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# Patterns of Informality in the Ship Breaking Industry of Bangladesh

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## ABSTRACT

The relationship between economic growth and formalization of industrial sectors has not been unidimensional as several studies have brought different aspects of it from diverse contexts. This paper tries to evaluate the persistence of informality in the ship breaking industry of Bangladesh by setting it against the proclaimed formality of the sector. In addition, the paper also seeks to support the argument that informal patterns of employment can persist, if not grow, within a formal system. Both qualitative and quantitative data have been collected by questionnaire survey and key informant interviews. Analysis of the findings reveal a strong presence of informality within labor market dynamics of ship breaking industry in Bangladesh while several administrative aspects of the industry remain formalized. Study findings support the notion that growth as well as institutional development cannot necessarily transform informal conditions of labor market in developing country context.

**JEL code:** O17, E26**Keywords:** informal sector; formal sector; institutional development; labor market; ship breaking industry

Economic transformation from the traditional to modern structure has often been accompanied by a formalization of the sectors in the economy of a nation. Neoclassical economic thoughts pioneered the idea that countries experiencing growth and transforming to modern economy will also undergo changes in the informal sectors. This proposition was boosted up by the insights from institutional economics and the works of North (1991) which emphasized the fundamental role of institutions, along with economic growth, in shaping the formalization of sectors. The theoretical proposition on the parallel movement of economic growth and formalization has also been supported by primary data in several studies (Heintz and Pollin, 2003; Loayza and Rigolini, 2006; Elgin and Oztunali, 2013; Daniels, 2014). However, the idea of inevitable formalization in economy while any country experiences growth has been challenged in a different stream of literatures which questions the assumptions of linear relationship between

economic growth and formalization of economy. Several time series and cross country data analysis have found that informal activities tend to rise or persist, if not rise, during economic growth in both developed and developing countries (Charmes, 2000; Beneria, 2001; ILO, 2002; Heintz and Pollin, 2003).

Though many developing countries have experienced growth revivals or high growth rates in last decades, the impact of this growth on informal employment remains minimal<sup>1</sup>. This dynamic is also reflected in the development experiences of Bangladesh. The country has maintained an average GDP growth of more than 6 per cent *per annum* since 2004. Growth projection for Bangladesh now stands at 7.15 per cent for the year 2016-17. The industrial sector has

<sup>1</sup>Global statistics on non-agricultural employment in the informal economy represents 82% of total employment in South Asia, 66 % in sub-Saharan Africa, 65% in East and South-East Asia (excluding China), 51 % in Latin America and 10 % in Eastern Europe and Central Asia (ILO, 2014).

been one of the major drivers behind this steady progress of the country. Average growth rate of industry, service, and the agriculture sector has been consecutively 9, 6 and 4 per cent since 2011. Owing to the consistent growth, the industrial sector has contributed 31.54% of GDP in 2015-16 (Bangladesh Economic Review, 2016). Despite the persistent and upward-moving growth of industrial sector, evidence shows the presence of strong informal employment in the economy of Bangladesh. The Labor Force Survey (LFS) 2010 demonstrates that around 89% of the active work force are involved in informal employment. In addition to the strong presence of informal employment, studies also show that the growth in the formal sector has also led to a growth of the informal sector in Bangladesh (Raihan, 2010).

This paper seeks to evaluate the patterns of informality against the backdrop of recent growth and institutional reform in the ship breaking industry of Bangladesh. Upon doing that, the paper also moves on to support the existing argument from a developing country perspective that informal labor market can persist, if not grow, against the apparent proclamation of formality in some industrial sector.

### **Overview of the ship breaking industry of Bangladesh**

The Ship breaking industry in Bangladesh directly employs about 20,000 people while more than 200,000 people are somehow indirectly engaged with this sector<sup>2</sup>. Origin of the ship breaking activities in Bangladesh dates back to 1960s, but the commercial operation started in early 1980s which led to the full-scale growth of this industry. Ship breaking yards are heavily concentrated in the coastal area of Bangladesh, especially in Sitakund under Chittagong district. Availability of long beach with combination of soft sand and muddy ground perfectly sloped for beaching, suitable weather, low level of environmental awareness, along with the abundance of cheap labor are the few key

<sup>2</sup>There are various statistics regarding the number of laborers and this variation in statistics reflects mostly the fluctuations in the recruitment of the laborers which rises and falls depending on the number of ships cut at any given time of the year. While World Bank (2010) reports the number of laborers directly employed in the ship breaking yards as 22000, the NGO Shipbreaking Platform (2016) claims it as 15000.

reasons behind the development of this industry in Bangladesh (Hossain *et al.* 2006).

