had already stressed the nature of economic output, which is a "*non homogeneous complex, which cannot be measured*". Labour being the endeavour of human beings that gives its shape to economic output, money can be considered as the incorporeal standard (Rossi, 2006, p.124) that gives birth to the numerical homogeneity of all produced goods and services (Rossi, 2001, p.122-7).

> [i]t is preferable to regard labour, including, of course, the personal services of the entrepreneur and his assistants, as the sole factor of production, operating in a given environment of technique, natural resources, capital equipment and effective demand. This partly explains why we have been able to take the unit of labour as the sole physical unit, which we require in our economic system, apart from units of money and of time (Keynes, 1936, pp. 213-214).

This exclusive role given to labour in the formation of economic value is certainly not "*a denial of the actual role that capital and land play in the production process*" (Gnos, 2005, p.90) but is rather explained by the theoretical distinction between the formation of new incomes (brought about by the payment of wages) and the spending of existing incomes when entrepreneurs pay for the capital goods that will contribute to the production process (ibid.). The fact that labour is the sole factor of production in the production process allows us to identify the payment of wages as a conceptual justification for the existence of money. From a macroeconomic point of view, this is confirmed by the fact that "*if there were no workers to remunerate, money could not circulate and hence exist* (Rochon, 1999, p.31). In the TME, money is defined as the numerical form of output whose appropriation by income holders has only been made possible through the mediation of labour (and therefore the payment of wages) regardless of the existence of other physical inputs that might have accounted for the production process. Labour is viewed as the conceptual tool that enables economists to define production. The physical nature of production is not questioned but its holistic and social expression requires a fundamental element that is derived primarily from human effort - that is to say labour - and expressed in money units (Pilkington, 2005). Money in the TME is thus the holistic tool by which the economy becomes endowed with a social expression of output that enables the measurement of the otherwise heterogeneous mass of physical goods and services[5]. The TME states that banks do not create any monetary object that would be made independent from the productive sphere: as Rossi (1998, p.29) points out, any net creation (whether tangible or not) results

[4] Middle English `factour`, *perpetrator, agent*, from Old French `facteur`, from Latin `factor`, *maker*, from `facere`, *to make*

[5] Goods and services remain heterogeneous and continue to lack any homogeneous *value-substance* (Cencini, 1985, p.91) despite the existence of money. Money does not quantify the intrinsic (and hypothetical) value-substance of goods and services. Instead, money provides the economy with numbers enabling the social and holistic measure of economic output (Schmitt, 1975, p.15).

from the intellectual and/or physical endeavour of human beings. This collective effort can be seen as an abstract productive project whose implementation in the real world requires the moulding of matter and energy through the production process. The role performed by banks consists in the monetisation of production as well as the creation of money units (which are both positive and negative numbers). The existence of negative units of money might surprise the reader but was nevertheless confirmed by Bernard Schmitt (1996a, p.134) with the help of double entry bookkeeping. Cencini (1997, pp. 273-4) has stressed the accounting nature of money and the paramount importance of double-entry bookkeeping: "*In simple words, the creation of money is nothing other than the use of double-entry bookkeeping to provide the economy with numbers*". We might add that the emphasis in the TME is mainly on the macroeconomic structure of the economic system in which "*the monetary sector and the real sector operate concomitantly to determine the macroeconomic magnitude* par excellence*: money-income*" (ibid.). The role of banks, firms and wage earners are therefore clearly analysed in the theoretical framework of the TME in the light of a holistic macroeconomic structure (Cencini, 1997, p.276). After this brief exposition of the TME, we now turn our attention to the trans-national corporation (its definition, evolution and role in the global economy).

The Evolution and the Role of Trans-national Corporations

In the previous section, we showed how the TME can be considered as a powerful elaboration upon the nature of bank money enabling the full integration of money and production at the conceptual level. The starting point of this section is the previously established theoretical result of the TME, namely the fact that money (viewed as a circular flow enabling income-formation through the payment of wages) can in fact be interpreted as the "*numerical form of output*" (Schmitt, 1975, p.15, Cencini, 2001, p.76). However, in the light of the recent evolution of the world economy characterised by the exponential rise of TNCs, we argue that the aforementioned integration of money and output needs to be pushed one step further by taking into consideration the trans-national nature of production in a globalised economy. Therefore, we would now like to move temporarily away from the TME in order to consider what is probably the major contributor and determinant of economic output in the global economy of the twenty-first century namely the trans-national corporation (TNC).

Definition of the trans-national corporation

A transnational corporation is an enterprise that controls assets of other entities in economies other than its home economy, usually by owning a certain equity capital stake. An equity capital stake of 10%[6] or more of the ordinary shares or voting power for an incorporated enterprise, or the equivalent for an unincorporated enterprise, is normally considered a threshold for the control of assets (UNCTAD, 2004). The definition of a TNC put forward by Ietto Gillies (2005) shows how its existence is derived from the globalisation of production:

> The TNC is a company that operates direct business activities in at least two countries. [...] it is not enough for the company to engage in general international business activities abroad to be classified as trans-national or multinational. A company that engages in international business via exports/or import of goods and services or via non equity collaborative investment – i.e investment undertaken

[6] This threshold is rather conventional and arbitrary. In some countries, an equity stake of other than 10% is still used. In the United Kingdom, for example, a stake of 20% or more was the threshold used until 1997.

> for purely financial reasons – does not become a TNC by virtue of these business activities [...] To be a transnational, the company must operate directly in the foreign country via the setting up of affiliates, and therefore through the ownership of assets located abroad (Ietto-Gillies, 2005, pp.11-2).

However, Dicken (2003, p.198) underlines the existence of numerous forms of collaborative ventures that account for alternative means of control and coordination of international production activities. He therefore suggests a broader definition of TNCs, which goes beyond the mere criterion of ownership of productive assets located abroad: "*A trans-national corporation is a firm which has the power to co-ordinate and control operations in more than one country, even if it does not own them* (ibid.)".

At a more conceptual level, the difficulty to apprehend the essence of TNCs lies in the fact that corporations (whether trans-national or not) are by definition very abstract entities, which do not have any concrete or material form in reality:

> Though human beings work inside corporations, a corporation itself is not a person [...]. A corporation is not even a thing. [...] If a corporation is not a person or thing, what is it? It is basically a concept that is given a name, and a legal existence, on paper. We think of corporations as having concrete forms, but their true existence is only on paper and in our minds (Clarke, 2003, pp.84-85).

Another key characteristic of corporations is that they very often outlive the people who work for them[7] (Sawyer, 1995, p. 61): "*a corporation usually outlives the human beings who have been a part of it, even these who own it. A corporation actually has the possibility of immortality*" (Clarke, 2003, p.85). Paradoxically, in the real world in which we live, those abstract and immaterial entities have arguably become the dominant institutions of the global economy[8] and have acquired considerable economic power often at the expense of nation-states and more democratically elected governments:

> TNCs [...] can move their capital, technology, goods and services freely throughout the world, unfettered by the regulation of nation states or democratically elected governments. In effect, what has taken place is a massive shift in power out of the hands of nation states and democratic governments and into the hands of TNCs [...] (ibid., p.71).

Genesis and historical evolution of trans-national corporations

Let's trace back very briefly the genesis and the evolution of TNCs:

> The historical origins of TNCs could be traced to the major colonizing and imperialist countries of Western Europe, notably England and Holland. The process began in the 16th century and continued for the next several hundred years. During this period, firms such as the British East India Trading Company were formed to promote the trading activities and territorial acquisitions in the Far East, Africa, and the Americas (Singh, 2001, p.1)

However, the meaning of TNCs as provided in the present paper is probably more recent:

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[7] Or the people who created them... Japanese artist Takashi Murakami has emphasised this aspect of corporations in his works: "*Louis Vuitton is dead but people still buy 'his' luggage* (Siegel & Mattick, 2004, p. 63)"

[8] An institution can be seen as a group of people organised and united for specific purposes. The TNC is an example of institution. In the real world, human beings work for TNCs, which are nevertheless not human and not even material. We argue that it is perfectly logical and coherent with the rest of the argumentation to state that those economic institutions are extremely powerful (in economic terms) despite their mere conceptual and legal existence.

> The transnational corporation as it is known today, however, did not really come into being until the 19th century. With the advent of industrial capitalism in the 19th and early 20th century, the search for resources including minerals, petroleum, and agricultural commodities as well as pressure to protect and enlarge markets propelled transnational expansion by companies exclusively from the United States and a handful of Western European nations (ibid).

We argue here that the TNC, whose existence is the outcome of a long historical evolution, is the condition as well as the outcome of the globalisation process. In a description of the world economic system before the first World War, Keynes (1920) reminds us that the internationalisation of the economy is not a new phenomenon:

> The inhabitant of London could order by telephone, sipping his morning tea in bed, the various products of the whole earth, in such quantity as he might see fit, and reasonably expect their early delivery upon his doorstep; he could adventure his wealth in the natural resources and new enterprises of any quarter of the world. The projects and politics of militarism and imperialism, of racial and cultural rivalries appeared to exercise almost no influence at all on the ordinary course of social and economic life, the internationalisation of which was nearly complete in practice (Keynes, 1920, pp.11-12)

However, since World War II, Dicken (1999) argues that the world has witnessed a qualitative and quantitative change in the process of internationalisation of production with the exponential rise of TNCs that has given rise to an unprecedented form of evolution of world economic output, namely the globalisation process. According to the World Investment Report (UNCTAD, 2004), there were, in 2003, at least 61,000 TNCs in the world[9] with over 900,000 affiliates accounting for one tenth of world GDP and one third of world exports[10].

A very important (and relatively recent) phenomenon is now taking place within TNCs; it is the rise of intra-firm trade that is to say cross-border trade taking place within TNCs and their affiliates: "*Intra-firm trade accounts for around one-third of goods exports from Japan and the United States, and a similar proportion of all US goods imports and one-quarter of all Japanese goods imports* (OECD, 2002)". This phenomenon is arguably reshaping the physical production process at the international level in a dramatic way:

> Interestingly, the national economies are not simply selling each other goods and services, but producing together. A large share of US trade with Canada and Mexico occurs within the same or an affiliated firm [...] A car made in North America may, in its separate pieces, cross the borders dozens of time before it is finally sold. As a report [...] concluded: "Americans do not buy Canadian cars and they do not sell American cars to Canada. Americans and Canadians (and Mexicans) make North American cars together in the same companies, in cross-border continental production networks" (Faux, 2006, p.208).

[9] In 1970, there were only some 7,000 parent TNCs (Singh, 2001)

[10] These figures are only estimates of the share of the world GDP and world exports accounted by TNCs but they do not reflect the true weight of TNCs in the world economy. It would be interesting to design further comprehensive indicators in order to measure the interaction between TNCs and domestic firms (collaborative ventures, strategic alliances, other forms of partnerships…). A much higher percentage of all world economic output, trade and investment would very likely prove to be influenced by TNCs.

Table 1: The world's top 100 non-financial TNCs, ranked by foreign assets, 2003 [a]

(Millions of dollars and number of employees)

Ranking by:						Assets		Sales		Employment		TNI[b] (%)
Foreign assets	TNI [b]	II[c]	Corporation	Home economy	Industry [d]	Foreign	Total	Foreign [e]	Total	Foreign	Total	
1	77	37	General Electric	United States	Electrical & electronic equipment	258 900	647 483	54086	134 187	150 000	305 000	**43.2**
2	7	95	Vodafone Group	United Kingdom	Télécommunications	243 839 '	262 581	50070	59893	47473	60 109	**85.1**
3	72	12	Ford Motor	United States	Motor vehicles	173882'	304 594	60761	164 196	138 663	327 531	**45.5**
4	90	65	General Motors	United States	Motor vehicles	15 4466 [f]	448 507	51 627	185 524	104000	294 000	**32.5**
5	10	78	British Petroleum	United Kingdom	Petroleum	141 551	177 572	192 875	232 571	86 650	103 700	**82.1**
6	31	41	Exxonmobil	United States	Petroleum	116853'	174 278	166926	237054	53 748	88 300	**66.1**
7	22	80	Royal Dutch/Shell	United Kingdom/ Netherlands	Petroleum	112587'	168 091	129 864	201 728	100 000	119000	**71.8**
8	68	94	Toyota Motor	Japan	Motor vehicles	94 164 '	189 503	87 353	149 179	89 314	26441	**47.3**
9	16	48	Total	France	Petroleum	87 840 '	100 989	94710	118 117	60 931	110783	**74.1**
10	62	69	France Telecom	France	Télécommunications	81 370 '	126 083	21 574	52 202	88 626	218 523	**48.8**
11	14	58	Suez	France	Electricity, gas and	74 147'	88 343	33715	44 720	111 445	172 291	**74.7**
12	89	34	Electricité De France	France	Electricity, gas and water	67069	185 527	16062	50 699	51 847	167 309	**32.9**
13	80	63	E.On	Germany	Electricity, gas and	64 033 '	141 260	18 659	52330	29 651	69383	**41.2**
14	85	74	Deutsche Telekom	Germany	Télécommunications	62 624	146 601	23 868	63 023	75 241	248 519	**37.0**
15		67	RWE Group	Germany	Electricity, gas and	60 345	98592	23 729	49 061	53 554	127028	**50.6**
16	23	23	Hutchison	Hong Kong, China	Diversifiée!	59141	80340	10800	18699	104 529	126 250	**71.4**
17	32	40	Siemens AG	Germany	Electrical & electronic	58 463 '	98 011	64484	83 784	247000	417 000	**65.3**
18	53	46	Volkswagen	Germany	Motor vehicles	57 853 [f]	150 462	71 190	98367	160299	334 873	**52.9**
19	21	35	Honda Motor Co	Japan	Motor vehicles	53 113'	77 766	54 199	70408	93 006	131 600	**72.0**
20	34	89	Vivendi Universal	France	Diversified	52 421 '	69360	15764	28 761	32 348	49 617	**65.2**
21	42	83	ChevronTexaco	United States	Petroleum	50806	81 470	72227	12003	33843	61 533	**59.2**
22	3	30	News Corporation	Australie	Média	50803	55317	17 772	19086	35 604	38500	**92.5**
23	65	29	Pfizer Inc	United States	Pharmaceuticals	48 960 '	116 775	18 344	45 188	73 200	122 000	**47.5**
24	93	85	Telecom Italia Spa	Italy	Télécommunications	46047	101 172	6816	34 819	14910	93187	**27.0**
25	50	18	BMWAG	Germany	Motor vehicles	44 948	71 958	35 014	47 000	26086	104 342	**54.0**
26	60	53	Eni Group	Italy	Petroleum	43 967 [f]	85 042	29341	58 112	36658	76521	**50.0**
27	4	9	Roche Group	Switzerland	Pharmaceuticals	42926	48089	22790	23 183	57 317	65357	**91.8**
28	95	79	DaimlerChrysler	German/American	Motor vehicles	41 696'	225 143	55195	153 992	76993	362 063	**25.2**
29	44	32	Fiat Spa	Italy	Motor vehicles	41 552	79160	36078	53353	88684	16223	**58.3**
30	15	3	Nestlé SA	Switzerland	Food & beverages	41 078'	72402	44308	65329	247506	253 000	**74.1**
31	55	5	IBM	United States	Electrical & electronic	40 987 '	10 4457	55369	89 131	180515	31927	**52.6**
32	83	47	ConocoPhillips	United States	Petroleum	36510'	82402	29428	90491	14982	39 000	**38.4**
33	46	31	Sony Corporation	Japan	Electrical & electronic	35 257 '	84 880	44366	64661	96400	162 000	**56.6**
34	58	71	Carrefour SA	France	Retail	34 323 '	49 335	39368	79780	13828	41904	**50.6**
35	96	24	Wal-Mart Stores	United States	Retail	34018	104 912	47572	256329	361765	1500	**25.0**
36	69	54	Telefonica SA	Spain	Télécommunications	33 466 [n]	66825	10508	32054	85 765	148 288	**46.9**
37	36	70	Veolia	France	Water Supply	33 399 '	49 154	17578	32283	205694	309 563	**62.9**
38	43	21	Procter & Gamble	United States	Diversified	33 361	57048	27719	51 407	68 694	110000	**58.3**
39	41	10	Sanofi-Aventis	France	Pharmaceuticals	33 024 '	44484	12291	22247	36576	75567	**59.3**
40	57	16	Hewlett-Packard	United States	Electrical & electronic	32 144'	74708	43843	73061	73 158	142 000	**51.5**
41	92	77	Mitsubishi	Japan	Wholesale trade	31 258 '	78 342	20054	13091	142000	49219	**28.4**
42	87	13	Deutsche Post AG	Germany	Transport and storage	29524	195748	19714	45166	175 775	383 173	**34.9**

