Options for Export Diversification and Faster Export Growth in Ghana

Chandra, Vandana and Osorio Rodarte, Israel

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by Vandana Chandra and Israel Osorio-Rodarte

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ACRONYMS AND ABBREVIATIONS

AAF	Automatic Adjustment Formula
AAGDS	Accelerated Agricultural Growth and Development Strategy
ACP	African, Caribbean and Pacific
AfDB	African Development Bank
AGI	Association of Ghana Industries
AICD	Africa Infrastructure Country Diagnostic
BOT	Operate and Transfer
BPO	Business Process Offshoring
BST	Bulk Supply Tarrif
CC	Co-operative College
CDF	Comprehensive Development Framework
CEM	Country Economic Memorandum
CEPA	Center for Policy Analysis
CERs	Carbon Emission Reductions
CMB	Cocoa Marketing Board (renamed Ghana Cocoa Board or Cocobod)
COCOBOD	Ghana Cocoa Board
CODAPEC	Cocoa National Disease and Pest Control Committee
CPIA	Country Policy and Institutional Assessment
CRC	Central Road Corridor
CWIQ	Core Welfare Indicator Questionnaire
CWSA	Community Water and Sanitation Agency
DAC	Development Assistance Committee
DAES	Directorate of Agricultural Extension Services
DAs	District Assemblies
DC	District Assemblies
DFE	Dynamic Fixed-Effects
DGIRH	Directorate General for the Inventory of Hydraulic Resources
DOC	Department of Cooperatives
DPs	Development Partners
DSA	Debt Sustainability Assessment
DSM	Distribution Service Margins
DWSTs	District Water and Sanitation Teams
EC	European Commission
ECG	Electricity Company of Ghana
ECOWAS	Economic Community of West Africa States
EDF	Extension Development Fund
ERP	Economic Recovery Program

ETA	Electronic Technology Act
FAO	Food and Agriculture Organization of the United Nations
FASDEP	Food and Agriculture Sector Development Policy
FBO	Farmer-Based Organizations
FDI	Foreign Direct Investment
FEER	Fundamental Equilibrium Exchange Rate
GASCO	Ghana Association of Stevedoring Companies
GCC	Ghana Co-operatives Council
GCNet	Custums and Trade facilitation e-government application
GDP	Gross Domestic Product
GHA	Ghana Highway Authority
GIS	Geographic Information System
G-JAS	Ghana - Joint Assistance Strategy
GLSS	Ghana Living Standars Survey
GMES	Ghan Manufacturing Enterprise Survey
GMM	Generalized Method of Moments
GNI	Gross National Income
GoG	Government of Ghana
GPHA	Ghana – Port Harbour Authority
GPHA	Ghana Port Harbour Authority
GPRS	Ghana Poverty Reduction Strategy
GSP	Generalized System of Preferences
GSS	Ghana Statistical Service
GT	Ghana Telecom
GWCL	Ghana Water Company Ltd
GWEP	Guinea Worm Eradication Program
HD	Human Development
HHI	Herfindahl-Hirschman index
HIPC	Heavily Indebted Poor Countries
HP	Hodrick-Prescott
ICA	Investment Climate Assessment
ICOR	Incremental Capital Output Ratio
ICT	Information and Communication Technology
IFC	International Finance Corporation
IFPRI	Internal Food Policy Research Institute
IITA	International Institute of Tropical Agriculture
IMF	International Monetary Fund
IOCT	Incremental Output-Capital Ratio
IPP	Independent Power Producer
ISP	Internet Service Provider
ISSER	Institute of Statistical, Social and Economic Research (University of Ghana)
IT	Information Technology
ITES	IT Enabled Services
ITU	International Telecommunications Union
JTC-IWRM	Joint Ghana-Burkina Technical Committee on Integrated Water Resources Management
KWh	Kilowatt hour
LBC	Licenced Buying Company
LCU	Local Currency Unit

LDB	Live data base
M or m	Million
M2	Ratio of Money to quasy-money
MAMS	A Computable General Equilibrium Model for MDG Simulations
MBB	Marginal Budgeting for Bottlenecks
MCA	Millenium Challenge Account
MDBS/PRSC	Poverty Reduction Support Credit
MDG	Millenium Development Goal
MDRI	Multilateral Debt Relief Initiative
MENA	Middle East and North Africa
MG	Mean Group
MIC	Middle-Income Countries
MMYE	Ministry of Manpower, Youth and Employment
MoE	Ministry of Energy
MP	Members of Parliament
MPS	Meridian Port Services
MRPH	Ministry of Railways, Ports and Harbours
MRT	Ministry of Roads and Transport
MTC	Ministry of Transport and Communication
MW	Mega Watt
MWH	Ministry of Works and Housing
MWRWH	Ministry of Water Resources, Works and Housing
NCA	National Communications Authority
NDPC	National Development Planning Commission
NEAP	National Environmental Action Plan
NED	Northern Electricity Department
NEF	National Electrification Funds
NEP	National Electrification Project
NEPAD	New Partnership for Africa's Development
NGOs	Non Gouvernemental Organization
NITA	National Information Technology Agency
NTP	National Communications Authority
O&M	Operation and Maintenance
ODAs	Official Development Assistance
PMG	Pooled Mean Group model
PPP	Public Private Partnership
PPRC	Producer Price Review Committee
PRSC	Poverty Reduction Support Credit
PSI	Presidential Special Initiative
PURC	Public Utilities Regulatory Commission
RCA	Revealed Comparative Advantage
RDSP	Road Sector Development Program
RDSP	Road Sector Development Program
REA	Rural Electrification Agency
REER	Real Effective Exchange Rate
REF	Rural Electrification Fund
RELC	Research/ Extension Liaison Committees
RER	Real Exchange Rate
RPED	Regional Program on Enterprise Development
RSDP	Road Sector Development Program
SAM	Social Accounting Matrix

SAT	Submarine Fiber-optic Cable
SBI	Sustainable Budget Index (Botswana)
SHEP	Self-Help Electricity Program
SIP	Strategy Investment Plan
SMLE	Small, Medium and Large Enterprise
SMS	Short Message Service
SNO	Second National Operator
SOEs	State Owned Enterprises
SPS	Stringent Sanitary and Phyto-sanitary
SSA	Sub-Saharan Africa
SWAp	Sector-Wide aAproach
TFP	Total Factor Productivity
TMP	Telenor Management Partner
TMS	Tropical Manioc Selection
TOT	Terms of Trade
TUC	Trades Union Congress
UEMOA	*Union economique et monetaire ouest africaine* (West African Economic and Monetary Union)
UK	United Kingdom
UN	United Nations
UNDP	United Nations Development Programme
US	United States
USAID	United States Agency for International Development
UW	Upper West region
VALCO	Volta Aluminum Company
VBTC	Volta Basin Technical Committee
VoLP	Voice over Internet Protocol
VRA	Volta River Authority
WAGP	West African Gas Pipeline
WAPGOco	West African Gas Pipeline Company
WAPP	West African Power Pool
WATTFP	West Africa Transport and Transit Facilitation Project
WB	World Bank
WBES	World Business Environment Survey
WDI	World Development Indicators
WDR	World Development Report
WESTEL	Western Telesystems
WIAD	Women in Agricultural Development
WRC	Water Resources Commission

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5. OPTIONS FOR EXPORT DIVERSIFICATION AND FASTER EXPORT GROWTH IN GHANA

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SUMMARY

5.1 **In the 1980s, China and Ghana were low income countries with a per capita income of about US$200 (constant 2000 US dollars)**: Twenty five years later, exports of electronics, machine parts, children's' toys and footwear have enabled China to leapfrog from a low- to a middle-income country. Ghana exports broadly the same products and has not become richer. There is near consensus on the need for Ghana to diversify its exports but there is less clarity on *what* it should diversify into.