Currently, there are 138 ship yards registered in Bangladesh Ship Breakers Association (BSBA) of which around 125 yards are active. Bangladesh was marked as the top ship recycling nation for the period between 2004 and 2009 and currently holds the third position scrapping a little more than 200 ships (BSBA, 2016). This industry is considered as vital for supplying raw materials to the steel industries and the overall infrastructural sector in Bangladesh.

### **Theoretical Framework**

The present study adopts several criteria from Gërxhani (2003) to evaluate informality as Gërxhani conducted an exhaustive analysis of the secondary literatures on informal sector in the context of both developed and less developed countries. Informal economy, also referred as shadow or household economy, was originally used to denote the self-employed urban labor force trying to make a living outside the formal sector (Hart, 1971). ILO (1972) revisited the idea and characterized 'informal economy' with the purpose of survival; household subsistence; the tendency to avoid taxes; and noncompliance with government regulations. There are a large number of literatures that analyzed the idea of informal economy and developed several indicators for its measurement and comparison. The overpopulated definitions of informal economy have however failed to develop a clear idea regarding informality and thus led to some conceptual confusion (Gërxhani 2003, 2004). However, recent studies emphasize that informality can be mostly understood depending on the employment structure in an economy (ICLS, 2003; Raihan, 2010). This employment centred view of informal economy is also strongly reflected in the definition adopted at the 17<sup>th</sup> International Conference of Labour Statisticians (ICLS) in 2003 (Husmanns, 2004; Chen *et al.* 2005)<sup>3</sup>.

This paper adopts some of the major and relevant criteria from Gërxhani (2003) to develop the

<sup>3</sup>17<sup>th</sup> ICLS stated that a job can be portrayed as 'informal' if the employment relationship is, in law or in practice, not subject to labour legislation, income taxation, social protection or entitlement to certain employment benefits (advance notice of dismissal, severances of pay, paid annual or sick leave, etc.)

theoretical framework (Table 1) to evaluate patterns of informality in the ship breaking industry of Bangladesh.

**Methodology**

This research has used both qualitative and quantitative data from primary and secondary sources. Primary data was collected through questionnaire survey and key informant interviews. Secondary data was collected by reviewing available literature.

Due to the absence of concrete database on the labor force and the seasonal variability of employment in ship breaking industry of Bangladesh, the population for this study remains somewhat unspecified. Hence, the questionnaire survey was conducted among 100 randomly selected respondents who are the workers in the ship breaking yards. A reconnaissance survey was carried out prior to conducting the field work to precisely identify the major settlements of the workers in the catchment areas of the ship breaking yards,

location of the key government offices, location of the Non-Government Organization (NGO) and Civil Society Organization (CSO) offices etc. The survey was carried out at four different locations in the *Sitakunda* Upazila of Chittagong district namely, *Baro Awlia, Kattoli, Kumira and Kadom Rasul*. Most of the ship breaking yards are located in the surveyed areas. Twenty-five (25) respondents from each location were randomly selected and surveyed after availing their consent.

Key informant interviews were also conducted to collect the critical information on ship breaking industry as the respondents of survey questionnaire were laborers with little knowledge of the administrative and policy level information regarding the sector. The key informants' interview included 2 ship yard owners, 2 ship yard managers, 2 civil servants, 2 civil society activists, 2 trade union leaders and 2 persons from the academia.

In addition, a thorough review of literatures regarding the sector has been made during the whole period of this research. The sources of