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Foreign assets	TNI[b]	II[c]	Corporation	Home economy	Industry[d]	Foreign	Total	Foreign[e]	Total	Foreign	Total	
43	35	62	Unilever[g]	United Kingdom/ Netherlands	Diversified	28 654	47 952	27635	48 186	179000	234 000	**64.5**
44	6	49	Philips Electronics	Netherlands	Electrical & electronic	28 524	36626	31 594	32 773	136 750	164 438	**85.8**
45	63	91	Nissan Motor Co	Japan	Motor vehicles	28 517	73 388	42 002	64 082	50 836 i	123 748	**48.5**
46	11	27	Lafarge SA	France	Non-metalic prodicts	28127	31 365	13 117	15415	50524	75338	**80.6**
47	66	56	Repsol YPF SA	Spain	Petroleum expl./ref./distr.	27933	48034	14515	40710	14 924	30644	**47.5**
48	48	28	BASF AG	Germany	Chemicals	27099	42 437	21 999	37653	37054	87 159	**54.9**
49	25	33	Compagnie De	France	Non-metallic minéral	27056	38008	23834	33967	122 696	172811	**70.8**
50	45	6	Novartis	Switzerland	Pharmaceuticals	26 748[f]	49 317	16076	24864	41 031	78541	**57.0**
51	84	75	Mitsui & Co Ltd	Japan	Wholesale trade	26 262[f]	62 709	47508	105936	10826)	39 735	**38.0**
52	86	14	Altria Group Inc	United States	Tobacco	25711	96 175	34371	60704	40 557 °	165 000	**36.0**
53	78	81	Endesa	Spain	Electric services	25488	58 155	6228	18328	12939	26 777	**42.0**
54	8	4	Alcan Inc.	Canada	Métal and métal products	25 275	31 957	13172	13640	38000	49000	**84.4**
55	26	90	BHP Billiton	Australie	Mining & quarrying	24254	36675	17 673	24943	25294	35070	**69.7**
56	28	50	Glaxosmithkline	United Kingdom	Pharmaceuticals	23893	42 813	32296	35006	56 360 9	100919	**68.0**
57	82	55	Renault SA	France	Motor vehicles	22 342	71 283	27330	42353	34 921 p	130 740	**40.9**
58	37	93	Anglo American	United Kingdom	Mining & quarrying	21 623	43 105	10872	18 562	151 000	193 000	**62.3**
59	19	87	Koninkliike Ahold	Netherlands	Retail	20884	29 552	47744	63282	1899459	257 140	**73.3**
60	20	64	AES Corporation	United States	Electricity, gas and water	20 871	29904	6257	8415	21622j	30 000	**72.1**
61	54	22	Dow Chemical	United States	Chemicals	20039	41 891	19810	32623	22 964 p	46400	**52.7**
62	18	43	Volvo AB	Sweden	Motor vehicles	19451	31 787	23160	24023	47 603	75740	**73.5**
63	47	57	Pinault-Printemps	France	Wholesale trade	19 254[f]	30 649	16828	30767	51 847	100 779	**56.3**
64	74	42	Bayer AG	Germany	Pharmaceuticals/chemicals	18892	47020	17033	32334	48 700	115400	**45.0**
65	1	1	Thomson	Canada	Média	18418	18732	7943	8 159	38350	39000	**98.0**
66	33	36	Singtel Ltd.	Singapore	Télécommunications	17911	21 668	4672	6884	8642J	19081	**65.3**
67	30	52	British American	United Kingdom	Tobacco	17871	33891	27 972	41 832	68702	86941	**66.2**
68	81	99	National Grid	United Kingdom	Energy	17563	41 780	7673	15 848	9029	27 308	**41.2**
69	24	2	Nokia	Finland	Télécommunications	17 050	29 273	36763	37202	28979	51 359	**71.2**
70	99	84	Hitachi Ltd	Japan	Electrical & electronic	16296	89 545	21 177	80 602	80226	326 344	**23.0**
71	49	20	United	United States	Transport equipment	16212	34 648	14257	31 034	143 000	203 300	**54.4**
72	94	68	Petronas - Petroliam	Malaysia	Petroleum expl./ref./distr.	16 114	53457	8981	25661	3 625	30634	**25.7**
73	38	92	McDonald's	United States	Retail	15913	25 525	11 101	17 140	240 142	418000	**61.5**
74	27	25	Stora Enso OYJ	Finland	Paper	15910	22646	10382	15 373	29156	42814	**68.6**
75	61	44	Du Pont (E.I.) De	United States	Chemicals	15 840	37039	14 888	26 996	39 657 j	81 000	**49.0**
76	12	82	Rio Tinto Plc	United Kingdom	Mining & quarrying	15419	24015	9773	10009	26000	36016	**78.0**
77	98	86	Duke Energy	United States	Electricity, gas and water	1541	56 203	5537	22529	4652J	23800	**23.8**
78	40	38	Lvmh Moët-Louis Vuitton SA	France	Textile and leather	15 386[h]	24 356	8285	15063	35360	56241	**60.4**
79	73	66	Thyssenkrupp AG	Germany	Métal and métal products	15 237	36641	20 074	45641	92 179 J	184 358	**45.2**
80	67	15	Abbott	United States	Pharmaceuticals	15214	26715	7703	19681	33 166 J	72 181	**47.3**
81	70	76	Matsushita Industrial Co.,	Japan	Electrical & electronic	14 739	69449	42025	69839	170965	290 493	**46.8**
82	100	100	Verizon	United States	Télécommunications	13831	165 968	2449	67752	17269)	203 100	**6.8**
83	76	88	Métro AG	Germany	Retail	13600	33571	32 104	67690	107 210	242010	**44.1**
84	29	39	Norsk Hydro Asa	Norway	Diversifiée)	13429	32729	23158	25716	30 866	44 602	**66.8**
85	52	97	Christian Dior SA	France	Textiles	13388	31 895	8461	15 745	36391	56815	**53.3**
86	2	8	CRH Plc	Ireland	lumber and other building materials dealers	13 184[f]	13 976	13070	13608	51 694	54239	**95.2**
87	64	61	Scottish Power	United Kingdom	Electric Utilities	12991	24665	4753	10352	6663	14339	**48.4**
88	71	72	Alcoa	United States	Métal and métal products	12931	31711	8319	21 504	70700	120 000	**46.1**
89	9	11	Publicis Groupe	France	Business services	12919[f]	13400	4367	4879	21451	35 166	**82.3**
90	97	73	Marubeni	Japan	Wholesale trade	12814[f]	39722	25 175	73815	1 723i	24 417	**24.5**
91	13	60	Holcim AG	Switzerland	Non-metallic minéral	12808	20091	6596	10 187	46 946	48200	**75.3**
92	5	17	Cadbury	United Kingdom	Food & beverages	12804	14 209	8862	10525	48390	55799	**87.0**
93	79	26	Wyeth	United States	Pharmaceuticals	12776	29727	6269	15851	21617*	52 385	**41.3**
94	88	96	Statoil Asa	Norway	Petroleum expl./ref./distr.	12721	33 174	9684	37239	7491	19 326	**34.4**
95	17	98	BAE Systems Plc	United Kingdom	Transport equipment	12695	16802	17530	22450	48900	72 300	**73.8**
96	56	19	Robert Bosch	Germany	Machinery and equipment	12 683[m]	40 410	32 761[m]	45919	123 000	232 000	**51.9**
97	51	45	Motorola Inc	United States	Télécommunications	12618	32098	17983	27058	48 400 i	88000	**53.6**
98	39	51	Bertelsmann	Germany	Média	12498	25 466	14694	21 219	46 157	73221	**60.5**
99	75	7	Samsung	Republic of Korea	Electrical & electronic	12 387[h]	56 524	41 362	54 349	19026i	55 397	**44.1**
100	91	59	International Paper	United States	Paper	12088	35 525	6992	25 179	28980	82800	**32.3**

Source: UNCTAD/Erasmus University database.

a All data are based on the companies' annual reports unless otherwise stated.

b TNI is the abbreviation for "Transnationality Index". The Transnationality Index is calculated as the average of the following three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment.

c II is the abbreviation for "Internationalization Index". The Index is calculated as the number of foreign affiliates divided by number of all affiliates (Note: Affiliates counted in this table refer to only majority-owned affiliates).

d Industry classification for companies follows thé United States Standard Industrial Classification as used by thé United States Securities and Exchange Commission (SEC).
e Foreign sales are based on the origin of the sales unless otherwise stated.
f In a number of cases companies reported only partial foreign assets. In these cases, the ratio of the partial foreign assets to the partial (total) assets was applied to total assets to calculate the total foreign assets. In all cases, the resulting figures have been sent for confirmation to the companies.
9 Data for outside Europe.
h Foreign assets data are calculated by applying the share of both foreign sales in total sales and foreign employment in total employment to total assets.
i Data were obtained from the company as a response to an UNCTAD survey.
j Foreign employment data are calculated by applying thé share of both foreign assets in total assets and foreign sales in total sales to total employment.
k In a number of cases companies reported only partial region-specified sales. In these cases, the ratio of the partial foreign sales to the partial (total) sales was applied to total sales to calculate the total foreign sales. In all cases, the resulting figures have been sent for confirmation to thé companies.
l Foreign sales are based on customer location.
m Data for outside Western Europe.
n Foreign assets data are calculated by applying the share of foreign assets in total assets of the previous year to total assets this year.
o Foreign employment data are calculated by applying the share of foreign employment in total employment of Philip Morris in the previous year to total employment of Altria Group this year.
p Foreign employment data are calculated by applying the share of foreign employment in total employment of the previous year to total employment this year.
q Foreign employment data are calculated by applying the average of the shares of foreign employment in total employment of all companies in thé same industry to total employment.

Note: The list includes non-financial TNCs only. In some companies, foreign investors may hold a minority share of more than 10 per cent.

TNCs and the globalisation process

The International Monetary Fund (2000) defines the globalisation process as follows:

> In both academic and popular discourses, globalisation has become one of the catchwords for the new millennium. In fact, globalisation is a short form for a cluster of inter-related changes: economic, ideological, technological, and cultural. Economic changes include the increasing integration of economies around the world, particularly through trade and financial flows. This takes place through the internationalisation of production, the greatly increased mobility of capital and of trans-national corporations, and the deepening and intensification of economic interdependence (IMF, 2000, p.304)

For Dicken (1999, p.1), globalisation is an umbrella term "*that implies a degree of functional integration between internationally dispersed economic activities*". We can therefore identify some of the converging features of the globalisation process: the globalisation of the production process, a multidimensional interdependence between the national economies of the world and the resulting higher degree of functional integration of those economies. Aware of the abstract nature of the aforementioned definitions of globalisation, we suggest that such an unprecedented multifaceted phenomenon in economic history is better illustrated by the following description of the globalisation of research and development (R&D) by TNCs:

> Since 1993, Motorola established the first foreign-owned R&D lab in China, the number of foreign R&D units in that country has reached some 700. The Indian R&D activities of General Electric – the largest TNC in the world – employ 2,400 people in areas as diverse as aircraft engines, consumer durables and medical equipment. Pharmaceutical companies such as Astra-Zeneca, Eli Lilly, GlaxoSmithKline, Novartis, Pfizer and Sanofi Aventis all run clinical research activities in India. From practically nothing in the mid 1990s, the contribution by South East Asia and East Asia to global semiconductor design reached almost 30% in 2002. STMicroelectronics has some of its semiconductor design done in Rabat, Morocco. General Motors (GM) in Brazil competes with other GM affiliates in the United States, Europe and Asia for the right to design and build new vehicles

> and carry out other core activities for the global company. There are many such examples (UNCTAD, 2005, p.120).

This quote seems to reinforce the analysis of TNCs viewed as stateless corporations despite their apparent national and cultural rootedness (Faux, 2006, pp.168-9). Stateless TNCs possess the sheer ability to adapt to numerous country environments in order to pursue their global competitive interests:

> No matter where they operate in the world, these trans-national conglomerates can use their overseas subsidiaries, joint ventures, licensing agreements and strategic alliances to assume foreign identities whenever it suits their purposes. In so doing, they develop chameleon-like abilities to change their identities to resemble insiders wherever they are operating (Clarke, 2003, p.71).

The stateless nature of TNCs is sometimes emphasised by a statement of the chief executive:

> Ford isn't even an *American* company, strictly speaking. We're global. We're investing all over the world. Forty percent of our employees already live and work outside the United States and that's rising. Our managers are multinational. We teach them to think *globally* (Alex Trotman – CEO of Ford in Reich, 1997, p.275, italics in the text)

However, the hypothesis of the stateless TNC is often questioned by economists who argue that embeddedness is still a key factor of national differenciation: "*TNCs continue to reflect many of the basic characteristics of the home country environments, in which they remain strongly embedded, despite the growing extent of their trans-national operations* (Dicken, 2003, p.199)". Whether TNCs are viewed as truly global and stateless entities or not, their widespread influence throughout the world has made their study a fundamental task for economists since "*there are very few parts in the world in which TNC influence, whether direct or indirect, is not important. In some cases, TNC influence on an area's economic fortunes can be overwhelming* (ibid.)"

Labour saving evolutions and the global fragmentation of the labour force

The trans-national nature of production achieved by TNCs has arguably become a major determinant of the bargaining power of wage earners in developed countries and might account for the evolution of the subsequent levels of effective demand and employment in developed countries. The globalisation process was defined above as an unprecedented level of functional integration of economic units across the world. However, in spite of the increased level of functional integration of the global economy, it is possible to show that the globalisation process is paradoxically accompanied by an important phenomenon of fragmentation. Grazia Ietto Gillies (2005, p.206) distinguishes between several types of fragmentation, "*which are not incompatible and indeed reinforce each other. They are specific: organisational fragmentation, geographical (by nation-states) fragmentation; and fragmentation of the production process which results in the international location of different components of manufacturing or services products in different countries*". Those different forms of fragmentation remain compatible with higher functional integration, since the "*production and production processes become vertically integrated across nation-states. National economies become more interlinked by working on the same final product; by the movement of international managers who organize and monitor the process; and by the imports and exports that this international location strategy generates. Industries also become more internationally integrated as a result of this strategy by TNCs*" (ibid., p.207). However, a fundamental consequence of this dynamic process is the

fragmentation of the labour force itself (ibid.). This "*divide and rule* strategy" (Cowling and Sugden, 1987) is the mere by-product of international competition. In fact, according to Sugden (1991, 2000), attacks by rivals in the international arena are prevented by the search for cheaper labour and for a divided labour force, that is to say with less bargaining power.

> For workers in the US and other developed countries, TNCs' increased willingness to move operations to low wage areas along with their greater usage of automation, subcontracting, and employment of part-time labor has rendered the strike [...] relatively ineffective. As a result, trade unions' collective bargaining power has been substantially undermined. In the US, there were one-tenth the number of strikes in 1993 as in 1970, and only 12 per cent of the US workforce is currently unionized, a lower proportion as compared to 1936. The TNCs, which are attracted by lesser costs and fewer regulations, offer little promise to workers in terms of decent working conditions, sufficient pay, or job security in the developing world (Singh, 2001).

This phenomenon has had a dramatic impact on the organisation of labour in many developed countries. In *The End of Work*, Rifkin (2004) shows how the evolution of the world economic system in the second half of the twentieth century has weakened the American labour force owing to the globalisation process and the subsequent emergence of a global labour pool.

> Some of the blame for the current plight of American workers can be traced to the emergence of a single global marketplace in the 1970s and 80s. The postwar recovery of Japan and Western Europe presented American companies with formidable trade competitors in the international arena. New developments in information and telecommunication technology made it increasingly easier to do business everywhere in the world. The emergence of a common global market and labor pool served as a prod and incentive for American companies to undermine the uneasy truce they had made with organized labor since the 1950s (Rifkin, 2004, p.169).

According to Rifkin (ibid, p. xxii), this fragmentation of production at the global level resulting in an increasingly unorganised labour force is the by-product of a deeper and more *"radical change in the nature of work, with profound consequences on the future of society*" characterised by the development of "*intelligent machines, in the form of computer software, robotics, nanotechnology, increasingly [replacing] human labor in the agriculture, manufacturing and service sectors*" (ibid.). These transformations in the very nature and quantity of employment may be analysed as the outcome of the dramatic rise of TNCs and their increasingly efficient cost-minimisation strategy[11]. This strategy conducted at the global level is accompanied by the development of new technologies and organisational methods as well as a considerable decrease in transportation costs (Ietto-Gillies, 2005) and results in the sheer fragmentation of the production process and the labour force[12]. Gnos (2005, p.100) sees in this cost-minimisation strategy a "*possible cause of present-day unemployment, especially in Europe [...] mainly because of production*

[11] As Serge Halimi (2006) points out, there is a clear relationship between the cost-minimisation strategy of TNCs, their quest for ever lower prices and the resulting drop in the bargaining power of wage earners: *"Critics cite less favourable figures. The low prices are not an act of providence. They are partly the result of the 2.5% to 4.8% drop in the average paypacket of workers in each of the US areas where Wal-Mart does business. Wherever it goes wages drop, creating the conditions necessary for everyday low prices".*

[12] Taking the example of Walmart, Halimi (ibid) points out that its key asset is *"the 100 million US consumers who weekly go in search of its "everyday low prices". Low they certainly are, averaging 14% less than the competition. The big question is: what is the real cost of these low prices? The answer depends on whether you are concerned with individual buyers looking for the best deal, or with the employees of thousands of suppliers that are in thrall to a company powerful enough to oblige each supplier to hold down, and even reduce, its costs". Workers suffer for the good of Wal-Mart customers. To keep prices rock-bottom in the stores and at the subcontractors, working conditions can only deteriorate. It is consequently easier for suppliers with no unions or for goods manufactured in China".*

costs, essentially of wages that are notoriously higher in Western European countries that in Eastern Europe, in South East Asia or in China. These lower production costs prompt Western companies to relocate their plants". Furthermore, TNCs tend to conquer markets where previously existing firms were more labour intensive. TNCs' ratio between sales and potential job creation tends to be much higher than domestic firms'.[13] The example of Wal-Mart shows how TNCs add to unemployment in regions where they decide to invest "*for every US$10 million in sales in a typical [American] county, 106 people are employed. For every US$10 million at Wal-Mart, 70 people are employed* (Muller & Humston, 1993)". This trend is reinforced by the difficulties of small businesses in the regions where TNCs (such as Walmart) operate: *When Wal-Mart moves into a town the local small shops soon close. The firm started operating in Iowa in the mid-1980s; since then Iowa has lost 50% of its grocers, 45% of its hardware stores and 70% of its menswear shops* (Halimi, 2006). Those complex socio-economic phenomena are arguably feeding the previously mentioned fragmentation of the global labour force through the cost-minimisation strategies of TNCs. This fragmentation has an evident impact on effective demand in developed countries (Gnos, 2005) in which more and more jobs are being displaced and/or outsourced (Palley, 2006). The consequence of this fragmentation is a decreasing bargaining power of wage earners who can only claim a reduced share of the national income (Gnos, 2005, p.100):

> For example, while in France, from the early 1960s to the early 1980s, the share of wages (including insurance contributions paid by employers and which benefit wage-earners and their families) rose from 60% to nearly 68% in value added, it fell dramatically to 59% in the late 1980s, that is, within a very few years. It then further dipped to the 57,9% figure recorded in 2000, and [...] stands at about 58% [in 2004].

Let us address, in the next section, the question of the definition of the concept of trans-national production and its possible inclusion in the TME with the identification of the far-reaching implications as far as the necessary reform of the system of international payments is concerned.

TNCs in the TME: Towards the Concept of 'Trans-national Production'

We have seen in the first section how the TME had successfully performed the integration of money and production at the conceptual level. An extensive part of Bernard Schmitt's work deals with the process of capital accumulation and the resulting pathologies such as inflation and unemployment that are bound to arise in a capitalist economy without an orderly system of payments. It is not our intention here to review the numerous issues addressed by Bernard Schmitt. We decided instead to focus on the theoretical core of the TME that is to say the integration of money and production. We now consider the trans-national nature of production and its possible inclusion in the study of the world economy.