5.2 **According to the standards of comparative advantage, Ghana should export *more* gold and cocoa if it wants to grow faster.** An alternative approach recently proposed by Hausman and Klinger (2006) posits that to become a richer country, Ghana needs to export 'rich country' products. While the two approaches are not entirely mutually exclusive, the latter stresses more the need for diversification. We develop a framework in which we draw on Hausman and Klinger's concepts to analyze the options for an income enhancing export diversification strategy for Ghana that grapples with concepts such as a product's income potential, Ghana's revealed comparative advantage in it, and the ease and scope of diversification. We make five contributions. (1) The outcome is a *sector specific strategy* based on (2) *scaling up* several 'potential emerging champions' instead of seeking export discoveries.

5.3 **Using this alternative approach to ascertain where Ghana could diversify to, we tentatively conclude that there may be at least 6 efficient sectors where Ghana's has the highest probability of diversifying into**:

- **In the short term:** scaling up of fresh and processed fishery and horticultural sectors.
- **In the medium term**: more complex processed products (salt and starch) and palm and vegetable oils.
- **In the longer term**, wood and metals manufactures.

5.4 **The paucity of technological capabilities and other local or nontradable inputs is the greatest hurdle to diversification in these sectors but in varying degrees.** Our analysis suggests that countries that also export products similar to Ghana's current exports were able to adapt their skills and diversify into these 6 relatively sophisticated sectors. The fact that in spite of Ghana's revealed comparative advantage in these sectors, they have not scaled up suggests that externalities are most likely the reason.

5.5 **This chapter suggests that one policy challenge for Ghana is to facilitate a comprehensive package of** *sector specific* **polices dedicated to fostering the technological capabilities and other nontradable public inputs necessary to potentially** *scale up the 6 sectors***.** We also find that 3 of the 4 PSI products—starch, salt, palm oil ma efficient choices but the efficiency of the textiles PSI is unclear. Our analysis also indicates that when income enhancement is the objective, there is no blueprint for a diversification strategy. Moreover, Ghana's path to a middle income status does not have to be paved with only manufactured products. There are multiple paths and processed natural resources-based products are not necessarily a curse, and if Ghana wants and it builds the requisite capacity, it can turn them into an opportunity.

INTRODUCTION

5.6 **In the early 1980s, Ghana, India and China had per capita incomes in the range of 200-250 (in 2000 constant US dollars); today, the differences in their income levels are huge**. By 2004, China had leapfrogged from a low to a middle income country, while Ghana's income level inched up to only US$278. Other countries also made impressive strides during the same period. India and Malaysia's per capita incomes increased by 100% and Vietnam's by 125%. Export diversification in non-traditional products played a dominant role in powering economic growth in China, Malaysia and Vietnam. Over the 25 year period, China's top exports changed from petroleum, auto parts and outer garments to electronics-related parts and machines. In Vietnam, the change was from coal, natural rubber and crustaceans to footwear, crude petroleum oils and furniture; and in Malaysia, from natural rubber and timber to electronic microcircuits and machines. In Ghana, the only change in the top four exports of cocoa beans, aluminum, gold and cocoa butter was the replacement of cocoa butter with timber. Why this was so and how it can be reversed is the theme of this paper.

5.7 **Two characteristics make Ghana a strong candidate for export diversification**. It is known for being one of the earliest countries in Sub-Saharan Africa to implement structural adjustment reforms between 1983 and 2000, and enjoy the fortune of a relatively stable political and macroeconomic environment. "Yet the structure of the economy changed very little and its performance is not significantly different from what it was in the previous two decades before reform," (Aryeetey, Fosu and Bawumia (2001) and Aryeetey and Harrigan (2000), Easterly[126] (2001)). Trade liberalization improved resource allocation and reinforced Ghana's comparative advantage in natural resource-based and primary products. Exporting *more* of the same traditional products became the only channel of export growth and an encumbrance on Ghana's income levels.

5.8 **Most would agree that to become a middle-income country, Ghana needs to diversify 'away' from natural resource-based exports, but exactly *what* it should diversify 'towards' is less clear; this paper is a tentative attempt to contribute to answering this complex question.** It is tentative because the paper relies on a fairly new methodology and its conclusions, to be fully operational, must be further tested in fieldwork to take into account institutional and capacity constraints that might be important in implementing the policy conclusions. Nevertheless, it is hoped that the paper provides useful material to the authorities as they consider the implementation of their export diversification strategy.

5.9 **Increasing domestic disappointment with an export policy stance that is neutral toward the export mix prompted the GoG to launch four Presidential Sector Initiatives (PSIs) to provide catalytic support to exports of cassava starch, salt, textiles and palm oil.** Whether this choice of products holds promise of success and whether it is sufficient to put Ghana on the fast track to a middle income status is uncertain. We explore this issue in this paper.

5.10 **Conventional export indicators do not explain why Ghana lags by a wide margin more successful countries such as China, India, Thailand, Malaysia and Sri Lanka**. Between the 1980s-2004, growth in Ghana's per capita exports increased by only 88% relative to rates of 134—515% (nominal) in the comparators. It also had the most concentrated export basket[127]—the export share of the top five products was 75% and high compared to less than 34% in Sri Lanka, China and India. The share of exports in Ghana's GDP was approximately 40%, much lower than

[126] Easterly (2001) used income data from the 1990s and aptly concluded: "Zero per capita growth is a disappointing outcome whatever the cause, especially for Ghana which is considered a good performer."

[127] This is measured by the change in the Herfindahl Index which is the most commonly used measure of export diversification and ranges between 1 and 0, where 0 implies perfect diversification.

in Thailand or Malaysia[128] where growth in per capita incomes was fueled by non traditional exports.

5.11 **The slow growth of Ghana's exports and per capita income is often attributed to the overwhelmingly large share of natural resources**—cocoa, gold and aluminum—which are vulnerable to terms of trade shocks and accounted for about two thirds of total exports of over US$3 billion in 2000-04. More recently though, it has been shown that natural resources are neither a curse, nor destiny—it all depends on how the exporter treats them. Between 1985-04, exports grew at an average of only 8% per annum (nominal). On the one hand, volatile prices suppressed overall export growth, and on the other, the small share of its nontraditional exports constrained catch up with many middle income countries in East Asia, Latin America and even some in low income ones in South Asia. At one time, many of the latter also exported natural resources.

5.12 **The small size of Ghana's domestic market makes exports a critical source of growth**. Trends over the past 25 years suggest that reliance on its comparative advantage in unprocessed natural resources is more likely to sustain, rather than alter the low growth trajectory that the Ghanaian economy is charting. Evidently, to change course and achieve a middle income status in the next ten years, export diversification is no longer an option for Ghana.

