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CREATING ENTREPRENEURIAL CULTURE
IN A LARGE ORGANIZATION

Dr. Kanhaiya KSS
Steel Authority of India Ltd., Bokaro Steel Plant, Bokaro Steel City, India
kss.kanhaiya@gmail.com

Abstract
This paper examines viewpoints about entrepreneurship and underscores its need for business organizations. Some organization models are reminded before discussing why entrepreneurial culture is essential for large organizations. Characteristics of entrepreneurial culture are examined. Present status in large organizations is discussed in terms of the McKinsey 7-S framework. Findings of a field survey have been presented. Practical lessons for creating entrepreneurial culture have been extracted. A new terminology of A-E-I-O-U has been introduced for characteristics of entrepreneurial culture. Two new indicators, namely Creativity Quotient and Enterprise Index, have also been introduced in the context of internal entrepreneurship. However, these concepts remain to be developed into well-defined ideas with operationalization to facilitate their measurement and planning interventions.

It may be noted that the paper has a high practitioner orientation compared to the empirical theory-testing / theory development orientation expected of most journals.

Keywords: entrepreneurship, creativity, innovation, organization, people, shared values.

JEL Classification: J29, L29, M14.

1. Introduction

In a rapidly changing world organizational ideas must keep rejuvenating. Competitors are part of the struggle as well as processes continuously redefining the battlefield. As the strugglers become fitter for survival, they raise the bar for their rivals and the learning curve keeps spiraling. Entrepreneurship underscores the importance of proactive experimentation in the growth cycle. The fountainhead of enterprise is the people. To rejuvenate the organization, entrepreneurs struggle against their own systems. Larger the organization, stronger the system, greater is the force required for escape velocity. A handy list of characteristics marking the spirit of enterprise can be remembered through the vowels – A, E, I, O, U.

Enterprise is instinctive to human nature. The tabula rasa of human psyche is ready to explore experiment and learn. All learning, however, affects the ability to learn. It is important to ensure that this effect is enabling. Learning to unlearn is an important cognitive skill. Individuals and organizations should acquire it; and it is never too late.

Managers must be enterprising in everything they plan, decide, do and monitor. Innovativeness is an aid to leadership. Attributes of an entrepreneurial manager, characteristics of an entrepreneurial culture and lessons for creating such culture have been discussed with special reference to the McKinsey 7-S framework.

The findings of a survey conducted at a large public sector organization conform to the 7-S elements of the culture of sub-entrepreneurial organizations. Some findings are typical yet eye-opening. These include: lack of ownership, non-encouraging senior-peer reactions towards risk-taking, moderate empowerment to introduce changes and marginalization of strategically important functions like HRD, Value Engineering and QM.

The negativity present in an organization’s 7-Ss cannot be eradicated overnight, but entrepreneurial culture can be created through dynamic, proactive style where the CEO is a change agent, with the highest possible mandate.
It is important to incorporate entrepreneurship into the core values of the organization, have a Knowledge Management system, let people try their ideas for improvement, and keep the structure flat. Cross-functional teams must be encouraged and members should be rotated intermittently. Having a tolerance for ambiguity, training people to unlearn and exposing them to realities beyond their organizational boundaries are required.

Entrepreneurial culture helps translate the summated Creativity Quotient (CQ) of the employees into an enhanced Enterprise Index (EI) of the organization. Large organizations are often slow to respond. But once they get going, they are equally unstoppable. For them, entrepreneurial culture is the ideal pre-emptive weapon against stagnation, decline and demise.

2. Preamble

Entrepreneurship, intrapreneurship, innovation, change – all refer to the processes of organizational renewal and adaptation for sustenance and growth. Growth and evolution are the essence of an organic entity. Entrepreneurship reminds us that in a rapidly changing world, organizational ideas go through an incessant process of demise and rebirth, destruction and reincarnation. Hence the spirit that created the organization ab initio must keep rejuvenating and sustaining it. Entrepreneurship underscores the importance of proactive experimentation in the growth cycle.

Figure 1. The organization’s typical life cycle

The true survivor – the Learning Organization – proactively acquires and accumulates competencies. But equally there are deadwoods and living fossils too. What differentiates them?

3. Entrepreneurship within: why?

The world of enterprise draws its most abiding analogy from the Darwinian concepts of struggle for existence and survival of the fittest. The rivals are as much part of the struggle as of the processes continuously redefining the battlefield. As the strugglers become fitter for survival, they acquire newer coping abilities, and raise the bar for their rivals – the learning curve keeps spiraling.

Today, newer technology platforms and business models are created faster than testing by practitioners. Organizations running on fossilized ideas either die out or are gobbled up, unless the environment is overly protective of them for strategic, jingoistic or ulterior considerations.

Creating a successful enterprise is a sustained process of innovations and reinventions. It is a chain-reaction of ideas destroying old worlds of enterprise and creating new ones. From idea to reality is an important metamorphosis. In a subtle transition, the innovator-entrepreneur becomes a manager. The enterprise becomes the business of many. The challenge shrinks from making the idea work to completing assignments. Adventure makes way for task monitoring and the organization becomes an uninvolving, risk-averse entity. Bureaucracy is a good example of dysfunctional fixation on procedures and precedents. Ironically, the compulsions of survival fuel both innovation and conservatism.

This then is the shop floor of the entrepreneur. In their efforts to rejuvenate the organization, they end up struggling against their own system and people. Larger the organization, stronger the system, greater is the force required for escape velocity.

Self-help books for organizational development are freely available. Then there are theories and models. Finally, there are consultants to decipher and adapt the vast body of knowledge into usable tips. Yet, resistance to change is so overpowering that organizations keep going downhill, unable to grasp at any of these life-saving devices and agencies. Internal entrepreneurship is a cultural thing – you have it, or you don’t.
4. The organization: locus of entrepreneurial processes

Enterprises have been around longer than organizational theories and models. The value of knowledge lies in helping to better understand, predict and manipulate natural or social phenomena.

Unlike physical phenomena, any one theoretical model cannot explain organizations in all their nuances. There are alternative explanations for any event with practical examples. The conceptual constructs of organizational theories often vary merely on account of differences in statistical analysis rather than errors of judgment or insight.

Galbraith’s Organization Fit Model (1977) takes up the five key areas of Task, Structure, Information and Decision-making, Rewards and People.

Weisbord’s Six-Box model (1978) establishes correlations between six boxes labeled Purpose, Structure, Relationships, Rewards, Leadership and Coordination Mechanisms.

Robbins (2003) sees organizations as consciously coordinated units of people functioning relatively continuously for common goal(s). Management picks on these organizational theories to develop ways of influencing different organizational aspects to get outcomes. Some recommend focusing more on key strategic issues, while others favor holistic or systems approaches.

McKinsey and Company, through their forays into management and organizational consulting, coupled with a steady inflow of management talent from frontline management institutes and practitioners have developed a 7-S Framework of Management (Peters and Waterman, 1982) that perhaps better enables the design of developmental interventions.
These S-words are Shared Values (the Super S, a Soft S), Skills, Staff, Style (Soft S’s), Strategy, Structure and Systems (Hard S’s). Six of these S’s form a hexagon, interrelated with each other, the hard three on top and three Soft ones below. The seventh S – Shared Values – sits at the center of the wheel, the raison-de-être for the remaining six.

![Figure 4. McKinsey's 7-S Framework](image)

It is a Value-based Model to organize enterprises holistically and effectively. For internal entrepreneurship to flourish, all these seven S’s must provide a conducive atmosphere.

5. Large organizations

The largeness of organizations comes from people, scale and spread. Of these, the fountainhead of enterprise is the first alone; the other two only facilitate or obstruct the creative spirit of the people. While scale of operation magnifies the implications of innovative behavior, physical spread affects communication patterns, speed of diffusion of change and cultural consistency across sites.

Sub-optimal manpower also impacts the entrepreneurial environment. Overly lean teams struggle to catch up with their targets. Ironically, such situations create greater compulsions for creativity without allowing time for innovation.

Bloated teams require endless creativity to keep the surplus staff busy in non-destructive pursuits. Their structure and systems tend to create apparently valid engagements. In reality, this arrangement only serves to slow the work train so that it stops to pick and drop passengers at every halt, never achieving express speed. It is crucial to address overstaffing in the soft as well as hard S’s. Ways should be found to deploy surplus staff in pursuit of creativity. This deployment should be rotational, so as to keep harvesting fresh ideas and keep everybody in touch with workplace realities.

Large organizations tend to mimic society in terms of the richness and complexity of interpersonal dynamics. Insights for understanding the issues of enterprise in large organizations can be gleaned from smaller organizations as well as larger societal processes – both comparable in some ways and divergent in others. Organizations, being driven by more clearly enunciated objectives and constituted of more deliberately chosen members, tend to have considerably less cultural diversity than societies. While a society can just be, an organization exists for a purpose – some basic entrepreneurial idea driving the entity.

The social sanctions against flirting with potentially destabilizing entrepreneurial ideas are stronger in organizations. Such initiatives usually concern only the economic aspect of a society hence innovative ideas invite more scrutiny and criticism within organizations than in society, where others are less bothered with each other. As a social entity grows in size, its members tend to feel less empowered. The locus of control concentrates more into the key players in the power structure. While wanting to work on non-routine ideas or assignments, the individual is pitted against the impersonality of organizational bureaucracy, which can ruthlessly punish misadventures without regard to the underlying intentions.
Larger organizations are more apt to get afflicted by organizational bureaucracy, where procedures are developed early on to tackle the chaos of everyday working. The procedure manual gradually becomes sacrosanct, even if it becomes irrelevant, obsolete or dysfunctional over time.

The conservatism and inertia of large organizations make them unattractive to dynamic employees. Ambitious, risk-taking and innovatively inclined employees – the Pareto’s foxes – tend to move out, while potential intrapreneurs keep off an organization with a bad track record of change management and innovation. Even when such persons join an inert organization, it is usually at higher levels of management, with clearly defined authority to make changes in the people, structure, systems and strategies. Existing employees seldom get this luxury. And the lion-fox cycle continues.

On the plus side, large organizations offer more scope to create islands of different culture. Smaller organizations have less leeway. It is possible to try entrepreneurial experiments in large organizations without pulling down the entire edifice. One can even hope to carry out experiments on the sly, and acknowledge or publish them later.

If a large organization is also a learning organization, it generates greater momentum of development, inspiring others to participate in the organization building process. Successes get celebrated on a bigger scale, generating greater motivation. Success stories from different pockets of the organization can be replicated elsewhere, thus helping to build an environment of innovation.

Innovation within organizations has a sort of protective encouragement in that intrapreneurs do not have to risk their own resources.

6. The entrepreneurial processes

Change, creativity, innovation and enterprise have been studied at length over time. As soon as the growth curve of organizational management hits a plateau, the focus of study shifts to these issues.

However, creativity is an elusive subject. Some entrepreneurs have an instinctive flare for it, while others keep struggling to grasp it through received wisdom. Attempts to harness people’s creativity for organizational growth prove difficult and frustrating, compared with the lucidity and sense of control characteristic of classical concepts like Time and Motion study.

In today’s rapidly changing world, ideas on creating and catalyzing entrepreneurial cultures can be worth more than their weight in gold. Let us try to understand the essence of enterprise and identify environmental elements that would be positive for enterprise. A handy list of characteristics marking the spirit of enterprise can be remembered through the English vowels – A, E, I, O, U.

Aspiration: To do something, one must first want to. This wanting must be fairly strong if the task entails challenges. The entrepreneur badly aspires to achieve his dream. He has a hunger for success that makes him translate the ideas into reality, or improve existing reality. Entrepreneurs suffer from creative dissatisfaction, and that is their primary asset.

Endeavour: Ideas sire enterprises; enterprises – even the failed ones – inspire ideas. Yet, the number of aborted enterprises would be legion. Most ideas never take off. The reasons could be several – fear of failure, lack of confidence in the idea, and so on. A good entrepreneur is usually a rational individual willing to assess risks and capabilities optimistically rather than conservatively. Enterprise is reflected not merely in getting besotted with an interesting idea, but persevering to see it through.

Innovation: Novelty is a defining feature of enterprise. The newness can be in the idea, its implementation, adaptation or refinement. Creativity may lie in seeing or creating an opportunity where others can’t.
Entrepreneurial creativity and initiative must be backed by robust leadership and management, so that an organization necessary for its successful implementation may be created and nurtured. While ideas are individualistic contributions, implementation comes from the collective. Such collective must first be created and married to the idea of the enterprise; subsequently, it gathers steam and moves on its own.

Unlearning: The moment an organization stabilizes and starts yielding results, it becomes vulnerable to defensive, rigid and ossified behavior. There is no better defense to perpetuate a system than the fact that it is serving its immediate purpose. Entrepreneurs must be aware of this tendency, and must consciously keep alive their desire to learn and start afresh. This new beginning asks for the sacrifice not of the profitable stability of the organization, but of the complacency and cloud that cloud the futuristic perspective on its stability and profitability.

The vowels are also reminders that the necessary enterprise to sustain and carry forward the organization must come from all. To answer the question "who can do it", the vowels say: Anybody, Everybody, I, others and U.

Entreprise is instinctive to human nature. The tabula rasa of human psyche is ready to explore experiment and learn. All learning, however, affects the ability to learn. It is important to ensure that this effect is not negative but enabling. Trainers and philosophers alike recommend that to grow, one must continuously unlearn. Learning to unlearn is an important cognitive skill. Individuals and organizations should acquire it early on; and it is never too late.

Research indicates that entrepreneurship is a universal human trait. Individuals are driven by inner urges to express themselves creatively - through art, literature, inventions or enterprise. Except entrepreneurship, no other institutional process offers the chance for self-sufficiency, self-determination and economic improvement.

6.1 Entrepreneurship: God’s gift or home grown magic?

Is entrepreneurship innate or acquired? Normally distributed or skewed? Can it be taught and cultivated?

We have all known some Gujarati, Marwari or Punjabi businessman as the definitive entrepreneur. Among them also, the common psychological traits must be normally distributed. Yet their inclination and flare of enterprise are visibly higher than people from some other states, who waste their lives trying for secure government jobs.

What distinguished these two groups? Perhaps their origin from areas abutting Pakistan that probably bore the brunt of the brutalities of partition. They had no notions of a motherland to geographically bind their entrepreneurial imagination; nor any wealth stashed away that needed brooding protection or guaranteed a secure future. The fruits of enterprise held far more promise than the attendant risks and sacrifices.

Entrepreneurship can therefore be seen as an acquired characteristic, shaped entirely by external influences. It is normally inherited but non-normally groomed, to give an impression of being abnormally distributed. Successive generations of a region or community imbibe the entrepreneurial spirit from the atmosphere of their households.

In his celebrated socio-psychological experiment, David McClelland successfully raised the achievement need of a village populace in India, which translated into predictably improved economic performance in due course of time. Aspiration, or the need for achievement, is an important variable in the phenomenon of entrepreneurship.

6.2 Entrepreneurship in organizations

Let us review any business in recent years – textile, automobile, steel, IT, healthcare, FMCG, hospitality, entertainment. All have witnessed major changes that involved innovative adaptations.

Change management is the operating platform of entrepreneurial managers and the distinction between leaders, managers and entrepreneurs is fast fading. Managers must be enterprising in everything they plan, decide, do and monitor. Innovativeness is an aid to and not an antonym of leadership.

Growth for any enterprise is tantamount to continuously reinventing itself. Enterprises of any size need to undergo the test of entrepreneurship. The entrepreneurial culture may range from tolerant, through encouraging, nurturing and harnessing to spawning – Wipro style. However, the urgency with which any organization needs entrepreneurship for survival and growth depends on the segment, size and life cycle phase of business.

Too much of a good thing can be bad. Creativity must always be under control, keeping the cumulative benefits greater than the costs. In a culture indulgent towards new ideas, freewheeling creativity may become a fad, encouraging people to take undue risks. New ideas must be developed with due diligence. Even the implementation of good ideas, like the commonplace business growth through M&A, should be paced cautiously to avoid tripping over oneself.

6.3 Attributes of an entrepreneurial manager

Two main roles for the entrepreneur as identified by Liebenstein are Input completion and Gap filling. The first involves making available inputs for improving efficiency of existing systems and facilitation of introduction of new systems. The second involves providing necessary information to modify or facilitate decisions. These need a frame of perception where the world is visualized, in Hayek’s words, as a continuous process of discovery. For this to happen, an entrepreneur should have:

- Conviction that existing systems can be improved and there is nothing called absolute perfection.
An attitude of taking measured risks and the skill to measure the possible risks and rewards so as to avoid obsessive, self-destructive risk-taking.

An inclination to expand one’s understanding of the business priorities, goals, systems, values and the environment they operate in.

Willingness to collaborate for improvements.

Motivation by what Schumpeter says ‘will for power’.

A knack for asking the right questions.

Energy and will to transcend fixed tenets of thoughts.

Dynamism to withstand and overcome conservative opposition to the right ideas.