The inclusion of the trans-national nature of production in the TME

After defining money as the numerical form of output, we are now considering its transnational dimension. We have established in section 2 that a brief study of TNCs shows that these economic institutions have become the dominant force in the global economy. We argue that our understanding of production cannot be taken in isolation from

[13] And therefore much less jobs will be created by TNCs than by local firms.

its international (or more accurately transnational) nature in the shaping of world economic output. The various examples in section 2 have illustrated the globalisation process of research and development (R&D) within TNCs. An in-depth study of the functional divisions of a TNC (human resources, marketing, strategy, customer care, manufacturing, and so on) would probably cast light on an even more complex mapping of the production process on the international scale.

> In an era of declining constraints on their mobility and the attraction of low wages in the developing countries eager to draw foreign investments, TNCs are eliminating jobs in their home countries and shifting production abroad. It needs to be emphasized here that only low value, labor-intensive activities are being shifted to the developing world while strategic operations such as R&D and headquarters continue to be located in the developed world (Singh, 2001).

Moreover, this detailed mapping of trans-national production would possibly demonstrate the existence of outsourcing and offshoring dynamics (Palley, 2006) in the framework of the cost-minimisation strategy of the firm, thereby resulting in an increasingly threatening fragmentation of the global labour force despite the astonishing functional integration achieved by TNCs on a global scale. The inclusion of the trans-national nature of production in the study of the world economy seems to be a conceptual necessity. We continue to adopt here the conceptual framework of the TME in order to achieve the conceptual integration of TNCs in a monetary theory of production.

TNCs and further developments in the TME

We showed in section 1 how production in the TME is a very specific action, which defines a real emission that comes into existence at the very instant the production process is fully completed. Real emissions continue to be instantaneous events in the global economy. However, Section 2 showed that the production process of TNCs over the period [*to, tn*] that leads to the end-product (which will more than likely be further marketed on a global scale) seemingly takes place in continuous time in numerous country environments, according to the functional divisions of the TNC pursuing a global cost-minimisation strategy. However, the TME states that production (regardless of its geographical location) defines a real emission of a quantum of time, in which the production process does not *take place in*, but rather *is* time. If we were to incorporate TNCs in the TME, what would be the meaning of the trans-national nature of production if the corresponding quantum of time (i.e the moulding of matter and energy by TNCs) is still an instantaneous emission corresponding to an interval [*to, tn*] having being withheld from continuous time? It seems correct at this stage to argue that the trans-national nature of production does not change its conceptual definition because the dispatching of the production process on different national territories was never included in the premises of the conceptual definition of bank money in the TME. However, we argue that this might now be a conceptual necessity in the global economy of the twenty-first century. If we follow Rossi (1998b, p.5) who rightly points out that "*money can be seen as the organic result of two intimately related actions (or flows): (1) creation, on the monetary side, of the numerical form of payment (2) production, on the real side, of physical output [...] by firms and workers taken together*", the fact that action (2) takes place on the real side of the economy (whose nature is increasingly trans-national owing to the role of TNCs) certainly calls for a further reflection on the monetary side of the numerical form of payment and the country (currency area) where this numerical form is issued. We are concerned with a possible solution to the crisis of international payments and the potential benefits of the introduction of a world currency with regard to the theoretical framework of the TME.

The rationale behind a world currency to finance trans-national production

According to Sadigh (2001) following Schmitt (1977, p.122), domestic economies are monetary economies of production (and therefore require the conceptual integration of money and output *at the national level* as established by the TME), whereas the international economy is a mere exchange-economy. According to Schmitt (1977, p.122), the purchasing power of money originates in domestic production; therefore, the purchasing power of a world currency cannot be explained by production, which is, according to Schmitt, an ill-defined concept in the international arena. However, after our analysis of the TNC and its key role in the globalisation process, we can argue that international (or more accurately trans-national) production might not necessarily be an ill-defined concept and moreover, we are now in a position to question the characterisation of the international economy as a mere exchange-economy as well as the postulated absence of any potential intrinsic purchasing power for a world currency. We argue that the increasingly transnational nature of production achieved by TNCs can possibly provide the future world currency *from the outset* with a purchasing power beyond the boundaries of nation-states, thereby providing a rationale behind the introduction of a world currency in order to monetise trans-national production. The difficulty to integrate such a proposal in the framework of a monetary theory of production lies in the fact that Keynesian economics is traditionnally linked with the conceptual existence of nation-states as the sole politically delimited basis upon which economic policy can be designed and implemented.

> Keynes's economics required that the government's influence extend to, and be limited by, roughly the same space as the national economy. Just as locks in a canal need walls in order for the boats to be lifted and lowered by changing the level of the water, economies must have walls if the government is to be able to pump up or drop the level of economic activity. Borders to the economy are necessary to keep government-induced from drawing in imports, instead of expanding domestic employment (Faux, 2006, p.88).

However, not only do we believe that it is indeed possible to reconcile Keynesian economics with the concept of trans-national production but we also argue that the latter concept does not dismiss the limitation of the sphere of influence of monetary policy by the same space as the national economy. Indeed, what is needed is not a full re-shaping of national boundaries in order to conceptualize monetary matters anew under the impulsé of TNCs. We do believe that the traditional national level remains fully relevant in the twenty first century. It simply needs to be complemented by another level, which could possibly take the existence of trans-national production into account. The additional conceptual level in monetary analysis that we are propounding stems directly from the observation of the real world and is entailed by the overwhelming emergence of transnational production, characterised by the exponential rise of TNCs, as we have attempted to show in section 2. The solutions advocated in this paper call for a major breakthrough in the reflection on global governance as well as the design of some major insitutional innovations[14] partly inspired by Keynes's ideas at the end of his intellectual career. In the new scheme we put forward, trans-national production would be financed by a global wage fund denominated in a new world currency issued by a world central bank also working as an international clearing union inspired by Keynes' bancor plan (Keynes, 1980). Keynes (ibid., p.189) had hoped[15] that this new institution would pave the way for

[14] See Pilkington (2005, chapter 8) for the importance of the institutional component of economic policy.

[15] The Bretton Woods conference in 1944 eventually witnessed the triumph of the American White plan aimed at the expansion of free trade in order to promote the interests of the United States as the first world

further economic policies sustaining higher levels of world employment and would also work as a stepping stone for global governance: "*The Clearing Union might become the instrument and the support of international policies in addition to those which it is its primary purpose to promote. This deserves the greatest possible emphasis. The Union might become the pivot of the future economic government in the world* (Keynes, 1980, p.189)". Keynes's failure to convince the world political leaders at the end of World-War II to adopt the bancor plan should not mean the end of our hopes for the introduction of a new world currency, which is now strongly needed in order to monetise trans-national production. Interestingly, the International Monetary Fund (2000, p.37) - whose creation followed the adoption of the American plan designed by White (1942) at the end of World-War II (and therefore following the rejection of Keynes' proposals for an international clearing union) - has recently expressed some concerns as far as the sustainability of the current international system of payments is concerned. Davidson (1992) has already put forward a proposal for a new world currency, called the International Money Clearing Union (IMCU), aimed at solving the structural problem of macroeconomic imbalances in the world economy in order to favour global employment. Along those lines, a new world currency could hence be implemented without jeopardizing the existence of domestic currencies, which would continue to exist along with a more orderly system of international payments. Now, another fundamental justification of the establishment of a world currency is provided by the existence of TNCs and the trans-national nature of production. The official definition of a TNC can be the one put forward in section 2 (ownership of at least 10% of the productive assets of a foreign affiliate). The mission of the new world central bank would be to distinguish between 'standard' and 'transnational' money emissions; the world currency would only be issued in the latter case. For technical and conceptual reasons, it is not necessary to narrow down the scope of transnational production. The latter concept is simply *all* the value added generated by TNCs.[16] Trans-national money emissions would be designed to monetise all the income-generating activities of TNCs regardless of their location. This new scheme would imply the design and the introduction of a world currency in order to finance a global fund that TNCs would draw on in order to pay for their wage bill (including the personal services of entrepreneurs[17]). According to the TME, the payment of wages within TNCs is the measure of the macroeconomic income and thus of all the economic value that they generate. This wage-fund would be *exclusively* denominated in the new world currency and shall not create any domestic inflationnary pressures. Domestic currencies and exchange rates would continue to exist[18] and nation-states would retain their monetary sovereignity. A reference can possibly be made here to State-money. Chartalism (Wray, 2000, 2003) is a school of thought which has attempted to show how "*History reveals the role of the public authority in establishing a universal equivalent for measuring debts and in determining what 'thing' will be used to correspond to this accounting measure* (Tcherneva, p.2005, p.6)». The prevailing role of the State in the definition of money (through the choice of the unit of account and the enforcement of its legal acceptability) is

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trade power at the end of World-War II (Figuera, 2003) over Keynes's bancor plan. This was interpreted by some economists (Guttman, 1994, pp. 389-390, Hobswawm, 1996) as the sign of the dominance of the American influence, at the time, in the international political arena.

[16] We include here all the economic activities of the TNC in the home country. The transnational nature of production stems from the 'transnationality' of its production chain. The status of TNCs is not legal but conceptual. Its statistical definition is given by the ownership of at least 10% of the productive assets of a foreign affiliate.

[17] We might add «and the remuneration of the board members ».

[18] The operational management of this exchange rate system is beyond the scope of the present article

the fundamental proposition of Chartalism. We partially agree here[19] with the idea of *"money as a creature of the state"* (Lerner, 1947) insofar as it seems to be confirmed by historical data. With the exception of currency boards (mainly through dollarisation) and the EMU experiment, the State is arguably the institution, which has always had *"the right not only to enforce the dictionary but also to write the dictionary* (Keynes, 1930, p. 5)". Retaining this linguistic metaphor, we may suggest that, in the light of the rise of TNCs and the subsequent evolution of the world economy towards transnational production, the world economic system now needs a sort of monetary Esperanto along with a 'transnational dictionary'[20]. Other benefits of the introduction of a world currency in order to finance trans-national production are to be found; a world currency could be a powerful way to offset the recurrent macroeconomic imbalances (Davidson, 1997) in the current anarchic system of payments that favours international speculation with its potential adverse effects on domestic economies (Arestis, 2004-2005, The Economist, 2007). The integration of money and output as established by the TME would also find a theoretical justification and an empirical confirmation on a global scale. This solution could be politically feasible since domestic currencies would continue to exist. The monetisation of trans-national production by a world currency would possibly limit (though not suppress) speculation on all financial assets denominated in domestic currencies roaming free on international financial markets (Sadigh, 2001, p.207, The Economist, 2007). This need to limit financial speculation is made even more pressing with the fantastic rise of e-money in world economic transactions:

> The trillions sloshing back and forth between countries *within and between corporations*, and between large investors and entrepreneurs, are transferred from one account to another through an electronic network [...] The number of electronic transfers amounts to only 2 % of the total transfers; yet these transactions involve US$5 out of every US$6 that move in the world economy (Barnet & Cavanagh, 2003, p.60, italics added).

The previously mentioned international clearing union would be a powerful instrument of global governance in order to control the enormous flows of e-money[21] occuring *"in the blink of an eye"* (The Economist, 2007) in cross-border transactions:

> When cybercash reaches maturity [...] nation-states alone will no longer be able to control money. They can only do so collectively. At that point, they may create a monetary payments-system superstructure that routs all cybercash transactions in the internet through a canal controlled by an international clearing union. The central banks may enforce such a rerouting by introducing collectively a new international medium of exchange for all cross-border transactions involving an exchange of one currency with another. In other words, they take control over capital flows by introducing a supranational form of money routed through an official payments system operated by a global monetary authority, which replaces the Euromarket and Foreign exchange. Only then will we finally have the missing link for the institutional grounding of a new monetary regime based on stateless electronic money (Guttman 1998, pp. 433-434).

Whether Keynes's original terminology is retained or not (the bancor was the name given by Keynes in his plan for a new world currency), it is important to distinguish between the different functions performed by money that would possibly apply to a world currency:

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[19] The neo-chartalist approach has been criticised by Rochon and Vernengo (2003) who argue that credit-money (and not state-money) is the essence of modern money whose origin is to be found in the credits granted by banks.

[20] Without replacing the older and more traditional national dictionaries (i.e domestic currencies).

[21] *"Perhaps in a few years' time, one will be able to trade in a fraction of a millisecond"* ('To infinity and beyond', The Economist, 2007).

> According to the spirit and the logic of the Keynes's Proposals for an International Currency Union, the clearing union creates the monetary bancor and manages the financial bancor. The two bancors are literally heterogeneous: they do not have the same origin. The monetary bancor is issued ex nihilo within every external payment between member-countries. The financial bancor is lent by surplus countries and borrowed by deficit-spending countries (Schmitt, 1985, p.208, our translation).

Whereas the monetary bancor is simply the numerical form of output (conceptualised by Schmitt in his quantum theory of money) extended to the international arena in order to issue payments made by trans-national corporations, the financial bancor shall act as an intermediary along the principle advocated by Keynes himself:

> We need a method by which the surplus credit balances arising from international trade, which the recipient does not wish to employ for the time being, can be set to work in the interest of international planning and relief and economic health, without detriment to the liquidity of these balances to their holder's faculty to employ them himself when he desires to do so Keynes (1980, p.169).

The financial bancor would become the principal means for an expansionist world trade policy (Keynes, 1980, p.176) favouring high levels of effective demand along Keynesian principles (ibid., p.270): "*The principal object can be explained in a single sentence: to provide that money earned by selling goods to one country can be spent on purchasing the products of any other country*". It would therefore be important to distinguish between those two functions (financial and monetary) of the future world currency. Schmitt (1977, pp. 111-2) suggests that the future world central bank be divided into a monetary and a financial department. The latter would literally be an international financial institution *per se* (i.e working at the interface *between* member countries) supervising international financial intermediation between debtor and creditor countries (through the newly designed international clearing union). In the new system of international payments, the former would be the first *trans-national economic institution*[22] responsible for transnational money emissions in order to finance the wage bill of TNCs by *monetising* all trans-national production. It is noteworthy to mention that when Keynes's (1980) proposals for an international clearing union were put forward in 1941, it was probably correct, at the time, to refer to the international economy as a mere exchange-economy (Schmitt, 1977a, p.122). However, the rise of TNCs and the globalisation process have deeply altered the structure of the world economy and the financing of transnational production is now taking place *from the outset* in a global monetary economy of production (despite the existence of numerous country environments and domestic currencies). The globalisation process and the subsequent trans-national nature of production carried out by TNCs are arguably subordinating the internationalisation of trade to the trans-nationalisation of production. Keynes's plan was aimed at favouring expansionist trade policy and sustaining high levels of effective demand throughout the world (Keynes, 1980, p.176). Those objectives are still extremely relevant in the twenty-first century. We hence argue that the rise of TNCs and the subsequent shift towards trans-national production do not weaken the rationale behind a world currency. On the contrary, they reinforce it.

[22] Operating on a huge geographical scope defined by nothing less than all the countries that actively and passively engage in trans-national production.

An additional conceptual level in monetary macroeconomics

It seems that we have witnessed an historical evolution in the capitalist system, which has now put TNCs at the centre stage. The concept of production has been transformed and partly been revolutionised by the "global shift" towards trans-national production and globalisation. It is not possible yet to talk about a complete shift towards trans-national production (local producers employing local workers working on a domestic production chain and serving local markets still account for a significant fraction of world employment). Despite the claim of hyper-globalists (Ohmae, 1995, p.94) who argue that TNCs are converging towards a universal global (and stateless) corporation, this scenario has probably been largely exaggerated. As Dicken (2003, p.221-7) pointed out, the myth of the place-less corporation can be challenged by a series of quantitative tools such the Trans-nationality Index[23] demonstrating that "*TNCs [...] remain distinctively connected with their home base* (ibid., p.225)". However, it is impossible to neglect the observation that the weight of TNCs has been rising exponentially and is evidently re-shaping world economic output in a dramatic way. TNCs are often quickly stereotyped but these gigantic economic institutions are rarely conceptualised satisfactorily by monetary macroeconomists in their theoretical frameworks. This is partly due to their multi-faceted, multi-dimensional and merely conceptual nature. However, we have argued, in this paper, that TNCs could possibly be incorporated into a monetary theory of production, and more particularly within the framework of the TME. As a consequence, we have suggested that real emissions in the TME be broken into (and coupled with) "standard" and "trans-national" money emissions. The corresponding money would be issued either at the domestic or at the international level respectively in the domestic or in the future world currency. This distinction will not affect the instantaneous nature of production nor will it change the fact that along the lines of the TME, production will continue to be defined as a quantum of time. In this renewed perspective, production *is* time the same way trans-national production *is* also time. Interestingly, it is not meaningful, of course, to refer to the nationality of time; however, this is not the case for money whose emission is still largely a prerogative of nation-states in the current international system of payments (with the interesting exceptions of currency boards, dollarisation experiments and also the EMU). It now seems difficult to ignore completely the trans-national nature of production given the current weight of TNCs in the world economy. We argued that the rationale behind a new world currency, in order to monetise trans-national production, stems precisely from TNCs' sheer importance in the new global economy. Some might argue that it seems excessively ambitious to redefine the world economy as a global monetary economy of production thereby shaping anew the boundaries of monetary economies of production independently of the traditional boundaries of nation-states and/or existing currency areas (which have always been intricately. It is essential to state that national boundaries and/or existing currency areas have not become ill-founded with the exponential rise of TNCs and we are not putting forward here a new version of the demise of the state (Navari, 1991), which would inexorably be forced to surrender its monetary sovereignty to a supranational institution under the impulse of TNCs.

> There is no denying that TNCs pose a serious challenge to national autonomy and sovereignty on economic matters but it would be inappropriate to conclude that they control the political domain. Political power still remains in the arena of nation-state. In spite of the growing domination of TNCs

[23] The Transnationality index (TNI) is calculated as the average of the following three ratios: foreign assets to total assets, foreign sales to total sales and foreign employment to total employment (see table 1 supra).

> in the economic realm in the last two decades, it would be wishful thinking that the nation-state is going to wither away or become irrelevant (Singh, 2001).