5.13 **Exporting fewer products with volatile prices can dampen the volatility of export growth, but whether diversification will enhance Ghanaian incomes depends on** ***what*** **replaces those products**. What kind of new products should Ghana export? Should it be manufactured products that had an export share of less than 12% in 2004? In analyzing the options for export diversification in Ghana, we have made use of various constructs designed by Hausmann and Rodrik,[129] to examine the income potential of each product that Ghana exports. The rationale is that, in general, as the products exported by richer countries are quite different from those exported by lower income ones, there is a notional link between the export mix and income levels. The East Asian example underscores this link. Which income-enhancing products can Ghana export?

5.14 **In section 2, we briefly review how development specialists have conceptualized the constraints to export diversification in Ghana and natural resource exporters in general.** This is important as Ghana's economic history and present economic structure are largely driven by cocoa and gold, its two leading exports. In Section 3, we evaluate how well Ghana's current exports benchmark its position with respect to its goal to reach a middle income status by 2015. As this goal is tied to GDP per capita, an income-based measure of export diversification is warranted. In section 4, we explore the Hausmann and Klinger (2007) methodology and apply it to benchmark Ghanaian exports. We discover that there is a distinct set of export products that can be instrumental in guiding an income enhancing export diversification in Ghana. Section 5 is devoted to evaluating the efficiency of the four PSIs that the GoG launched not too long ago. They do not have the potential to raise its export growth, even in the longer term. So, in section 6, we propose an alternative export diversification strategy for Ghana. It hinges on scaling up rather than discovering new exports and sector specificity whose relevance we discuss further in section 7. The last section concludes. Overall, we make five major contributions to the export diversification literature on Ghana.

[128] In the large countries such as India and China, the share of exports in GDP is usually small because of the large size of the domestic market.

[129] We have applied several concepts designed by Hausmann and Rodrik and their co-authors in a series of papers. These are referenced as appropriate throughout the text.

SLOW EXPORT DIVERSIFICATION: SOME DEVELOPMENT PERSPECTIVES

5.15 **High levels of export concentration and a per capita income that is virtually unchanged from 25 years ago have provoked several competing and sometimes conflicting explanations**. Ghana's recent growth performance has given ground for optimism about its long-term growth prospects as the country accelerated to real GDP growth of 6% in 2006-7 (Bogetic and others, 2007). Earlier analyses such as Aryeetey, Fosu and Bawumia (2001), however, noted that slow diversification in exports in the past does not seem to be leading Ghana toward a modern economy, mainly because of the inability of Ghanaian firms in certain natural resource-based sectors to withstand globally competitive pressures unleashed on them by liberalization. One legitimate view explaining this lack of diversification is that although there was some macroeconomic stability in recent years, it was not sufficiently strong nor sustained over the longer period of time to spur growth of manufactured exports. Indeed, Ghana's recent growth spurt is *coinciding* with the period of macroeconomic stabilization.

5.16 **Teal (2002) arrived at a similar conclusion that could be summarized as follows**. (a) In the presence of a weak macroeconomic environment, it is simply not efficient for Ghana to diversify away from cocoa into other crops in agriculture as cocoa remains the most profitable sector. GoG could accelerate its export growth by reducing taxes on cocoa. (b) Relative to cocoa, diversification into processed agricultural products may be inefficient as they are *skill* intensive and Ghana may not have a comparative advantage in them. (c) Diversification toward manufactured exports also is inefficient. Ghana is skills-constrained but "there seems to be no basis for the usual assumption that investment in education and skills will enhance Ghana's ability to enter new export markets," (Teal, pp. 1333). Teal believes there are four problems in assuming that investment in skills can spur manufactured exports: (1) relative to capital, the returns to skills are low in Ghana; (2) the demand for skills actually declined in the 1990s; (3) if skills are necessary, they can always be imported because they are tradable; and (4) low productivity should not constrain firms' ability to export as long as wages are sufficiently low.

5.17 **Contradicting Prebisch and Singer's** *natural resource hypothesis of the 1960s* **which predicted that declining terms of trade for natural resource-based exports would be the bane of future development, Ledermen and Maloney (2006) have recently shown that 'Natural resources are neither a curse nor destiny**,' if they are managed well and channeled into productive uses. This means that the reason for the low level of export diversification in Ghana lies elsewhere. One view is that relative to human capital (skills), the abundance of land and natural resources adversely affects SSA's ability to diversify into manufactured products which are necessary for faster and sustainable growth (Mayer and Woods (2001), Mayer (2003), Collier (1998, 1999). (Collier, 1998, 1999, 2002) and Habiyaremye and Ziesemer (2006) note that weak infrastructure is a binding constraint to manufactured exports in SSA. Eifert, Gelb and Ramachandran (2005) explain that business losses due to power outages, logistical failures, crime and differences in indirect costs make SSA's exports uncompetitive.

5.18 **The analysis in this paper makes a simple point, suggesting that Ghana needs a new product mix—one that is income enhancing, sector specific and rests on scaling up existing products that can contribute significantly to its income but which have likely not scaled up because of underlying externalities.** In this sense, our paper is the closest in spirit to Aryeetey, Fosu and Bawumia (2001) who make a plea for sector specificity but do not take it further nor discuss what it might mean for policy. This view contradicts the contention that Ghana's cannot develop until it exports manufactured products.

EXPORT DIVERSIFICATION AND EXPORT GROWTH – WHY A DIFFERENT APPROACH MAY BE NEEDED

5.19 **The previous chapter has shown that an appropriate exchange rate (and general export promotion measures) was insufficient in significantly accelerating the growth of nontraditional exports in Ghana**. In spite of volatile cocoa and gold prices and large aid flows that are could trigger the Dutch Disease, Elbadawi and Kaltani (2007) find that over the longer term, due to good exchange rate management, the real effective exchange rate in Ghana was fairly aligned for most of its post-reform period (1983 onward).[130] Yet, in spite of other complementary reforms such as deregulation and economic liberalization, nontraditional exports or non-cocoa, non-gold, especially manufactured exports [131] did not grow rapidly after 1985, although they did grow faster in the most recent period (Figure 5.1).

5.20 **The government established a Free Zones Scheme to attract investors[132] to all export sectors including BPO, telemarketing, call-center operations, and IT services**. The incentives include a fairly wide range of tax holidays, exemptions, foreigners' right to 100% equity, employer's right to contract local labor under terms set by the employer only and visa privileges. However, net FDI increased very gradually from a low of US US$15 in 1990 to only US$139 million in 2004. In contrast, in 2003, the numbers were US$1200 in Nigeria, US$283 in Uganda and US$762 in South Africa. Aryeetey, Fosu and Bawumia (2001) note that in addition to macro policies, "sectoral policies will be necessary to increase manufactured exports" in Ghana.

5.21 **Over the longer term, unprocessed natural resource exports have constrained growth in Ghana.** As a share of GDP, exports grew from 12% in the early 1980s to 44% in 2000-04 but commodity prices dampened growth. The correlation between cocoa and gold price shocks and GDP growth was weak over the longer term but during subperiods it was stronger during downswings in prices than upswings. Between 1998 and 2000, cocoa prices dropped by almost 50% and real GDP by 20%. However, between 2001 and 2005, when commodity prices increased, real GDP growth was low. Even though the economy's resilience to commodity price shocks has increased now (Bogetic and others, 2007), the relatively low demand elasticity of cocoa, gold, diamonds, and aluminum exports continues to hinder export growth.