6.4 Characteristics of an entrepreneurial culture

Culture is only a construct, yet its impact is undeniable. To leverage it, we must first understand it. Some characteristics of entrepreneurial culture under the 7-S framework are:

**Shared Values:**
- Growth through excellence and innovation;
- Collective responsibility for experimentation;
- Job execution is incomplete without improvement;
- Skills;
- Competence upgraded and nurtured continuously;
- Learning to unlearn and learn;
- Job rotation for wider perspective and cross-pollination.

**Skills for:**
- Environmental scanning;
- In-depth analysis;
- Risk evaluation;
- Communication and collaboration.

**Staff:**
- Optimal and Multi-skilled;
- Ownership and Belonging;
- Inclusion of Innovation for performance evaluation, growth and rewards.

**Style:**
- Participative and inclusive;
- Tolerance for ambiguity;
- Openness to new ideas;
- Support to risk-taking.

**Strategy:**
- Long-term focus;
- Innovative problem solving and performance improvement;
- Risk taking is essence of business.

**Structure:**
- Limited horizontal layers and vertical differentiation;
- Cross-functional task teams;
- Dedicated team for nurturing creativity.

**Systems:**
- Simple, flexible and evolving systems;
- Result-oriented, rather than process-oriented approach;
- Quick approval mechanism for innovative ideas.

7. Creating entrepreneurial culture: lessons from the 7-Ss

The 7-Ss encompass all the organs of an enterprise. Each is crucial to existence; each can be an asset or a liability. They influence each other, and together make the environment that facilitates or delimits the evolutionary processes. Organizational culture is the overarching outcome of the 7-Ss – all pervasive yet difficult to pin down.

**Shared values**

Entrepreneurship must be valued, without which all structural and systemic support sum up to nothing. Enterprise is the first value of any enterprise; that is how it came into existence.
In enterprise, a lot is always at stake at both the individual and the collective levels – personal credibility, funds and resources, opportunity cost etc. This subtly forces people to shun enterprise for business realism. This development is good for achieving the entrepreneurial objectives, but runs the risk of creating a rigid, conservatism organization.

The bigger one's stake in an enterprise, the greater their compulsion to make it work. That is why owner members are more alive to the need for internal enterprise to keep the organization growing. For an employee with lesser stake, it is easier to confine herself to her defined job profile, even when it does not serve organizational objectives. It is the old point about motivation coming from a sense of belonging. If you own the organization, your innovativeness does not wait for suggestions, and is not deterred by criticism.

Let people try their ideas for improvement. Let them own it and feel for it. Entrepreneurship must be openly cherished as a core value; it must get the maximum attention of top management. The usual teams of operations, maintenance, services, marketing, projects and strategic management must surely be developed to take care of the running business of the organization. However, as times change, all people in all functions have to move with it or, better still they should play a role in defining the changing times.

Incorporate entrepreneurship into the core values / credo of the organization. Let it reflect in the words and deeds of top leadership.

**Strategy**

Strategies must take a holistic, long-term view of the efficacy of different elements. Change and innovation must be built into the central growth strategy of the organization.

Production and manufacturing organizations naturally focus on tangible output, often sidelining functions critical to growth of entrepreneurship but not to routine business. Typically, HRD, Value Engineering, QM and such other functions fall prey to this dynamics. Often, these functions are titled in pre-90s terminology, such as Training, Industrial Engineering, Organization and Methods, SQC & OR etc., which constantly reinforces negative self-images of peripheral, ritualistic and routine existence in the organization.

Such functions have worked wonders for many organizations, globally. Give them an important name; unshackle their potential; let them do some better work for you too. When the perceived organizational culture is non-enterprising, creative ideas tend to be suppressed by their conceivers or screened out by peers and superiors. This is an exact antithesis of the learning organization. Ideas, once lost, may be difficult to get again.

Create an Idea Bank to preserve unutilized ideas. Create a system to facilitate and monitor sharing of good practices. A Knowledge Management system must be put in place to archive learning points and develop cross-references. Once an enterprise hits an acceptable rhythm of activity, subsequent entrepreneurial activity does not start from ground zero. It is a potentially destabilizing factor, threatening to disturb the current rhythm and neutralize the achievements of others. It faces a tacit resistance from those comfortable in the present situation. Conduct periodic reviews of organizational progress and directions vis-à-vis its long-term objectives. Relate it to the need for change. Send clear message that status quo-ists may be well meaning yet counterproductive.

The entrepreneurial abilities of organizations reflect in different ways. An organization may lead in the number of invention patents held, its speed of response to competitor innovations or its penchant for diversification. Another may be a veritable nursery for entrepreneurs who go out and build successful new enterprises.

Identify your special strength and nurture the same strategically.

**Structure**

The structure, in terms of collaboration, review and support, must be pro-experimentation. A flatter structure, with lots of cross-linkages, helps accelerate the initiation, evaluation and acceptance or rejection of ideas. It also cuts the layers to bring the decision makers close to the entrepreneurial minds. Thus, even if an idea is rejected, it can still leave a lingering feeling that the spirit of enterprise is welcome; probably the idea was not good enough.

It is important to examine how hierarchy influences enterprise. In a favorable culture, multiple levels of hierarchy can also effectively promote enterprise. Otherwise, hierarchy can prove very frustrating. Each level seeks to prove its worth by critically reviewing others’ ideas. Creative processes are never hindered for want of hierarchical levels, but they surely are dampened while negotiating too many levels. Keep the structure flat. Organizations do not need more than four managerial layers – Frontline, Middle, Senior and Top management – and three categories in hands-on workers – Helpers, Technicians and Supervisors. Rigid compartmentalization of functions creates chasms between teams. The evaluation of entrepreneurial ideas by cross-functional members tends to be overly critical. Implementation through cross-functional teams also becomes slow, as members are seldom free from routine preoccupations to agree on the modalities and responsibilities of implementation. Organizational functioning must encourage and involve cross-functional teams. Members should be rotated intermittently to minimize inter-team rivalry and optimize mutual role appreciation and experience gathering.

**Systems**

The systems must avoid bureaucratic inertia and facilitate enterprise.
The initial entrepreneurial momentum dies a slow death, almost unnoticed. Rigor mortis sets in usually by the time people realize that the spark of life has extinguished. Revival at this stage becomes a tremendous challenge – it is almost like creating a new enterprise. Instead of the tiny pushes that are enough to keep the vehicle moving, it now takes a mighty collective heave to set the wagon in motion.

Assign somebody to monitor the vital signs of the organization. Watch whether life is becoming too comfortable for comfort, whether there has been no action for a while, whether wounds are not healing fast, whether problems are recurring and nagging despite remedial efforts. Watch the weathercock to foresee gathering storms. Keeping track of the way the profit curve is heading, north, east or south. If these symptoms are not monitored systematically, the organization is headed for delayed diagnosis and possible disaster.

Enterprise has been found to shine under adversity. Competition sharpens the creative edge of entrepreneurs. Competition is easier achieved in larger societies than in claustrophobic ones. Larger organizations can create more internal competition. However, perfect competition is impossible within an organization. The realization of the artificiality of competition dilutes its effectiveness as a catalyst of innovations.

Structure the organization so that its elements do not take survival for granted. Design the departments as profit centers, competing with external agencies for internal demands. Where this is difficult to achieve, use benchmarking to gauge their competitiveness in an open manner. Visibly artificial internal competition can also be made real through inclusion in the appraisal and promotion systems.

**Style**

Leaders and members must adopt positive styles of management and interaction, empowering and enabling people to explore and exploit their potential. Obsession with meeting daily targets is a sure recipe for losing way to the distant goals. Higher the authority monitoring everyday achievements, greater the immediacy fixation imbibed by team members. Problem solving tends to become symptom suppression in this situation. When the questions change, so do answers. Bosses should have a tolerance for ambiguity. They should avoid asking routine questions on fulfillment of daily targets and instead listen to ideas for boosting cumulative results. Harnessing entrepreneurial idea should be a key result area for Heads of functional units and sub-units have as. In top review meetings, such heads of functional units should be required to present their weekly progress.

Daily targets and mundane problems should concern frontline and middle managers. Senior managers’ should refrain from this domain, except in extreme circumstances. The system of accountability should not encourage eating into senior and top management time through routine stuff.

Introduce peer review / 3600 review of decisions, especially those related to solving recurrent problems.

**Staff**

An entrepreneur is answerable to himself alone, while an intrapreneur is answerable to the entire organization. Hence, the frequency with which he tries new ideas is governed by the entrepreneurial culture of the organization. In the long run, the frequency of getting new ideas is also significantly determined by the milieu of the organization.

Within the organizational context, entrepreneurs and non-entrepreneurs must be held accountable for their contributions to the organization and compensated differentially. Try and recruit people with a penchant for enterprise. Hone and nurture their entrepreneurial talent.

Organizational incentives are skewed towards task achievers. Innovators usually feel they are resented or barely tolerated. Eventually, they fall in line, to the loss of the organization. Find visible ways to reinforce entrepreneurial behavior. As pervasive and sustained catalysts, tangible and intangible incentives and rewards are powerful tools. Make enterprise beneficial for people in a consistent manner, not in an arbitrary fashion. Depending on how badly you need change, find your own optimal balance in rewarding routine versus enterprising activities.

**Skills**

The skills contributing the most to CQ are those related to discovering opportunities for improvement in any system, object, process or service. Domain expertise is as necessary for this as interdisciplinary knowledge and cross-functional skill-set. Creating opportunities within the organization for expertise acquisition by members in different functions raises the organizational EI.

Deviser HRD interventions for domain knowledge and functional rotation. Learning comes easy if the learner acknowledges his need to learn. Accepting ones limitations is the essence of the learning attitude. However, mental and psycho-motor habits do not vanish so easily; they must be uprooted for new response patterns to take hold.

Train people to unlearn so they can learn better. Expose them regularly to realities beyond their organizational boundaries. Make them introspect. These are some ways of channeling the entrepreneurial spirit. There can be many more ways. The important thing is to harness and encourage the innate creativity of people to fuel organizational and business growth. The race for survival requires that organizations be on a perpetual quest for excellence, pushing the boundaries of their own creativity and teamwork.

Development Centers offer solutions for leveraging normal HRD processes towards entrepreneurial gains, as reported about pilot studies in SAIL and HLL (Kumar, 2003).
The survey conducted by us (Appendix-II) concerned a large public sector organization yet to reach an appreciable level of entrepreneurship. The findings that are conform to the 7-S elements of the culture of sub-entrepreneurial organizations. Some findings are typical yet eye-opening. These include: 59.31% respondents perceiving little or no ownership in colleagues, 77.8% finding senior-peer reaction towards risk-taking to be non-encouraging, 64.8% having only a moderate feeling of empowerment to introduce changes and 66.7% reporting marginalization of strategically important functions like HRD, Value Engineering and QM.

Curiously, the rating of skill development training bucks the trend, suggesting that the organization is surely good at preparing people to do what they do but not what they actually should do. Again, 50% consider themselves appreciably independent to plan their own jobs, but it does not correlate with the expressed feeling of empowerment to change things, reinforcing the picture of perfection laced with rigidity.

7.1 Improving CQ & EI: circumventing the 7-S constraints

The negativity present in an organization’s 7-Ss cannot be eradicated or reversed overnight. Can entrepreneurial culture be created despite negative Ss?

Consider the CEO of a large organization maintaining direct interface with people, conducting workshops with employees to promote intrapreneurship. It becomes a holistic intervention, communicating that top management values intrapreneurship. It creates an avenue to by-pass structural and systemic impediments and cut straight to strategic considerations by referring the emergent issues to concerned HoDs. It offers a dynamic, proactive style for others to emulate. It inspires the staff to acquire skills necessary for a more creative contribution to organizational growth.

This CEO is a change agent, with the highest possible mandate. Change Agents are baits with tacit mandate, tempting apprehensive members to come forward and take the invitation to innovate. Task Forces are mandated to implement changes – with force, if required. Both symbolize the urge to introduce changes without waiting for all the Ss to change.

Entrepreneurial culture helps translate the summated Creativity Quotient (CQ) of the employees into an enhanced Enterprise Index (EI) of the organization. CQ lies in staff and skills, while structure, system and style do the translating. Both work within the perimeters of strategies emanating from the shared values. Eventually, values determine everything else and, although difficult to change fast, values offer the fastest vehicle to rekindle the spirit of enterprise in people.

![Diagram](image)

**Figure 6.** Factors influencing EI of organization

Concluding remarks

Large organizations are often slow to respond. But once they get going, they are equally unstoppable. For them, entrepreneurial culture is the ideal pre-emptive weapon against stagnation, decline and demise. Pursuit of excellence is the ultimate sublimation of the struggle for existence and the endeavor to be the fittest for survival. This value takes rivalry and competition to the realm of self-exploration and actualization. These are the values that create and sustain entrepreneurial culture in organizations. With such lofty ideals, an enterprise can go only one way – up. With strong and sure values, all hindrances can be circumvented. Where there is a will, there is a way!

References


Entreprenuership: Definitions

KR Blawatt: An entrepreneur creates something of value at a time and place where there was no such thing before. He initiates the development of a desirable product or service and then builds an organization to exploit it.

Gerhard Plascshka: Entrepreneurs have the ability to see and evaluate business opportunities; to gather the necessary resources to take advantage of them; and to initiate appropriate action to ensure success.

Alessendra Bianchi: An entrepreneur establishes and manages a business for the principal purposes of profit and growth. The entrepreneur is characterized principally by innovative behavior and employs strategic management practices in the business.

Entrepreneurship: economic, psychological, sociological & managerial viewpoints

Economists, psychologists and sociologists view the subject of enterprise differently. While economists may focus on value-creation and profit making, psychologists define the phenomenon through traits and their behavioral correlates, and sociologists look into the social processes and values facilitating enterprise. Managers must deal with all these angles, irrespective of whether theirs is a business enterprise or not. The United Nations Organization is not a profit organization, yet symbolizes the spirit of enterprise at the greatest possible scale. In a comprehensive and long-term view of growth and success, value creation should desirably be sociologically and ecologically sustainable. Exploitative enterprises that run counter to social values or environmental wisdom, may shine in the short run, but are ill advised from the larger perspective.

Classical economists made no distinction between the manager and the entrepreneur until the appearance in 1933 of the classic study by Adolf Berle and Gardiner Means – The Modern Corporation and Private Property in which the authors demonstrated that in most American corporations the owners played no direct role in the management and that the managers generally had insignificant holdings of stock. It became apparent that theories of entrepreneurial behavior had little to contribute to the understanding of the behavior of managers.

Alfred Marshall laid much more stress on superintendence than on the innovative, entrepreneurial role of managers; Mark Casson, on the other hand, emphasized the importance of entrepreneurial functions stemming from the need to adjust to change.

Richard Cantillon took-up the earliest investigation of the economic role of the entrepreneur and averred that entrepreneurship involves bearing the risk of buying at certain prices and selling at uncertain prices. J B Say expanded the definition to include the factors of production.

Schumpeter (1934) viewed entrepreneurship as something that disrupts the market equilibrium. It is the trying out of new combinations – in essence “innovation” – that forms the basis of entrepreneurship. Later economists endorsed the idea that entrepreneurship is very much concerned with innovation.

Stevenson, Roberts and Grousbeck (1989) defined entrepreneurship that can prove helpful in understanding corporate entrepreneurship. To them, it is a process by which individuals, either on their own or inside organizations, pursue opportunities without regard to the resources they currently control. Opportunity refers to the future situation considered to be desirable and feasible. Opportunities are never the same for all the individuals and vary with desires and capabilities. Desires are governed by present status and future expectations, whereas capabilities are determined by innate skills, training and competitive environment. The very root of entrepreneurship lies in the willingness to pursue opportunity irrespective of the resources under control. The basic skills needed to undertake such activities can be taught as these are not traits of character.

Peter Drucker viewed entrepreneurship in the managerial contexts. In his opinion, the success of future enterprises will not depend on a single individual rather people will create new structure of entrepreneurship on the solid base of two functions of management – marketing and innovation.

Entrepreneurship: corporate forms

Scholl Hammer (1982) presented five typical forms of internal entrepreneurship namely administrative, opportunistic, imitative, acquisitive and incubative. Each one reflects the strategic form of corporate entrepreneurial activity posing certain problems and challenges to the organization.

Administrative entrepreneurship is something beyond the existing R&D activities that support greater innovation and commercial development of new innovations. Under opportunistic entrepreneurship, structural relationships are not strictly followed. The team leaders enjoy considerable autonomy in pursuing opportunities for the organization. The support for innovation is available and compensation commensurate with high performance is ensured. Acquisitive entrepreneurship favors tapping of opportunities through mergers, acquisitions, joint venture and licensing agreements
that can enhance the overall strength of the company. Imitative entrepreneurship banks upon other firm’s ideas finding ways to improve on those products and making them commercially viable. In Incubative Entrepreneurship, new ideas whether developed in-house, acquired or imitated need to be pushed up to the stage of feasible commercialization. The inceptive process leads to a very high degree of innovation by establishing semi-autonomous units within the organization empowered to undertake all sorts of risks.