Nonetheless, we agree with Ponsot (2002) who argues that the identity "one currency area = one production area" is no longer *systematically* achieved within the geopolitical framework of the nation-state:

> The way economic areas are determined is not fortuitous. Since the advent of organised political areas around the nation-states, the correlation of monetary and production areas tends to underpin the one currency/one nation notion, as described by Helleiner (1999) and Cohen (2001). If today the nation-state still constitutes the main framework for the fusion of monetary and production areas, it does not however represent the sole framework of this relationship. It has been preceded by other modes of fusion (communities, primitive societies....) and will no doubt be followed by others. The one currency /one nation principle is being challenged more and more. Several factors are contributing to the collapse of this principle: globalisation, the creation of the euro zone, the development of parallel currencies and (...) dollarisation (Ponsot, 2004).

We believe, firstly, that the inclusion of trans-national production needs to be performed at the conceptual level in a monetary theory of production, within a renewed framework of global governance, in order for monetary theory to catch up with the tremendous changes the world economy has been witnessing over the last decades under the sheer impulse of TNCs. Secondly, in the new scheme that we have put forward, nations-states and the corresponding currency areas will continue to define the boundaries of domestic monetary economies of production (which are certainly *not* made irrelevant by the rise of TNCs). However, one might wonder how the purchasing power of money can be satisfactorily explained anew when trans-national production is getting increasingly coordinated and integrated owing to TNCs, when it is taking place simultaneously across numerous country environments and accounts for an increasingly large share of world output.

Conclusion

An interesting question addressed in this article was thus the incorporation of TNCs in a monetary theory of production and, more particularly, the potential impact of the introduction of the concept of trans-national production on the very nature of money in the TME, which potentially calls for the elaboration of an additional conceptual level in monetary analysis with a further reflection on the possibility of the financing of trans-national production (and therefore of the wage bill of TNCs) through the introduction of a new world currency. The other major institutional innovation would be the creation of a sustainable global wage fund. This global wage fund would exclusively monetise trans-national production by trans-national money emissions in the new world currency. Given the current embryonic stages of the reflection on global governance, this idea is very likely to be a remote reality. Hopefully, it is not a utopian one. Finally, to quote Paul Davidson (1997),

> If we start with the defeatist attitude that it is too difficult to change the awkward system in which we are enmeshed, then no progress will be made [...]. We must reject such defeatism at this exploratory stage and merely inquire whether particular proposals for improving the operations of the international payments system to promote global growth will be effective without creating more difficulties than those inherent in the current system (Davidson, 1997, p.686).

Therefore, new ideas should not be entrenched in a deafeatist culture if we are to design the pathologies our economies are currently suffering from.

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The Turkish Sugar Industry in the Aftermath of EU Sugar Reform

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In this paper we analyze the potential impact of the EU sugar reform on the Turkish sugar industry. Turkey's candidacy to the EU and its strong economic links to the region imply that EU sugar policy will likely to be binding for Turkey as well in which case this will lead to a decrease in prices of Turkish sugar by no less than 55%. Turkish sugar industry will be seriously affected by the reduction in beet and sugar prices which will not be offset by possible increases in world sugar prices. Growers on contract will decline substantially. Since the reduction in growers contracted is more extensive than declines in sales, we can predict that the sugar industry will be transformed as a result of the synchronization with EU policies. In the aftermath of this transformation, we expect to see larger and more efficient plants prevail with increased capacities and work with fewer growers with large acreages.

Introduction

The EU-25 Commission submitted a proposal to drastically reform sugar in June 2005 following a World Trade Organization (WTO) Panel ruling that found the EU sugar regime in violation of WTO export commitments and the "Everything But Arms" (EBA) agreement in which the EU agreed to phase out tariffs by 2009 on imported raw sugar from 48 of the least developed countries. The proposed reforms include reducing sugar prices by 36 percent from

In this paper we analyze the consequences for Turkish sugar industry of harmonization with EU sugar policy reform. The effect of EU policies on the Turkish economy have been investigated mainly in the context of the Customs Union. (Harrison (1997), Togan (1997), Mercenier and Yeldan (1997)). Agricultural products were not part of the Customs Union and hence have not been investigated in the EU context to the same extent. A notable exception is Grethe's (2003) partial equilibrium analysis of the effects of including agricultural products in the Customs Union. His analysis finds that domestic sugar prices will decline by 32 percent if the Customs Union was extended to include agricultural products.

Data

In this section, factors that affect sugar production will be investigated. In order to be able to study the dynamics that have been influential in the sector in the past few years, panel data analysis will be utilized. The focus of analysis is the recent past. Data on sugar plants have been utilized. Plant production, employment and sales data have been extracted from the Turkish sugar plants A.S. (TSFAS) World sugar prices are taken form the US Agriculture Ministry and Turkish sugar prices have been compiled from various sources in Turkey. Export and imports of sugar related goods is taken from the Turkish Foreign Trade Ministry. The sugar beet planting fields in Turkey, the employment that is created as a result, sugar production and sugar sales are analyzed for the 1997-2005 period. Data on 27 plants have been used. The total production of these plants constitute 83% of Turkish sugar production in this period. This study focuses on the sectors price elasticity of supply as the EU Common Agricultural Policy is expected to push sugar prices down in Turkey by 35%.

In Table 1, the variables that are used in the analysis are listed with brief descriptions and sources. Table 2 presents descriptive statistics on these variables. The total sales in Turkey in this period are 1.23 million tons per year with a standard deviation of 33950 tons. Minimum sales in the period was 1.19 million tons and maximum sales was 1.29 tons. Apart from structural breaks in the mid 1970s and early 1980s, world sugar prices have been relatively constant. From 1997 to 2005, nominal prices averaged US$241 per ton. World sugar prices reached 14-year lows in February 2000. Since then, large stocks and greater than expected harvests have damped any significant rally in the market. The volatility in sugar prices, particularly in recent years, is also due to the short-term rigidity of the supply response to price changes. In this period, average sugar prices in Turkey have been three times higher than the world average.

Average annual sales per plant is 48,127 tons with a standard deviation of 38,576. Average plant capacity is 3,673 tons per day. The smallest plant has a capacity to process 1200 tons pre day compared to the largest at 7000 tons per day. Average campaign period is 104 days. Average area planted per plant per year is 11,594 hectares. Number of growers on contract per plant per year is 13,807 people.

Methodology

Plants vary substantially by size and this suggests that the appropriate estimation technique is the least-squares dummy-variable approach also known as the covariance or the fixed-effects model. This model is usually denoted as

$$Y_{it} = \sum_j \beta_j X_{it,j} + \sum_n \gamma_j D_{it,n} + \varepsilon_{it} \quad (1)$$

where Xs are the explanatory variables and Ds are the dummies for each plant.
It is common practice, when dealing with pooled cross-section and time-series data, to also estimate what is known as the error component or random-effects model and compare the relative efficiency of the two models.

The reasoning behind the random-effects model is that, since the error term is generally considered to represent the effect of omitted variables, and some of the omitted variables could represent factors peculiar to individuals or time periods or both, the error term should be treated as consisting of three components. The model then can be represented as

$$Y_{it} = \mu + \sum_j \beta_j X_{it,j} + \nu_{it} \quad (2)$$

where $\nu_{it} = \alpha_i + \lambda_t + \upsilon_{it}$.

The advantage of using an error component model is that we save a number of degrees of freedom, since we do not need to estimate individual-specific intercepts, and thus obtain more efficient estimates of the regression parameters. The disadvantage is that if the cross-sectional characteristic were also captured by the explanatory variables in the regression, the estimates would have become biased and inconsistent.

Results

In Table 3, we present fixed-effects regression results on sales, growers contracted and employment. The fixed-effects model was compared to the random-effects model via the Hausman test which revealed that the random-effects model did not provide an improvement over the fixed-effects model, therefore only the fixed-effects estimates are presented in Table 3.

Due to severe multicollinearity between domestic beet price and sugar price, we include three sets of results for each variable. The first set of results includes all three price variables and these results are used for scenario analysis. The other two sets, include beet price and domestic sugar price separately. We use contemporaneous prices rather than lagged prices. Beet prices are determined by the government, which in turn determine domestic sugar prices. Sugar plants contract farmers at the beginning of the season and the price that is determined is a function of the lobbying power of the growers and supply. In this type of an environment, the effect of price changes on growers contracted or employment are not straightforward. With this caveat in mind, we nevertheless investigate the effect on prices on plant sales, employment and growers contracted.

The dependent variable is sales rather than production because increases in sugar production due to higher prices require significant long-term capital investment. When prices fall, production continues at full capacity in order to spread the fixed costs, hence sugar supply tends to be inelastic with respect to price in the short-term.

World and domestic sugar prices are significant determinants of sales. Total sales measures market size and is a significant determinant of plant sales.
We also analyze the number of growers contracted as a function of prices. The number of growers on contract increase with increases in world prices.

Our perverse results on employment are due to the employment structure in the sector. These plants started out as state owned enterprises and employment in the sector was used as political favors. In the privatization stage, employment declined and hence we cannot get meaningful results on the effect on employment on expected price declines.

Scenario analysis of the effect of EU sugar reform on Turkish sugar industry

In this section we analyze the effect of EU sugar reforms on the Turkish industry. The base case scenario assumes beet price falls by 59 percent and sugar price falls by 55 %. Since current prices in Turkey are higher than in the EU, these are the corresponding expected changes in prices relative to current level after the EU sugar reform has been completed. EU sugar reform is likely to have an effect on world prices as well however for the base case scenario we assume world prices remain unchanged. Changes in total sales, employment and growers are computed by inflating predicted per plant changes in the variables by thirty since this is the size of the industry by 2003/2004 season levels.

In the scenario 2 and 3 we calculate the effect of changes in world prices after Turkish sugar prices are synchronized with EU prices and the EU sugar reform is completed. We provide figures for changes in the rate of 10 percent in both directions. Trade liberalization is expected to lead to increases in world prices; however, magnitudes of expected changes vary substantially.

We then open the sugar market to competition from cane sugar. Cane sugar is not a substitute for sugar in final consumption, however, raw sugar is a substitute for refined sugar in production. In scenarios 4 and 5 we assume the xxxx industries that use sugar as an input will be taken over by cane sugar by 50 and 100 % respectively.

For the 5 scenarios discussed above, we present 95 % confidence intervals for sales, employment and farmers on contract.

In this section we analyze the effect of EU sugar reforms on the Turkish industry. The base case scenario assumes beet price falls by 59 percent and sugar price falls by 55 %. Since current prices in Turkey are higher than in the EU, these are the corresponding expected changes in prices relative to the current level after the EU sugar reform has been completed. EU sugar reform is likely to have an effect on world prices as well however for the base case scenario we assume world prices remain unchanged. Predicted changes in total sales and growers on contract are presented as ratios of sample averages.

At the base case, 95 percent confidence interval for expected plant sales are in Turkey is -12 % ± 33 %. The interval is wide reflecting the range of effects on plants of different sizes. Decreases in sugar prices will have a positive effect on demand which would work in favor of

the more efficient plants. These plants will not be affected to the same degree by declining sugar prices since they will be able to reap the benefits from reduced costs due to lower beet prices. However, smaller and less efficient plants will realize substantial annual losses in sales and will not be able to survive the vastly changes economic environment.

Although the massive reduction in sugar prices is somewhat offset by equally massive reductions in beet prices for part of the industry, the effect of lower beet prices will have devastating effects on farm employment.. The 95 percent confidence interval for expected plant sales are in Turkey is -31 % ± 26 %. The interval is wide yet negative everywhere indicating the sure decline in the number of growers on contract. A reduction in beet prices of this magnitude will reduce growers on contract in two ways. Firstly, lower beet prices will make other crops relatively more attractive so farmers will choose not to plant beet. In addition, lower sugar prices combined with lower beet prices will lead to loss of less efficient plants in the industry and result in fewer farmers being contracted.

In scenarios 2 and 3 we calculate the effect of changes in world prices after Turkish sugar prices are synchronized with EU prices and the EU sugar reform is completed. We provide estimates for changes in the rate of 10 percent in both directions. Trade liberalization is expected to lead to increases in world prices, however, magnitudes of expected changes vary substantially so we opt to provide sensitivities to a basic 10 % change in world prices. We acknowledge, however, that the EU after reform prices are quite a bit higher than current world prices which would put upward pressure on world prices. In Scenario 2, world prices decline by 10 %. This is not a likely scenario since world prices today are lower what should prevail under free trade. However, this scenario is useful to gauge the sensitivity to price changes of Turkish sugar production.

A 10 percent decline in world prices, will reduce sales of average plant sales by 14 % and decrease the number of growers on contract by 47 %. Decline in world prices leads to further declines in growers on contract. Average plant sales is not affected too much by a decline in world prices of this magnitude. We conclude that efficient plants in the Turkish sugar industry will be able to withstand a 10 percent decline in world prices. Scenario 3 assumes world prices increase by 10 %. Trade liberalization in world sugar markets is expected to lead to increased prices form current levels. An increase of this rate translates into a decrease in sales of 11 %. Growers on contract still declines substantially by 20 percent.

The analysis of the above scenarios indicate that the Turkish sugar industry will be seriously affected by the reduction in beet and sugar prices which will not be offset by possible increases in world sugar prices. Growers on contract will be substantially reduced. Since the reduction in growers contracted is more extensive than declines in sales, we can predict that the sugar industry will be transformed as a result of the synchronization with EU policies. We expect to see larger and more efficient plants prevail with increased capacities and work with growers with large acreages.

We then open the sugar market to competition from cane sugar. Cane sugar is not a substitute for sugar in final consumption, however, raw sugar is a substitute for refined sugar in production. Based on the 1996 input-output tables the 16.6 percent of the output of the sugar industry is used in manufacturing. In scenarios 4 and 5 we assume that sugar produced from

beet in Turkey will lose market share to cane sugar by 50 and 100 % respectively. These scenarios highlight the devastating effects of competition from cane sugar. A loss of 50 % of the market to cane sugar is expected to lead to a 23 percent decline in Turkish sugar sales. The loss of 100 % of the market will lead to a reduction 33 percent.

The scenarios above indicate that the greatest threat to Turkish sugar industry is not the reduced prices per se but the competition from cane sugar. The scenarios we have analyzed are based on price levels in sync with EU sugar policy reform. However, at these prices Turkish and EU sugar prices are still substantially higher than world prices. Therefore, it is likely that Turkish sugar prices will fall even more and world prices will increase. With liberalization of world sugar markets, cane sugar will become a serious threat. The degree of competition from cane sugar with free trade should be investigated in detail.

Turkish sugar prices will fall due to EU sugar reform and are likely to fall even further. At such low prices, part of the Turkish sugar industry will not be able to survive. The smaller and less efficient plants will need to close unless through investment in new technology and improvements in management gains in efficiency can be realized. The most important effect though is on the growers of sugar beet. Currently around 400 thousand farmers grow sugar beet. This number will be reduced substantially. Most of these farmers will be forced to plant other crops possibly reducing prices in other agricultural products. All this is bound to result in a large decline in farm incomes. Measures to combat this major transformation in agriculture are necessary.

Conclusions

If the EU sugar policy is adopted in Turkey, there will be major welfare gains and losses. In particular, consumers will gain while growers and workers will lose. The massive reduction in sugar prices will be somewhat offset by equally massive reductions in beet prices for part of the industry, but the effect of lower beet prices will have devastating effects on farm employment in sugar. A reduction in beet prices of this magnitude will reduce growers on contract in two ways. Firstly, lower beet prices will make other crops relatively more attractive so farmers will choose not to plant beet. In addition, lower sugar prices combined with lower beet prices will lead to loss of less efficient plants in the industry and result in fewer farmers being contracted. Currently around 400 thousand farmers grow sugar beet. This number will be reduced substantially. Most of these farmers will be forced to plant other crops possibly reducing prices in other agricultural products. All this is bound to result in a large decline in farm incomes. Measures to combat this major transformation in agriculture are necessary.
The less efficient plants will need to close unless through investment in new technology and improvements in management gains in efficiency can be realized. The implications for the Turkish government and the Turkseker are huge. Turkseker is privatizing the most efficient plants but will be left with inefficient plants that cannot be shut-down due to associated social costs. The inefficient plants are located in less developed regions and shutting them down will be politically and socially too costly. On the other hand, these plants will prove to be very costly in a more liberalized market. As a solution, Turkseker is working on a new privatization model where an efficient plant will be bundled with less efficient plants and privatized as a group. The trade union projects that the Turkseker plants will not be able to compete in the domestic market even today with the loss of efficient plants and annual excess stocks will

amount to 1 million ton. On the other hand, the transformation in the Turkish sugar industry will result in contributing private and privatized plants that are larger, more efficient and working with fewer growers with larger acreages.

There will also be long-term impacts of restructuring reform. If the sugar industry can be transformed with success, a potential for exports could be created. Turkey is a large consumer and currently self-sufficient. New investments in the sugar industry are being made. The EU market is expected to become a net importer of sugar with imports exceeding 3 million tons[1] and Turkey can have an export potential in this market as well as the Middle East, providing its sugar production is cost efficient internationally.

An important topic of concern is diversification and competition within the sugar industry itself. Starch-sugar is rapidly gaining ground relative to beet sugar. Starch-sugar is not a substitute for sugar in final consumption; however, it is a substitute for beet sugar in food manufacturing. Based on the 1996 input-output tables the 16.6 percent of the output of the sugar industry is used in manufacturing. A fight over quotas is ongoing for this market between producers of sugar beet and starch. This, however, is a topic outside the framework of this paper.

[1] Projections of the FAPRI model at Iowa State University (http://www.fapri.iastate.edu).