5.22 **Export diversification was slow and limited.** Ghanaian exports grew from about US$821 million in 1980-84 to about US$2.5 billion in 2000-04 by tapping the intensive as opposed to the extensive margin, i.e., producing more of the existing products rather than discovering new ones, a finding also noted by Teal (2002). Non-traditional exports stagnated between 1993- 2004 at approximately US$850,000 while the dominance of traditional exports was preserved. Today, the export share of non traditional products is less than one-third and most have negligible values. The contribution of non-traditional agricultural exports is even smaller.[133] Horticultural products, nuts, cotton, some furniture parts are relatively new and each has a share which is no greater than 2%. Fish and horticultural products collectively account for only 6% of Ghana's total exports.

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[130] Signs of some mild overvaluation of the exchange rate may have cropped up in the past two years, Elbadawi and Kaltani (2007).

[131] As an in depth analysis of export diversification and exchange rate dynamics is being undertaken in a companion paper, we will not elaborate further on the subject.

[132] Presented by Osey Boeh-Ocansey "Exporting Business and Professional Services: Exporting Solutions Ghana Experience," International Trade Center, Executive Forum on National Export Strategies, October 5-8, Montreux, Switzerland.

[133] Daniel Bruce Sarpong and Susanna Wolf "Export Performance and Investment Behavior of Firms in Ghana," Draft paper presented for the ISSER/Cornell University Conference on Ghana's Economy at Half-Century, June 2004.

5.23 **The number of export "discoveries" in Ghana is too small and their export values are miniscule.** Export statistics show that Ghana's *revealed comparative advantage* (RCA) [134] in a product over a 25 year period reflects their sustainability. If an export discovery is defined as a product in which Ghana had a RCA in 2004, and whose export value increased by at least 100% during the early 1980s and 2004, only 10 discoveries with a collective share was 1.5% emerge. The aggregate value of the 10 discoveries was about US$36 million in contrast to only US$500,000 in the early 1980s. In 2004, their export values ranged from US$13 million for fresh vegetables and US$6 million for palm oil to less than US$600,000 for vegetable fibers and flours. As in most other countries, Ghana's export discoveries are largely serendipitous outcomes that can neither be predicted nor planned. However, if Ghana has maintained a RCA in certain products over the past 25 years, and they have a high income potential, it would make sense for a smart export diversification strategy to facilitate the scaling up of such winners.

5.24 **A simple idea behind this paper is that export diversification, to be effective, might need to be linked more to per capita income.** Over the longer term, even as Ghana's per capita income levels remained almost the same, the Herfindahl Index[135] recorded significant diversification when it declined from 0.5 in 1980 to 0.2 in 2004. Contrary to the hypothesis tested by Imbs and Wacziarg (2003),[136] and Hesse (2007), the disconnect between income levels and diversification indicates that the Index is an inappropriate metric for Ghana. The main reason is that while the discovery of new metals (aluminum, diamonds, manganese etc.) would qualitatively preserve Ghana's dependence on natural resource-based products, the Herfindahl Index would show it as a significant diversification of Ghanaian exports. A measure that links exported *products* to *income* levels would be more useful.

5.25 **By separating the types of products that developed countries export from those which developing countries do, two other measures of diversification link exported products with income, and suggest that perhaps some high-tech exports may also an important way for Ghana to enhance its income per capita**. The sectoral classification disaggregates exports into agricultural, mineral (metals and ores) and manufactured categories, and notes that richer countries export more manufactured products. Lall's (2003) technology classification[137] labels products by their level of 'technological sophistication' and is a major improvement on the sectoral classification. However, even though it is intuitive, it is ad hoc and recommends the same policy: Ghana's income can only rise when the share of its LT, MT and HT products that is presently less than 0.05% of total exports[138] increases.

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[134] A country has a revealed comparative advantage in a product if the value share of that product in the country's exports exceeds the product's share in global trade.

[135] The Herfindahl Index is a traditional measure of diversification. It ranges between 1 and 0, where 0 denotes perfect diversification. A decline in the Herfindahl Index can occur either when new products are added to the export basket or when the distribution of export shares becomes more even. The Index is insensitive to the type of product.

[136] Imbs and Wacziarg have found that there is a U-shaped relationship between diversification and per capita GDP. For low income countries, this relationship is positive until they reach per capita income levels of 2000 US$10,000. Thereafter, the relationship turns negative as upper middle and high income countries begin to specialize.

[137] Lall (2003) classified products by their technological content as follows: primary (pp) for commodities like cocoa, maize; high value (hv) for high value agricultural products such as vegetables, fruits, flowers—we created this category to allow for distinctions between coffee and fish for example; resource-based (rb) such as wood, metals, minerals, oil; low (lt), medium (mt) and high tech (ht) products—manufactures.

[138] Note, there is an inconsistency between the sectoral definition which records the share of manufactured exports as close to 12%, and Lall's tech definition which records the same as only about 5%. The former is from the WDI and it is possible that products such as ores and concentrates that are classified as natural resources by Lall's definition, are classified as manufactured products by the sectoral definition.

5.26 **The sections in the remainder of this paper draw on a new and innovative methodology that provides a transparent link between the export mix and per capita income** and can be instrumental in guiding export diversification in Ghana (Hausmann, Hwang and Rodrik (2005) and Hausman and Klinger (2007)). As noted above, the methodology is new and conclusions of the paper are tentative and would need to be tested in additional fieldwork. As such, the paper is a first attempt at drawing conclusions from such an approach and consistent policy implications that would need to be validated during fieldwork analysis and policy discussions before they can be turned into policy recommendations.

The product space

5.27 **Ghana could, in principle, diversify by attempting, selectively, exporting products that other countries presently export;** though easier said than done, it is worth exploring this simple idea and what it could mean in Ghanaian context. After all, Ghana's diversification so far, as that of many African countries, could not be termed a success so new ideas may be worth exploring. This idea can be conceptualized by assuming that the world market is a forest that contains every possible product exported by every country. At the SITC2—4 digit level of disaggregation, the forest has about 800 products or trees and Ghanaian firms that export a product are located on its tree. Export diversification involves moving from one tree to another. Whether a jump is a smart step forward depends on whether exports of the new product can enhance Ghana's income level, and whether Ghanaian firms have a capability to reach new product trees.

The 'income level' of a product —PRODY

5.28 **Whether a product can help to raise a country's income can be measured by PRODY, which is a unique dollar denominated 'income tag' attached to each product exported by any country**. It is weighted by the per capita GDP of countries that have a revealed comparative advantage in that product. As an example, chocolate's PRODY would be higher than cocoa's because it is exported mostly by high income countries, and cocoa beans would have a lower PRODY because more low income countries export it. All products have the same PRODY. This suggests that to catch up with middle income countries, Ghana needs to start exporting some higher PRODY products which they also export.