Creativity, innovation & their economic value

Clusters of creativity and innovation occur in various parts of the world - Silicon Valley and the Bay area of San Francisco, Barcelona, Dublin, Sydney and London, where people move because ‘that is where the action is.’ Each area seems to specialize, for example, Silicon Valley is the preserve of high technology whereas London is known as a centre for advertising and design. These clusters are strong drivers of economy and growth and all use common key principles when managing people, structures and culture.

Entrepreneurs are highly creative and it is not unusual for them to work 90+ hours a week (they usually don’t classify it as work - it is just something they tremendously enjoy doing), whereas most people grudgingly work 45+ hours a week. Therefore there are huge productivity and economic gains to be made.

Creative people enjoy what they are doing; they tend to describe themselves as passionate. As a result they tend to behave more positively towards their colleagues, customers, and people they come into contact with. Thus a business reaps benefits in organizational culture and customer service. Business relationships and the network in general are strengthened. Links are created in the value chain, staff turnover decreases and consistency and sustainability – both requirements for success – increase. The philosophy is not about seeing people as a fixed cost, but of harnessing and maximizing human creative potential to add value and create new revenue streams.

Creativity in business can be described as problem solving. By inducing the creative state, the individual and group creative capacity is optimized in order to solve business issues. This involves more than brainstorming, which in many organizations simply involves setting up a flipchart, herding staff into a room and calling it a brainstorming session.

Creative people are intrinsically motivated. This means that they see inherent value in what they are doing, as opposed to extrinsic motivation, which causes them to engage in an activity to fulfill ulterior goals. Some extrinsic motivation is useful (adequate financial reward is a form of synergistic extrinsic motivation, up to a point). There is a significant positive correlation between creativity and intrinsic motivation; by managing creativity, it is possible to enhance motivation.

One definition of leaders is that they inspire and motivate. They have a vision and their determination to reach it causes those around them to fall in line. Good examples are Stelios Haji-Ioannou of Easyjet and Bill Gates of Microsoft. Creative people tend to have a vision and consequently tend to exhibit leadership qualities.

In a perfect market, competitors mirror rival activities very quickly. Creativity is constantly needed to create competitive advantage, differentiate and value added if a firm expects to survive and grow.

Just as important as coming up with ideas is ensuring that the right ones are selected, developed and commercialized / implemented. Appropriate structures and processes are needed to ensure this; not doing so kills creativity at the root.
APPENDIX – II: Details of Field Survey

Background
The enterprise is a fairly known and researched subject. Yet it continues to retain some of its mystique, and all the studies have not yet been able to give a sure-fire formula for creating winning, evergreen enterprises. Some of this mystique has a very organization-specific flavor; this thought has encouraged us to look at the issue once again in our own style.

The ideas, views and propositions contained in this paper have their roots in diverse sources including print and electronic literature; surveys – unstructured as well as structured through questionnaire and interviews across the table and telephonic; interactions with domain experts and practitioners across public, private and multinational organizations spanning manufacturing and service sectors; and finally the insight, knowledge and expertise of the team.

The survey approached the issue through the McKinsey 7-S Framework to understand people’s perceptions about the influence of different S’s on the entrepreneurial index (EI) of their organization. People’s perception about such academic and abstract subjects need not always be well informed and insightful. Yet they alone can offer inputs on the symptoms that may lead to the final diagnosis as per the theoretical moorings and insight of the researchers.

Methodology
Domain experts were consulted to finalize a set of questions that would lead people to capture their untainted impressions on certain issues that relate to entrepreneurial culture. A questionnaire was prepared and administered to people in structured as well as unstructured fashion through personal networks via telephone and e-mail. The tempting modern tool of the Internet was discarded for field survey, as it is difficult to ensure the authenticity of actual respondents.

Sampling
The field survey did not purport to be the definitive study on entrepreneurial culture, nor did normal organizational assignments permit such a comprehensive exercise. The sample size is too small to arrive at any last word as such data related to demographics have been ignored for the present analysis.

The sample of respondents was random within the constraints of time, resource and networking. The samples represented people from frontline to senior managers.

Questionnaire
The questionnaire consisted of 20 questions relating to the 7 S’s of McKinsey Framework with reference to entrepreneurship and also the general level of entrepreneurship to give a contextual picture. The questionnaire in both forms – as administered and as clustered for 7-S analysis – is given in Appendix- Ila and IIb.
Creating entrepreneurial culture in a large organization

For Q. 1-16, please mark the rating in the box next to the question as per the following scale.

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<th>To an appreciable extent</th>
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For other questions please tick-mark the appropriate options:

- To what extent do your seniors encourage you to try new ideas?
- How unhindered do you feel to take your ideas to your HoD?
- How far do you feel empowered to introduce changes at workplace?
- To what extent are your views sought and considered for decision making by your seniors?
- To what extent is job rotation practiced in your organization?
- To what extent innovation and creativity are recognized?
- To what extent is importance of functions like HRD, Value Engineering, Quality Management, Operations Research etc. given importance in your organization.
- To what extent do your seniors and peers react positively towards your taking risk?
- How much support do you get from sister departments for implementing your ideas?
- How clear are you about the ways/ procedure to implement your ideas?
- To what extent is transparency exercised in day-to-day working?
- How independent do you feel to plan your own jobs?
- To what extent does an individual receive understanding and encouragement in case ideas / changes introduced by him prove unsuccessful?
- To what extent do your colleagues feel ownership for the organization?
- To what extent do you receive support from your sister departments on lateral basis?
- To what extent you feel the time taken to obtain approval for implementing a new idea is disproportionately long?
- Rate the training provided for developing job-related skills.
  a. No Training  b. Inadequate  c. Satisfactory  d. Superior
- How has your organization been rewarding new ideas?
  a. Promotion  b. Awards/ Honor  c. Pat on the back  d. No Reward
- Ideas related to which of these are welcomed the most?
  a. Company goals  b. Departmental objectives  c. Team targets  d. Individual assignments
- How many changes have you introduced at your workplace in the last 2 years?
  None
  Up to 4 changes
  5 to 10 changes
  More than 10 changes
Creating entrepreneurial culture in a large organization

Common scale for 16 questions

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<th>To an appreciable extent</th>
<th>To a very great extent</th>
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</table>

Other questions had multiple options for tick-marking.

**Shared Values**
To what extent do your seniors encourage you to try new ideas?
To what extent do your seniors and peers react positively towards your taking risk?
To what extent do your colleagues feel ownership for the organization?
To what extent does an individual receive understanding and encouragement in case ideas / changes introduced by him prove unsuccessful?

**Structure**
How unhindered do you feel to take your ideas to your HoD?
How much support do you get from sister departments for implementing your ideas?
To what extent do you receive support from your sister departments on lateral basis?

**Systems**
How far do you feel empowered to introduce changes at workplace?
How clear are you about the ways/procedure to implement your ideas?
To what extent do you feel the time taken to obtain approval for implementing a new idea is disproportionately long?

**Style**
To what extent are your views sought and considered for decision making by your seniors?
To what extent is transparency exercised in day-to-day working?
How independent do you feel to plan your own jobs?

**Skill**
Rate the training provided for developing job-related skills.
- a. No Training
- b. Inadequate
- c. Satisfactory
- d. Superior
To what extent is job rotation practiced in your organization?

**Staff**
To what extent innovation and creativity are recognized?
How has your organization been rewarding new ideas?
- a. Promotion
- b. Awards/Honor
- c. Pat on the back
- d. No Reward

**Strategy**
To what extent is importance of functions like HRD, Value Engineering, Quality Management, Operations Research etc. given importance in your organization?
Ideas related to which of these are welcomed the most?
- a. Company goals
- b. Departmental objectives
- c. Team targets
- d. Individual assignments

**Enterprise**
How many changes have you introduced at your workplace in the last 2 years?
- a. None
- b. Up to 4 changes
- c. 5 to 10 changes
- d. More than 10 changes
ANNEXURE - II c

Graphical Analysis of the Responses

1. To what extent do your seniors encourage you to try new ideas?

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2. To what extent do your seniors and peers react positively towards your taking risk?

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<td>Total</td>
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3. To what extent do your colleagues feel ownership for the organization?

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<td>Total</td>
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4. To what extent does an individual receive understanding and encouragement in ideas / changes introduced by him prove unsuccessful?

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<tr>
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<td>56</td>
</tr>
<tr>
<td>To an appreciable extent</td>
<td>9</td>
<td>17</td>
</tr>
<tr>
<td>To a very great extent</td>
<td>2</td>
<td>3.7</td>
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<tr>
<td><strong>Total</strong></td>
<td>54</td>
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5. How unhindered do you feel to take your ideas to your HoD?

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<tr>
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<td>6</td>
<td>11</td>
</tr>
<tr>
<td>To moderate extent</td>
<td>31</td>
<td>57</td>
</tr>
<tr>
<td>To an appreciable extent</td>
<td>14</td>
<td>26</td>
</tr>
<tr>
<td>To a very great extent</td>
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<td>5.6</td>
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<tr>
<td><strong>Total</strong></td>
<td>54</td>
<td>100</td>
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6. How much support do you get from sister departments for implementing your ideas?

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<tr>
<td><strong>Total</strong></td>
<td>54</td>
<td>100</td>
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</table>
7. To what extent do you receive support from your sister departments on lateral basis?

<table>
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<td>56</td>
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<tr>
<td>To an appreciable extent</td>
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<td>To a very great extent</td>
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<tr>
<td><strong>Total</strong></td>
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<td>100</td>
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8. How far do you feel empowered to introduce changes at workplace?

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<tr>
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<td>To a very great extent</td>
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<tr>
<td><strong>Total</strong></td>
<td>54</td>
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9. How clear are you about the ways/ procedure to implement your ideas?

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<tr>
<td>To an appreciable extent</td>
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<td>To a very great extent</td>
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<td>5.6</td>
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<tr>
<td><strong>Total</strong></td>
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</table>
10. To what extent you feel the time taken to obtain approval for implementing a new idea is disproportionately long?

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<td><strong>Total</strong></td>
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11. To what extent are your views sought and considered for decision making by your seniors?

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<td><strong>Total</strong></td>
<td><strong>54</strong></td>
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12. To what extent is transparency exercised in day-to-day working?

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<td><strong>Total</strong></td>
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13. How independent do you feel to plan your own jobs?

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14. Rate the training provided for developing job-related skills.

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15. To what extent is job rotation practiced in your organization?

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</tr>
</tbody>
</table>
16. To what extent innovation and creativity are recognized?

<table>
<thead>
<tr>
<th>Extent</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>To moderate</td>
<td>32</td>
<td>59</td>
</tr>
<tr>
<td>To appreciable</td>
<td>7</td>
<td>13</td>
</tr>
<tr>
<td>To very great</td>
<td>3</td>
<td>5.6</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

17. How has your organization been rewarding new ideas?

<table>
<thead>
<tr>
<th>Reward Method</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Promotion</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Awards and Honor</td>
<td>15</td>
<td>28</td>
</tr>
<tr>
<td>Pat on the back</td>
<td>27</td>
<td>50</td>
</tr>
<tr>
<td>No Reward</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

18. To what extent is importance of functions like HRD, Value Engineering, Quality Management, Operations Research etc. given importance in your Organization

<table>
<thead>
<tr>
<th>Extent</th>
<th>No.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Not at all</td>
<td>6</td>
<td>11</td>
</tr>
<tr>
<td>To moderate</td>
<td>30</td>
<td>56</td>
</tr>
<tr>
<td>To appreciable</td>
<td>16</td>
<td>30</td>
</tr>
<tr>
<td>To very great</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td>Total</td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>
19. Ideas related to which of these are welcomed the most?

<table>
<thead>
<tr>
<th></th>
<th>no.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>Company goals</td>
<td>4</td>
<td>7.4</td>
</tr>
<tr>
<td>Departmental objectives</td>
<td>20</td>
<td>37</td>
</tr>
<tr>
<td>Team targets</td>
<td>28</td>
<td>52</td>
</tr>
<tr>
<td>Individual assignments</td>
<td>2</td>
<td>3.7</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>

20. How many changes have you introduced at your workplace in the last 2 years?

<table>
<thead>
<tr>
<th></th>
<th>no.</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>None</td>
<td>13</td>
<td>24</td>
</tr>
<tr>
<td>Up to 4 changes</td>
<td>29</td>
<td>54</td>
</tr>
<tr>
<td>5 to 10 changes</td>
<td>12</td>
<td>22</td>
</tr>
<tr>
<td>More than 10 changes</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>54</td>
<td>100</td>
</tr>
</tbody>
</table>
APPENDIX – II d: Analysis of Responses

Findings
The feedback received from the respondents was tabulated and analyzed. The analysis of information/data collected during the study presented below is also represented in tabular and graphical form in Annexure IIc.

Shared Values
Majority of the respondents (53.7%) are of the opinion that encouragement from seniors to try new ideas is only moderate. 11.1% perceived absence of any encouragement at all. The reaction of seniors and peers to risk-taking has been observed to be just moderately positive by 57.4% of the respondents, while 20.4% found the positive reaction to be entirely lacking. 51.9% respondents have reported that their colleagues feel only moderate level of ownership for the organization and 7.41% perceive that their colleagues feel no ownership. 24.1% of the respondents have candidly recorded lack of any understanding or encouragement for a failed idea/change introduced by any individual of the organization and another 55.6% have found the understanding or encouragement to be just moderate. Only 3.7% of the respondents found that the superiors appreciate the intentions even if the results are not positive.

Structure
Only a minority consisting of 5.56% of the respondents seem to be completely comfortable in approaching their Heads of Department with new ideas. 61.1% of the respondents consider the support received from sister departments for implementing ideas to be just to a moderate extent while none rated the support to be of very high level and 27.8% of the respondents recorded clear unavailability of sister department support. As far as managing such support on lateral basis using personal rapport and relation is concerned, the respondents painted a better picture implying lateral cooperation overriding systemic deficiencies. 24.1% of the respondents considered such support as appreciable, 55.6% considered it to be moderate, while 18.5% recorded absence of support.

Systems
64.8% of the respondents feel moderately empowered to introduce changes and 31.5% feel empowered to an appreciable extent. It is encouraging to note that none of the respondents feels totally “unempowered”. Organization has some ways/procedures for implementing new ideas. But only 38.86% of the respondents seem to know them. 51.9% consider themselves moderately in the know while 9.26% are clear that they do not know. Most of the respondents feel that the time taken to obtain approval for implementing a new idea is disproportionately long. 14.8% agree to this proposition to a very great extent, 40.7% appreciably and 38.9% moderately.

Style
Regarding the management style of the organization, 22.2% of the respondents felt being completely excluded from decision-making process while only 3.7% felt fully involved. The remaining respondents were almost equally divided in their perception of the extent of their involvement being moderate or high. Only 14.8% of the respondents observed that transparency prevails in their organization. 50% of the respondents felt themselves to be appreciably independent in planning their job.

Skill
Regarding the quality of skill development training provided by the organization, a third (33.3%) of the respondents felt that people were put on the job with no or very little training. Of the remaining two third, 31.5% found training to be of superior quality. 59.3% of the respondents reported complete absence of the system of job rotation.

Staff
22.2% of the respondents reported that innovation and creativity are not recognized at all and 59.3% reported that recognition is only moderate. The same enquiry was presented with paraphrasing, resulting into similar response. The awards never reach the level of promotion.

Strategy
Two thirds (66.7%) of the respondents reported that functions like HRD, Value Engineering, Quality Management, and Operations Research etc. are marginalized.
55.6% of the respondents reported that the emphasis is on short term and subordinate goals.

Enterprise

An observation of interest has been that none of the respondents averaged five innovations in past couple of years, and almost a quarter (24.1%) had introduced no innovation during last two years.

Interpretations

The presence or absence of the entrepreneurial spirit is linked to all the 7 Ss. Organizations are organic entities and consistency in internal environment and interconnectivity of elements is natural. The implication is that all the aspects of an organization may collude to discourage enterprise. Especially in larger organizations, the muffling of this spirit is more difficult to reverse, as the inertia or momentum is maintained by larger numbers and stronger systems. The dominant styles are defined by people at the senior levels, who usually reach there by flowing along rather than against the current. The followers emulate their leaders, even when they know it to be counter-productive for the organization. Often, entrepreneurial aspirations are kept wrapped and safe under the illusion that these may implemented when one has more authority. Little do people realize that they are accursed to meet the fate of the leaders they find rigid today. Their entrepreneurial spirit had its best chance when they were young Turks in the organization. As blood grows old, pragmatism replaces enthusiasm.

The responses to questions assessing the 7-Ss reflect the general trend of conservatism and sloth found in some large organizations in the public sector. People echo the usual perceptions that creativity is not indulged, systems are complex and inflexible, too many layers impede dynamism, and strategies tend to focus on narrow and short-range objectives. The stasis takes over the individual urges of creativity, and people become partners to the overpowering processes of conformity.