**Table 1:** Theoretical framework on conceptualizing informality

Criteria of Informality	Relevant Authors supporting the criteria	Indicators of informality in literatures	Indicators in the context of present study
Government regulation	ILO (1972), Beneria (1989), Renooy (1990), Swaminathan (1991), Commander and Tolstopiatenko (1997)	<ul style="list-style-type: none"> <li>Presence of government regulation</li> </ul>	<ul style="list-style-type: none"> <li>Presence of government regulation</li> <li>Illegal presence of business against formal regulation</li> </ul>
Registration of activity	Beneria (1989), Renooy (1990), Swaminathan (1991), Commander and Tolstopiatenko (1997)	<ul style="list-style-type: none"> <li>registration or need for license from the government</li> </ul>	<ul style="list-style-type: none"> <li>registration or need for license from the government</li> </ul>
Tax evasion	Allingham and Sandmo (1972), Feige (1990), Tanzi (1982), Schneider and Enste (2000)	<ul style="list-style-type: none"> <li>unreported income or tax evasion</li> </ul>	<ul style="list-style-type: none"> <li>unreported income or tax evasion</li> </ul>
Labor market or status of labor	Beneria (1989), Harding and Jenkins (1989), Renooy (1990), ICLS (2003), Raihan (2010), ILO (2014)	<ul style="list-style-type: none"> <li>undeclared labor</li> <li>lack of social benefits</li> <li>sub-minimum wages</li> <li>poor working conditions</li> </ul>	<ul style="list-style-type: none"> <li>scale of activity in terms of labor employment</li> <li>undeclared labor</li> <li>lack of social benefits</li> <li>sub-minimum wages</li> <li>poor working conditions</li> </ul>
Ease of entry and exit	ILO (1972), Breman (1980)	<ul style="list-style-type: none"> <li>level of ease of entry and exit for workers from their job</li> </ul>	<ul style="list-style-type: none"> <li>level of ease of entry and exit for workers from their job</li> </ul>
Survival	Renooy (1990), Anderson (1998)	<ul style="list-style-type: none"> <li>the relation of work with economic survival of the worker or owner</li> </ul>	<ul style="list-style-type: none"> <li>the relation of work with economic survival of the worker and owner</li> </ul>

secondary data include books, journal articles, Government reports, NGO reports, newspapers, documentaries etc.

### Findings of the study

By applying the methodology of the research, both quantitative and qualitative data has been collected against the selected criteria as described in the theoretical framework. The findings of the study are as follows:

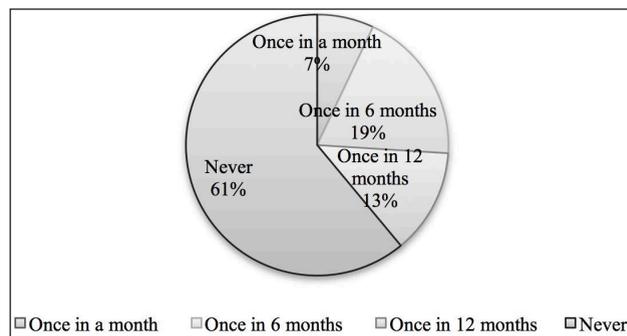
#### Government Regulation

Despite its inception in 1960s and the phenomenal growth since 1980s, ship breaking industry has enjoyed minimalist policy regimes as well as flexible labor and environmental regulations till early 21<sup>st</sup> century. But there have been consistent campaigns by the civil society organizations and other environmental groups regarding the unsafe working conditions and environmental pollution in the ship breaking yards<sup>4</sup>. The civil society activism and subsequent moves of the honorable Supreme Court resulted into a policy shift by the government. The Ministry of Environment and Forests formulated ‘Ship Breaking and Hazardous Waste Management Rules’ in 2010 while the Ministry of Industries formulated the ‘Bangladesh Ship Breaking and Ship Recycling Law’ in 2011. The policies brought this sector the recognition of a ‘formal industry’. These successive policies have made several certifications necessary before beaching and cutting a ship in Bangladeshi coastline. The imported ships are now examined and re-examined in pre- and post-beaching condition to get a ‘gas-free certificate’ from the ‘Explosive Department’ of the Ministry of Energy and Mineral Resources. Moreover, every yard is now required to operate with clearances from several government ministries and departments including clearance of the yard from the Ministry of Industries (MoI), the Department of Environment (DoE), and from the Customs Department etc.

Although the official formalization of the industry

<sup>4</sup>It was only in early 2010 when Bangladesh High Court provided some strict guidelines for the ship breaking industry followed by the writ of BELA (Bangladesh Environmental Lawyers Association). High Court decreed a ‘stay order’ on the ship breaking activities which sustained for several months before being nullified by the Supreme Court in response to BSBA’s appeal later in 2010.

has been in force for several years, monitoring of the yards still appears to be insignificant. One indicator to test the aspect of government regulation is the incidence and frequency of interaction between laborers and government officials, specifically the labor inspectors from the Ministry of Labor and Employment. Data from recent survey reveals that about 61 per cent of the respondents have never encountered any government inspector in their respective yards to investigate the existing working conditions of the laborers. However, those who have encountered a government inspector in the yard have reported inconsistency in the frequency of visits they experienced last year (see Graph 1). In addition to weak monitoring of the labor conditions, enforcement of the environmental regulations also lack necessary rigor. The yard owners are still found to bypass the requirement of environmental clearance in several instances<sup>5</sup>. Amidst the tightening of government regulations, recent research by Talukder *et al.* (2015) finds strong signs of environmental degradation and shows that the industry keeps posing threat to the local fisheries, forestry and water.