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Table 1: Sources and Definitions of Variables

Variable	Definition	Unit	Source
TOTSALES	Total sugar sales in Turkey	Tons	
BEETPR	Average price for beet	TL/Kg	TŞFAŞ
WORLDPR	World price of sugar	Tons/$	
PRICE	Domestic price of sugar	Tons/$	
IMPORT	Imports of foods containing sugar	$	DTM
EXPORT	Exports of foods containing sugar	$	DTM
CAMPAIGN	Length of campaign	Days	TŞFAŞ
CAPACITY	Capacity	Tons/Day	TŞFAŞ
AREA	Beet planting area	Hectares	TŞFAŞ
GROWERS	Number of growers contracted	Person	TŞFAŞ
PROD	Total sugar production	Tons	TŞFAŞ
SALES	Sugar sales of plant	Tons	TŞFAŞ
EMP	Total employment	Person	TŞFAŞ

Table 2. Descriptive Statistics

	Obs.	Average	Std. Dev.	Minimum	Maximum
TOTSALES	162	1233277	33950	1190098	1285717
BEETPR	216	52963	34120	12128	108383
WORLDPR	216	241	33	201	316
PRICE	216	720	203	473	1091
IMPORT	216	129183783	63126462	78036675	237345152
EXPORT	216	341823780	65656505	253774742	449329909
CAMPAIGN	215	104	39	0	188
CAPACITY	215	3673	1844	1200	7000
AREA	215	11594	6831	0	37271
GROWERS	215	13807	7520	0	39832
PROD	215	61198	44757	0	201805
SALES	215	48127	38576	0	192691
EMP	215	673	223	156	1272

Table 3: Regression Results (Fixed-Effects)

Independent Variables	Dependent Variable								
	TOTSALES	TOTSALES	TOTSALES	GROWERS	GROWERS	GROWERS	EMP	EMP	EMP
TOTSALES							-0.00007 (0.0005)	-0.00026 (0.00055)	-0.0001 (0.0005)
BEETPR	-0.049 (0.149)	0.09** (0.04)		0.196 *** (0.0313)	-0.0042 (0.0068)		0.0012 (0.0008)	-0.0015 *** (0.00017)	
WORLDPR	477.35*** (164.53)	339*** (85)	432.736 *** (93.620)	-116.321 *** (34.775)	74.986*** (21.395)	64.476*** (22.052)	-2.938*** (0.977)	-0.268 (0.553)	-1.799 *** (0.571)
PRICE	18.487 (18.808)		12.477 *** (4.743)	-25.519*** (3.918)		-1.433 * (0.844)	-0.348 *** (0.107)		-0.198*** (0.021)
IMPORT									
EXPORT	-0.000068*** (0.00002)	-0,000056*** (1,66E-05)	-0.0000642*** 0.0000172	-0.0000033 (0.0000044)	-0.000019 *** (00000419)	-0.00001705 (0.00000428)	0.000000289 ** 0.000000124	0.000000067 (0.000000107)	0.0000002 * (0.000000108)
COMPAIGN	655.408 *** (46.973)	676*** (42)	661.863 *** (42.565)	3.276 (9.491)	-21.945** (9.960)	-24.264 (9.574)	1.270 *** (0.4332)	1.056 * (0.444)	1.127*** (0.423)
AREA	0.407 (0.496)	0,498 (0,487)	0.454 (0.474)						
SALES	0.121 *** (0.033)	0,106*** (0,029)	0.117 *** 0.0295627	-0.0186** (0.007)	0.0022 (0.0073)	0.00084 (0.0073)	-0.0004 ** (0.0002)	-0.00012 (0.00019)	-0.00029 (0.00018)
EMP	-4.211 (15.086)	-8,726 (14,367)	-5.057 (14.815)						
F-stat	97.2678	100.2127	100.9199	81.3528	62.5322	63.8203	84.8800	81.0927	86.7517
# obs	161	161	161	161	161	161	161	161	161

Table 4: Scenarios
(95 % Confidence Intervals for Average Plant)

	Scenario 1	Scenario 2	Scenario 3	Scenario 4	Scenario 5
Beet Price Sugar Price World Sugar Price Loss of market share to cane sugar	-59% -55% 0	-59% -55% -10%	-59% -55% +10%	-59% -55% 0 50%	-59% -55% 0 100%
Sales (±33 %)	-12 %	-14%	-11 %	-23 %	-33 %
Growers (±26 %)	-31 %	-47 %	-7 %		

The changes in price are relative to 2004/2005 season averages. Beet price for the 2004/2005 season is 120000 TL, domestic and world sugar prices $890are $240 respectively. The standard error of estimate for sales is 8139 and for growers 1838. Average plant sales is 48,127 tons/year and growers contracted on average per plant is 13,807.

Does Globalization Cause the Loss of Monetary-Policy Independence in Developing Economies? A Case Study with India

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This paper examines whether globalization causes the loss of monetary-policy independence in developing economies. By using India as a case study we find that globalization does not necessarily cause the loss of monetary-policy independence. A country with foreign exchange constraints may lose its monetary-policy independence even in the absence of globalization under limited capital flows as long as it attempts to maintain a fixed or a stable exchange rate. This was the case in the 1960s when India controlled capital flows, maintained a fixed exchange rate, and Indian interest rates used to follow US interest rates in a significant way. In contrast, a country can exercise monetary-policy independence even under free capital flows as long as it does not maintain a stable exchange rate. Thus, monetary-policy independence is anchored in the nature of the exchange-rate regime along with the state of foreign-exchange constraint, and not necessarily in globalization per se.

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Introduction

Globalization is usually thought to be responsible for the loss of monetary-policy independence in developing economies like India, which substantially opened capital flows in the 1990s. This belief is ingrained in both theory and empirics. For example, as predicted by the Mundell-Fleming model, when the exchange rate is fixed, capital flows will equalize domestic and international interest rates, with monetary policy losing its ability to influence domestic activity.[1] Obstfeld and Taylor (2003), and Obstfeld et al (2003) have reinforced this idea in their theories of the macroeconomic policy trilemma or the impossible trinity argument. The argument ascertains the impossibility of maintaining free capital flows, a stable or a fixed exchange rate, and an independent monetary policy in a simultaneous fashion.

These arguments are again grounded in the interest rate parity. Some countries like India welcomes free capital inflows in one hand, and maintains a stable exchange rate in other hand. Consequently, the country is left with no choice but to closely track the interest rate of the leading economies, which the capital is flowing from. This situation essentially raises a question: Does globalization invariably cause the loss of monetary-policy independence in developing economies? This paper attempts to answer this question.

Capital-market liberalization has created controversies in recent years. Stiglitz (2002, 2004) shows that capital-market liberalization has often led to increased instability, not to economic growth in developing countries. Stiglitz claims that the economic crises of the late 1990s and early years of the new millennium were partly or even largely attributable to capital-market liberalization. However, Stiglitz does not directly address the debate over monetary-policy independence and capital-market liberalization. Our work can fill out the gap in this regard. Mohanty and Scatigna (2004) argue that when countries maintain capital account restrictions, central banks may retain control over monetary policy even with a fixed exchange rate. We will examine this argument by involving an empirical exercise with Indian data.

To preview, we find that globalization does not necessarily cause the loss of monetary-policy independence. A country with foreign exchange constraints may lose its monetary-policy independence even in the absence of globalization under limited capital flows as long as it attempts to maintain a fixed or a stable exchange rate. In contrast, a country can exercise monetary-policy independence even under free capital flows as long as it does not maintain a stable exchange rate. Thus, monetary-policy independence is more anchored in the very nature of the exchange-rate regime along with the state of foreign- exchange constraint, and not necessarily in globalization per se.

This paper comprises five sections. Section I defines globalization and monetary-policy independence. The theoretical approach to monetary-policy independence across different exchange-rate regimes is presented in section II. Section III describes Indian exchange-rate regimes, monetary-policy tools, evolution of capital flows, and the background of globalization in India. Section IV builds hypotheses about the relationship of India's interest

[1] As emphasized by Mundell (1968), authorities would require policy instrument, viz fiscal policy, for maintaining internal and external balance.

rates with the US counterpart based on Indian exchange-rate regimes. And section V concludes.

Defining Globalization and Monetary-Policy Independence

Globalization refers to the increasing worldwide integration of markets for goods, services and capital. Carnegie Endowment for International Peace defines globalization as a process of interaction and integration among the people, companies, and governments of different nations, a process driven by international trade and investment and aided by information technology[2]. To make matters simple, here we define globalization as free flows of capital across countries.

Monetary-policy independence, on the other hand, refers to a situation where the central bank or the monetary authority of a country can handle their monetary tools without any significant influence of its foreign counterpart. In a two-country model of our exercise we use the US case as the leading economy, and India as an example of a developing economy. We know that the Fed funds rate is the leading monetary instrument for the US. We take the call money rate as India's interest rate. In section III, we will explain why we take the call money rate to represent the stance of India's monetary policy.

If the Fed funds rate, and henceforth the *Fed rate* cannot explain the movements in the Indian call money rate, and henceforth the *call rate*, the Indian central bank is assumed to have exercised monetary-policy independence. In contrast, if the Fed rate can explain a significant portion of India's money call rate, we can claim that Indian authorities have substantially lost its monetary-policy independence. Now we want to present a theoretical interpretation that describes the link between monetary-policy independence and exchange-rate regimes.

Theoretical Approach to Monetary-Policy Independence

Here we discuss a theoretical model that describes the co-movement of the interest rate between two countries under different exchange-rate regimes of the developing economy. We assume that the rest-of-the-world (ROW) forms the leading country and thus enabling us to have a standard two-country model of capital flows. The Keynesian open economy model that incorporates capital mobility and the exchange rate is our approach in this respect. Thus, perfect or imperfect capital mobility along with a fixed or floating exchange rate creates four different cases in theory. We will mainly focus on imperfect as well as perfect capital mobility under a fixed or a stable exchange rate. To make matters simple, we assume a fixed price level for both countries. As a result, expected inflation equals zero. The equation of aggregate expenditure can be framed as:

$$\text{(i)}\quad Y = E(r, \varepsilon, Y, Y_{ROW}) + e_1, \qquad E_r < 0,\ E_\varepsilon < 0,\ 0 < E_Y < 1,\ \textit{and}\ \ E_{Y_{ROW}} > 0$$

where Y is actual output, E is planned expenditure, r is the interest rate, and ε is the exchange rate. The amount of foreign currency required to purchase one unit of domestic

[2] http://www.globalization101.org/What_is_Globalization.html, visited on June 11, 2007.

currency defines the exchange rate. e_1 is the error term of white noise. E_r, E_ε, E_Y, and $E_{Y_{ROW}}$ denote the partial derivatives of $E(\bullet)$. The balance-of-payment equation as composed of capital flows, net exports, and reserve gain can be framed as below:

(ii)

$$CF(r-r^*)+NX(\varepsilon,Y,Y_{ROW})-RG+e_2=0,\quad CF'(\bullet)>0,\ NX_\varepsilon<0,\ NX_Y<0,\ NX_{Y_{ROW}}>0,\ and\ RG\geq 0$$

where CF denotes capitals flows, r is the domestic interest rate, r^* is foreign interest rate, NX means net exports, RG denotes reserve gain, and e_2 is the error term of white noise. The simple way to model imperfect capital mobility is to assume that capital flows depend on the *interest-rate differential* (IRD) of domestic and foreign interest rates, as denoted by r and r^*, respectively. Any domestic interest rate higher than its foreign counterpart will cause capital inflows, and vice versa. NX_ε, NX_Y, and $NX_{Y_{ROW}}$ are the partial derivatives of $NX(\bullet)$. We need to redefine capital flows as all of capital and financial flows other than the purchases and sales of foreign currency by the central bank (CB), and to define the reserve gain as the difference between the CB's purchases and sales of foreign currency. Now constraining reserve gain with non-negativity condition imposes a floor on domestic interest rate, which we denote as $\underline{r}$. The function can be stated as:

(iii) $$\underline{r}=\underline{r}(Y_{ROW},\varepsilon,r^*),\quad \underline{r}_{Y_{ROW}}>0,\ \underline{r}_\varepsilon>0,\ and\ \underline{r}_{r^*}>0$$

where $\underline{r}_{Y_{ROW}}$, $\underline{r}_{Y_{ROW}}$, and $\underline{r}_{r^*}$ are the partial derivatives of $\underline{r}$ $(\bullet)$. When the CB's desired interest rate would cause it to lose reserves, it must set an interest rate above its desired rate in order to preserve the exchange rate if the CB wants to keep it fixed. The CB is free to set a high interest rate, but it faces a limit to its ability to lower interest rates in comparison to its foreign counterpart. $\underline{r}$ is the interest rate that leads reserve gain to zero, and the CB cannot go below that. Any interest rate above that will ensure a reserve gain. However, raising interest rates is not domestically desirable. As a result, the CB has better incentives to follow the foreign interest rates. Thus, fixing exchange rates along with a non-negativity condition on reserve gain constrains monetary policy even with imperfect capital mobility.

Under perfect capital mobility and a fixed or a stable exchange rate, the domestic interest rate closely tracks its foreign counterpart in order to maintain a steady or fixed exchange rate, because the *Interest Rate Parity* suggests:

(iv) $$r - r^* = \frac{E_{t+1} - E_t}{E_t}$$

where E_t is the current exchange rate, and E_{t+1} is the forward exchange rate. If authorities attempt to ensure $E_t = E_{t+1}$, it implies $r = r^*$. As r^* is given, the domestic interest rate must follow its foreign counterpart in a synchronized fashion. This parity is linked to the idea of the *impossible trinity proposition,* or the *macroeconomic policy trilemma* (Obstfeld and Taylor, 2003, Obstfeld et al, 2003), which ascertains the impossibility of maintaining free capital flows, a stable or fixed exchange rate, and an independent monetary policy in a simultaneous fashion.

Indeed, if capital is highly mobile, it becomes impossible to separate monetary policy and exchange rate policy (Joshi and Little, 1994). When the capital account is liberalized, the capacity of monetary policy to influence nominal interest rates for domestic purposes and resist exchange rate movements simultaneously is significantly eroded. As capital movements are freed, short-term interest rates will increasingly be determined by the covered interest

parity condition, thus constraining the capacity of authorities to assign monetary and exchange rate policies to different macroeconomic objectives (Kohli 2005).

The theoretical approach lends credence to the loss of monetary-policy independence under free capital flows when the country attempts to stabilize its exchange rate. However, the theoretical approach also shows that a country even without free capital flows may lose its monetary-policy independence as long as it attempts to ensure non-negative reserve gain as well as a fixed exchange rate simultaneously. We will empirically examine the theoretical results in the next section.

An Empirical Exercise with Indian Data

In this section we want to undertake empirical exercise with Indian data and examine monetary-policy independence across different exchange-rate regimes. Accordingly, we need to see how Indian exchange-rate regimes evolved over time, and how Indian authorities used monetary-policy tools. A picture of capital mobility is presented in this section as well. In addition, we want to preview the background of globalization in India.

Indian Exchange-Rate Regimes:

India underwent different exchange-rate regimes since independence. Figure 1 shows India's exchange rate on a monthly basis starting in April 1960.[3] The exchange rate is defined as the amount of the US dollar per unit of the Indian rupee. India's different exchange-rate regimes since 1960 are apparent in the figure. Post-independence India was under the Bretton Woods system where the US government undertook to convert the US dollar freely into gold. Other member countries of the International Monetary Fund (IMF) agreed to fix the parities of their currencies vis-à-vis the dollar with variation of 1% on either side of the central parity being permissible. The Indian rupee was pegged to the British sterling, which implies that it was pegged to the US dollar as well under the Bretton Woods system. While the country faced a severe inflation and balance of payments crisis in the mid 1960s, the rupee was devalued in 1966 along with some import liberalization. After the breakdown of the Bretton Woods in August 1971, the country temporarily maintained its tie with the US dollar till December 1971. Subsequently, the rupee was pegged to the pound sterling until September 1975.

After September 1975, Indian authorities moved to a policy, which was a float in essence. It was, however, politically unacceptable to call it a 'float', because float-driven devaluation was strongly unpopular in India. Indian officials rather described the regime as a 'peg to a basket of currencies with undisclosed weights'. As Joshi and Little (1994) argue, "The peg to a basket of currencies in 1975 helped to accustom the public and the politicians to frequent exchange rate changes against the intervention currency. It began to be used as a *smoke screen* behind which the exchange rate could be devalued". Indian authorities did not attempt to maintain a fixed exchange rate against any currency until 1993.

In March 1992, the authorities closed the peg to a basket of currencies and announced a dual exchange rate system that reflected a free market quote as well as an official quote of the

[3] We will subsequently explain the reason of starting since 1961 fiscal year (April 1960-March 1961).

rupee against the US dollar. Though the peg to a basket of currencies with undisclosed weights ended, ambiguity still persisted because of duality in the exchange rate. The World Bank (1997) considers this attempt an experiment by the Indian central bank, the reserve bank of India (RBI). The official rates very often differed from the market rates and created lot of inefficiency along with a corresponding black market (World Bank, 1997). This system could not last long and came to a close in February 1993.

In March 1993, the central bank approved an explicit and unified rate determined by market forces. There was, it turned out, a great deal of intervention in the market. Calvo and Reinhart (2000) found that the 'float' (of India) was extensively managed between 1993 and 1999 to achieve nominal and real exchange rate stability despite policy ostensibly meant to allow the rupee to float. Kohli (2003) asserts that the central bank endeavored to lean against the wind from 1993 to 1999. Acharya (2001), as a policymaker, admits that the exchange rate system had been managed as long as the stress from the East Asian flu lasted until December 1998.

Thus, starting in 1993, no official peg prevailed, but the authorities clearly attempted to maintain a steady and stable exchange rate against the US dollar. However, the authorities failed to achieve that stability until the Asian crisis has been over in 1998. Indian markets of money and the foreign exchange encountered a series of turbulent events between 1993 and 1997. The first problem India faced after the reform was the foreign capital surge of 1993-1994 that left appreciating pressure on the rupee. But "despite contrary advice from the IMF, India decided to build up reserves and not permit the nominal rupee-dollar parity to appreciate" (Acharya, 2001). In August 1995, there was unexpected turbulence in the foreign exchange market. To prevent panic reactions to this unfamiliar variability the RBI intervened with substantial dollar sales.

Though the foreign capital surge was over by 1996, the Asian crisis hit the market. In July 1997, the Thai baht depreciated massively and ushered in the East Asian financial crisis,[4] which had worldwide repercussions. Indian markets of money and foreign exchange were subject to repeated bouts of speculative pressure until the mid 1998. The IMF asserts the end of the Asian crisis by May 1998 (Fischer 1998). But India experienced volatility in the markets of money and the exchange rate till June 1998 (Jones 1998). In June 1998, India's exchange rate came all-time low following India's nuclear tests in May 1998. The exchange rate began to stabilize since July 1998. Figure 1 confirms that as well.