A sizeable proportion of respondents reported introducing no change in the past two years. For the rest also, innovative activity has been limited. Respondents have reported the system of implementing creative ideas to be complex, and the time taken to get approval for implementation is inordinately long.

Strategies are perceived as focusing on short-term and subordinate goals. Encouragement to innovation is modest, which is further dampened by the perception that if the innovation fails to deliver, it may leave unpleasant memories for everybody, rather than being treated as just a learning experience. This also correlates with institutionalized ways of recognizing innovations. The responses suggest that recognition is limited to winning ideas, and this recognition may also stop at a simple pat on the back.

Usually in such organizations, the HR function is also static and marginalized. With a significant proportion of respondents rating the skill development training to be satisfactory or superior, the case in this survey seems to be a little different on this parameter; however, the issue of job rotation betrays the rigidity of the HR systems, which must be serving to deep-freeze people's imagination and cross-pollination of ideas.

There is another note of disparity in the perception of autonomy. Looking closely, it is clear that autonomy is limited to planning one's assignments within the boundaries of departmental and sectional targets; it does not extend to introducing changes to improve things.
APPENDIX – III

A word on CQ & EI

We have introduced two new indicators in the context of internal entrepreneurship – Creativity Quotient and Enterprise Index. CQ/ EI index is useful to help the processes of enhancing organizational change, adaptability, innovation, creativity and intrapreneurship.

As global patents on acronyms such as EQ and IQ are already taken, the acronyms for Innovation Quotient or Enterprise Quotient – IQ and EQ – would have merely created confusion with Intelligence Quotient and Emotional Quotient. However, these concepts remain to be developed into well-defined ideas with operationalization to facilitate their measurement and planning interventions.

Creativity quotient (CQ)

CQ is reflective of the actual extent of efforts dedicated to innovation. It reflects in the time devoted to finding innovative solutions or ideas for improvement, the passion in implementing them and the persistence for innovation in the face of failure. CQ is to be assessed more in terms of manifest behavior than latent capabilities. A highly dynamic index, it would tend to be static as people grow older and entrenched in their habits of dynamism or conservatism.

Enterprise index (EI)

EI is applicable to organizations. It has CQ as an important constituent, which interacts with elements of the organization, e.g. the 7-Ss, to determine the extent to which the organization is enterprising. It indicates receptivity to creative ideas, and the structural, strategic and systemic readiness to benefit from the summated CQ of people. Learning Organizations are likely to have a higher EI, provided the learning is not all borrowed from external experts but also accumulated from internal experiences.

A word on development centers

Development Centre is an approach/ concept that can be used to better utilize HR processes for developing entrepreneurial managers and culture. An indicative process flowchart would look like this:
MAKING OUR
SMALL AND MEDIUM ENTERPRISES SMILE

Dr. Ramakrishnan RAMACHANDRAN
Classic Consultants, Salem, India
ramkrish54@gmail.com

Abstract
Small and Medium Enterprises (SMEs) are vital in the development of any country. They are critical components of economic and social stability and can be seen as a significant component of the solution for India's development issues as SMEs are more labor intensive they are more suitable for India. Realizing their importance and potential, Indian Government has been quite proactive in protection and nurturing of these budding SMEs.

Development of entrepreneurship is directly related with education. Unfortunately most of the undergraduate students and MBA students are not ready to become entrepreneurs. This could be due to lack of awareness as the curriculums in their courses are not really conducive for entrepreneurship. Suitable corrections need to be done on the educational system.

The number of SME's has shown tremendous growth after the liberalization in 1991 and especially in the last five years the number of SME's has increased from 261.2 Lakhs to 311.52 Lakhs in 2010-11. They provide Operational Flexibility, Location Wise Mobility, Capacities to Develop Appropriate Indigenous Technology and Low Investment Requirements. SMEs would be well placed to drive India's sunrise industries, and develop products that find ready global markets. Food products and Wearing apparel constitute the major production of India SMEs. On the other hand, there have been many failures in the case of SME's. This paper looks at the opportunities and challenges faced by the SMEs in India and how it will accelerate India’s growth to more than 8% and sustain the same.

Keywords: SME, MBA education, entrepreneurship, start-up, employment, growth.

JEL Classification: M13, L26, I250, L530, O12.

1. Introduction
Small and Medium Enterprises (SMEs) are vital and of paramount importance in the development of any country. They play a pivotal role and can be considered as a back bone of national economy. SMEs are critical components of economic and social stability in a country. They can be seen as a significant component of the solution for India's development issues. Economic development is accompanied by poverty alleviation, with SMEs playing a key role in improving macroeconomic and social performances through turnover, job creation, and the division of labor.

2. Background
SMEs play a defining role by offering reasonable, yet revolutionary goods and services to cater to the changing market requirements. Their presence is felt in areas like education, medical care, transportation, entertainment and local infrastructure development now. According to a World Bank Study, there are more than 60 definitions of SMEs used in 75 countries surveyed. In the Indian context an SME is defined on the basis of limit of historical value of investment in plant & machinery, as per the MSMED Act of 2006.
Indian SMEs comprise three sub-sectors:
- Predominantly rural based, traditional household industries;
- Small and medium industries, functioning with relatively obsolete technologies and
- Modern small and medium enterprises, which are owned and operated by techno-entrepreneurs, operating in new industries such as software and bio-technology, among others.

Modern SMEs, which are run by innovative techno-entrepreneurs and which are operating in new industries, will be able to perceive and pursue the opportunities offered by globalization appropriately and, therefore, prosper rapidly. SMEs in fact do have the potential and momentum to inculcate innovations, competition-both domestic and international, job creation and stability in an economy. They need low capital and generate both direct and indirect employment opportunities. They only can arrest the migration and make the real development of the rural areas.

Competitiveness has two dimensions – cost and quality. A firm should have both. Transnational Corporations (TNCs) are looking for firms, which could supply intermediate as well as consumer products of superior quality but at a reasonable price because they are under constant pressure to cut down costs to sustain their competitiveness globally.

SMEs in emerging markets rely on more labor-intensive production processes than large enterprises, boosting employment and leading to more equitable income distribution. It is evident that nurturing the SMEs in any country would have fruitful results on the income generation and employment in an economy.

Indian SMEs also play a significant role for nation development and economy as under:
- Contribution of 35-40% to the GDP;
- 90% of all industrial enterprises in India are SMEs;
- More than 40% to Domestic Production;
- Significant Earnings by way of foreign exchange to the tune of almost 50% of total exports;
- Generating employment- more than 45% of India’s industrial employment are by SMEs.

The SME sector in India has a minimum of 95% of industrial units, which accounts for almost 40% of the gross industrial value-added in the Indian economy, 34% of exports and provision of direct employment to 20 million persons in around 3.6 million registered SME units. In addition, the SME sector in India contributes to about 7% of India’s gross domestic product (GDP).

Over the years, the sector has accounted for a major share of India’s industrial output, exports and employment, besides influencing the country’s inclusive growth process and balanced regional development initiatives. At the moment, Small and Medium Enterprises (SMEs) stand for one of the fastest establishing industrial sectors of our country. Liberalization and globalization has provided a whole lot of opportunities and challenges for the industry as a whole and more so for the SMEs.

Government of India has been quite proactive in protection and nurturing of these budding SMEs, as they have realized the potential and importance of them. There are around 12 million registered small and medium enterprises in
India, of which 55 percent are located in rural hinterlands, while the remaining 45 percent live in urban areas as per government estimates.

The number of SMS’s has shown tremendous growth after the liberalization in 1991 and especially in the last five years the number of SME's has increased from 261.2 Lakhs to 311.52 Lakhs in 2010-11. The growth rate of SMEs has been consistently 35 percent plus as compared to the overall industrial growth of 8 to 9%. Buy with proper use of technology their growth can be further boosted to 40 percent.

They have the potential and momentum to inculcate innovations, competition-both domestic and international, job creation and stability in an economy. Further, SME's, which are more labor intensive are more suitable for India as they provide Operational Flexibility, Location Wise Mobility, Capacities to Develop Appropriate Indigenous Technology and Low Investment Requirements.

SMEs often drive local economies through the formulation of an SME clusters. Cluster is an assembly of SMEs in the form of a supply chain with mutually complementing production processes and sales. Clusters have the advantage of stimulating competition, enhancing production efficiency and quality, facilitating start-up businesses, and increasing access to external economic agents such as raw material suppliers, skilled workers, trade partners, and financial institutions. The success of SME’s have resulted in Low Intensive Imports, Import Substitution, Technology – Oriented Industries, Competitiveness in Domestic and Export Markets and Generate new entrepreneurs by providing knowledge and training.

But there is no evidence available yet to indicate that Indian SMEs have a noticeable presence in the growing arena of global value-chains of TNCs (with the exception of textile products & garments, software and auto-components). The ability of SMEs to compete in the global market place depends on their access to certain critical resources, the most important of which are finance, technology and managerial skills.

SMEs can play a crucial role in achieving the transition from a dominant agricultural economy to a service oriented economy. SMEs would be well placed to drive India's sunrise industries, and develop products that find ready global markets. Food products and Wearing apparel constitute the major production of India SMEs. On the other hand, there have been many failures in the case of SME’s.

Churchill and Lewis (1983) identified five stages of growth for the SME’s as under:

- Existence;
- Survival;
- Success;
- Take-Off and
- Resource Maturity.

In each stage of development a different set of factors is critical to the firm's survival and success. The Churchill Lewis model gives an insight into the dynamics of SME growth, including the distinguishing characteristics, problems and requirements of growing SMEs and explains business growth processes amongst SMEs. Small industry in India is facing stiff competition due to:

- Liberalization of the investment regime in the 1990s that favors FDI (Foreign Direct investment);
- Restriction of imports imposed by World Trade Organization (WTO);
- Domestic economic reforms.

The cumulative impact of all these developments is a remarkable transformation of the economic environment in which small industry operates, implying that the sector has no option but to 'compete or perish'. The major five factors for failure has been identified as:

- Internal environment;
- Access to finance;
- Management skills
- Location and networking;
- Investment in information technology and cost of production.

The non-availability of optimum and timely bank finance is a major concern for SMEs. The banks insist on proper papers and documents which the SMEs take laborious time to provide. Typical barriers to accessing bank finance for SMEs includes a lack of collateral (real estate security), brief or nonexistent business track records, fragile financial and management systems, and the uncertainty of profitability (especially for R&D companies).

As we have established a bank centered financial system in India, capital market financing is not a realistic option for SMEs. Thus, the average SME relies mostly on its own capital and/or informal borrowing from friends and family members for start-up funds and working capital. This condition impedes the creation and development of sound and competitive SMEs, and inhibits inclusive economic growth.
A study was carried out by the researcher in Namakkal district which can be considered as one of the most forward districts in India for entrepreneurship as it is famous for automobile body building and poultry farming to understand the perceptions of the student about entrepreneurship, to understand the characteristics of the rural entrepreneurs and to understand their actual problems of entrepreneurship and suggest possible solutions.

The study of 210 final year students revealed that more than 23% of the final year graduate students and MBA students were not aware about entrepreneurship and more than 73% of these students want to join a job rather than be an entrepreneur. The study revealed that the readiness to start a business after studies increased from 5% among the final year degree students of age 19-20 to 39% among students of age group 21-22 and then it decreased to almost 4% for the age group of 24 and above.

Study revealed that 82% of the students who were ready to become entrepreneurs were male while only 18% were female. This indicates that even now gender plays an important role in the decision to start a business. It is found that 48% of the final year students who are planning to become entrepreneurs are BBA students, followed by BE students (39%). B Com students constitute only 9% followed by the BBM students at 4% at the bottom. Probably the subjects in BBA seem to be encouraging them to be entrepreneurs.

The study showed that the biggest group of 35.7% of the students perceived to take loans from Commercial banks while the next groups of 30% were hoping to take it from friends and relatives. Expectations from the government were there for 17.62% while 12.86% thought that co-operative banks would help. Only 3.81% felt the need to get the capital from private moneylenders. It is found that the biggest group of 43% of the students perceived partnerships while the smallest group of 26% wanted to start as a sole proprietorship with the middle group of 31% opting for Limited company.

Majority of students (70) perceived financial problem as the most important one with 758 points followed by Labor that got 738 points from 61 students. Raw material was the main problem perceived by 38 students while marketing was the most difficult area for 29 students. They were ranked third and fourth with 662 and 626 points respectively. 12 students thought that other problems may be the main culprit and it was ranked last with 366 points.

The study revealed that the highest group of 68 students wants some subsidies from Government making it the highest score of 748; this is closely followed by the expectation of 50 students for Soft Loans with an overall score of 726. Training was the area where 36 students expect from government making an overall score of 625 while 33 students with an overall score of 620 were for tax concessions. Help in marketing finished last with 431 points was the favorite of 23 students.

If we want to change this trend and make India a real super power, it is time that we start basic changes in our educational system. For solving the ever-growing problem of unemployment, the only solution is to make these students as job providers rather than job seekers. There is a need to have more awareness among the college students about entrepreneurship. In recent times Universities have introduced the subject at the MBA level. It is suggested that this subject need to be taught at the degree level especially at BE level.

Unfortunately our AICTE/UGC and other institutions seem to do not understand the grass root reality. A college lecturer is selected today by UGC by conducting NET exam or SLET exam in the States which is mainly a theoretical exam and does not contain a single practical test.

A perusal of the syllabi of the various universities for the MBA course would reveal that we are lagging far behind. Anna University, one of the premier technical universities in Tamilnadu and India is following 2009 regulations with the syllabus framed in 208 for the MBA programme for 2012-14. The students are taught TQM before being taught fundamentals of Production Management. Another top university of Tamilnadu- Bharathiyar University is having a four semester MBA course with no project work at all though they teach entrepreneurship compulsorily every semester.

Professional education institutes need to produce students who are academically sound and employable by the industry. We must remember that we are producing engineers and managers and not BE’s and MBA’s. For the same they need to prepare them to critically evaluate what they hear and to make decisions coherent with their values and virtues.

The goal of education is to instil concepts and character building, not just examination and indoctrination. Education is in the process of a major change. It must be remembered that academic institutions are being given an opportunity to work for the benefit of the student through innovations in technology and teaching methodology.

The Prime Minister’s Task Force on MSME’s has identified low technology, generally used by the MSME’s, as a major cause for poor competitiveness of the sector. SMES have tough time rolling through the processes and circumstances. Government of India and state governments have taken many measures and actions to safeguard them, though many times these initiatives may be due to social and political considerations and not on economic grounds.

Most of the SMEs do not function efficiently due to the delay of decision-making process, poor organization, poor staffing, weak controlling and directing financial management of most of the SMEs is found to be very weak. Most SMEs do not calculate total expenses, total revenue, profit etc, for they do not keep any account systematically.

100
Performance of many SMEs is very poor due to the deficiencies in management. Poor knowledge in management of entrepreneurs causes the managerial deficiencies. Since we know that the best way for accelerating growth is by SME’s and SME’s has to be created by entrepreneurs. A major proportion of the manufacturing enterprises in the Indian SME sector operate with obsolete technology. This lack of technology sophistication will act as a constraint in exploiting the opportunities presented by globalization.

Introduction of ISO9000 has been a booster for the SME’s as such global certifications would enhance their competence and improve their quality and efficiency. But it has remained more as a fad as there has been no proper follow up. Government did give subsidies but most of the time, the SME’s were not fully aware and it was again got under the bureaucratic ways.

Some of the big corporate like Maruthi, Tata etc helped the SME’s by insisting on ISO certification and to a certain extent we have been able to make some impact on that sector. Organizations like CII have also been doing their bit in this regard.

This again, shows that we should not depend on government alone. But our big business should take it as their duty to train the SME’s in the new technology and also help them for such certifications.

Research has shown that the following five key behaviors, which mark out the best performing SMEs:

- A strong leadership team;
- The ability to attract and retain quality people;
- A disciplined approach to their business;
- The ability to strategically use technology;
- The wise use of trusted outside advisors.

Conclusion

SMEs play a crucial role in the economy of any nation and are closely related to education. For India, to grow it is essential that its education needs to be aligned in such a manner that it generates more entrepreneurs. The Government of India has done a lot to encourage entrepreneurship but there is a wide gap between education and most students’ awareness about entrepreneurship and thus a lot still needs to be done in revamping the curriculum as well as the pedagogy of management education. Standardization is another area that needs to be addressed. But there is hope as many things are being done in the right direction now to bring the smile on our SMEs.

References


CAN CHINA BE THE ENGINE OF THE WORLD ECONOMY?  
CHINA BUSINESS CYCLE ANALYSIS  

Qi ZOU  
Wichita State University  
W. Frank Barton School of Business, Department of Economics, USA  
gxzou@wichita.edu

Abstract  
A number of papers have studied factors which affect business cycle synchronization. The classical method was created in the paper of Frankel and Rose (1998). It established a pair-wise correlation model to test the impact of trade intensity. Recently, the factor model has gained more popularity in the business cycle synchronization issue; however, few researches have focused on China’s business cycle. In this paper, the factor model has been applied first to see the reactions of common shocks in China and some other countries. The result indicates that, unlike other countries, China does not behave according to the shocks. Then the similar pair-wise model is proposed to explain the business cycle correlation between China and its pair country. Surprisingly, the trade intensity and FDI fail to explain the variation in correlations. At the end, the causality test shows there is no significant causal effect between China and the world.