**Graph 1:** Interaction of the industry inspectors and the workers

#### Registration of the activity

The ship breaking yards have long been registered with several government agencies. The yards need to register under the ‘Office of the Registrar of Joint Stock Companies and Firms’ to start its operation as

<sup>5</sup>A local online newspaper reports that out of 190 ships imported by the yards in Chittagong, only 12 has been cleared by the DoE (Department of Environment) for cutting. Referring to local government officials and yard owners, the portal portrays a strong tendency of the yard owners to bypass environmental regulations. (Retrieved from <http://bdnews24.com/bangladesh/2016/11/07/no-need-to-environmental-clearance-say-ship-breakers-in-bangladesh> on January 2017)

a business entity. Then, the yards need to register for Tax and VAT under the NBR (National Board of Revenue) as well as to get ‘trade license’ from respective local government authorities. Previously, the yards were mostly monitored by the Ministry of Commerce which has been changed with the recent policy shifts in 2011. Currently, the Ministry of Industries controls the permission of beaching of ships for the yards. The Bangladesh Ship Breakers Association (BSBA) also operates in collaboration with the Ministry of Industries in recent years.

**Tax Evasion**

The incidence of tax evasion has reportedly been lower, if not absent, in the ship breaking industry. The yards are mandatorily registered to NBR for VAT and Tax submission and to the local government authorities for getting trade license and its renewal. Hence, the complete avoidance of Tax and VAT has never been a routine incident in this industry.

**Labor market and the status of labor**

The condition of workers and labor market dynamics have been the most significant criteria to evaluate patterns of informality in the ship breaking industry of Bangladesh. The study has deployed several indicators in the pursuit of evaluating informality in several aspects related to laborers and the labor market.

Arguably, there was no government regulation to look over the issues of labor rights and welfare in this particular industry since its beginning. It was only in 2006 when the Bangladesh Labor Act first included a different paragraph to address the issue of labor rights and safety in ship breaking industry. Moreover, empirical data from the survey clearly indicates that informality in the labor market strongly exists in multiple dimensions.

Firstly, the ‘scale of activity’ mainly focuses on the number of people employed or self-employed in informal sector entities. The small-scale of operation is considered one of the main features of the informal sector as it involves less than 10 persons in most of the entities (Sethuraman, 1976). But, this criterion possesses little relevance with this study due to the factors like size of capital and number of manpower employed in ship breaking yards. Bigger

ship yards employ as high as 400 workers while cutting 2-3 ships simultaneously while the smaller yards employ around 50-60 workers while cutting a single ship. Hence, there is a positive relationship between the number of workers employed and the number of ships cut in any yard at any given time.

Secondly, most of the laborers in this industry are employed on a temporary basis (table 2). Usually there are around 10-15 permanent staffs in each active yard while the rest are hired time to time. Permanent workers of the yard include managers, supervisors, accountants, security guards etc. and the temporary workers fall into a cluster of working groups, i.e. wiring group, cutting group, fitting group, and loading group. This research found that about 93 per cent of the respondents are working on a temporary basis. The hired workers do not have any formal job contracts as they are hired through intermediary contractors.

**Table 2:** Indicators on the status of employment

Indicators	Yes (%)	No (%)
Temporary/Contractual Employment	93	7
Contract paper for jobs	6	94

Source: Survey (2016)

Thirdly, work in the ship breaking yards is considered to be risky as it involves manual cutting of heavy steel plates from the ships. Critical sources of accident are unchecked presence of chemicals and gases in old ships that cause explosions while cutting the ship manually. It is found that, 50 per cent of the respondents have experienced some sort of accidents in the yards. All the respondents have said that they saw co-workers being heavily injured while at work<sup>6</sup>. Civil society activists and trade union leaders also claim that there have been many unreported deaths and injuries in the yards. Although there is high possibility of major and minor accidents in the yards, 28 per cent of the respondents said that they did not see any doctor in their respective yards. Except the satisfactory availability of helmets in the yards, other equipment like fire extinguishers and gas masks are still less

<sup>6</sup>Hossain and Islam (2006) claims that there has been an average of 20 deaths each year in the ship breaking industry since mid 1980s. Recently the NGO Shipbreaking Platform (2016) also reports 16 deaths and 20 severe injuries from accidents in the yards in 2015.