Thus, India experienced different exchange rate policies since independence. They are basically: (i) a fixed exchange rate under a well-defined peg until the mid 1970s, (ii) a floating exchange rate under a peg to a basket of currencies with undisclosed weights from the mid 1970s to the early 1990s, (iii) an unstable exchange rate under a managed peg from liberalization to the Asian crisis, and finally (iv) a stable exchange rate in the post-Asian-crisis period. Considering the implications of the exchange rate, which are important in our study,

[4] The currencies of the neighboring countries such as Indonesia and Malaysia went under speculative attack as well. The overvaluation of currencies, inflated asset pricing, crony capitalism, and enormous short-term foreign debts are seen as the major causes of the crisis. The experience of the Asian crisis has underlined the weakness in the international financial architecture in coping with sudden panics and massive swings in cross-border flows of capital.

we can combine the troubled period under (iii) with the period under (ii), and form a new period where the exchange rate were by and large floating and unstable.

Now, we can broadly define Regimes 1, 2 and 3 for India. Regime 1 covers the Bretton Woods system along with the dollar peg and the sterling peg. It lasted till September 1975. Despite devaluation in 1966 and some fluctuations during the first oil shock, the Indian rupee was pegged to either the dollar or sterling in a transparent way in Regime 1. Regime 2 with floating or an unstable exchange rate ranges from October 1975 to June 1998. The remaining period from July 1998 to March 2005 forms Regime 3.

Monetary Policy Tools of the Indian Central Bank:

In order to examine the monetary-policy link between the leading economy and the developing country, we need to find the indicator of monetary policy in each country. For the US case, the most useful tool for the Federal Reserve Bank is the Fed funds rate, and hence the Fed rate, which is the credible indicator of the monetary-policy stance. On the other hand, it is necessary to understand some aspects of Indian financial market structure and the role of the reserve bank of India (RBI) before we decide on its monetary-policy stance.

Before independence, India developed active financial markets in short-term marketable debt, as well as commercial banks, corporate bonds and equity markets. The Bombay call money rate, and henceforth the *call rate,* was the inter-bank interest rate at which one bank could borrow money from other banks. The borrowing bank had to return the fund at the 'call' of the lending bank.

To influence financial markets and economic activity, the RBI had two classic tools of central bank policy: a rate of discount on lending to commercial banks, and open market operations (OMO). In India, the former was known as the 'Bank Rate' at which the RBI was prepared to buy or rediscount bills of exchange. In addition, the RBI widely used two types of reserve requirements: cash reserve ratio (CRR) and statutory reserve ratio (SLR). The CRR specifies the proportion of deposits that a bank must hold in cash. The SLR stipulates the proportion of the deposit that banks must invest mainly in government securities.

Until 1997, a persistent problem faced by the RBI was deficit financing of the government. The RBI had to monetize whatever deficit the government would have incurred. The central bank could not counter this with OMO's. To counteract the effect of deficit caused by high-powered money (HPM) growth the RBI made extensive use of changes in reserve requirements. In addition to these correctional tools of monetary policy, the RBI and other government agencies made extensive use of direct controls on interest rates and commercial bank lending mainly since the early 1970s following the nationalization of the commercial banks in 1969. The regulations were substantially liberalized in the second half of the 1980s, and were eliminated following the economic reform in the early 1990s.

Because of the importance of reserve requirement changes and direct controls, changes in the Bank Rate and HPM growth may not be good indicators of the stance of Indian monetary policy. Outside the whole 1980 when the call rate was controlled, changes in the call rate are perhaps the best indicator of monetary policy. The experience in India has been that the call

rate has a pervasive influence on all interest rates in the country. It would not be wrong to say that the call rate is the *true benchmark* rate of interest in the Indian economy (Varma, 1997).[5] In any event, the interbank rate of interest would be of significance for the RBI, since it provides informational content of the state of liquidity and financial intermediation (Vasudevan, 1997).

Restricted Trade and Limited Capital Mobility in India

India allowed limited capital mobility after independence. The country escalated import controls after the foreign exchange crisis of 1957. Since then there have been periods of severe tightening (1957-62 and 1968-74) and moderate relaxation (1966-68, 1975-79, and 1982-89) depending on the state of the foreign exchange reserves (Joshi and Little, 1994). The main instrument of import control has been the import licensing system. Imports were, of course, also subject to tariffs, which in some cases were well over 100 percent. Accordingly, the effective rate of protection was around 100 percent in 1969, and 70 percent in the mid 1980s.[6] The export sector experienced a haphazard system of subsidies. The principal means of subsidization had been cash assistance, duty drawbacks, and preferential treatment for some imports. India's exports as a share of its GDP were about four percent in 1961, and it remained almost four percent even in 1986. In 2005, it has reached to thirteen percent.

Historically, the international mobility of capital has been low in India (Haque and Montiel, 1990), and this was even lower in Regime 1. Despite low volume, there were some capital flows in the form of banking capital,[7] corporate capital and foreign investments.[8] Interest-rate differential (IRD) used to influence these capital flows. From 1959 to 1961, for example,[9] there were continuous inflows of banking capital. The inflow during 1963 took place against the background of a return to lower interest rates in the U.K., tighter market conditions for funds in India. The RBI (1963) explicitly stated, "Movements in banking capital are closely related to changes in relative interest rates in India compared to rates abroad, principally in the U.K., as also the general demand and supply condition for funds."

The RBI routinely monitored US discount rates. For example, the RBI report discussed the gradual increase in the US discount rate during the 1960s.[10] Accordingly, India's call rate rose

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[5] The RBI Bulletin historically published the call rate in 'India's leading indicators'. Conducting the indicator analysis for India, Chitre (2001) used the call rate. Other studies that used the call rate include Ansari and Gang (1999), and Kar and Sarkar (2005).

[6] As calculated by Bhagwati and Srinivasan (1975), and the World Bank (1987), respectively.

[7] Banking capital comprises foreign assets and liabilities of commercial banks. Foreign assets consist of (i) foreign currency holdings, and (ii) rupee overdrafts to non-resident banks. Foreign liabilities consist of (i) non-resident deposits, and (ii) liabilities other than non-resident deposits which comprises rupee and foreign currency liabilities to non-resident banks and official and semi-official institutions. Additionally, banking capital include movement in balances of foreign central banks and international institutions like IBRD, IDA, ADB, IFC, and IFAD maintained with the RBI (RBI Bulletin, October 2006, p. S931).

[8] Portraying a picture of foreign investment in India in the 1960s, the RBI governor advocated, "Getting into the Indian economy now as producers, gives foreign investors the opportunity of getting in on the ground floor in the progress of the Indian economy. Hundreds of new foreign investment and collaboration agreements have been signed in the last few years." (Bhattacharyya, 1966)

[9] RBI Bulletin, July 1963, p. 902.

[10] RBI Bulletin, August 1970, p. 1374.

as well. The report asserts, "The emergence of interest-rate differential (IRD) over the decade has been an important factor in the movements of short-term funds". It also revealed that the international corporations had become another circuit for short-term funds. The international enterprises looked upon foreign credits as a substitute for or a complement to the credit facilities available in the domestic markets of India. The authorities tried to attract foreign investment by advocating a higher rate of return on investment. They claimed[11] that the average rate of return in India on the US and the U.K. investment was marginally higher than that on domestic investment in the US and the U.K. All these were the driving forces that induced Indian authorities to closely maintain a stable IRD with the external rates[12] while the RBI has always been poised on foreign exchange constraints until liberalization.

Equation (ii) in our model requires the CB to care about capital flows and net exports in the face of foreign exchange constraints. The RBI authorities were cautious[13] about capital flows and net exports position while foreign-exchange shortage was a common problem at least until the early 1990s. Acharya (2001) asserts that before the 1990s 'foreign exchange shortage' was the foundation on which a rickety structure of bad economic policy was built. Joshi and Little (1994) reconfirm that the balance of payment position had been fragile ever since the foreign exchange crisis in 1957.

Figure 2 confirms that India's foreign exchange constraint was most acute until the reform.[14] Thus, in the face of foreign exchange constraints, India cautiously monitored capital flows and net exports position. That situation, as equation (ii) suggests, induced Indian authorities to maintain a stable IRD with external interest rates.

Background of Globalization in India

The economic policy of India tilted to socialist bias even before its independence of 1947.[15] As a result, planned industrialization along with import substitution was the major policy tool both to save foreign exchange and increase economic independence over the longer run. The

[11] RBI Bulletin, May 1966, p. 510.

[12] Vuyyuri (2004) found a steady-state relationship of short-term interest rates in India with both the US and Japan.

[13]The fact that there have been no speculative capital outflows nor has the change adversely affected the competitive position of our exports in the ultimate proof that the multi-currency peg has served us reasonably well (Narasimham, RBI Bulletin 6/77:430).

[14] The adoption of the Foreign Exchange Regulation Act (FERA) 1973 reflects the background of foreign exchange constraint. India had the FERA in place in 1957 to regulate the inflow of foreign capital. After initiation of a process of rapid industrialization of the country, the need to conserve foreign currency was keenly felt. Exports were not picking up and imports were surging, putting the country into a severe balance of payments crisis. In this background the government redesigned the old act and named the new one as the FERA 1973 with the main aim of conservation of foreign exchange rather than regulation of entry of foreign capital (FERA 1973, see http://www.geocities.com/kstability/learning/forex-market/fema.html).

[15] Jawaharlal Nehru, the first Prime Minister of India, and the Congress Party's Planning Commission (1951) were strongly influenced by the democratic socialism of the British Fabians, as well as the apparent Soviet success in achieving rapid industrial growth and political power. In addition, the Great Depression of the 1930s resulted in disillusionment with capitalism. There was also a fear of 'economic imperialism' replacing political imperialism if India encouraged foreign investment and trade dependency (Rosen, 1997). See Visveswarya (1934) and Nehru (1946) for detail.

Industries Development and Regulation Act of 1951 introduced a system of licensing to control the pace and pattern of industrial development across the country, which became known as *'License Raj'*. An industrial license was mainly required to (i) establish a new factory, (ii) expand an existing capacity, (iii) start a new product line, or (iv) change location. In 1969, the Indian Prime Minister Indira Gandhi announced the nationalization of domestically owned commercial banks. The Foreign Exchange Regulation Act (FERA) was passed in 1973,[16] controlling foreign investment in India in a comprehensive manner. An array of regulatory measures was added on to an already over-regulated economy.

The expansionary policies in the first half of the 1980s combined with modest liberalization led to faster growth. The liberalizing measures of the Gandhi government from 1985 to 1990 were directed to the deregulation of industrial and trade policy. The consolidated government's fiscal deficit, which was about five percent of GDP in the mid 1970s, rose persistently to reach about ten percent of GDP at the end of the 1980s (Joshi and Little, 1994). Given the unsound macroeconomic position before the Gulf war, the mini oil shock led to a rapid deterioration of the capital account. Agarwal (2003) asserts that India faced its worst financial crisis in 1991. To contain the crisis and restore economic health, the new Congress government announced a package of policies what we frequently refer to as 'reform' or 'liberalization' of India in the early 1990s (Acharya, 2001).

The reform mainly involved freeing of industrial investment and the trade sector. The government dismantled the *License Raj* and encouraged foreign investments. The heavy anti-export bias in the trade and payments regime was reduced by a phased reduction in tariffs. Short-term debt was reduced as well. Foreign exchange reserves were accumulated to provide greater insurance against external uncertainties. The government moved from a pro-business stance in the 1980s to a pro-market stance in the 1990s (Rodrick and Subramanian, 2004).

India approved current account convertibility in 1994 and gradually moving towards capital account convertibility. Though India initiated liberalization in the early 1990s, current account convertibility in the mid 1990s is considered to be a milestone in its liberalization process. More precisely, India entered a period of higher capital flows after the Asian crisis. Accordingly, we will refer to the post-Asian-crisis period as globalization in India.

Hypotheses on Monetary-Policy Independence across Exchange-Rate Regimes

Here we want to assess the nature of the interest-rate movement between two countries depending on three different exchange-rate regimes.

Regime 1:

Regime 1 can be characterized by imperfect capital mobility with a fixed exchange rate. We learned in section II that in the face of foreign exchange constraints India cautiously monitored capital flows and net exports position and tried to track foreign interest rate, as equation (ii) suggests. Figure 3 shows how the call rate roughly tracked the movement of the Fed Funds

[16] A short discussion along with the background of the FERA has been presented later in section IV.

rate in Regime 1.[17] If we regress the call rate on the Fed Funds rate, we expect to see a significant rate co-movement in India's call rate in response to the Fed Funds rate even in the absence of globalization.

Regime 2:

Regime 2 can be characterized by the case of imperfect capital mobility with a floating exchange rate. In contrast to Regime 1, here the floating exchange rate does not constrain the country's monetary policy and thus the interest rate is not restrained either. Accordingly, maintaining a stable interest-rate differential between the two countries is unlikely to prevail. Figure 4 shows how the call rate and the Fed Funds rate moved in Regime 2. Visual inspection suggests a collapse in rate co-movement between the two countries.

Regime 3:

Regime 3 falls under the reform where capital mobility has been more liberalized than ever before. We know that India approved current account convertibility in 1994. The country is gradually moving towards capital account convertibility in recent years. Accordingly, capital flows are larger than that in Regime 1 or 2, but less than perfect. The exchange rate can be assumed as fixed as it is stable by design. Indian authorities still care about reserve gain. These circumstances involve the concepts of equation (ii), interest-rate parity, and the impossible trinity argument while predicting the relation of interest rate between the US and India. Indian interest rates are likely to synchronize with those of the US in Regime 3.

Figure 5 shows that India poses a spectacularly stable interest-rate differential with the US in Regime 3. The purpose of India's stable exchange rate is to maintain foreign currency reserves at a safe level and thereby avoid any crisis in future. For example, if India raises the interest rate much higher than that of the U.S., the country will be swamped with capital inflows. A sudden surge in capital inflows will push the rupee to a higher notch, but this appreciation will harm its exports. In addition, the stronger rupee will stimulate its imports. This trend will worsen the current account balance and eventually cause another balance of payment crisis. That is why Indian authorities are more committed to maintain exchange-rate stability that requires maintaining a stable interest-rate differential as the corollary to the interest rate parity.

Testing Hypotheses on Monetary-Policy Independence across Exchange-Rate Regimes:

Here we intend to work with monthly data in order to test the hypotheses we developed earlier. The main reason to work with monthly data is twofold: (i) we can closely focus on different segments of the entire period with sufficient data points, and (ii) we can examine the behavior of India's interest rate across different regimes. As we want to see how Indian interest rates move in response to US interest rates, we need to collect interest rates of both countries. We collect most of our data from the official website of the RBI, and from different volumes of the 'Monthly Abstract of Statistics,' published by the Government of India. We described sources of our dataset in detail in the appendix. We start our exercise in 1961 fiscal

[17] A temporary deviation in the wake of the great devaluation in 1966 was also endorsed by theory. We learned that devaluation raises net exports and the interest rate needed to maintain the exchange rate declines.

year, because the call rate, being one of our vital series, first appeared as a weighted average figure in 1961 fiscal year on both annual and monthly basis.[18] Indian fiscal year ranges from April to March. Accordingly, our data ranges from April 1960 to March 2005. We collect the US Fed rate from the website of the St. Louis Fed Reserve.

Before we regress the call rate on the Fed rate, we need to consider other factors, which are thought to affect India's call rate. The factors that are arguably influential to the call rate include Indian monsoons, wars, and the global oil shocks. Out of them the influence of wars and oil shocks is somewhat clear, because they usually lead to higher interest rate in the money market. But the influence of monsoons on interest rate could be ambiguous. It is likely that investment demand may fall causing a drop in interest rate in the wake of a bad monsoon, and vice versa. We expect to see a positive relation between monsoons and India's interest rate. The studies showing the monsoon-effect on India's agricultural growth include Mooley et al (1981), Mooley and Pant (1981), and Mooley and Parthasarathy (1982).

We indexed monsoon rainfall data[19] by assigning 100 to 853 millimeters of annual precipitation, which is thought to be the long period average (LPA) of annual rainfall in India.[20] We also took the deviation from that LPA in percentage value to derive the 'monsoon' variable. As we go by India's fiscal year, the monsoon rainfall of 1961 means the annual precipitation that took place from June to September 1960. The monsoon-dependent agricultural crops return to the peasants by January or February. We, therefore, expect to see the some effect of the monsoon in the same fiscal year, and greater effect in the following fiscal year.

Now we consider another regressor, namely 'war and Gandhi,' which includes three wars and two assassinations of Indira Gandhi and Rajiv Gandhi. India had one war with China (1962), and two wars with Pakistan (1965 and 1971). India experienced three assassinations of: (i) Mahatma Gandhi in 1948, (ii) Indira Gandhi in 1984, and (iii) Rajiv Gandhi in 1991. Our sample covers the later two incidences. Though the wars and the assassinations are not similar in effect, we combined them to make one dummy variable in order to mean war or warlike situations. Wars and warlike situations raise government spending causing an interest-rate hike in the market.

Finally, 'oil shocks' capture the major oil shocks in 1973 and 1979, which had global repercussions and raised the cost of fund. The energy crisis following the oil embargo by the oil exporting countries created supply-side shocks and inflation in all oil importing countries like India. Authorities are expected to raise interest rate in the wake of the oil shocks in order to combat inflation. Overall we expect to see a rise in the interest rate following the oil shocks.

Ansari and Gang (1999) claim that an unanticipated shock in foreign interest rates seems to have produced a positive impact on domestic interest rates in the following three months. We

[18] Statistical Abstract India 1962, p. 450, for annual, and Reserve Bank of India Bulletin January 1961, p. 99, for monthly figures.

[19] The 'monsoon rainfall' data has been collected from Parthasarathy at el (1995) and the website of the Indian Institute of Tropical Meteorology (IITM) at http://www.tropmet.res.in

[20] Indian Institute of Tropical Meteorology states it on http://www.tropmet.res.in/~koli/MOL/Monsoon/Historical/air.html

will test the contemporaneous effect of the Fed rate on the call rate. In order to test our hypothesis, we regress the call rate on a constant, the Fed Funds rate with lags from zero to three, the call rate with a lag of twelve,[21] 'monsoon' with a lag of twelve,[22] 'war and Gandhi', and finally 'oil shocks'. The specification becomes:

(v) $call_rate_t = \alpha + \beta_i fed_rate_{t-i} + \theta_1 call_rate_{t-12} + \theta_2 monsoon_{t-12} + \theta_3 war_and_Gandhi_t + \theta_4 oil_t + \varepsilon_t$,
$i = 0,1,2,or\ 3$

Regime 1:

We have already assessed the implications on interest rate of India in response to the Fed rate, under three different regimes. We now begin our work with Regime 1 in order to test the implications. The estimation results following specification (v) appear in Table 1 under Regime 1 that includes Regressions 1 to 4. The four regressions clearly demonstrate that the Fed rate significantly influences the call rate. The coefficients on 'war and Gandhi', and 'oil shocks' are positive and significant as expected.