Keywords: dynamic factor analysis, China business cycle, pair-wise regression.

JEL Classification: F17, F60.

1. Introduction  
A business cycle refers to the phenomena of repeatable shifts between expansions and contractions which occur during economic activities. In the long run, from Solow model, we know that the output will grow only as the rate of population grows after reaching the steady state. In the long run, the business cycle is a straight line with slope equal to population growth. However, in the short run, business cycle focuses on the deviations from the trend of long run steady growth of economic variables. Whether you are an entrepreneur or a policy maker, it is extremely important to understand business cycle. Policy makers need to adjust their policies according to the business cycle movements. Meanwhile, entrepreneurs also need to adapt to the changes of business cycle by altering their strategies in order to increase or maintain market share.

In the 21st century, with the rapid development of technology, trade became more intensive due to the lower costs of transportation. In the meantime, financial assets were traded more conveniently as a result of the appearance of internet. The world entered a new chapter of human history, the age of globalization. It formed a giant system that involves every open economy. According to comparative advantage theory, countries would prefer to produce specialized products to gain higher profits as long as they can trade with each other. Meanwhile, the country with a shortage of other products would heavily rely on import. The intensive trade which is brought by globalization can speed up globalization at the same time. Consequently, it is observable that the volume of import and export increased dramatically during this period. It has been confirmed that (Frankel and Rose 1998) there is a strong positive relationship between the degree of bilateral trade intensity and the cross-country bilateral correlation of business cycle activity. Multinationals are the products of the globalization as well. They established subsidiaries and branches across the borders in order to capture cheaper labors and create new market shares. During the expansionary periods, multinationals help both headquarter and branch countries; during downturn these multinationals help to soften the blow. Therefore, multinationals became critical linkages that affect the business cycle co-movement among countries.
China, as the second largest economy in the world, has maintained double digit growth for more than a decade. Although it was decelerated in the past several years due to the financial crisis; compared to Europe and America that are enveloped by the atmosphere of pessimism, it is still a land of hope. China has attracted billions of investments since the policy of opening-up in 1978. With the advantage of cheap labor, thousands of multinationals set subsidiaries in China in order to lower the total labor cost. For a long time, China was been regarded as the world factory. Meanwhile, China’s total volume of import and export has increased 144 times since 1978 from 20.64 billion USD to 2974 billion USD. China is a communist country; the unique social institution sustains a relatively high growth rate even while other major economies are in a recession. In recent financial crisis, China was the first one that pulled the economy back to growth, which firmed the faith of recovery for the world. Therefore, China has a new nick name after the recent financial crisis, the engine of the world economy. However, whether China is qualified for this nick name is left unproven.

This paper proceeds as follows. First, a factor model has been applied in order to see the approximate co-movements. Second, I use pair-wise regression to find out the impacts of trading intensity and inward FDI. Finally, I run a causality test to see the causal effect.

2. Literature review and theoretical framework

The classic work on business cycle correlation analysis goes back to the paper of Frankel and Rose (1998). Their focus was the suitability for entry into a currency union. They found the suitability depends on intensity of trade with other members of the currency union. The theoretical finding implies that the closer the trade link with other countries the more synchronized the business cycle is going to be. Put differently, highly traded countries tend to have similar business cycles. In order to confirm the robustness, they used four series as the proxies of business cycles, which are real output, industrial production, employment, and unemployment respectively.

FDI, as a component of investment, is counted into GDP directly. Therefore, it contributes to the economy of the recipient country with no doubt. If the outward FDI shows a positive effect on domestic economy as well, it would be a significant variable that elevate the business cycle synchronization. Dierk Herzer (2008) concludes in his paper that outward FDI has positive effects on domestic output. Mover, the effect is bidirectional, which indicates boost of domestic economy would encourage outward FDI as well. Thus it should also have a positive effect on business cycle synchronization.

Hong Kong Institute for Monetary Research narrowed the business cycle issue down and put the focus solely on Asia. He and Liao (2011) developed a multi-level structural factor model to discover the business cycle co-movement among Asian economies and G-7 countries. They found regional factors have become important over time and Asian economies sustained a strong independency. Meanwhile, China reacted more on regional supply shocks rather than other shocks.

Factor model has gained popularity in recent empirical business cycle synchronization research. Stock and Watson (2005) established a VAR model with an incorporation of dynamic factor model in their working paper. Moreover, in Arijana, Marko, and Janez working paper (2008), they used a dynamic factor model to forecast macroeconomic variables for Slovenia. The results seemed to be valid as well. Factor model has some merits that other approaches do not have. The most outstanding advantage among them is that it eliminates the movements which are caused by idiosyncratic movements. Thus, the analysis can focus on the common shocks that affect all series simultaneously. The basic factor model can be represented by the following equations:

\[
y_t = \lambda_{11} f_{1t} + \lambda_{12} f_{2t} + \ldots + \lambda_{1r} f_{rt} + u_{1t}
\]

\[
y_t = \lambda_{21} f_{1t} + \lambda_{22} f_{2t} + \ldots + \lambda_{2r} f_{rt} + u_{2t}
\]

......

\[
y_t = \lambda_{r1} f_{1t} + \lambda_{r2} f_{2t} + \ldots + \lambda_{rr} f_{rt} + u_{rt}
\]

Where \(y_t\) denotes the output level for country \(i\) in time \(t\); and \(f_t\) denotes the factor in time \(t\) when \(r = 1, 2, 3\ldots r\). \(\lambda\) terms are the factor loadings that need to be estimated. \(u_t\) is the idiosyncratic term that accounts for error or non explanatory elements under the factor.

In this equation, \(\lambda\) terms are the parameters of interest. Each factor has a different capability of explaining the variation of the original data. In the factor model, the capability is measured by the proportion of the variance could be explained over the overall variance. That capability in particular is represented by \(\lambda\) in this case, which is also called factor loadings. As a matter of fact, the factor loadings are not unique. However, the meaning of the factor is defined by its loading. If there are a number of sets that provide the same variance, it becomes impossible to name each factor. Empirically, after obtaining the factor loadings, we usually rotate the loading matrix in order to make the loadings are easier to explain. The rotation can change the value of each loading without altering the theoretical variance so that the loadings are more able to fit into the prior expectations. Expectations are predetermined loading values that we try to get
as close as we can while rotating the loading matrix. For instance, we would expect a 0 loading on basketball skill when considering math ability as a factor. The last step of factor analysis is to calculate the factor score. After adjusting the factor loading to the optimal set, the impact of each factor on different series can be quantified into specific values, which are named factor scores. We can also save the factor scores as new variables for future regression.

In this paper, my focus lays on the factors that affect the co-movements between China and its highly commercial-related countries. Based on business cycle theory, the cyclical movements in a country could be caused by common shock and country level shock. Common shock is the shock that has an impact on every open economy country, although the magnitude of the impact varies from country to country. For instance, financial crisis is the most obvious common shock. Its negative impact spreads all over the world without boundary. In contrast, a country level shock only plays a role within the country, such as fiscal policy changes or monetary policy adjustments. Basically, the business cycle co-movements among countries are generally affected by common shocks since countries have different economic structures and that apply diverse polices. The degrees of similarity of the country level shocks among different countries are comparably low. Therefore, common shock is the key variable when analyzing the business cycle synchronization between China and other countries. Although common shock is an unobservable variable, factor model can capture the contribution of common shock on business cycle well. If China is the engine of the world economy, it should be sensitive to the common shock, showing that high correlation with other countries. The factor model is established to test the reactions of common shock among different countries. However, it cannot say which real economic series affects the business cycle co-movements. Therefore, the pair-wise correlation approach is introduced.

The term highly traded countries in this paper refer to countries that have intensive business activity with China, specifically bilateral trade and investment in this paper. According to Frankel and Rose (1998), bilateral trade intensity plays a big role in business cycle synchronization. The increase in this particular term would lead to a significant increase in the output correlation between two OECD countries. Meanwhile, inward investments, as a component in the aggregate output, increases the domestic output with no doubt. Dierk Herzer points out in his paper that outward FDI has a positive effect on long run growth of domestic output. In addition, the effect is bidirectional, which indicates boost of domestic economy would encourage outward FDI as well. Thus it should also have a positive effect on business cycle synchronization. As we know, China is well known for its large trading volume and foreign investment absorption. I will test whether those two theories are valid for China.

The bilateral trade intensity and inward FDI index are calculated according to equations as followed:

\[
\text{Trade}(w_{0jt}) = \frac{(EX_{ct} + IM_{ct})}{(EX_{ct} + IM_{ct} + EX_{jt} + IM_{jt})}
\]

\[
\text{FDI}(w_{0jt}) = \frac{f_{0jt}}{F_{ct}}
\]

where \(EX_{jt}\) denotes total exports from China to country \(j\) during period \(t\). \(EX_{ct}\) denotes total exports from China while \(IM_{jt}\) and \(IM_{ct}\) denote imports. \(f_{0jt}\) denotes the value of FDI from country \(j\) to China during period \(t\), and \(F_{ct}\) represents the total inward FDI of China during period \(t\). The data can be found in the International Monetary Elibrary. The first difference is applied after the raw calculation to avoid non stationary.

**Data and methodology**

**Factor model**

Before running into any regression, a rough view of business cycle is provided. I chose countries which have a high volume of trading and larger investment with China. The countries I used are listed as followed; France, Germany, Italy, Spain, UK, US, Japan, Korea, Australia, Malaysia, Hong Kong, and Singapore. The data sets used in this paper are quarterly, seasonally adjusted, industrial production from 1992:Q1 to 2011Q4, which were drawn from the E-library of IMF. I convert the data into a percentage change and plug a 1st differencing filter to rule out the trend and non stationary property.
As we can see from the graph, the business cycles of most countries I selected move correspondingly. That implies high correlations between those countries' output level. Nevertheless, China's business cycle does not seem to follow the same track. It appears that China has a low correlation with other countries until the recent financial crisis. Moreover, China's reaction to the financial crisis also seems to be limited. There are some fluctuations due to the crisis, but they are not quite significant. Thus, factor model is introduced here to see how China reacts with the corresponding common shock.

I use the confirmable factor analysis (CFA) approach to establish the specification. The common shocks which affect the business cycle could be separated into two types; a global factor, and a regional factor. The specification is demonstrated below.

**Factor specification:**

$$y_{it} = \lambda^g f_{it}^g + \lambda^r f_{it}^r + u_{it}$$

and

$$E(u_{it} u_{it}) = \sigma^2_i$$

where $f_{it}^g$ is the global factor that has an impact on all the countries at the same time and $f_{it}^r$ is the regional factor that only affects some of the counties within certain areas. $u_{it}$ is the error term which quantifies the country level shock. $\lambda^g$ and $\lambda^r$ are the factor loadings which capture the impacts of global factor and regional factor respectively on country $i$. We should notice that the specification represents a matrix which can be extended.

There are some qualification constraints to pass before running a factor model. First, I looked the correlation table to determine whether the correlations are big enough. Then, the KMO test is applied beforehand to test whether the factor model is appropriate for the data set. The data descriptions and KMO test are lists below.
Table 1. Data correlation table and KMO test

<table>
<thead>
<tr>
<th></th>
<th>China</th>
<th>France</th>
<th>Germany</th>
<th>Italy</th>
<th>Spain</th>
<th>UK</th>
<th>US</th>
<th>Japan</th>
<th>Korea</th>
<th>Australia</th>
<th>Malaysia</th>
<th>HK</th>
<th>Singapore</th>
<th>World</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
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<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>0.285</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Germany</td>
<td>0.071</td>
<td>0.679</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Italy</td>
<td>0.066</td>
<td>0.55</td>
<td>0.765</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>Spain</td>
<td>0.11</td>
<td>0.491</td>
<td>0.702</td>
<td>0.67</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>UK</td>
<td>0.133</td>
<td>0.663</td>
<td>0.685</td>
<td>0.621</td>
<td>0.639</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>US</td>
<td>0.151</td>
<td>0.508</td>
<td>0.703</td>
<td>0.746</td>
<td>0.617</td>
<td>0.612</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Japan</td>
<td>0.104</td>
<td>0.546</td>
<td>0.735</td>
<td>0.718</td>
<td>0.617</td>
<td>0.618</td>
<td>0.704</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Korea</td>
<td>0.217</td>
<td>0.304</td>
<td>0.337</td>
<td>0.391</td>
<td>0.493</td>
<td>0.388</td>
<td>0.368</td>
<td>0.565</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Australia</td>
<td>0.248</td>
<td>0.409</td>
<td>0.328</td>
<td>0.385</td>
<td>0.313</td>
<td>0.316</td>
<td>0.455</td>
<td>0.485</td>
<td>0.35</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.206</td>
<td>0.379</td>
<td>0.428</td>
<td>0.507</td>
<td>0.506</td>
<td>0.487</td>
<td>0.567</td>
<td>0.634</td>
<td>0.675</td>
<td>0.44</td>
<td>1</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HK</td>
<td>0.078</td>
<td>0.414</td>
<td>0.434</td>
<td>0.449</td>
<td>0.468</td>
<td>0.571</td>
<td>0.468</td>
<td>0.566</td>
<td>0.616</td>
<td>0.257</td>
<td>0.617</td>
<td>1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Singapore</td>
<td>0.141</td>
<td>0.381</td>
<td>0.422</td>
<td>0.361</td>
<td>0.366</td>
<td>0.372</td>
<td>0.426</td>
<td>0.538</td>
<td>0.465</td>
<td>0.404</td>
<td>0.523</td>
<td>0.626</td>
<td>1</td>
<td></td>
</tr>
<tr>
<td>World</td>
<td>-0.067</td>
<td>0.326</td>
<td>0.454</td>
<td>0.45</td>
<td>0.222</td>
<td>0.286</td>
<td>0.539</td>
<td>0.324</td>
<td>0.126</td>
<td>0.14</td>
<td>0.25</td>
<td>0.326</td>
<td>0.153</td>
<td>1</td>
</tr>
</tbody>
</table>

KMO and Bartlett's Test

<table>
<thead>
<tr>
<th>KMO and Bartlett's Test</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Kaiser-Meyer-Olkin Measure of Sampling Adequacy</td>
<td>.881</td>
</tr>
<tr>
<td>Bartlett's Test of Sphericity</td>
<td>Approx. Chi-Square: 674.974, df: 91, Sig.: .000</td>
</tr>
</tbody>
</table>

Most of the correlations are above 0.3 except China which means that the factor model is a proper approach. Then the KMO index turns out to be 0.881, which assures the data set is quite appropriate for factor analysis. One interesting point that draws my attention is the correlation between China and the world over the whole period appears to be a negative number. It explains why in the previous graph, China’s economy does not follow the mainstream pattern.

After confirming availability of the factor model, two factors are drawn from the data by using principal component analysis. Factor drawing process is based on the proportion of total variance explained.
Table 2. Total variance explained and rotated component matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>Extraction Sums of Squared Loadings</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>% of Variance</td>
</tr>
<tr>
<td>1</td>
<td></td>
<td>6.955437</td>
<td>49.68168973</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td>1.464628</td>
<td>10.46162673</td>
</tr>
</tbody>
</table>

Note: extracted by principal component analysis

Table 3. Rotated component matrix

<table>
<thead>
<tr>
<th>Component</th>
<th>Global</th>
<th>Regional</th>
</tr>
</thead>
<tbody>
<tr>
<td>China</td>
<td>-0.097</td>
<td>0.484</td>
</tr>
<tr>
<td>France</td>
<td>0.655</td>
<td>0.317</td>
</tr>
<tr>
<td>Germany</td>
<td>0.882</td>
<td>0.202</td>
</tr>
<tr>
<td>Italy</td>
<td>0.841</td>
<td>0.244</td>
</tr>
<tr>
<td>Spain</td>
<td>0.680</td>
<td>0.378</td>
</tr>
<tr>
<td>UK</td>
<td>0.719</td>
<td>0.349</td>
</tr>
<tr>
<td>US</td>
<td>0.802</td>
<td>0.306</td>
</tr>
<tr>
<td>Japan</td>
<td>0.691</td>
<td>0.520</td>
</tr>
<tr>
<td>Korea</td>
<td>0.211</td>
<td>0.792</td>
</tr>
<tr>
<td>Australia</td>
<td>0.282</td>
<td>0.542</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.379</td>
<td>0.739</td>
</tr>
<tr>
<td>HK</td>
<td>0.416</td>
<td>0.642</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.278</td>
<td>0.686</td>
</tr>
<tr>
<td>World</td>
<td>0.670</td>
<td>-0.124</td>
</tr>
</tbody>
</table>

Note: Rotated by Varimax with Kaiser Normalization method
It can be observed that, the variance of the first factor can explain 49.68% of the total variance while the variance of second can explain 10.46% of the total. Both of them explain 60.14% of the total variance cumulatively. Generally speaking, the model does well in capturing the variation in total variance by drawing those two factors. Then the Varimax with Kaiser Normalization method is used to accomplish the rotation. It is wildly accepted that US is the most globalized country. Therefore, global factor should have a higher loading value comparing to regional factor. In addition, I add the business cycle of the world to verify the assumption. Global factor should have a strong impact on world business cycle while regional is ignorable. Thus, factor 1 should be the global and factor 2 is the regional.