5.29 **Interestingly, the PRODYs of natural resource-based products are not always lower than those of low tech ones, which implies that manufactured exports are *not* a prerequisite for catch up.** For instance, the ability of low income countries to comply with EUROGAP standards and export frozen fish fillet to the OECD markets places them at par with higher income ones who export similar products. In 2004, the PRODYs of Ghanaian products—mostly unprocessed cocoa beans, cotton linters and sawn wood ranged from US$500 to US$3000. 5. 6 indicates that if Ghana were to export processed transformations of the same products—chocolate from cocoa, knitted garments from cotton linters and fabric, and wooden packing cases from sawn timber, its export PRODYs could increase to US$4000 to US$12000 in the future.

5.30 **High PRODY products can enhance Ghana's income only when they have sufficiently large export value shares.** Presently, the number of Ghana's high PRODY exports is too few, and each has a negligible export share. In 2000-04, among the small number[139] of relatively high PRODY products were palm oil, wood furniture, aluminum alloys, chilled or fresh

[139] Among the products exported in 2000-04, there were only 10 export discoveries in which Ghana had a revealed comparative advantage.

vegetables[140] and preserved fish. After excluding export discoveries, preserved fish was the only high PRODY product with a share of 3.5%.

PRODYs, EXPYs, and economic development in developing countries

5.31 **Just as PRODYs indicate the income level of a product, EXPYs indicate the income level of a country's export basket**. EXPY is the weighted sum of the PRODY's of all products that a country exports. It is broadly consistent or reflects well a country's per capita GDP. Sufficiently large increases in the PRODY of exports raise a country's EXPY and income levels.

5.32 **Whether export diversification, measured by the traditional Herfindahl Index, is income enhancing is illustrated in Figure ?**. The differences in the economic development outcomes between Ghana and some of the countries that export at least one product that Ghana also exports[141] can be explained by their EXPYs. Bilateral comparisons are revealing. In 1980-84, the export baskets of Mauritius and Indonesia were even more concentrated than Ghana's but by 2000-04, their EXPYs exceeded Ghana's by a significant margin and reflected the underlying PRODYs of the products that transformed them into middle income countries. In 1980-84, Brazil's had the lowest EXPY. By 2000-04, the EXPYs of Brazil, Malaysia, and China had increased significantly while Ghana's EXPY barely changed even though its Herfindahl Index recorded significant diversification.

5.33 For rapid economic growth, not all Ghanaian exports must transform into higher **PRODY or "rich-country" products.** In most countries, competitiveness in a *few* higher PRODY products, usually produced from natural resources, was sufficient to leapfrog. Table 5.1 points out that, as does Ghana, Malaysia still exports palm oil and rubber. However, to become a middle-income country, Malaysia also developed the capability to export some medium-tech products such as electronics. Brazil's leading export remains soy beans, but it also learned to export passenger cars. China's ex228

5.34 port basket contains high PRODY minerals, fish, and forestry products, which Ghana also exports, but in very small shares. The leap in China's EXPY (Figure 5.9) is an example a country's leading exports that virtually transformed it in 25 years.

Organizing framework

5.35 **We use the new methodology by developing a simple framework to benchmark Ghanaian exports in the forest and then study the scope for their diversification.** Whether Ghana enjoys any particular advantage in exporting a product is indicated by its RCA in that product. In this exercise, a product's RCA is assigned a value of 1 if Ghana's RCA in that product is larger than 1, and 0 otherwise. All Ghanaian exports were sorted by their RCAs in 1980-84 and 2000-04. Changes in the RCAs indicate the broad direction of Ghanaian exports in the past 25 years when structural transformation of its export basket could occur. For simplification, only products with export values in excess of US$10,000 are listed in text Table A in this section. A

[140] Daniel Bruce Sarpong and Susanna Wolf "Export Performance and Investment Behavior of Firms in Ghana," Draft paper presented for the ISSER/Cornell University Conference on Ghana's Economy at Half-Century, June 2004.

[141] Malaysia (MYS)—palm oil exporter, Mauritius (MAU)—garments exporter, Botswana (BWA) - diamonds exporter, China (CHN)—exporter of textile and garments, processed minerals and their products, horticultural and fishery, forestry products, and medium and high tech products, India (IND)—exporter of garments, cut flowers, horticultural and fishery products, and other low and medium tech products, Indonesia (IDN)—a low income natural resources exporter turned into a middle income, Brazil (BRA)—cocoa and other natural resources and manufactured products exporter, and Uganda (UGA)—coffee, cut flowers, horticultural and fishery products exporter.

necessary selection criterion for scaling up a product is that its PRODY is greater than Ghana's EXPY to ensure that it is a stepping stone to a higher income level. Text Table A in this section lists the results. All Ghanaian exports can be classified into 4 broad categories (a–d).

- **Disappearances**: The first quadrant lists only one product: live/dead or chilled fish in which Ghana had a RCA in 1980-84 but had lost it by 2000-04.
- **The classics:** In 1980-84 and 2000-04, Ghana had a RCA in its traditional exports: gold, cocoa beans, cocoa butter and paste, metals, sawn wood logs and prepared or preserved fish. Most of these products are relatively low tech but collectively they account for the bulk of Ghana's exports today. Fish products and aluminum have the highest PRODYs. However, cocoa beans, Ghana's leading traditional export, has the lowest PRODY (US$1500), which explains why it is not the driver of export growth.
- **Emerging champions**: In 1980-84, the adherents of the Hecksher-Ohlin theory of factor endowments would have predicted the classics as the *only* efficient exports for Ghana. Suppose efficiency implied an income (or EXPY) enhancing pattern of export diversification. Then the most interesting category of exported products would be the emerging champions in which Ghana acquired a RCA after the mid-1980s. Compared to its average PRODY or EXPY of US$2437 in 2000-04, several higher PRODY emerging champions qualify as perfect candidates for scaling up. In addition to those listed in text Table A, there are many with negligible export values. Only 8 have values in excess of US$10 million.
- **Marginal exports:** Ghana did not have an RCA in these products in either 1980-84 or 2000-04. Support for these products could be risky and would not be a part of a prudent export diversification strategy. Many of these products have high PRODYs and most have export values of less than US$1 million, probably because they are exported by only a few firms.

Density: Country- specific measure of ease of diversification

5.36 **The potential, emerging champions are attractive because Ghana has acquired a RCA in all and several also have high PRODYs.** However, they are too many, too small, and too diverse, and, presently, Ghana does not have the critical mass of technological capabilities required for all. Whether a particular emerging champion can be scaled up depends on its density, that is, the *ease* with which Ghana's current capabilities can be adapted to produce it. As such, technological capabilities differ across products, and some types are more easily adaptable than others. Dense areas of the forest would have many trees in close proximity with related products that use skills that are weakly substitutable. This is typically true of manufactured products,[142] which, on average, also have higher PRODYs. Unfortunately, the ease with which Ghana can diversify into manufactures is low. Ghana's product densities locate it in a sparse or isolated part of the forest with trees of lower PRODY: unprocessed, natural-resource-based products.[143] To leapfrog from a sparse to the dense part of the forest usually requires a different skills mix, which Ghanaian firms may not find in sufficiently large numbers and which may be costly to create. Tables 8A–8D list the product densities of Ghanaian exports.

[142] As an example, countries that produce machines find it easier to learn how to build automobiles.