Regime 2:

There is no significant co-movement in India's interest rate under Regime 2. All four regressions (5 to 8 in Table 1) show that all the coefficients on the Fed rate with lags from zero to three are highly insignificant. The signs on the coefficients are awkwardly negative as well. A floating exchange rate is coupled with the loss of the interest-rate dependence in India. Simply, India is liberty to set its interest rate without being influenced by the US counterpart. The coefficients on monsoons, and war and Gandhi are positive and significant as expected, though the coefficients on oil shocks become insignificant.

Regime 3:

Regime 3, as we predicted before, is supposed to generate results similar to that of Regime 1. The results, as shown by the four estimations (9 to 12 in Table 1) evidence a stronger emergence of India's rate co-movement with the US. All the coefficients on the Fed rate are strongly positive and higher than those under Regime 1. The R^2 against all lags are as good as those in Regime 1. Thus, we claim that a stable exchange rate is contributing to the high rate co-movement of India with the US. India's monetary-policy dependence on the US is clear and robust.

Conclusion

This paper examines whether globalization causes the loss of monetary-policy independence in developing economies. By using Indian data in our case study we find that globalization does not necessarily cause the loss of monetary-policy independence. A country with foreign exchange constraint may lose its monetary-policy independence even in the absence of

[21] The monthly observation of the call rate by the RBI always mentions the call rate that existed twelve months ago, as a point of reference to see the changes on annual basis by netting out seasonality if any. Accordingly, we put a lag of twelve on call rate.

[22] We find that the lag of twelve months on 'monsoon' is an effective one in regressing the call rate on it. '*Monsoon*' is an annual rainfall figure what we have assigned against all months from June to May (monsoon year). Accordingly, any lag of twelve covers a period that can capture the rainfall effect from the last year or the year before.

globalization under limited capital flows as long as it attempts to maintain a fixed or a stable exchange rate. This was the case in the 1960s when India controlled capital flows, maintained a fixed exchange rate, and Indian interest rates used to follow US interest rates in a significant way. In contrast, a country can exercise monetary-policy independence even under free capital flows as long as it does not maintain a stable exchange rate. Thus, monetary-policy independence is more anchored in the nature of the exchange-rate regime along with the state of foreign-exchange constraint, and not necessarily in globalization per se.

Our findings raise a number of issues. What would be a cost-benefit analysis for the loss of monetary-policy independence in the age of globalization? Can countries like India sustain a stable exchange rate by confronting greater capital inflows? What would be an optimal amount of reserve gain for a developing economy? All these aspects are left for future research.

Figure 1: India's exchange rates over three regimes: 1961-2005

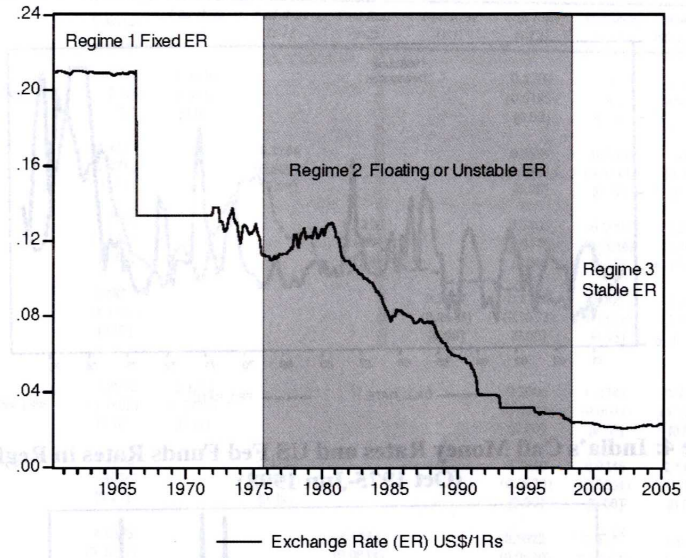


Figure 2: India's Foreign Exchange Reserves: 1961-2005

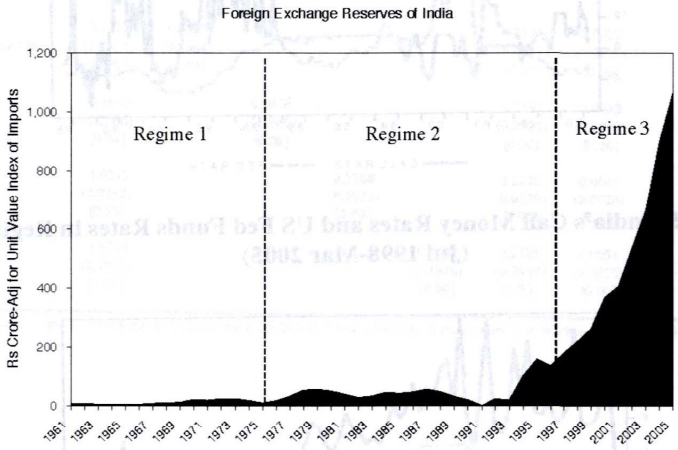


Figure 3: India's Call Money Rates and US Fed Funds Rates in Regime 1 (Apr 1960-Sep 1975)

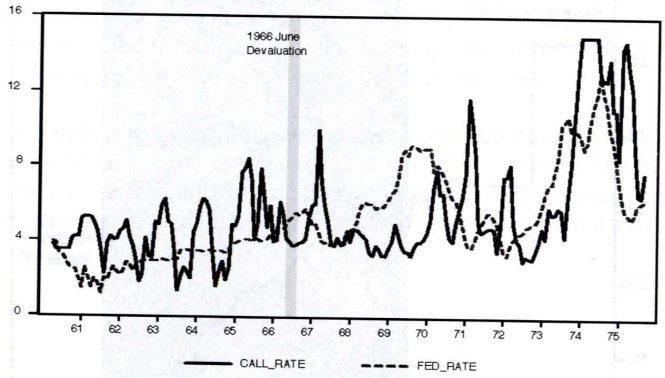


Figure 4: India's Call Money Rates and US Fed Funds Rates in Regime 2 (Oct 1975-Jun 1998)

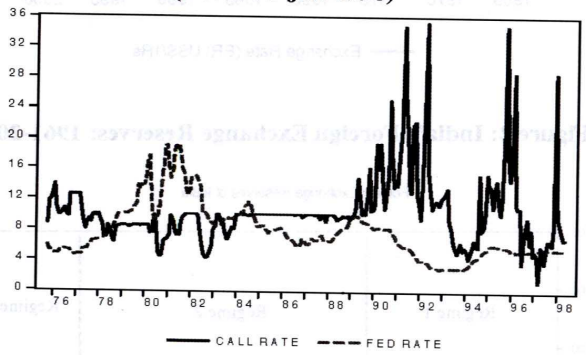


Figure 5: India's Call Money Rates and US Fed Funds Rates in Regime 3 (Jul 1998-Mar 2005)

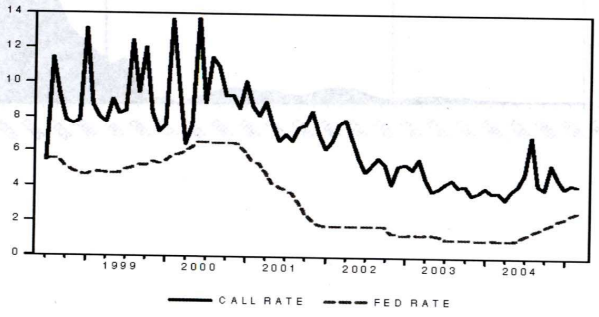


Table 1: LHS Variable: India's Call Money Rate: In Three Different Regimes

Reg. No.	*Regimes*	*Regressors*									
		Constant	*Fed Rate (t)*	*Fed Rate (t-1)*	*Fed Rate (t-2)*	*Fed Rate (t-3)*	*Call Rate (t-12)*	*Monsoon (t-12)*	*War and Gandhi (t)*	*Oil Shocks (t)*	R^2
1	**Regime 1 Apr 1960 - Sep 1975**	1.7998 (1.5156) [0.24]	**0.1636** **(0.0712)** **[0.02]**				0.5708 (0.0485) [0.00]	-0.0008 (0.0017) [0.65]	0.9710 (0.4217) [0.02]	7.5528 (0.6447) [0.00]	0.71
2		1.4428 (1.4742) [0.33]		**0.2166** **(0.0694)** **[0.00]**			0.5599 (0.0481) [0.00]	-0.0006 (0.0017) [0.72]	1.0209 (0.4168) [0.02]	7.2799 (0.6356) [0.00]	0.72
3		1.0759 (1.4203) [0.45]			**0.2820** **(0.0671)** **[0.00]**		0.5406 (0.0476) [0.00]	-0.0004 (0.0016) [0.79]	1.0822 (0.4080) [0.01]	6.9616 (0.6181) [0.00]	0.73
4		0.6827 (1.3731) [0.62]				**0.3427** **(0.0645)** **[0.00]**	0.5116 (0.0472) [0.00]	-0.0001 (0.0016) [0.93]	1.1108 (0.3964) [0.01]	6.7168 (0.5935) [0.00]	0.74
5	**Regime 2 Oct 1975 - Jun 1998**	-3.9992 (3.1403) [0.20]	-0.1246 (0.0846) [0.14]				0.2906 (0.0622) [0.00]	0.0144 (0.0034) [0.00]	2.5398 (1.3106) [0.05]	0.8828 (1.1266) [0.43]	0.20
6		-4.2865 (3.1036) [0.17]		-0.1132 (0.0838) [0.18]			0.2940 (0.0620) [0.00]	0.0146 (0.0034) [0.00]	2.5415 (1.3116) [0.05]	0.7944 (1.1178) [0.48]	0.19
7		-4.6373 (3.1037) [0.14]			-0.0856 (0.0834) [0.31]		0.3022 (0.0620) [0.00]	0.0147 (0.0034) [0.00]	2.5481 (1.3146) [0.05]	0.6969 (1.1157) [0.53]	0.19
8		-4.8541 (3.1068) [0.12]				-0.0675 (0.0831) [0.42]	0.3075 (0.0619) [0.00]	0.0147 (0.0034) [0.00]	2.5544 (1.3173) [0.05]	0.6351 (1.1134) [0.57]	0.19
9	**Regime 3 Jul 1998 - Mar 2005**	0.7223 (2.2564) [0.75]	**0.8389** **(0.1064)** **[0.00]**				0.2393 (0.0511) [0.00]	0.0020 (0.0029) [0.50]			0.72
10		-0.1659 (2.2266) [0.94]		**0.8079** **(0.1049)** **[0.00]**			0.2332 (0.0521) [0.00]	0.0032 (0.0029) [0.26]			0.72
11		-1.0243 (2.2242) [0.65]			**0.7768** **(0.1053)** **[0.00]**		0.2240 (0.0539) [0.00]	0.0045 (0.0028) [0.12]			0.71
12		-1.6710 (2.1926) [0.45]				**0.7648** **(0.1046)** **[0.00]**	0.2125 (0.0549) [0.00]	0.0054 (0.0028) [0.06]			0.71

Note: Standard error is inside ( ), and p-value is inside [ ] under each coefficient. The coefficients of interest are in bold when they are significant.

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Note: The econometric package we used here is *Eviews*.

Global Trade Party! Invited, All Indigenous Peoples. Menu, Environment!

How globalization of a culture is severing Bushmen and their Latin American soul mate's celestial ties to the environment

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Trade theory is more than an intellectual exercise. It helps design national policies and priorities that in turn help shape interrelations between groups within nations and between nations. It will be argued here that we took our mainstream theories so seriously that we ignored significant trends and groups that have their own unique roles to play in the management of resources on the land that lie underneath them, and more importantly, in the process, deviated from the economic and social democratic exercises that we set for ourselves in post-War times. This is globalization as its worst as the State looks the other way (or even complicit) as groups are pitched against the weakest within the proletariat – ones whom, as (a) forest foragers (b) part-time foragers living close to cultural villages (c) or independent communities recently brought into regional and international policies, other than the resources underneath them, hardly identify with the global economy, nor can they mount any serious political challenge since many do not have numbers on their side. The Bushmen in Southern Africa and some minority Latin American indigenous are the focus of the inquiry here.

Introduction

Latin America is back, once again, and is leading the world in our inquiry as to whether our indigenous groups, part of the proletariat (meaning producer's offspring), have achieved the kind of economic and/or politically democracy (equity) the way Marx and other social activists envisioned. One cynical view even goes as far as saying that some of these minority indigenous ones have lost ground as petty bourgeoisies splinter to team up with bureaucratic bourgeoisies in this region, going beyond the kind of benign oppression associated with the 'dictatorship of the proletariat'. That is why I set out to separate some of these indigenous groups among the classes in the proletariat tent who have been the most negatively impacted by increased global trade and increasingly invisible national borders, a project that helps in understanding why despite the demise of the Soviet Union, the hammer and sickle (representing the proletariat and the peasantry) still symbolizes the virtues of work yet the quest for equity among social groups have been illusive. In large part, it will be argued that our vision of trade (trade theories) and derivative social relationship that it calls for is responsible for this.

In other words, as the bounds of economic and political democracy moves from national to supranational setting with increased trade, the struggle for economic and social democracy becomes just an ideal in the sense that it is marred by contradictions as the group's central conflicts with the self-interests of groups within it – the fittest trying to survive with like groups at the ether end of the globe at the expense of the weakest, which we argue are the minority indigenous. Argument presented here narrates the Latin American story, its dynamics reflecting the marginalization of the minority indigenous, contrasted with the situation of the Bushmen in Southern Africa, two groups that have generally lost ground in the equity fight. It is a story of a struggle to survive in their own world that is shrinking right in their eyes and squeezing the oxygen out of them slowly, like python readying for its meal. Being hunter/gatherers who could be (a) forest foragers (b) part-time foragers living close to cultural villages (c) independent communities recently brought into regional and international policies, Lee and Hitchcock's (1991)[1]. Among the latter, the lucky ones get to be bus drivers, taxi drivers, cleaners, etc. Others would not be that lucky and will be marginalized. But it is the toll that such dislocation takes on the environment that has caught the attention of policymakers, a case I reinforce here.

The Conflict in Latin America and the Left's Call to Action

Indigenous Power: score one for the lumpenproletariats

After being dominated by light-skinned recent immigrants since independence from Spanish rule in 1825, by the sheer strength of the 65% strong indigenous population, Evo Morales was easily elected as the first president of Bolivia, and the first from among the indigenous. This was not a coincidence. It is in response to grassroots movement within the indigenous population seeking the 'overthrow' of what they see as a corrupt order. Similar trend can be identified in Guatemala, Peru, and Ecuador. With close to 50% of their population, they are

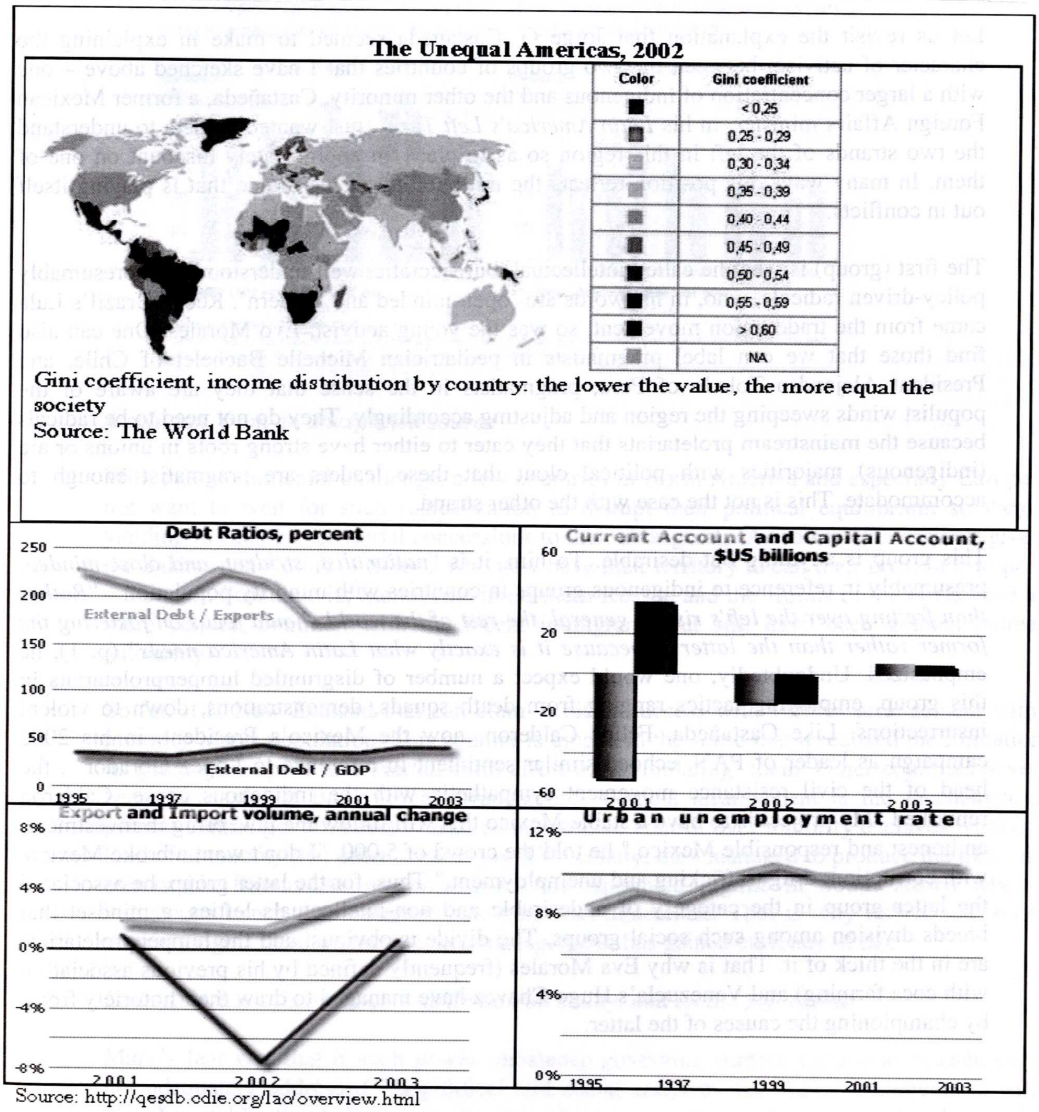
[1] 'African Hunter-Gatherer's Survival, History, and Politics of Identity' *African Studies Monographs* supp. 206: 257-280.

making political waves and scoring impressive electoral gains. They even helped bring some presidents along too, including Rafael Correa as president of Ecuador. Across oceans, a large indigenous Malay population has acquired political power, though at the expense of the minority Orang Asli – meaning the original people – the earliest of the indigenous groups and the most marginalized.