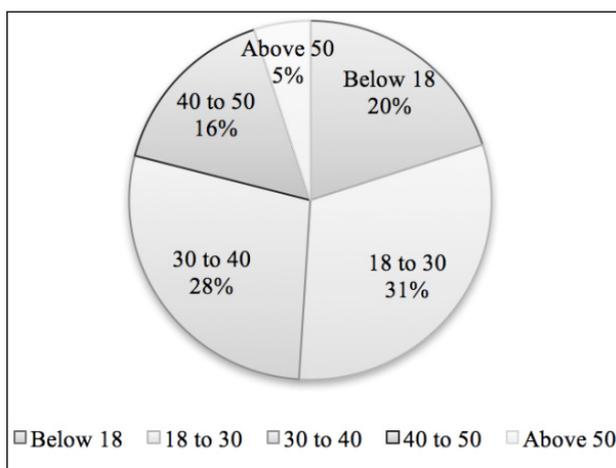
than what is required. Despite working in such risky conditions, only 29 per cent of the respondents are found to receive formal training for doing the job (Table 3). However, recently, BSBA is arranging formal training programs for ship breaking workers while previously there were some small-scale training programs operated by the civil society organizations.

**Table 3:** Indicators on the safety issues of the laborers

Indicators	Yes (%)	No (%)
Training	29	71
Experienced any accident at workplace	50	50
Availability of doctor in the yard	72	28
Availability of helmet	81	19
Availability of gas masks and fire extinguishers	34	66

Source: Survey (2016)

Fourthly, empirical data from the survey shows that there is an absolute gender bias against female laborers in the industry. Almost all the workers employed in this industry are male. There also exists a significant number of child workers in the ship breaking industry (graph 2). The graph illustrates that 20 per cent of the respondents are under 18 years of age which is in complete violation of the Labor law of the country since the law prohibits appointing child and adolescents in hazardous work.



**Graph 2:** Age group of the respondents

Fifthly, the social protection and several employment benefits are unavailable for most of the workers in the ship breaking industry (Table 4). Social

protection schemes like insurance and pension schemes are completely absent and only a small number of permanent workers have access to provident funds. Other employment benefits like paid leave is not an option for the temporary workers while only some of the permanent workers can avail it.

**Table 4:** Indicators on the welfare issues of the laborers

Indicators	Yes (%)	No (%)
Availability of group insurance and pension schemes	0	100
Availability of provident fund	6	94
Availability to Paid leave	7	93

Source: Survey (2016)

*Ease of entry and exit*

The workers in the ship breaking industry enjoy an ease of entry and exit from their job. A large pool of workers- being informed about the employment opportunities by their friends, relatives and neighbors- come from the northern part of Bangladesh. ‘Social network’ is the key to get a job in this sector. On the other hand, the distinct aspect of the ship breaking industry is that the yard owners have to invest big chunk of financial capital for buying ships and employing large number workers to operate a yard. Therefore, the criteria of ‘ease of entry and exit’ requires different explanation from the perspectives of the workers and the yard owners. Findings from the interviews indicate that, starting a business in this industry is highly competitive. In addition to the huge amount of capital requirement there are also various bureaucratic procedures, like availing certificates and clearances, that have squeezed the ease of entry into and exit from the business.

*Survival*

The research finds that all the respondents are working in the ship breaking yards due to having no better options at hand. Although the employment in the ship breaking industry is a matter of ‘survival’ for the workers, it is not the same for the yard owners. The yard owners take risk by investing a huge amount of capital in the business. Therefore,

the expectation of profit, not mere survival, is what drives the yard owners to invest in this sector.

### **Evaluating the patterns of informality in the ship breaking industry**

A significant number of criteria, i.e. the scale of investment and operation, compliance with registration system, relation with international trade, were embedded in the ship breaking industry since its beginning. Several studies have indicated the presence of such criteria as critical preconditions of formal sector entities (Beneria, 1989; Renooy, 1990; Swaminathan, 1991; Commander and Tolstopiatenko, 1997; Anderson, 1998). Moreover, the investors in the ship breaking industry had to go through all the formal stages of doing business in Bangladesh. They had to manage license from government agencies, regularly provide VAT/Tax and comply with some other legal procedures.