[143] Cocoa bean is an example of a product in the sparse area of the forest from where it is not easy for firms to move to too many high PRODY products.

Table 5.1: Presidential Special Initiative (PSI): Efficiency of government's choice of products and its options

(a) Disappearances				(b) The Classics		
RCA_'80-84 =1 RCA_'00-04 = 0	**Ease of diversification (density)**	**PRODY**		**RCA_'80-84 =1 RCA_'00-04 = 1**	**Ease of diversification (density)**	**PRODY**
Fish,fresh(live/dead)or chilled,exc	0.128	4,919		Fish,prepared/ preserved,n.e.s. i	0.118	10,775
				Cocoa beans, whole or broken,raw	0.209	1,542
				Cocoa powder,, paste	0.104—0.126	5,477
				Sawlogs and veneer logs,	0.148	2,287
				Wood sawn sliced/peeled,	0.142-0.104	5,237
				Aluminum and alloys	0.102	9,077
				Industrial diamonds, sorted	0.102	5,376
				Manganese ores&concentr	0.119	4,238
				Gold,non-monetary	0.121	5,716
(c) The Marginals				**(d) Potentially emerging champions**		
RCA_'80-84 =0 RCA_'00-04 = 0	**Ease of diversification (density)**	**PRODY**		**RCA_'80-84 =0 RCA_'00-04 = 1**	**Ease of diversification (density)**	**PRODY**
PSI sectors in orange				**PSI sectors in orange**		
Cotton fabrics,woven,mercer	0.028	8,974		Cassava starch	0.136	4,789
Clothing acces. Knitted/ crocheted	0.032	8,102		Cotton uncarded	0.168	1,500
Horticultural products industry				Common salt;rock/sea	0.108	7,080
Vegetables, prepared or preserved,n.	0.025	8,482		Palm oil	0.157	4,635
Bananas, fresh or dried	0.076	5,183				
Metals and aluminum manufactures				**Food oil industry**		
Waste/scrap metal of iron or st	0.021	5,711		Fixed vegetable oils,n.e.s	0.107	5,377
Puddled bars and pilings;ingots,blo	0.020	6,234		Cotton seeds	0.141	2,473
Boxes,bags & other packing	0.023	9,274		Oil seeds and oleaginous fruit. N.e	0.116	1,902
Miscellaneous						
Maize (corn), unmilled	0.022	6,430		**Rubber industry**		
Meal and flour of wheat and flour o	0.019	5,944		Natural rubber latex; nat.rubber &	0.181	1169
Malt extract;prep.of flour etc,for	0.024	15,805		**Metals and aluminum manufactures**		
Tobacco, wholly or	0.052	1,531		Aluminum ores and	0.110	3,393

partly stripped				concentrates		
Groundnuts	0.048	2,739		Other non-ferrous base metal	0.105	6,030
Perfumery,cosmetics and toilet pr	0.022	9,444		**Wood manufactures**		
Soap;organic surface-active	0.034	5,409		Plywood - sheets etc.	0.132	7,267
Polyvinyl chloride	0.013	13,177		Wood panels,n.e.s.	0.099	7,848
Portland cement,ciment fondu,slag	0.045	5,109		Manufactures of wood for	0.121	5,919
Containers,of glass,used for	0.025	6,824		Fuel wood	0.119	2,214
Art.for the conveyance or packing	0.023	11,728		Plywood consisting of sheets of	High	7,267
Miscellaneous art.of materials of d	0.018	16,183		**Fishery industry**		
Basketwork,wickerwork etc. of plait	0.034	7,789		Fish,frozen (excluding fillets)	0.131	6,457
				Crustaceans and mollusks,fresh,chil	0.147	3,369
				Horticultural products industry		
				Plants,seeds,fruit used in perfumes	0.138	3,622
				Other fresh or chilled vegetables	0.125	5,477
				Fruit,fresh or dried, n.e.s.	0.133	5,187
				Fruit,temporarily preserved	0.102	5,415

Paths: Product-specific measures

5.37 **While density refers to country specific capabilities, distance is a product-specific metric**.[144] that measures the similarities in the capabilities needed to produce two products. Capabilities can be technological, related with managerial, logistical, marketing and related skills. Distance is measured 'between each pair of products based on the probability that countries in the world export both.' Countries are able to diversify into 'rich country' products because the latter are relatively close to the ones they already export. It was easier for the East Asian countries to diversify into semiconductors because they already *had* the capabilities to produce TVs and they *could be adapted* to produce semiconductors. Paths are the distance-weighted number of products around a tree and indicate whether the capabilities to produce a product are likely to facilitate further diversification. Manufactured products have longer paths that reflect a larger scope for diversification. Ghana's classic exports have very short paths whereas the emerging champions have longer ones.

5.38 **There are important trade offs between density and path which can affect Ghana's economic development**.[145] Its location in a sparse part of the forest suggests that moving closer

[144] It is an object measure compared to the endowments-related or technological sophistication-based measures that are subjective.

[145] The complete set of PRODYs, densities and paths for each product in the classics, emerging champions, marginals and disappearances categories is available from the author.

to high PRODY products will require significant capability building. Given the scarcity of public and private resources, it would be judicious to base the decision to invest on the type of skills that will increase the scope for further diversification. Agricultural products such as cocoa beans, cotton seeds and raw cotton, palm oil and natural rubber have the highest densities which indicate that Ghana has the strong skills to produce them. However, these products also have the shortest paths which suggest that the same skills would limit the scope for diversification. In comparison, in cocoa powder, Ghana has a lower density (0.10) but longer path (113). The reason is straightforward. As cocoa powder is a manufactured product that requires relatively sophisticated skills, it is difficult for Ghana to export it and many other manufactured products. But, higher income countries that have the capabilities to export the latter also are able to export cocoa powder. In fact, most exporters of cocoa powder and chocolate do not export cocoa!

PRESIDENTIAL SECTOR INITIATIVES: ARE THE GOVERNMENT'S CHOICES EFFICIENT?

5.39 **In a series of Presidential Sector Initiatives (PSIs), the GoG has made a commitment to target the** *cassava starch, textiles and garments, palm oil, and salt sectors* **for export promotion**.[146] It rationale is that in the past, its sector-neutral export promotion policies spread scarce public resources too thinly and could not adequately facilitate the growth of any product. Targeting would ensure the PSIs adequate support to scale up. GoG views the PSIs as temporary and catalytic mechanisms. Since the initiative was launched in 2006, government has supported the seeding of privately owned firms[147] in selected products, facilitation of financing through the local banking system, identification of buyers, provision of marketing support etc. As the four products are presently exported, the initiative is about scaling up exports rather than seeding new products. Information that could inform GoG's decision relate to two questions:

- Is GoG's choice of the four PSI products (starch, salt, palm oil and textiles)[148] efficient? How easy is it for Ghana to diversify into the new products?
- Do these sectors have the potential to raise Ghana's per capita income more that its current exports?

We attempt to contribute to answering these questions by providing tentative answers from the perspective of the new methodology. We do not pretend these to be definitive answers, just tentative conclusions based on one approach that may be useful to consider in the authorities' own deliberations about these initiatives.