The factor loadings verify that China does not behave according to the global shock significantly, which is also found in graph1 and correlation table. All the countries react actively if there is a global wide shock except China. Euro countries and US tend to have a higher global factor loading rather than others. The loadings are all above 0.5. Only Japan, as a non Euro country, has global factor loading of 0.69. It is reasonable since Japan’s economy relies on US substantially. All the Asian countries have higher loadings on regional factor, which are also above 0.5. Instead of reacting according to the world, they are more likely sensitive to the regional shock. The most surprising pair of loadings is China’s. China has a negative global loading and a small regional loading with a value of 0.484. It indicates that China might react by going to the opposite direction when there is a global shock. In addition, the regional loading is not quite significant which is below 0.5. In other words, China’s business cycle seems to be self-dependent. It has a filter that rule out the interventions from outside world.

It is interesting that China has a unique behavior on the business cycle movement. However, the real variables that cause this uniqueness are still unfounded. Thus, I impose the pair-wise model to test whether the classic variables that play big roles in business cycle synchronization in previous researches still work for China.

**Pair-wise model**

My objective is to determine if there is a strong business cycle co-movement between China and its main trading countries and larger investing countries. Then test whether Frankel and Rose’s and Dierk Herzer theories are still valid for China with modification. If the theory still holds for China, there should be an increasing pair-wise correlation throughout time. If the coefficients of trade intensity and inward FDI are significant, it implies that China does have a positive business cycle co-movement with other countries since 1994. Thus, the increased trades and investments promote the co-movement between China and its pair countries. I choose countries with high volumes of trading and lager investment with China to establish the pair. The countries I use are listed as followed: France, Germany, Italy, Spain, UK, US, Japan, Korea, Australia, Malaysia, Hong Kong, and Singapore. The data sets used in this paper are quarterly seasonally adjusted industrial production from 1992:Q1 to 2011:Q4, which are from the e-library of IMF. One thing noteworthy is that IMF only provides the percent change of corresponding period of last year of IP data for China. For pair-wising purpose, I converted the IP data of all other countries into the same percent change as growth rates. As we all know, output data are normally non-stationary. After converting to percent change and taking first difference, all series pass ADF test, which means they are stationary.

The easiest way to see the business cycle co-movement would be by calculating the correlation. Table 3 shows the correlation of IP between China and each pair country.

**Table 3. IP Growth rate correlations**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Whole period</td>
<td>Before WTO</td>
<td>After WTO</td>
<td></td>
</tr>
<tr>
<td>France</td>
<td>0.285</td>
<td>0.308</td>
<td>0.250</td>
<td>-0.059</td>
</tr>
<tr>
<td>Germany</td>
<td>0.071</td>
<td>-0.031</td>
<td>0.139</td>
<td>0.170</td>
</tr>
<tr>
<td>Italy</td>
<td>0.066</td>
<td>-0.022</td>
<td>0.134</td>
<td>0.156</td>
</tr>
<tr>
<td>Spain</td>
<td>0.110</td>
<td>-0.172</td>
<td>0.385</td>
<td>0.557</td>
</tr>
<tr>
<td>UK</td>
<td>0.133</td>
<td>0.130</td>
<td>0.146</td>
<td>0.016</td>
</tr>
<tr>
<td>US</td>
<td>0.151</td>
<td>-0.087</td>
<td>0.305</td>
<td>0.392</td>
</tr>
<tr>
<td>Japan</td>
<td>0.104</td>
<td>0.179</td>
<td>0.094</td>
<td>-0.086</td>
</tr>
<tr>
<td>Korea</td>
<td>0.217</td>
<td>0.045</td>
<td>0.412</td>
<td>0.367</td>
</tr>
<tr>
<td>Australia</td>
<td>0.248</td>
<td>0.238</td>
<td>0.263</td>
<td>0.025</td>
</tr>
<tr>
<td>Malaysia</td>
<td>0.206</td>
<td>0.099</td>
<td>0.339</td>
<td>0.239</td>
</tr>
<tr>
<td>HK</td>
<td>0.078</td>
<td>0.000</td>
<td>0.148</td>
<td>0.148</td>
</tr>
<tr>
<td>Singapore</td>
<td>0.141</td>
<td>0.103</td>
<td>0.175</td>
<td>0.072</td>
</tr>
</tbody>
</table>

As we can see from the table, China’s business cycle does synchronize with all of these countries from 1992Q1 to 2011Q4. However, the effect is not quite significant. The regional factor might be relatively stronger because the Asian
counties are likely to have correlations. In particular, Malaysia Korea and Australia, they are all above positive 0.2, however, the highest correlation comes from the Euro area. France has a correlation of 0.285.

As we know, China joined the World Trade Organization on December 10th 2001. Being a member of the WTO has tremendous positive impacts on various aspects of China. Generally speaking, it can boost its trading volume and inward investment, accelerating the output growth. To test the WTO effect, I divide the data into two equal subsamples; before WTO period from 1992:Q1 to 2001:Q4 and after WTO period from 2002:Q1 to 2011:Q4. Before China join the WTO, all Asian countries except Hong Kong still had high values of correlation while the major economies had negative correlations except France and UK. After 2001, not surprisingly, the correlations increase significantly from pre WTO to post WTO. Diff column quantifies the effect of joining WTO. China becomes more synchronize with most countries, as a correlation increased from 0.025 to 0.557. France and Japan become less synchronize with a correlation drop of 0.059 and 0.086 respectively.

The benefits of joining the WTO include boosted trade volume and inward investment. China does improve the business cycle synchronization after becoming a member of WTO. It seems that the theory of Frankel and Rose is still working for China. With the purpose of confirming the impacts of trading intensity, I ran the regression of pair-wise IP growth correlation with the following specification:

Pair-wise Specification 1:

\[ \text{Corr(IP)}_{c,p,k} = \alpha + \beta \text{Trade(w)}_{c,p,k} + \varepsilon_{c,p,k} \]

where \( \text{Corr(IP)}_{c,p,k} \) represents the correlation of IP growth rate between China and its pair country \( p \), over a time span of \( k \). \( \text{Trade(w)}_{c,p,k} \) denotes the trade intensity between China and its pair country \( p \). I took the nature logarithm of the bilateral trade intensity index and averaged them to match up with the time span of \( k \). \( \varepsilon_{c,p,k} \) is the disturbance term. This specification is used to estimate \( \beta \) which measures the impact of the bilateral trade intensity.


In this regression, \( \beta \) is the parameter of interest. According to Frankel and Rose, \( \beta \) should be significant and positive. Meanwhile, the magnitude of \( \beta \) is critical as well. It provides a quantitative measure of how much the bilateral trade intensity would contribute to the business cycle synchronization.

Table 4. Result of specification 1

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Trade</td>
<td>0.035935</td>
<td>0.032728</td>
<td>1.097984</td>
<td>0.2779</td>
</tr>
<tr>
<td>C</td>
<td>0.120795</td>
<td>0.034193</td>
<td>3.532795</td>
<td>0.0009</td>
</tr>
</tbody>
</table>

Note: Included observations 48.

From the regression output above it can be observed that \( \beta \) is a positive number with a value of 0.035935. Since the bilateral trade intensity is in logarithm form, it indicates that a 1% increase of bilateral trade intensity would lead to a 0.035935 increase in correlation between China and its pair country. Nevertheless, the t statistic shows an insignificant number of 1.097984, which makes the impact of bilateral trade intensity ambiguous. Thus, the result reveals that the theory of bilateral trade intensity which was introduced by Frankel and Rose does not hold in China.

After testing the Frankel and Rose theory of bilateral trade intensity, I ran another regression with my own modifications. The specification is established as followed.

Pair-wise Specification 2:

\[ \text{Corr(IP)}_{c,p,k} = \alpha + \gamma \text{FDI(w)}_{c,p,k} + \delta \text{D} + \varepsilon_{c,p,k} \]

I added two more explanatory variables in this regression compared with the previous one. \( \text{FDI(w)}_{c,p,k} \) represents the weighted average of inward FDI that China absorbed from its pair country, the logarithm over time span \( k \). \( \text{D} \) is a dummy variable which stands for China joining WTO; the value of 1 - for after joining the WTO, while 0 means before.

By incorporating FDI(w)_{c,p,k}, the validness of Dierk Herzer’s theory can be examined. He pointed out that the outward FDI had a positive effect on long run growth of domestic output. In addition, the effect is bidirectional, which indicates boost of domestic economy would encourage outward FDI as well. Therefore, the inward FDI absorption of China might be a vital variable that increase the business cycle synchronization. Moreover, WTO is included to prove
the hypothesis that was drawn from the correlation table. It seems to be a significant variable that elevates the value of correlation. As previous tests, sign and magnitude are targets that need to be analyzed.

Table 5. Result of specification 2

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std. Error</th>
<th>t-Statistic</th>
<th>Prob.</th>
</tr>
</thead>
<tbody>
<tr>
<td>FDI</td>
<td>-0.006126</td>
<td>0.017655</td>
<td>-0.346994</td>
<td>0.7302</td>
</tr>
<tr>
<td>WTO</td>
<td>0.178425</td>
<td>0.054055</td>
<td>3.300829</td>
<td>0.0019</td>
</tr>
<tr>
<td>C</td>
<td>0.054345</td>
<td>0.039678</td>
<td>1.369652</td>
<td>0.1776</td>
</tr>
</tbody>
</table>

Note: Included observations 48.

The result shows that FDI turns out to be insignificant even with a negative sign. This surprising result indicates that the variation of inward FDI data cannot explain the correlation change between China and its pair country statistically. WTO is the only one that appears to be significant here. However, it does not reveal any important insight information as a time dummy variable. The true variable that affects China’s business cycle remains undiscovered.

The pairwise correlation is a static approach rather than a dynamic one. Although the reason leads the variation of the correlation was not found, a causality test can still tell the causal cyclical relationship between China and its pair country by adding lag terms. The output is demonstrated as follows.

Table 6. Result of causality test

<table>
<thead>
<tr>
<th>Pairwise Granger Causality Tests</th>
<th>Obs</th>
<th>F-Statistic</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>FRANCE does not Granger Cause CHINA</td>
<td>75</td>
<td>0.66556</td>
<td>0.61815</td>
</tr>
<tr>
<td>CHINA does not Granger Cause FRANCE</td>
<td>75</td>
<td>0.57037</td>
<td>0.68504</td>
</tr>
<tr>
<td>GERMANY does not Granger Cause CHINA</td>
<td>75</td>
<td>0.96269</td>
<td>0.43394</td>
</tr>
<tr>
<td>CHINA does not Granger Cause GERMANY</td>
<td>75</td>
<td>1.95638</td>
<td>0.11004</td>
</tr>
<tr>
<td>HK does not Granger Cause CHINA</td>
<td>75</td>
<td>1.51296</td>
<td>0.20855</td>
</tr>
<tr>
<td>CHINA does not Granger Cause HK</td>
<td>75</td>
<td>1.23193</td>
<td>0.30590</td>
</tr>
<tr>
<td>ITALY does not Granger Cause CHINA</td>
<td>75</td>
<td>4.75262</td>
<td>0.00198</td>
</tr>
<tr>
<td>CHINA does not Granger Cause ITALY</td>
<td>75</td>
<td>0.61871</td>
<td>0.65074</td>
</tr>
<tr>
<td>JAPAN does not Granger Cause CHINA</td>
<td>75</td>
<td>2.43186</td>
<td>0.05608</td>
</tr>
<tr>
<td>CHINA does not Granger Cause JAPAN</td>
<td>75</td>
<td>3.11103</td>
<td>0.02086</td>
</tr>
<tr>
<td>KOREA does not Granger Cause CHINA</td>
<td>75</td>
<td>1.28567</td>
<td>0.28462</td>
</tr>
<tr>
<td>CHINA does not Granger Cause KOREA</td>
<td>75</td>
<td>0.47310</td>
<td>0.75529</td>
</tr>
<tr>
<td>MALAYSIA does not Granger Cause CHINA</td>
<td>75</td>
<td>2.79974</td>
<td>0.03283</td>
</tr>
<tr>
<td>CHINA does not Granger Cause MALAYSIA</td>
<td>75</td>
<td>0.72157</td>
<td>0.58027</td>
</tr>
<tr>
<td>SINGAPORE does not Granger Cause CHINA</td>
<td>75</td>
<td>0.79223</td>
<td>0.53442</td>
</tr>
<tr>
<td>CHINA does not Granger Cause SINGAPORE</td>
<td>75</td>
<td>1.81034</td>
<td>0.13730</td>
</tr>
<tr>
<td>SPAIN does not Granger Cause CHINA</td>
<td>75</td>
<td>1.21861</td>
<td>0.31138</td>
</tr>
<tr>
<td>CHINA does not Granger Cause SPAIN</td>
<td>75</td>
<td>0.71881</td>
<td>0.62711</td>
</tr>
<tr>
<td>UK does not Granger Cause CHINA</td>
<td>75</td>
<td>1.10244</td>
<td>0.36287</td>
</tr>
<tr>
<td>CHINA does not Granger Cause UK</td>
<td>75</td>
<td>1.12882</td>
<td>0.35058</td>
</tr>
<tr>
<td>US does not Granger Cause CHINA</td>
<td>75</td>
<td>1.17205</td>
<td>0.33121</td>
</tr>
<tr>
<td>CHINA does not Granger Cause US</td>
<td>75</td>
<td>2.12358</td>
<td>0.30449</td>
</tr>
<tr>
<td>AUSTRALIA does not Granger Cause CHINA</td>
<td>75</td>
<td>0.33009</td>
<td>0.85678</td>
</tr>
<tr>
<td>CHINA does not Granger Cause AUSTRALIA</td>
<td>75</td>
<td>0.20028</td>
<td>0.93734</td>
</tr>
<tr>
<td>WORLD does not Granger Cause CHINA</td>
<td>75</td>
<td>0.40609</td>
<td>0.80361</td>
</tr>
<tr>
<td>CHINA does not Granger Cause WORLD</td>
<td>75</td>
<td>0.27199</td>
<td>0.89502</td>
</tr>
</tbody>
</table>

Note: shaded are the significant ones.

In the following I select the optimal lag of 4 periods, which is one year. If one shock occurs, it provides enough time to adjust under current environment. As we can see, the causality test shows that three pairs have a causal effect.
The IP growth rates of Italy and Malaysia can cause a change in the growth rates of China, while China leads to IP growth rate change in Japan. Most countries have no significant causal interrelationship with China. In other words, theoretically the thriving of China’s economy would only affect Japan. In the meantime, the economy of Malaysia and Italy are behaving like an leading economies that point to the direction of China’s economy. Nevertheless, empirically speaking, when we take the size of economy into consideration, it is unlikely to say that the small economy of Malaysia or Italy can impact China. In addition, I incorporated the output growth rate of the world at the end to test if there was a causal relationship between China and the aggregate economy of the world. The result remains the same, it shows no effect. Therefore, China’s business cycle is more independent rather than interrelated or synchronized. The nickname of engine of the world is definitely overstating the importance of China’s economy.

Conclusion

The rapid growth of China’s economy draws much attention. China has increased its impact on the world economy through trading and investment absorption. Some regarded it as the engine of the world economy. What I am interested is whether China could be the engine which leads growth.

The results show that all Asian economies’ business cycles react more likely to regional shocks rather than to global shocks, while Euro countries and the US respond in an opposite way. In addition, China shows a strong uniqueness, which slightly reacts negatively to global shocks and positive to regional shocks. However, the loading of regional factor is relatively small comparing with other Asian countries. Therefore, China sustains high degrees of independency when exposed to common shocks.

In testing the key variables that affect the business cycle correlations between China and other country, the classic Frankel and Rose pair-wise correlation model fails to explain the reason. The results show an insignificant impact of bilateral trade intensity. Moreover, FDI fails to capture the variation of correlations as well. The key variables that have a significant impact on the business cycle synchronization remain a mystery.

Finally, the causality test shows that there is no causal effect between the business cycle in China and the world. Nevertheless, all the results could be misleading because this paper is subjected to the data limitation problem. I only have 20 years of quarterly data, which might not be enough to draw a long-run relationship.

In conclusion, China has been “selfish” for last two decades, which means the expansion in China has no positive impact on other economies. China is the best part of the world economy; however, it is definitely not the engine.