Findings from the interviews show that, this business requires investment of big capital as the price of an imported ship ranges from a minimum of one million USD to several millions. In addition, investors need to have a thorough understanding of the complex mechanisms of international trade to import ships from abroad. Despite the presence of such stimulating factors for formalization, ship breaking had officially remained an informal industry until 2011. Early researches reveal limited use of personal protective equipment, unsafe working conditions, lack of training facilities, frequent accidents, use of child labor, minimal primary health and sanitation facilities in the majority ship breaking yards in Bangladesh prior to its 'formal industry' status (Karim, 2009; Sarraf *et al.* 2010). The concerns of environmental pollution and impacts on marine life due to disposal of hazardous wastes and highly polluting material have also been a major focus in relevant literatures along with the portrayal of the perilous working conditions in the industry (Greenpeace, 2000; Anderson, 2001; Mitra, 2005; Hossain and Islam, 2006; Ahmed, 2011). Apparently, the long period of informal status as an industry had worked as a stimulus for the yard owners to bypass the existing labor and environmental standards of the country.

In Bangladesh, three decades of commercial operation and successive growth of the ship breaking industry has failed to meet the requirements of labor

standards and environmental protection. More recently, Government of Bangladesh declared ship breaking as a 'formal industry' in 2011 to address such failures in the sector. Government introduced a couple of new policies, brought more agencies to look over the labor and environmental aspects, and made various new certifications mandatory on the top of the previous ones. However, the officially formal status of the sector has brought little *de facto* changes in the condition of the status of laborers, let alone the environmental concerns.

Most of the workers still do not have any job contract, social benefits, provident funds, pensions or other securities. Usually the yard owners and managers have informal arrangements with the labor contractors who supply the pool of laborers to a yard. Most of the workers find the connection with the labor contractors through informal networks of friends and neighbors. As the laborers do not have any direct contact and contract with the employer, they are in a disadvantageous position to bargain on the employment benefits, i.e. working hours, minimum wage and other allowances.

Working conditions in the ship yards remain considerably risky while most of the yards do not have enough safety measures, medical facilities, instruments or any trainings for the workers. Yet a significant number of child laborers work in the risky conditions of ship breaking yards. Despite the lower status and perilous working environment, people tend to work in this industry due to their low skills and socio-economic conditions which leave them with little choice but to work in this sector. Evidently, there are no female laborers working in the ship breaking yards. Gender dynamics of labor in this industry can be the stand alone indicator to reflect highly risky and hazardous working conditions of the yards.

Finally, the analysis reveals simultaneous existence of formal and informal criteria in several aspects of the ship breaking industry (Table 5). The industry is observed to hold several signs of formalization, i.e. scale of operation and registration of activity since its inception. Added to the previously existing criteria, official formalization of the industry has brought substantial changes in 'government regulation' and subsequent institutionalization. But the research shows consistent growth along with government facilitation have not brought about

**Table 5:** Patterns of informality in the ship breaking industry

Criteria of Informality	Indicators	Modalities of the indicators	Level of informality
Government regulation	Presence of government regulation	Strong presence of government policies and regulations	No Informality
	Illegal Presence of business against formal regulation	Absence of unregistered business entities	No informality
Registration of activity	Registration or need for license from the government	No unregistered presence of business without license	No informality
Tax evasion	Unreported income or tax evasion	Low level of unreported income and tax evasion	No or low level of informality
	Scale of activity in terms of labor employment	Large scale of capital investment as well as labor employment	No informality
Labor market or status of labor	Undeclared labor	No formal registration and contract for the workers	Strong informality
	Lack of social benefits	No social benefits for the workers	Strong informality
	Sub-minimum wages	Lower or sub-minimum wage	Strong informality
Ease of entry and exit	Poor working conditions	Lack of sufficient PPE (Personal Protective Equipment) and lack of relevant trainings	Strong informality
	Level of ease of entry and exit for workers and owners	Flexible entry through known networks and easy exit for the workers; but difficult entry into and exit from business for owners	Mixed pattern of informality
Survival	The relation of work with economic survival of the workers and owners	The workers work for survival; but the owners operate business for profit	Mixed pattern of informality

anticipated changes in labor market conditions in the ship breaking industry of Bangladesh. The findings of this study supports the argument that informal patterns in the labor market can survive, and even grow, within a formal industry.