5.40 **While we use the PRODY of a product as the first criterion, its efficiency[149] also is based on its RCA, density, and path as well as its value and value share**. Of the 4 PSIs, salt,

[146] The following criteria were used in the choice of sectors: generate mass employment in rural areas; generate mass employment in rural areas; be technology driven; have the potential to ear foreign exchange, and have multiplicative effects on the local economy (Minister for Trade and Industry 2006).

[147] In the case of cassava, GoG started a pilot firm through a partnership with local banks to fund seed capital. The firm is owned (individually) by farmers through loans from government. Once a loan is paid off, the farmers become owners. GoG has facilitated the provision of public goods such as marketing. The firm is run by professional management and has started well by winning a contract with Nestle. In the case of other sectors, GoG recently facilitated a deal with US firms to take advantage of AGOA.

[148] Cassava starch, textiles and garments, palm oil, salt.

[149] We have tested the methodology to see how well it predicts the emergence of new products in countries in other regions. The predictive power is low if the governments intervened to create new products (RCA-0 in 1980–84 and 2000–04), but in such cases there were many failures and some successes. Most importantly, governments that created products had exceptional ability to correct for market failure while avoiding government failure.

cassava starch and palm oil are emerging champions in which Ghana has successfully developed a RCA since the 1990s, and their PRODYs exceeded Ghana's EXPY of US$2437 in 2000–04.

5.41 **Salt is the most sophisticated PSI product.** It also is exported by developed exporters such as the Netherlands, Germany, Australia, Denmark, Poland and Mexico which have a high level of technological skills reflected by high salt densities that range from 0.25–0.44. In comparison, Ghana's salt density of only 0.11 implies that it will not be easy for Ghanaian firms to scale up salt exports. However, there would be a clear future benefit from acquiring the skills. Salt has a long path that suggests that the skills used to scale up salt exports could also be adapted to related industrial products, that is, lead Ghana to a denser part of the forest.

5.42 **Ghana's density for exports of cassava starch is relatively high.** Together with its reasonably long path, scaling up starch exports also will help diversification in other manufactured exports.

5.43 **There is a tricky trade off with the palm oil PSI**. Ghana's skills are well suited to palm oil exports in which Ghana has a RCA. While this would make scaling up this native tree crop easy, its short path suggests that the skills used to produce it would have limited application in other products.

5.44 **GoG's fourth PSI, cotton products, is an ambiguous choice as it is unclear whether the PSI covers cotton without linters or textiles or both.**

- The PSI would be an efficient choice if it covers **exports of cotton without linters** which is a potentially emerging champion, but there is a tradeoff. The advantage of cotton's high density and Ghana's RCA in it is offset by cotton's low PRODY and short path.
- Catalytic support for scaling up **two 'textiles' products**—cotton fabrics (bleached and mercerized) and clothing accessories (knitted or crocheted)—would be an inefficient choice—they are marginal products in which Ghana does not have a RCA yet. Ghana presently exports raw cotton to China which transforms it into high value textiles for export. Scaling up exports of cotton textiles implies that Ghana would compete with China and other 'high-skills' exporters of this product. This could be risky in the short to medium term. Contrary to expectations, the textiles PSI would not lead to greater employment creation. These products involve industrial bleaching, mercerizing, machinery aided knitting and crocheting which have a low employment potential.
- One could contend that Ghana has the potential to export exclusive Ghanaian fabrics to *niche* markets outside Africa and that fostering this segment is a candidate for a PSI. This may be so but its evaluation is beyond the scope of this paper.

5.45 In a nutshell, of the 4 PSIs, the above analysis, tentatively, suggests that, based on the methodology applied, there may be a case for (1) the choice of salt, starch and palm oil as being potentially efficient, while (2) textiles could potentially be an inefficient choice. Whether there is a case for a PSI dedicated to exclusive ethnic fabrics is an issue that we do not analyze in this paper.

5.46 ***Can the PSIs contribute to a larger income potential or EXPY than Ghana's current exports?*** As the differential between Ghana's EXPY and the PRODYs of salt, starch, palm oil and textiles is large enough, diversification in these products *can* enhance Ghana's per capita income but their export value shares are too small to matter for growth even in the medium term. Palm oil exports grew from US$4,000 in 1980-84 to US$5.6 million in 2000-04 but currently, their export value share is only 0.002%. In fact, compared to Ghana's total exports of about US$3 billion in 2000-04, the aggregate value of the four PSI exports is only US$28 million or about 1% of overall exports. While they are unlikely to increase Ghana's income levels in the medium term,

the PSIs have the potential to pay off sometime in the distant future, mostly because their skills would be valuable for other high PRODY products too.

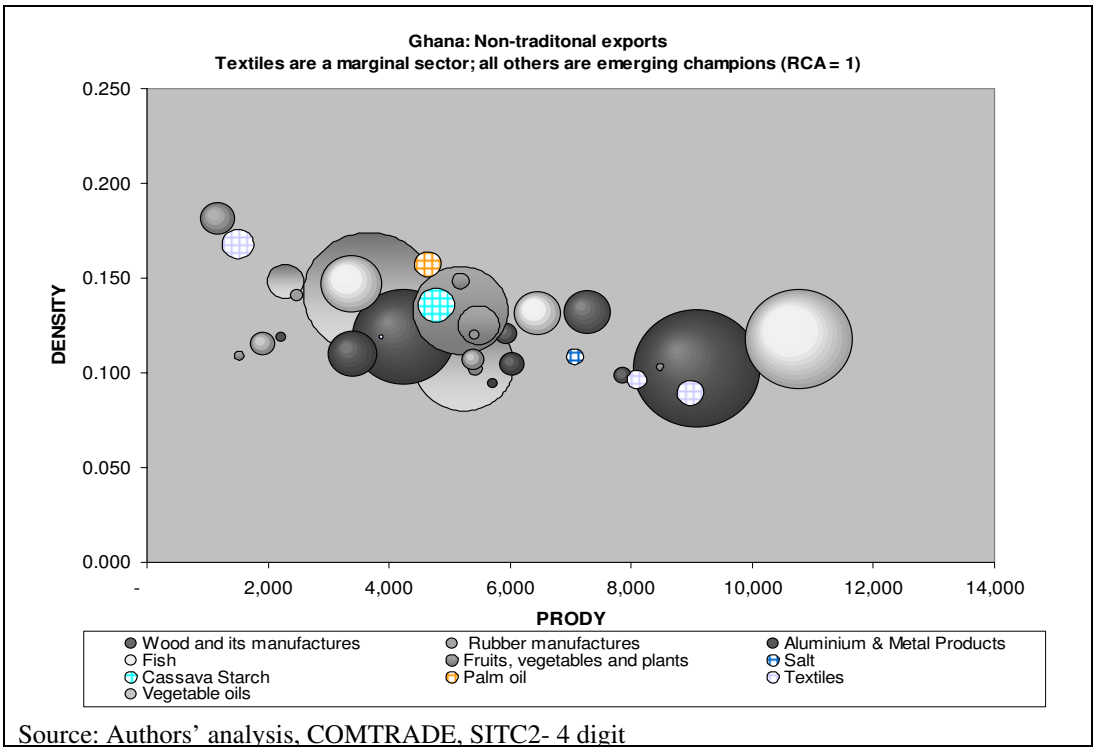
INCOME ENHANCING EXPORT DIVERSIFICATION STRATEGY: NEED FOR SECTOR SPECIFICITY

5.47 **Hausman and Klinger constructs provide precise product level information about each product that Ghana and other countries export.** However, Ghana's location in the space of all possible exports indicates that it is far from most manufactured and processed products that have higher income potential. The framework we construct offers a simple demonstration of how the GoG can make informed choices for an income enhancing export diversification strategy for Ghana. Other strategic options may be possible.