References

MANAGEMENT EDUCATION IN INDIA: THE PATH AHEAD

Shiladitya VERMA
shilaverma@gmail.com

Abstract

Today, the world has come so close that now it is known as a global village. India has become one of the favorite destinations of global investors. In the last decade or so, especially after liberalization, industries like pharmaceuticals, retail, real estate, investment portfolios, media & entertainment, medical tourism, hospitality, automotive, etc; have grown by leaps and bounds. Today, you name the international brand, and it is there in India. India has everything, be it the suitable or probable fertility of soil, climatic conditions, marginal spaces, formatted or un-formatted investors, cheap manpower, structured or (sic) unstructured governmental policies, you name it, and it is there attracting hordes of global investors to India.

The concept of a global village and the revolution in the area of information technology is increasingly integrating the economies around the world and has moved towards the attainment of global competitiveness has become a necessity for the survival and growth of any business entity. Business paradigms are shifting continuously providing enormous amount of creative opportunities to grasp the future. In the era of global (and also g-local) competitiveness, we have to exercise utmost care to safe guard India’s interest to see that India does not loose in the international arena. In the era of these fast emerging changes, there is a need for future global managers with qualities and competencies in global perspective.

The post liberalization period witnessed a greater need for professional education. The 21st century promises to harbringer a different environment for human development in all walks of life, including education. It is going to be knowledge-driven century, resulting in a need of greater reform in all education related activities like teaching, learning, evaluating, natural production, curriculum revision, administration production, etc.

The importance of education for the development of excellence, expertise and knowledge leading to overall development in economy cannot be undermined. This has necessitated a sound strategy for the development of higher education in almost all countries of the world. In management education, quality has become a necessity and the circumstances require total quality management. The future belongs to those who see possibilities before they become too palpable. To make India an intellectual capital of the world, we have to rethink about the management education and the effort should be made to create a dynamic and vibrant environment, which can nurture superior quality technical education institutes.

Keywords: management education, Indian education system, b-schools, institute-industry linkages, management research orientation, quality management, change adaptability.

JEL Classification: I20, I21, M10, M00, M50.

1. Introduction

It is the quality of education that shapes the long-term prosperity and wellbeing of both nations and their people. Given the crucial role of education in an increasingly competitive global environment, administrators and educators are constantly looking for ways to make educational instruction more effective and meaningful. We teach to educate people and, where people are involved, fundamental managerial concepts such as commitment, motivation, participation, and leadership play an important role in determining the effectiveness of processes used to shape and influence them.
India is well known for its diversity in languages, cultures, traditions, flora fauna, and geographical disparities. Being one of the oldest civilizations, India is acknowledged for its significant contributions to the knowledge world. Since ancient times it has proved its excellence in the field of academics. India has nourished many talents in fields like Mathematics, Physics, Economics, Astronomy, Management and Finance over years. In ancient times many foreign travelers traveled to India to enrich their knowledge and education. Ancient university of Nalanda has its golden history of enriching scholars from several corners of the globe during the period of Buddha and Mahavir timing 6th century BC. Prudent education system has its roots back to many centuries in the history of India.

The present education system in India is mostly influenced by the British system of education. Under the influence of British colonialism the modern Indian education system has prospered with systematic approach. In the post-independence era there have been significant reforms in the Indian system of education to make the standards distinct and widely adaptable. In 21st century independent India is roaring as an economical superpower with its fast growing economy, industrialization and globalization. There are numerous world-class educational Institutions exist in India. The standards of education are at par with the top-notched institutions of the world. Even there are institutions which are regarded as the most preferred in their respective majors.

Changes brought about by the transition to a knowledge economy have created a demand for higher skill levels in most occupations. A new range of competences such as adaptability, team work, communication skills and the motivation for continuous learning have become critical. Thus, countries wishing to move towards the knowledge economy are challenged to undertake reforms to raise the quality of education and training through changes in content and pedagogy. Without high quality tertiary education nations lack the trained professionals to meet the needs of highly competitive markets and the challenges of knowledge societies (Hayward, 2005).

In the mean while India has developed holistic system of education catering for the comprehensive development of an individual. From time immortal there exist an essence of emotional bonding between the student and the teacher in Indian system of education. Out of many structures of education provided in India the “Gurukul” system of education has proven its excellence over others. In the recent years this system of education is being adopted by many frontline educational institutions for attaining superior outcomes.

There are numerous vanguard institutions like Indian Institute of Technology (IIT), Indian Institute of Management (IIM), Delhi University (DU), Jawaharlal Nehru University (JNU), Symbiosis International, Xavier's Institute, TATA Institute are present and excelling in India. They have proven their standards on the global platform. India provides its scholars wide choices for individually preferred field of excellence. With world-class facility campus equipped with latest technologies, Indian educational establishments provide its students life time opportunity of education and curricula development. With affordable and qualitative educational system, Indian educational establishments stand apart from its competitive counterparts.

Technically speaking India offers top of the standards facility to experiment and learn so as to develop the creative side of personality. Indian education system emphasizes on creating personalities rather than preparing workaholic machines. The value education has enriched Indian system of education with every facet of life for joyful learning. This is the rationale behind creating global leaders with marvelous potential. Indian is transforming itself as global hub for business process outsourcing. With its relatively low man-hour overheads it is attracting global investors with fair opportunities for futuristic investments. The international exposure of Indian economy has opened up many doors for foreign direct investments. To meet this demand of technical man-force, educational systems in India are continuously devising strategies to provide best of the quality education to its students.

As the cost of education in India is relatively low as compared to the other developed countries, it has gathered wider acceptance from students around world. The opportunities are plenty and this invites people around the globe to explore their share. The future of Indian education system is focusing more on knowledge economy. This provides abundant resources for exposure and experience for any student to learn through a state of rapid changing economy stage.

The options for study in India are widely diversified with wide presence of broad range of choices for education. You can choose to study on campus, off campus, on distance and correspondence learning modes. The flexibility of education system allows virtually everybody to ascertain their scope of education at any level. Moreover you have a friendly atmosphere while thinking of study in India. India is a country with varied of educational standards spread across its length and breadth. Sovereign Government of India facilitates the intermingling of cross-cultural relationships. With all these distinct advantages, India is adopted as the Numéro - Uno choice of education.

2. Management education in India

Management education in India is not very old. It took its practical shape during the early sixties with the establishment of Indian Institute of Management (IIMs) in order to train the people with management concepts. After that many institutes and universities started coming forward in providing management education in order to cater to the increasing demand of good managers. The liberalization on Indian economy has resulted in a highly competitive
environment, great all round emphasis on technology, quality and greater concerns in society for the environmental issues and unparalleled development and use of information technology.

It is also felt in the era of globalization, that to meet out the challenges of “change”; a private preconditioning for enhancing global competitiveness of Indian industry has to be created by closely monitoring the multilateral cooperative linkages amongst the government, industry, labor and academic. For this, institutions of higher education & research in management, science and technology, etc; is required. Liberalization and globalization has also provided a general platform for popping up of tens and hundreds of private commercial management courses and institutes but the very attitude, quality, ethics, standards, openness of creativity, logistics, etc; is severely lacking. The basic essentials for or to be a professional manger is missing in most of the institutions providing management education in India. The result is that management education today is in a sorry state and in a stage of disrepair. It does not mean that demand is going down but it is the result of bad quality production. If this continues, then the Indian MBA’s will hardly be in demand as global managers. Therefore there is an urgent need to examine the current management education system and find out ways for quality improvements so that business schools can better respond to current paradigms.

Quality is the only currency which is accepted universally and it is also true in the case when the product is education. Today, every customer is quality conscious and it is also imperative that a passion for quality is developed in the international as well as Indian psyche. In management education, quality has become a necessity and circumstances require total quality management.

Recently and particularly during the last decade, the country has witnessed a tremendous growth in founding of management institutions, most of them in private sector, offering management programs in different functional areas of management; these efforts are visible starting with the establishment of four Indian Institutes of Management, namely IIMC-1961, IIMA-1962, IIMB-1973, IIML-1984, and the setting up of XLRI, Jamshedpur while offering full time/part time MBA programs by some of the leading universities in the country.

Concomitantly, there has been a mushrooming of B-Schools in the country over the last decade; over 1700 institutes out which only 900 are certified by All India Council of Technical Education (AICTE), leading to the issue of disbelieving quality. In this context, it becomes crucial to re-examine the entire structure, content, purpose and pattern of management education. Some of the common feature of most of the management or business educational courses, in which emphasis on quality should have been the most important factor, can be summed as:

- Poor coverage of Indian business and socio-economic environment with less global perspective;
- More prominence on theoretical aspects;
- Use of outdated case-materials;
- Less institute-industry linkages;
- Lack of research base;
- Pitable and haphazard admission and counseling procedure;
- More importance given of quantity of students than quality of students;
- Inadequacy of resources and infrastructure;
- Old and outdated pedagogy;
- Traditional evaluation system;
- Insufficiency of proper staff;
- Inadequacy of qualified and competent faculty members;
- More importance is given to fulfilling the university, technical body, affiliating body’s norms, that too on only paper, but in reality no such thing is done.

In India, the All India Council of Technical Education (AICTE) is entrusted with the responsibility of regulating, controlling & ensuring the quality of management education in the country. The formation of National Board of Accreditation (NBA) and the workshops that they organize have contributed substantially to the widespread awareness and concern for the quality of management education, but I guess, AICTE cannot in all honesty claim that their approvals would be resulting in quality management education of global standards.

Recently, Dr. Bowonder, Director - TMTC (Tata Management Training Center), Pune and Professor S. L. Rao, Chairman- Board of Studies, AIMA- Center for Management Studies recommended setting up of a National Task Force for addressing major issues plaguing management education in India. According to them, this Task Force should set All India Council of Management Education (AICME), which will be very much independent from AICTE. Through this, it shall ensure an independent institutional mechanism to specifically deal with management education and also in turn give it a new and fresh thrust.

As there is tremendous change taking place in economic, political and technological environment the world over, newer opportunities are opening which are prepared to fight mediocrity and quality in every aspect of life. It is not only becoming essential but also that no one should assume that the expertise he has today will suffice tomorrow also, so a willingness to lean and adaptability to change is a must. Therefore there is an urgent need to reform the quality of management education for the creation of quality intellectual infrastructure in India.

The qualitative aspect of management education is as important as its technical aspect. Management education should not only equip a student with technical dexterity and expertise, but also develop him in the right attitude. Total
Quality Management (TQM) should be inculcated to make the management education more effective and relevant. Modern education and development will be deprived of its vital élan (creativity, evaluations, potentiality, decision making, adaptability to change) when structured and delivered under a rigid regime of formalism, objectivity and standardization. Quality relevance and effectiveness of management education and development do not depend upon formalism, structuralism, and standardization. If management profession and practices are reckoned and molded as an “art” rather than as a “science”, it educational programming escapes the pitfalls of formalism, structuralism, and standardization. Creativity, flexibility, subjectivity, informality and thinking out-of-the-box attitude will replace the conscripted mode of training and development in management.

In milieu of the imperative needs of the Indian economy and the preconditions of multilateral corporations amongst the wealth creating national and international entities, some of the broad themes and dimensions in and of management teaching and research see to be emerging:

- Requirement of well-coordinated and flexible orchestration of the government’s industrial technology, trade, education, labor, rural development, infrastructure and economic policies directed towards expansion and technological up gradation of all national economy in an ongoing and ever emerging and enhancing manner;
- Management of technology and innovation towards continual and congenial strengthening of the country’s and the companies technological capabilities through innovation, technological acquisition, assimilation and development, skill formations and short and long term collaborative development of nationally relevant core technologies;
- Identification and creation of an easily accessible bank of best industry practices across the globe in all areas ranging from production, marketing, finance, HRD & HRM, logistics, R & D, etc.;
- Enhancement of the nation-wide development and use of information technology for development and usage of information technology for accelerating towards break-through improvements in cost-reduction, speed, output, quality and performance;
- Extensive use of business processes reengineering and Total Quality Management in and by Indian enterprises towards raising their productivity and quality to world class levels.

3. The need for a paradigm shift

Most external review claim to encourage improvement, whereas in actual fact, improvement has been a secondary feature, it is however, necessary to examine claims for an improvement process closely. Does the external quality evaluation aim to improve academic or research quality and if so, how is that measure? Or is it really claiming to improve standard? Is the purpose to directly improve the student experience or is it to improve the way the institution monitors its own activities? Or perhaps the improvement amount to nothing more that ensuring the production of programme documentation and outcome information.

Most impact studies on external quality assurance reinforce the view that quality is about compliance and accountability and has contributed little to any effective transformation student learning experience. Most effectiveness and impact studies have focused on the effect external quality monitoring has on staff, on internal procedures, or on management structures in higher institutions. It is far less clear what impact external quality monitoring is having on student experience. There appears to be little articulation between quality monitoring and innovation in learning and teaching. Indeed, there are few studies (Horsbugh, 1998, Materu 2007) that attempt to address the impact on student experience. Where changes to the student experience have taken place, this is just as likely to have been the result of factors other than the external quality monitoring (Newton, 2000) and at best, the existence of the alternative provides legitimacy for internally – driven innovation. Institutional quality culture will create a positive environment leading to continuous improvement increase cooperation and competitiveness; facilitate change and ensure positive staff development; Encourage staff to take academic risks in enquiry and admit failure, when necessary; Engender student input and participation as equal partners; Provide a comprehensive approach for institutional development; Involve multiple internal and external stakeholders.

Conclusion

Quality can be seen as a goal for humanity all throughout the corridors of human history. It has been the driving force for all human endeavors. Quality is the inspiration for transcendence from the mundane to the higher realms of life. It is the source of craving behind the unfolding human civilization through ages immemorial. Yet it has successfully eluded the dragnet of definitions proving the inadequacy of human intelligence.

The complexity in the Indian market and organizations has brought to the fore, the need to continuously research how organizations and markets are evolving. Innovations in management practices and models are today; imperative and unavoidable. Management educators have to show the way forward. Despite everything, till date in India there has
been very little research in Management Schools. The existence of an institution depends upon the quality of education and training it offers. Darwin’s theory states that only the fittest will survive.

The 21st century has opened greater and challenging avenues and the future managers have to pull up their socks in order to stand shoulder-to-shoulder with their global counterparts. So, it is imperative that management educations start molding themselves in accordance with the global changes to improve competitiveness with total quality management.

In all fields, especially education quality has an important matter. Today the B-schools need to be sufficiently in touch with the real world and the pace of change, which is challenging management throughout the world today or else it shall start threatening their credibility.

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RESPONSE OF RICE OUTPUT TO PRICE AND NON-PRICE FACTORS IN GHANA

David BOANSI
Department of Agricultural Economics and Rural Development
Corvinus University of Budapest, Hungary
boansidavid@rocketmail.com

Abstract
The objective of this study was to assess the magnitude and effect of various price and non-price factors on output of rough rice in Ghana for the period 1966-2009. Coefficients of the output response model were estimated through the ordinary least squares (OLS) and tested for stability and appropriate standard Gaussian properties. Output of rough rice was found to be positively and significantly driven by increases in harvested area, yield, and own price of rice. It however decreases with unit increases in the price of maize, urea fertilizer and with increasing state involvement in the rice market through nominal rate of assistance. Supply of local rice in Ghana could be improved through vigorous pursuance of intensification and area expansion and appropriate transmission of price increments to farmers with least distortion.

Keywords: output response, nominal rate of assistance, rice supply, Ghana.

JEL Classification: Q11, Q18.

1. Introduction
In pursuit of enhancing food security and reducing poverty in Ghana, past and present governments have devised (initiated) and implemented policies and projects to develop and ensure a continuous contribution of the agricultural sector to the economic development of the country. A very important commodity that has received much attention in the past and still remains a strategic commodity in the country is rice. Rice has become the second most important staple food in Ghana after maize, with its consumption increasing substantially since the late 1990s. Beside its important role in the diet of the average Ghanaian, rice through production, processing and marketing serves as a source of livelihood for most of the rural and some sub-urban dwellers (majority of which are women). Having been identified expressly as a political crop in Ghana, protection measures and incentives (both price and non-price) have been applied towards revitalizing the local rice industry after its gradual collapse in the early 1980s (on-set of trade liberalization and structural adjustment program). In spite of all efforts put in place so far, the local rice industry has failed to catch up with expectation, as local rice production lags well behind demand. By the present state of the local rice industry, over 60% of domestic consumption is met through imports. The increasing quantities of rice imported into the country (driven by increasing demand and low domestic production) drains not only foreign exchange, but through an unbalanced competition, leads to a decrease in profitability of local rice (Asuming-Brempong and Osei-Asare, 2007) and exposes the country to shocks on the international market by virtue of its high dependence on rice imports. To help reduce this draining of foreign exchange and mitigate the hardship created on local rice farmers, a ‘National Rice Development Strategy’ was initiated in 2009 with primary goals of doubling output of local rice and reducing imports by 50% (latest by the year 2018). To contribute towards the achievement of doubling of rough rice output, this study estimates the output response of rice for Ghana using secondary data scoping the years 1966 to 2009.
2. Rice consumption and performance in supply

Per capita consumption of rice (Oryza spp. L) in Ghana increased from 17.5 kg per annum between the years 1999 and 2001 to 22.6 kg per annum between the years 2002 and 2004 (Amanor-Boadu, 2012). By the year 2011, it had reached 38 kg per annum and is anticipated to reach 63 kg per annum by the year 2015. Like other West African countries, Ghana which was virtually self-sufficient in rice during the mid-1970s now account for approximately 40% of its domestic rice supply and consumption needs, with the gap between demand and domestic production widening since the late 1990s.