**CONCLUSION**

Several indicators of informality have been empirically tested to evaluate the patterns of informality in the ship breaking industry of Bangladesh. Simultaneous presence of formality and informality have been observed in the studied sector. The findings contrast with the arguments on parallel movement of economic growth and formalization of industrial sectors of an economy. This research on ship breaking industry explicitly shows that informal patterns in the labor market can survive and grow even within a formal industry. Industrial growth as well as the institutional development cannot necessarily transform informal patterns of labor market in the context of developing countries.

**REFERENCES**

Ahmed, A. 2011. Some of the major environmental problems relating to land use changes in the coastal areas of Bangladesh: A Review. *Journal of Geography and Regional Planning*, 4(1): 1-8.

Anderson, J.H. 1998. *The Size, Origins, and Character of Mongolia's Informal Sector during the Transition*. World Bank Policy Research Working Paper 1916. Washington, D.C.: World Bank.

Andersen, A.B. 2001. *Workers' safety in the Ship-breaking Industries*. Geneva: International Labour Office.

Allingham, M.G. and Sandmo, Agnar. 1972. Income Tax Evasion: A Theoretical Analysis. *Journal of Public Economics*, 1: 323-38.

Banerjee, N. 1982. Survival of the Poor. In H.I. Safa (Ed.), *Towards a Political Economy of Urbanization in Third World Countries* (175-88). Delhi: Oxford University Press.

Beneria, L. 1989. Subcontracting and Employment Dynamics in Mexico City. In Alejandro Portes, Manuel Castells, and Lauren A. Benton (Eds.), *The Informal Economy: Studies in Advanced and Less Developed Countries* (173-89). Baltimore and London: The Johns Hopkins University Press.