The case with the countries

The story is a lot more different in countries with minority indigenous, especially those with less than 2% of the population who happens, not coincidentally, to be one of the most unequal societies in the world (map below) - Honduras, Paraguay, El Salvador, Brazil, Costa Rica, Argentina, Columbia, and the indigenous are the one likely to be lodged deep in the lumpeproletariat status.

Like all other regions, post-War interventionist strategies have been heavily biased toward the petty bourgeoisies and labor unions, cutting of many in the lumpenproletariat camp, creating internal friction within the proletariat. The decent growth numbers (low debt ratios and favorable external conditions – predictably, have not improved the welfare of these few. In *Indigenous Peoples, Poverty and Human Development in Latin America:1994-2004*, for instance, Harry Patrinos, while acknowledging that political activities in all countries have picked up, he stated that it is in the latter countries with much fewer numbers of the indigenous group that has experienced the least improvement in poverty and human development compared to the non-indigenous. Even the World Bank briefs, especially the 1995 one titled *Hope for Latin Americas Indigenous Poor* suggested that lack of appropriate basic education suited for the market economy was the main stumbling block to development among the indigenous.



Source: http://qesdb.odie.org/lac/overview.html

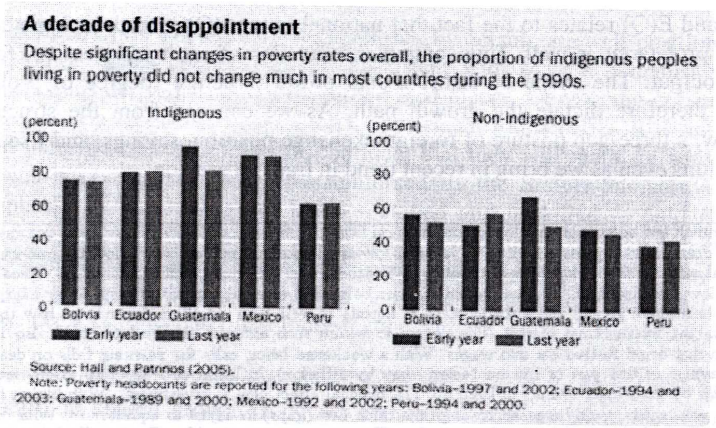
Explaining the Divide

Let us revisit the explanation that Jorge G. Castañeda seemed to make in explaining the character of activism between the two groups of countries that I have sketched above – one with a larger concentration of indigenous and the other minority. Castañeda, a former Mexican Foreign Affairs minister, in his *Latin America's Left Turn*[2], just wanted readers to understand the two strands of the left in this region so as to place an appropriately discount on one of them. In many ways, his position reflects the morphology of the divide that is playing itself out in conflicts.

The first (group) is what he called intellectual, bureaucratic, well-understood, and presumably policy-driven radicals, who, in his words are 'open-minded and modern'. Recall Brazil's Lula came from the trade union movement, so was the young activist, Evo Morales. One can also find those that we can label pragmatists in pediatrician Michelle Bachelet of Chile, and President Alejandro Toledo of Peru, pragmatists in the sense that they are aware of the populist winds sweeping the region and adjusting accordingly. They do not need to be radicals because the mainstream proletariats that they cater to either have strong roots in unions or are (indigenous) majorities with political clout that these leaders are pragmatist enough to accommodate. This is not the case with the other strand.

This group is anything but desirable. To him, it is "*nationalist, strident, and close-minded*, presumably in reference to indigenous groups in countries with minority population. "*Rather than fretting over the left's rise in general, the rest of the world should focus on fostering the former rather than the latter -- because it is exactly what Latin America needs*" (p. 1), he emphasized. Undoubtedly, one would expect a number of disgruntled lumpenproletariats in this group, employing tactics ranging from death squads, demonstrations, down to violent insurrections. Like Castañeda, Felipe Calderon, now the Mexico's President, in his 2006 campaign as leader of PAN, echoed similar sentiment in reference to Lopez Obrador[3] , the head of the civil resistance movement sympathetic with the indigenous cause. Calderon remarked "My project is to have a stable Mexico that will follow the law, bring in investment, an honest and responsible Mexico," he told the crowd of 5,000. "I don't want a broke Mexico, with corruption, drug trafficking and unemployment." Thus, for the latter group, he associated the latter group in the category of undesirable and non-intellectuals lefties, a mindset that breeds division among such social groups. The divide is obvious, and the lumpenproletariats are in the thick of it. That is why Eva Morales (frequently defined by his previous association with coca farming) and Venezuela's Hugo Chavez have managed to draw their notoriety from: by championing the causes of the latter.

[2] Foreign Affairs, May/June 2006
[3] 'Mexico's presidential race is getting ugly' the *Globe and Mail,* June 17, 2007



A solution, from an unexpected source

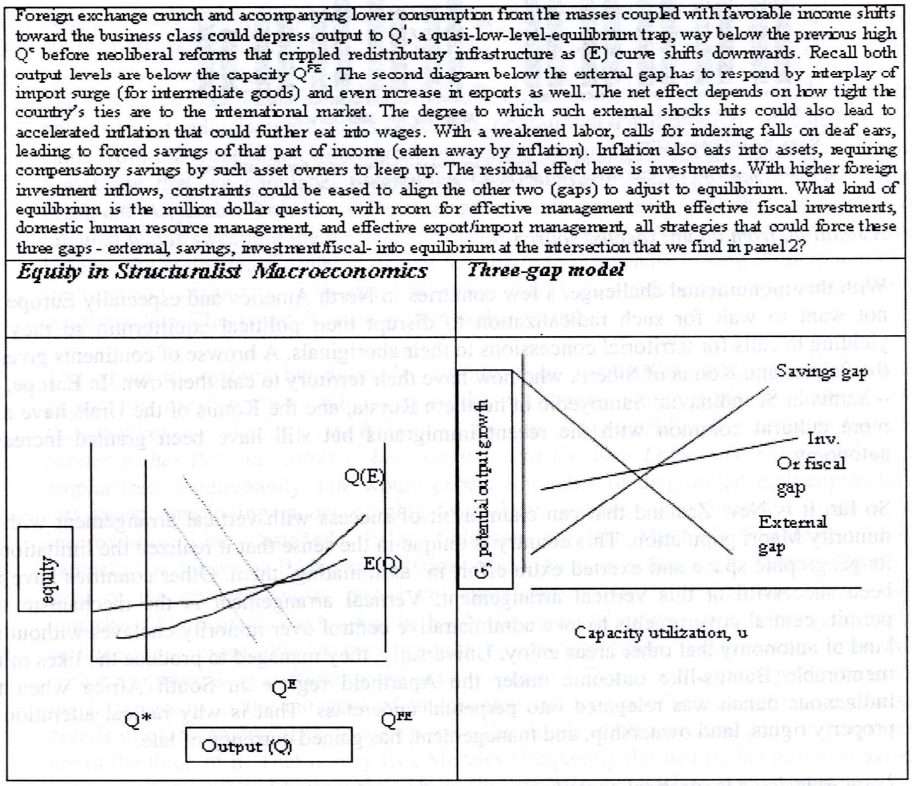
With this monumental challenge, a few countries in North America and especially Europe did not want to wait for such radicalization to disrupt their political equilibrium so they are yielding to calls for territorial concessions to their aboriginals. A browse of continents gives us the Sakhas and Komis of Siberia who now have their territory to call their own. In Europe, the – Samis in Scandinavia; Samoyedic in northern Russia, and the Komis of the Urals have a bit more cultural common with the recent immigrants but still have been granted increased autonomy.

So far, it is New Zealand that can claim a bit of success with vertical arrangement with its minority Maori population. This country is unique in the sense that it realized the limitation of its geographic space and exerted extra effort in 'assimilating' them. Other countries have not been successful at this vertical arrangement. Vertical arrangement is the mechanism that permits central governments to take administrative control over minority enclaves without the kind of autonomy that other areas enjoy. Universally, they managed to produce the likes of the memorable Bantus-like outcome under the Apartheid regime in South Africa when the indigenous bunch was relegated into perpetual underclass. That is why radical alteration of property rights, land ownership, and management, has gained currency of late.

Latin America's theoretical contribution on equity, and on the proletariat

Marx's fear was that if such power imbalance governing surplus-extraction mechanism was not adequately addressed via political and social activism, the social consequences will be dire. Inevitably, this boils over to a point where an overthrow of the existing order is carried through. The Latin American version of this is structuralist economics, that theoretical body that reinforced not only the contribution of the proletariat toward value creation but also the exploitation of especially the lumpenproletariat and the likes and the ability for price mutations to set of distributary conflicts requiring proletariat's political activism for effective negotiations over the surplus. This 1970s phonon can be sketched, diagrammatically below, using the Kaleckian reasoning as backdrop,

The curves Q(E) and E(Q) relates to the fact that national output (Q) growth is dependent on the welfare of the proletariat as well. Thus, output is a function of equity/fairness but fairness to a function of output. The shape of distributional power structure (degree of proletariat influence) would therefore dictate the growth path. As we can see from the structuralist macromodel below, a three-gap posture of foreign exchange position, savings, and fiscal gaps captures interrelations even as we bring in recent trend in trade expansion.



Now, Latin America is back, in this newly minted second millennium, as the most unequal continents on the planet, again, threatening to set the world on fire as to how best to change deeds through political activism. It is doing that through old-fashioned politics, not unionism.

Trade Theories: How we missed important contradictions in exchange, and on inequity drivers
This section traces significant sources of contradictions in our theorizing in exchange (trade) that have in recent past given us false sense of equity.

Neoclassical trade theories, in spirit, seek to define relationship between different groups among proletariats – among poor/rich nations, and skill groups within nations. In a world of

Heckscher-Ohlin Theorem, richer countries, by default, are well-positioned to squeeze out rent and other values created. This is consistent with Marx's humanist vision as well as the conclusions derived from the resource-based theory. Developing countries will get a bit of a buzz too via labor-intensive exports, and related job benefits. It is not surprising, therefore, that industrialized countries got confident that they will maintain supremacy over high-tech capital-intensive jobs. This was reinforced by the Stolper-Samuelson (1941) theorem that emphasized that labor of all kinds – skilled and unskilled - could gain in labor-intensive industries in the industrialized countries but it was the unskilled in poorer countries that would supposedly gain the most from increased trade. By implication, they would be content to shipping to us our low-tech toys and raw materials that richer countries have relied on for all these decades. This party has, indeed, gone on for a while and is about to take a sudden twist.

These industrialized countries missed an important (backward and forward) links: the extent of benefits to skilled groups in poorer countries. Who imagined that China would step up to challenge Boeing and Airbus in commercial aircraft manufacturing? Well it has! By getting comfortable as an unregulated monopolist over such (high-tech) stuff, they - industrialized countries - assumed away catch-up by all others at a time of decreasing (tele)communications costs and increasing intra-industry trades stemming from joint ventures. Poorer countries are now able to learn, improve the skills of those well positioned to be in the global economy through increased trade volume and take industrialized countries on. Thus, the demand for resources now is not only coming from industrialized countries but also the first-tier developing ones – Brazil, India, China, South Africa, Chile etc. Even in the second- and third-tier ones, a booming non-trading sector – construction especially – is fueling demand for resources that did not exist prior to the 1980s. This has set off another round of trade frenzy and competitive energy bids that have sent policymakers deep into aboriginal enclaves, looking for the 'precious stones', and even more marginal lands that have prospects of even more digs.

Regional dimension

Whether we listen to Al Gore, or the numerous panels that have painted a grim picture of the extent of environmental abuse, it is the marginal group – the periphery – that is getting the brunt of changes that come from trade-induced environmental degradation. One can cite on-going flooding in Haiti where removal of trees has facilitated soil erosion. In Southeast Asia - Bangladesh, India, Indonesia, Sri Lanka, one is faced with devastation from Monsoon winds that affects mainly the marginalized residents who cannot afford to move to higher (and expensive) grounds. This is a familiar story around the globe. In virtually all countries, increased trade is linked to irresponsible resource use associated negative externalities that leaves lands vulnerable, a trend that is likely to continue and even intensify as current and capital accounts remain wide open for debtors to ship more of such natural resources to pay for debt, and for their higher energy bills. We should, therefore, expect the encroachment on aboriginal lands to continue.

Threat to the commons

The first line of threat to the indigenous commons is the encroachment on their marginal lands. In economic theory this plays out in both the shape and the movement of supply curves

and consequential demand responses. Being so cheap, marginal lands – and/or resources underneath it - helps flatten the relevant supply curves of commodities that they help produce thereby lowering cost of production even amidst strong demand. That is what the upward slopping curve is all about. These 'unpaid' social costs to owners of the commons could very well has been part of the motivation for Marx writing "Association, applied to land, ...reestablishes, now on a rational basis, no longer mediated by serfdom, overlordship and the mysticism of (private) property, the intimate ties of man with the earth, since the earth ceases to be an object of hucksterling"[4].

Survival

In older civilizations, technical skills, more so than in recent civilizations, are embodied in languages and carried down across generations under community based resource management schemes. Such schemes carries productive interdependence (with 'environmental' objects), a social production understanding that discourages the production of material subsistence, a social commons approach to natural resource use that obviously, is a user-friendly one. The !Kungs of Southern Africa (loosely referred to as the Bushmen), for instance, do not see the environment for its own sake. Rather, they have a celestial links to it by way of reverence of objects within it. In fact the common belief among all strands of !Kungs is that they need to be close to graves of their ancestors so that they can cleanse him/her by visiting the grave. In return, they seek protection from these ancestors. Short of that breeds disconnect and misery so staying within their geographical bounds is crucial to them, spiritually.

In little ways, trying to understand the plight of all kinds of 'Bushmen' is to imagine the good old days (less so now) when Jews, united in their shades of faith, were spread out all over the world, minorities in virtually every country, persecuted, and desperate to find their own nation, with a distinct boundary. The latter (national boundary), for now, is not a priority for governments that have the iKung but the former is. The march is on for a different horizontal relationship with the 'immigrant' powerbrokers widely considered predators.

Their name changes ever so slightly as one moves from country to country in Southern Africa. Though revered in South Africa for their purity, in other areas, the name reflects the disdain for their lifestyle. Guaranteed, no respected ethnic group will be referred to as the Bushmen – one who, literally, operates from the bush, seen as unpolished, primitive, and needing directions on how to make a transition into the modern world. When we were reminded that this 'Bushmen' word was unpleasant, the *San People* was offered, by Monica Wilson and Leonard Thomson (1968) in their Oxford History of South Africa. On one hand, in Khoi Language – the language of a collection of these hunter-gatherer peoples in the Southern African region, including the Bushmen - it means real settlers but on the other, literally, it refers to them as worthless vagabonds (Lee and Hitchcock, 2001).

!Kung San refers to those in Angola and Namibia (about 40,000 of them) who received a brunt of the Portuguese and South African assault on the liberation movements in the 1960s and the 1970s. Botswana prefers to call those within its borers the Baserwa. Their number is still

[4] ibid

difficult to gauge but 100,000, for the for the Sans and pastoral Khois put together seem to be a number that a number of commentators have settled on.

Flexible as a group in their semi-arid (desert-like) regions noted for excessive downpours at inopportune times and dry when rain is needed, they are well adapted to the mainly grass- and brush-covered topography. The men, mostly hunters and responsible for bringing home the biggest of the animals, are complimented by their women who, in addition to foraging, are also prolific in the hunting of small animals, aided by their immense knowledge of edible food and the medicinal/toxic values of trees and plants.

They waste little or no part of these nature's products and even go as far as converting non-eatable parts as blankets and fertilizer. With the Gana and the Gwi tribe, using non-exploitative methods (sling, spears, digging sticks) have been part of their pastime. Similar stories can be told of the lives of the Mokens in Thailand, Myanmar and Malaysia, typically living in a collection of islands (Archipelagos) in South and Southeast Asia. As with other indigenous groups, united in their grief over governments intent on presenting them with a menu of happiness, they now are on the march with calls for a limited geographic space to call their own.

For the record, Mergui archipelago of Myanmar, until just a couple of months ago, is where the inhabitants lived close to normal, and, presumably, a happy life. All this changed overnight. The government is about to house them in a camp on Pu Nala island. This is not exactly surprising because it has followed trend elsewhere. Thailand has its own Mokens now at settlement areas in Phuket, Phi Phi, and even at Rawai where ruthless tourists subject them to degrading sub-human treatment, almost incapable of productively participating in the global economy.

Here come the Bushmen, and more misery

Expelled Bushmen Return Home was the headline in the January 21, 2007 Washington Post piece. BBC [5] had one too titled *Bushmen mourn lost lifestyle*. The year 2002 brought home this somber reality that dragged on in its intensity for 5 years. About 300 people were initially forced to resettle away from the reserve in a policy called New Xade. Apparently the loincloths that they wear did not fit the 1980s party dress code, a clear departure from the 1600 years of recorded residency in this particular area.

Acceptability has been hard to come by from the Bantu (mainstream Africans living in neighboring areas. Recall, a decade earlier, in 1990-91, similar conflict erupted between the River Bushmen in the Okavongo Delta region of Botswana as they rallied successfully against the Okavongo Integrated Water Development Project. In Zimbabwe too, the Tyna Bushmen had earlier on had their own bout of armed struggle with the government. These are, going with Castaneda's categorization, a type 2 indigenous group – militants who need to be put down. All of a sudden, the twenty thousand years of life on this Game Reserve was about to come crashing down.

[5] Alistair Leithead, BBC, April 11, 2004



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