Bridging of this gap has been the major focus of rice policy since the year 2001. Asuming-Brempong (1998) suggested that Ghana has comparative advantage in paddy rice production over other countries in the sub-region, yet in spite of the abundant resources at its disposal, rice production as seen from Figure 1 lags well behind demand (a similar situation is been observed in almost all the coastal West African countries).

![Source: Author’s construct with data from IRRI – (World Rice Statistics, FAO data).](image)

**Figure 1.** Demand and supply of rice in Ghana

2. Rice policy and government assistance

The focus of rice policy pre-SAP (Structural Adjustment Program) period was to help achieve self-sufficiency in rice and to maintain adequate buffer stocks for price stabilization and food security in periods of shortfall. The rice subsector during the periods between 1957 and 1982 received much support in the form of subsidies on inputs like tractor and fertilizer. The then government’s support in subsidizing the purchase of tractors was directed towards mechanizing rice production in Ghana. These supports were however withdrawn in 1983, as a result of political developments in the country which led to major changes in economic policy of the country. This period marked the beginning and adoption of the Structural Adjustment Program (SAP). The SAP involved a progressive liberalization of both internal and external trade, a partial abolition of controlled prices, privatization of certain state monopolies and a progressive withdrawal of subsidies (Kranjac - Berisavljevic et al. 2003). This consequently led to a drop in profits accrued to commercial farmers and a progressive disengagement on their part. The SAP in addition, led to a collapse of institutional arrangements responsible for the development and maintenance of seed multiplication and units for variety improvements.

Several policy measures and projects including ‘Ghana Agricultural Policy: Action Plan & Strategies’, ‘Agricultural Services Rehabilitation Project (ASRP)’, ‘Medium Term Agricultural Development Program (MTADP)’ and ‘Food and Agricultural Sector Development Policy (FASDEP I and FASDEP II)’ have all played part in helping revitalize the rice subsector. These policies and projects have been implemented alongside other protection and trade measures in the form of tariffs on imports, taxing of consumers and subsidies or tax on production.
With the current focus of the initiated National Rice Development Strategy (NRDS) on doubling local rice output and reducing the influx of imported rice on the local market, rice imports currently attract the following duties and levies: 20% import duty, 12.5% Value Added Tax (VAT), 2.5% National Health Insurance Levy (NHIL) collected by the VAT secretariat, 0.5% Export Development and Investment Fund Levy (EDIF), 1% Inspection fee, 0.5% ECOWAS Levy, and 0.4% Ghana Customs Network (GCNET) (Rondon and Ashitey, 2011). These duties and levies were withdrawn in 2008 due to the commodity crisis observed in that year, but were reinstated in 2010 in pursuit of achievement of the goals of the NRDS.

Plans towards doubling of output of local rice are currently being implemented through promotion of productivity enhancing innovations of small and commercial rice producers and enterprises along the value chain, promoting consumption of local rice through quality improvement, value addition and domestic and regional marketing, and promotion of stakeholder innovation capacity for the utilization of rice by-products while ensuring sound environmental management practices (Sharma and Morrison, 2011).

3. Rice market structure

The rice market in Ghana is characterized by two major distribution channels: the local rice channel and the imported rice channel (with the latter holding much grounds in urban markets which according to MiDA account for 76% of total rice consumption in the country). Taking into account input use, the local rice channel is made up of input suppliers, local rice producers, aggregators, local rice processors, rice wholesalers (‘aggregator-processors’), rural/urban retailers and rural/urban consumers. The imported rice channel comprises rice importers, imported rice wholesalers/rice wholesalers (some deal also in local rice), urban/rural retailers, and urban/rural consumers.

Most of the inputs used in cultivation of rice (including fertilizers and pesticides) are imported into the country and marketed through wholesale and retail input distributors. Movement of output on harvest from the farm gate to the final consumer goes through aggregators, processors (and sometimes aggregator-processors – thus aggregators who are also into processing and usually have formal contracts with rice importers who deal also in the sale of local rice), wholesalers, rural and urban retailers, and then to the final consumers. Most of the distribution and power in the local rice channel is centered on the wholesalers, who mostly influence the degree of profit (price) transmission to the respective actors in the chain based on their expectation about the retail market prices (Amanor-Boadu, 2012). Concentration of power on the wholesalers and at times processors is attributed to poor market information on the part of producers, retailers and other agent in the distribution network. Low bargaining power on the part of producers has been attributed as well to limited storage and processing infrastructure and poor roads leading to and from most rice producing areas (Fintrac Inc., 2012).
On the import side, importers are believed to have power advantage on the wholesalers due to their relative size, capital position and access to relevant and timely information (Amanor-Boadu, 2012). In this channel, rice is distributed either through wholesaler to retailers and then to consumers, or directly from the import hub to retailers and then to consumers. With the highly segmented nature of both distribution channels and the concentration of power on the wholesalers and importers, increments in price of rice have been reported by Amanor-Boadu to benefit importers and wholesalers than they do producers and consumers. This could in a way preclude the achievement of goals for implementing protection measures such as tariff imposition.

4. Model specification and data

In the current study, output response of rice for Ghana is estimated based on the following equation

\[
\ln \text{PROD}_t = \beta_0 + \beta_1 \ln \text{HA}_t + \beta_2 \ln \text{PPR}_{t-1} + \beta_3 \ln \text{PPM}_{t-1} + \beta_4 \ln \text{WPU}_{t-2} + \beta_5 \ln \text{YLD}_{t-1} + \beta_6 \text{NRA}_{t-2} + u_t
\]

where:

- \(\text{PROD}_t\) - rough rice output ("000" tones);
- \(\text{HA}_t\) - harvested area of rough rice ("000" hectares);
- \(\text{PPR}_{t-1}\) - lagged nominal producer price of rice (Standard Local Currency Unit);
- \(\text{PPM}_{t-1}\) - lagged nominal producer price of maize (Standard Local Currency Unit);
- \(\text{WPU}_{t-2}\) - two-period lag of price of urea fertilizer (world price as proxy, US$/t fob);
- \(\text{YLD}_{t-1}\) - lagged yield of rough rice (tones/hectare);
- \(\text{NRA}_{t-2}\) - two-period lag of nominal rate of assistance (%).

Data (1966-2009) on all the variables were collected from the IRRI website (World Rice Statistics) and the agricultural production database of the FAO (FAOSTAT). Nominal local rice and maize prices in local currency units (LCU) were converted to standard local currency units (SLC) using the FAO conversion factor of 1 GHS = 1000 GHC. World price of urea was used as a proxy for local price due to difficulty in accessing time series data on local price of urea fertilizer, and due to the high dependence of Ghana on imported fertilizer and other inputs for production. Prior to estimation of the regression equation (with all variables in the log form except nominal rate of assistance (NRA)), the whole set of data was verified to ascertain the order of integration of the individual series, as this is a vital step in the data generation process and choice of estimator.

5. Results

Both the Augmented Dickey-Fuller and Phillips-Perron tests employed for verification of the data showed that all the variables are non-stationary at level, but become stationary at first difference. With no I(2) variable(s) found in the data set, the regression equation was estimated using the Ordinary Least Squares (OLS) estimator, followed by series of diagnostic tests to avoid spurious results.
Table 1. Unit root test of variables (ADF and PP tests)

<table>
<thead>
<tr>
<th>Variables</th>
<th>Level</th>
<th>First difference</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>ADF</td>
<td>PP</td>
</tr>
<tr>
<td>PROD</td>
<td>-3.047616</td>
<td>-3.105479</td>
</tr>
<tr>
<td>HA</td>
<td>-3.453404</td>
<td>-3.416014</td>
</tr>
<tr>
<td>PPR</td>
<td>-0.772423</td>
<td>-0.713302</td>
</tr>
<tr>
<td>PPM</td>
<td>-2.589135</td>
<td>-2.623278-</td>
</tr>
<tr>
<td>WPU</td>
<td>-2.520567</td>
<td>-2.630823</td>
</tr>
<tr>
<td>WPR</td>
<td>-2.399102</td>
<td>-2.346208</td>
</tr>
<tr>
<td>YLD</td>
<td>-3.447409</td>
<td>-3.309861</td>
</tr>
</tbody>
</table>

Critical Value

| NB | 95 % confidence level for critical value, ***1% |

Diagnostic tests for normality, serial correlations, structural stability and misspecification of the functional form through a Reset test were applied, and the results show that the regression equation passed all the diagnostic tests and the insignificant value for the Reset test reflects appropriateness of the estimated regression equation. The Jarque-Bera test for ascertaining normality in the distribution of the residuals gave a value below the critical value, thus, implying that the residual series is normally distributed. Both the Breusch-Godfrey serial correlation LM test and the Q-stat values indicated that there is no first or second order serial correlation in the residuals, with the ARCH test signaling a homoscedastic nature of the residuals. To affirm the reliability of the estimates (thus the result is not a spurious one), the residual series was tested for stationarity through the Augmented Dickey-Fuller test. The result shows that the residual series is stationary, with the ADF statistic being significant at the 1% level.

In analyzing the stability of the estimated coefficients, the cumulative sum (CUSUM) and the cumulative sum of squares (CUSUM) were applied, and the results show that they remain within the 5% boundary. According to Bahmani-Oskooee (2001), this shows that the regression equation is correctly specified and the estimated coefficients are stable.

In interpreting the result, the individual effects of the variables on output of rice were all found to be significant. A total of about 93% of variations in output of rice in Ghana is explained by dynamics in the variables for the estimated equation. The result indicates that area cultivated was significant at the 1% level, with elasticity of 0.824, implying that a one percent increase in area cultivated of rice will lead to a 0.824% increase in output of rice. An increase in the area cultivated of rice could lead to appropriate and efficient use of the abundant labor available in the country, exploitation of economies of scale and pave room for mechanizing production of local rice as this technology is been precluded by the current small sizes of farms. The small sizes of current holdings are attributed in greater part to the current land tenure system which limits size of holdings and investment towards land improvement and to lack of access to credit on the part of farmers (with high interest rates on those available). The own price elasticity of 0.333 was found to be significant at the 1% level, with that for the competitive field crop (maize) -0.280 being significant at the 5% level. An increase in the farm gate price of local rice increases the financial base of farmers and allows them to meet some vital production cost which consequently leads to the positive effect on output.
Table 2. Estimates of output response of rice for Ghana

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>t-Statistic</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>1.516776</td>
<td>2.834201***</td>
</tr>
<tr>
<td>Log (HA)</td>
<td>0.824259</td>
<td>8.156321***</td>
</tr>
<tr>
<td>Log (PPR(t-1))</td>
<td>0.332889</td>
<td>3.344807***</td>
</tr>
<tr>
<td>Log (PPM(t-1))</td>
<td>-0.279704</td>
<td>-2.677131**</td>
</tr>
<tr>
<td>Log (WPU(t-2))</td>
<td>-0.135030</td>
<td>-1.958707*</td>
</tr>
<tr>
<td>Log (YLD(t-1))</td>
<td>0.342682</td>
<td>2.579011**</td>
</tr>
<tr>
<td>NRA(t-2)</td>
<td>-0.103613</td>
<td>-1.828667*</td>
</tr>
</tbody>
</table>

Adj. R²: 0.929478          F-statistic: 91.06268
Durbin-Watson Stat: 2.073465
Jarque-Bera: 1.580124

Log Likelihood: 19.09885
B-G LM F-stat (1): 1.468477 (0.2339)
Q-Stat (1): 0.7574 (0.384)
B-G LM F-stat (2): 2.7382 (0.254)

ARCH Test: F-stat: 0.021587 (0.8839)
Reset Test: 1.171 (0.2868)

ADF of residual: -7.405137***
S.E of regression: 0.168215
Sum squared resid: 0.990370

***1%, **5%, *10%

Figure 4. CUSUM and CUSUM of Squares Tests

Increases in the farm gate price of maize however, lures farmers to reallocate or withdraw vital inputs from rice production into maize production in pursuit of making better returns as rational beings. This consequently leads to the obvious adverse effect on output. A unit increase in the price of urea fertilizer, leads to a 0.135% decrease in output of rough rice and this decrease is significant at the 10% level. Fertilizer is a very vital input in rice production and its optimum use ensures sustainable yields and output if complemented with other vital inputs of production like pesticides, water supply (either through rain or irrigation) and labor. With rice farms in Ghana currently been reported to be low in productivity and farmers being generally poor, a further increase in the price of fertilizer will reduce the purchasing power of the farmers on the amount they are able to purchase and the inability of farmers to adequately meet the nutritional needs of the rice plants would result in an adverse impact through excessive competition by the plants for the limited nutrients stored in the soil.

A unit increase in yield of rice leads to a 0.343% increase in output. Increases in yield (output per unit area) reflects increase in productivity of farmers’ fields as a result of increasing fertility of the fields, better control of pests, weeds and diseases and adequate supply of water to the plants. Observation of improvements in these dimensions would under normal circumstances have the obvious positive effect on output. The positive effect of a unit increase in yield on output in the current study is found to be significant at the 5% level.

Governments of major importing and exporting countries have intervened in agricultural and food markets for several decades with the aim of ensuring welfare for both producers and consumers. Such interventions have mostly been in the form of distortion through subsidy and taxes. The effect of such distortions are believed to differ between major and minor importers and exporters and to depend on whether there exist or not intermediate inputs on the production side. As a relatively small importer of rice, distortions in the rice sub-sector of Ghana through nominal rate of
assistance is seen to have an adverse effect on rice production, contrary to the positive effects observed in most major importing countries. Distortions through imposition of high tariffs on rice imports as is observed for Ghana was confirmed by Amanor-Boadu (2012) to rather have beneficial effects for rice importers and wholesalers than they do producers and consumers, thereby resulting in failure of the purpose for imposition of such a restriction measure. Secondary effects of such a distortionary measure on output of rice through increases in the price of imported/intermediate inputs used in production precludes farmers from using adequate amounts in their cropping, which consequently lead to sub-optimal yields. This adverse effect could as well be due to the highly segmented nature of the market and the corresponding poor transmission of price and profit shares. A 1% increase in the nominal rate of assistance leads to a 10.361% decrease in output of rice, and this decrease was found to be significant at the 10% level. Price support through nominal rate of assistance on the part of government for a small importing country like Ghana is seen therefore to do more harm to the rice sub-sector than good.

The intercept term is noted to have a positive coefficient of 1.517, significant at the 1% level. This implies that should the current states of the other variables/parameters be maintained, farmers will continue to produce significant outputs of rough rice to help meet local rice consumption needs. This reflects a high dependence of most of the rice farmers on rice production for sustenance (production for consumption and sale of surplus).

Synthesis of results and recommendations

Rough rice output in Ghana is found to be driven by changes in area cultivated of rice, own price and price of competitive field crop (maize for the current study), price of urea fertilizer, productivity of farmers’ fields (captured through dynamics in yield) and nominal rate of assistance to rice farmers. As a small importing nation, nominal rate of assistance is observed to have adverse effect on output of rice and increment in prices through such distortionary measure do benefit importers and wholesalers than they do consumers and producers due to poor transmission by virtue of the highly segmented nature of the market, poor assess of farmers to market information, limited processing and storage facilities in the country (which influences the bargaining power of farmers), poor access to markets due to underdeveloped road infrastructure, and likely increase in prices of intermediate inputs of production.

The poor nature of roads to and from some producing areas have been reported by Fintrac Inc. (2012) in a USAID funded project “Enabling Agriculture Trade” to lead to a 5% to 10% decrease in price paid for paddy rice in such areas. A positive effect in assistance may be observed in major importing countries with better market structure which allows for appropriate transmission of price increments and have direct offsetting measures in place to mitigate any adverse impact from increase in prices of intermediate inputs.

Local rice supply in Ghana, based on results of the current study, could be improved through vigorous pursuance of intensification and area expansion and appropriate transmission of prices to farmers with least distortion. Price support and control measures which cause distortion in the rice market need to be minimized. The focus of future research could be on how best this could be achieved or on estimating the optimal rate to use in order to mitigate the adverse effect of state assistance. To achieve sustainable yield and output of rough rice, measures should as well be put in place to improve upon the current fertilizer subsidy structure to ensure adequate and efficient use of fertilizer in rice production.

References


¹ Corresponding Author: Boansi David (boansidavid@rocketmail.com). Department of Agricultural Economics and Rural Development, Corvinus University of Budapest, Hungary
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