- Breman, J.C. 1980. *The Informal Sector in Research: Theory and Practice*. Rotterdam: Erasmus University, Comparative Asian Studies Program 3.
- Beneria, L. 2001. Shifting the risk: new employment patterns, informalization, and women's work. *International Journal of Politics, Culture, and Society*, **15**(1): 27-53.
- Charmes, J. 1990. A Critical Review of Concepts, Definitions and Studies in the Informal Sector. In David Turnham, Bernard Salome, and Antoine Schwarz (Eds.), *The Informal Sector Revisited* (10-49). Paris: OECD.
- Charmes, J. 2000. *Informal sector, poverty, and gender: a review of empirical evidence*. Background paper for the 2001 World Development Report. Washington, D.C.: World Bank.
- Chen, M., Vanek, J., Lund, F., Heintz, J., Jhabvala, R. and Bonner, C. 2005. *Progress of the World's Women 2005: Women, Work, and Poverty*. New York: UN Women.
- Commander, S.J. and Tolstopiatenko, A. 1997. *A Model of the Informal Economy in Transition Economies*. The William Davidson Institute Working Paper 122. Michigan, USA: University of Michigan Business School.
- Daniels, P.W. 2004. Urban Challenges: the formal and informal economies in mega-cities. *Cities*, **21**(6): 501- 511.
- Elgin, C. and Oztunali, O. 2013. *Institutions, Informal Economy and Economic Development*. Retrieved January 18, 2017, from [http://www.econ.boun.edu.tr/public\\_html/RePEc/pdf/201303.pdf](http://www.econ.boun.edu.tr/public_html/RePEc/pdf/201303.pdf)
- Feige, E.L. 1990. Defining and Estimating Underground and Informal Economies: The New Institutional Economics Approach. *World Development*, **18**(7): 989-1002.
- Gerxhani, K. 2003. *The Informal Sector in Developed and Less Developed Countries*. Amsterdam: Amsterdam Institute for Advanced Labour Studies, University of Amsterdam. Retrieved June 12, 2016, from <http://papers.tinbergen.nl/99083.pdf>
- Gerxhani, K. 2004. The Informal Sector in Developed and Less Developed Countries. *Public Choice*, **120**(3/4): 267-300.
- Greenpeace. 2000. *Ship-breaking: A Global Environmental, Health and labor Challenge*. A Greenpeace Report for IMO MEPC 44th Session, March 2000. Amsterdam: Greenpeace International.
- Harding, P. and Jenkins, R. 1989. *The Myth of the Hidden Economy: Towards a New Understanding of Informal Economic Activity*. Philadelphia: Open University Press.
- Hart, K. 1971. Informal Income Opportunities and Urban Employment in Ghana. In Richard Jolly, and Emanuel De Kadt (Eds.), *Third World Employment: Problems and Strategy*. Harmondsworth: Penguin.
- Heintz, J. and Polin, R. 2003. *Informalization, Economic Growth and the Challenge of Creating Viable Labor Standards in Developing Countries*. Political Economy Research Institute Working Paper Series Number 60. Amherst, MA: University of Massachusetts- Amherst.
- Hossain, M.M. and Islam, M.M. 2006. *Ship Breaking Activities and its Impact on the Coastal Zone of Chittagong, Bangladesh: Towards Sustainable Management*. Chittagong, Bangladesh: Young Power in Social Action (YPSA).
- Hussmanns, R. 2004. *Measuring the informal economy: From employment in the informal sector to informal employment*. International Labour Office Working Paper 53. Retrieved June 12, 2016, from [http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/publication/wcms\\_079142.pdf](http://www.ilo.org/wcmsp5/groups/public/---dgreports/---integration/documents/publication/wcms_079142.pdf)
- Ihrig, J. and Moe, K.S. 2001. Tax policies and informal employment: The Asian experience. *Asian Economic Journal*, **15**(4): 369-83.
- International Labor Organization (ILO). 1972. *Employment, Incomes, and Equity: a strategy for increasing productive employment in Kenya*. Geneva: International Labor Organization.
- International Labor Organization (ILO). 2002. *Decent Work and the Informal Economy*. Report VI presented at the 90th session of the International Labor Conference. Geneva: International Labor Office.
- International Labor Conference (ILO). 2014. *Transitioning from the informal to the formal economy*. Geneva: International Labor Organization.
- Internal Revenue Service (IRS). 1979. *Estimates of Income Unreported on Individual Income Tax Returns*. Washington DC: Government Printing Office.
- Karim, M.S. 2009. Violation of labour rights in the ship-breaking yards of Bangladesh: legal norms and reality. *The International Journal of Comparative Labour Law and Industrial Relations*, **25**(4): 379-394.
- Bangladesh Bureau of Statistics (BBS). 2005. *Labour Force Survey*. Dhaka: Author.
- Loayza, N. V., and Rigolini, J. (2006). *Informality trends and cycles*. World Bank Policy Research Working Paper No. 4078. Washington, D.C.: World Bank.
- Ministry of Finance, Government of Bangladesh. 2016. *Bangladesh Economic Review 2015-16*. Dhaka: Author.
- Mitra, B. 2005. *Creative destruction: breaking ships, building the economy, cleaning the environment*. Liberty Institute Working paper. New Delhi: Liberty Institute.
- NGO Shipbreaking Platform. 2016. *Substandard shipbreaking: A global challenge*. Brussels: Author.
- North, D.C. 1991. Institutions. *Journal of Economic Perspectives*, **5**(1): 97- 112.
- Raihan, S. 2010. Informal Sector in Bangladesh: Implications for Growth and Poverty. *The Indian Journal of Labour Economics*, **53**(2): 251-265.
- Renooy, P.H. 1990. *The Informal Economy: Meaning, Measurement and Social Significance*. Amsterdam: Netherlands Geographical Studies.
- Sarraf, M., Stuer-Lauridsen, F., Dyoulgerov, M., Bloch, R., Wingfield, S. and Watkinson, R. 2010. *Ship Breaking and Recycling Industry in Bangladesh and Pakistan*. Washington, D.C.: The World Bank.
- Schneider, F. and Enste, D. H. 2000. Shadow Economies: Size, Causes and Consequences. *Journal of Economic Literature*, **38**(1): 77-114.

- Sethuraman, S.V. 1976. The Urban Informal Sector: Concept, Measurement and Policy. *International Labor Review*, **114**(1): 69-81.
- Swaminathan, M. 1991. *Understanding the informal sector: A Survey*. World Institute for Development Economics Research Working Paper 95. Finland: UNU-WIDER.
- Talukder, M.I., Fakhruddin, A.N.M. and Hossain, M.A. 2015. Environmental Impacts of Ship Breaking and Recycling Industry of Sitakunda, Chittagong, Bangladesh. *Advances in Natural Science*, **8**(1): 51-58.
- Tanzi, V. (Ed.). 1982. *The Underground Economy in the United States and Abroad*. Massachusetts: Lexington Books.
- World Bank. 2010. *The ship breaking and recycling industry in Bangladesh and Pakistan*. The World Bank Report No. 58275-SAS. Washington, D.C.: The World Bank.