5.48 **In the short term, reinforcing GoG support for traditional products, the classics, is necessary for export expansion as Ghana current capabilities for producing these products are strong.** However, for the medium and longer term, income-enhancing export diversification will require that at the center stage of the GoG's diversification agenda are emerging champions with a potential to transform Ghana's natural resource-based raw products into high PRODY ones and pave the path to a modern economy founded on processed and related manufactured products.

Figure 5.1: Presidential Special Initiative (PSI) sectors (in checks)

(Other efficient sectors (solids). Value of exports (US$'000 – size of the bubble)



Source: Authors' analysis, COMTRADE, SITC2- 4 digit

5.49 **Several considerations underlie a possible strategy we propose.** First, to preempt the risk of picking winners or seeking export discoveries, *rewarding known winners by scaling them up* is proposed. Although the list of potential emerging champions is too long, Ghana's has had a RCA in them for at least 25 years. The fact that they still have small values suggests that externalities must be keeping them small, and that appropriate policies can reverse the trend.

Second, relative to current exports, products with higher PRODYs are preferred. Third, while Ghana's weak skills mix constrains the extent of current diversification, a gradual transformation of its technological capabilities to scale up selected emerging champions is assumed. This assumption rests on the finding that countries which export products similar to Ghanaian exports, also export these produce these emerging champions. The probability that Ghana will be able to develop its technological capabilities to export these six products is higher than it is for the other emerging champions. Fourth, the paucity of public resources and limited government capacity should guide public support toward products with longer paths or the greatest scope for further diversification in high PRODY products. However, to maximize the impact of public investments, scaling up a set of *related* products categorized as emerging champion *sectors* is preferable to scaling up a few products.

5.50 **The strategy we propose is achievable through the** *pairing and scaling up selected products* **from the classics with emerging champions' categories to form six high PRODY** *sectors***—fishery, horticulture, palm and vegetable oils, processing of locally available natural products, wood products and metals manufactures** (Text Table B). These 6 options are presented but not ranked in the table.

5.51 In Figure 5.1, the small size of a bubble illustrates the export dollar value (in thousands of US$) of a product while the sum of the same colored bubbles depicts a sector created by the paired products. Note, the size of the sectors suggests that the contribution to export growth from scaling them would be significantly higher than scaling up exports of an individual product.

5.52 **Presently, as Ghana does not have the stock of diverse technological capabilities needed to scale up the proposed sectors, to a large extent, the pace of export diversification will be determined by the pace with which the requisite capabilities are scaled up.** However, some skills take longer to develop than others, and some sectors are more intensive in sophisticated skills than others. Assuming that the development of skills is underway, it is reasonable to assume that export diversification in Ghana is likely to unfold in three stages.

- The **fishery**[150] **and horticulture sectors** are quick wins. They are high PRODY, high density and can, with appropriate incentives for firms, be scaled up in the short term. These sectors use locally available natural resources and offer Ghana a *complementary* path to faster export expansion that is *not* dependent on manufactured exports. Both sectors are driven by small producers and have demonstrated the potential to move countries along the fast track to a higher income status. In many countries, a catalytic environment was sufficient to deliver high growth in a few years. Chilean salmon and grapes, Indian grapes and other fruits, East African horticultural products and flowers, Colombian and Ecuadorian flowers are some examples.

[150] The fishery exports sector has emerged as a winner in a fairly short period in several developing countries. Chilean salmon is a good example, although Chilean style catalytic support to seed the sector would be inefficient in Ghana as there is already a critical mass. Sector-specific support to salmon incentivised the production of fishing tanks, fish food and production practices in Chile. Kenyan, Tanzanian, and Ugandan exports of high-value *fillet* to the EU (for details of the '*how to*,' see Chandra 2006) require regulation and assistance in helping producers to comply with phytosanitary standards (an action the Great Lakes countries in East Africa were able to implement speedily), cold chains-related infrastructure, and regular air transport to the EU. Between 2000–04, Uganda's fish fillet exports increased from negligible values to become its second largest export product, rivaling coffee.

- **Palm and vegetable oils,[151] and other natural processed products** are relatively small sectors, involve large and small firms and are more likely to scale up in the medium term. Relative to other sectors, scaling up exports of food oils, cassava starch and salt would have large spillovers for Ghana's industrial capabilities. Note, palm oil, salt and cassava starch are PSI products whose contribution to income would be infinitesimal as individual products.
- **Wood and Metal manufactures** will evolve over the longer term. They would be capital intensive in the initial stages of development and spawn a diverse range of light and heavy industries that usually form the foundation of an industrial economy.

5.53 These 6 options are listed in Table 5.2. They are not ranked, nor are all necessary for Ghana to become a higher income country.

Table 5.2: Sector-specific Options for an Income-enhancing Export Diversification Strategy for Ghana

SITC Code	Product Description	Classic Product	Emerging Champion	Export Level 80-84 ('000 dollars)	Export Level 00-04 ('000 dollars)	Path	Density	Expected gains from diversification
I	**Fishery and fish products industry**							Short term
371	Fish,prepared/rpeserved products	x		3,534	88,523	120	0.118	
342	Fish,frozen (excluding fillets)		x	2,433	18,070	105.2	0.131	
360	Crustaceans and mollusks,fresh,chil		x	2,662	28,582	96.1	0.14	
II	**Horticultural products industry**							Short term
2924	Plants,seeds,fruit used in perfumes		x	430	1,647	105	0.14	
545	Other fresh or chilled vegetables		x	22	13,206	122	0.125	
579	Fruit,fresh or dried, n.e.s.		x	706	71,671	117	0.133	
586	Fruit,temporarily preserved		x	37	1,656	150	0.10	
III	**Timber and manufactured wood products industry**							Med-longer term
2472	Sawlogs and veneer logs nonconiferous	x		11,426	11,605	96	0.148	
2483	Wood of non-coniferous species, sawn	x		19,978	133,594	110	0.14	
6341	Wood sawn lengthwise, sliced/peeled,	x		4,516	77,808	136	0.104	
6342	Plywood consisting of sheets of wood		x	398	16,471	102	0.132	
6344	Wood-based panels,n.e.s.		x	158	2,808	138	0.099	
6354	Manufactures of wood for domestic/d		x	36	4,142	118	0.121	
2450	Fuel wood (excluding wood waste)		x	5	1,095	130	0.119	
IV	**Metals and aluminum manufactures industry**							Med-longer term

[151] Palm oil has one of the lowest paths or export diversification potential. Most of its exporters have, at best, transitioned from crude to refined palm oil. Malaysia is one of the rare exporters that had rapid success in transforming crude into refined palm oil and the latter into oleo-chemicals. It is at the global frontier in oleo-chemicals exports but this was possible because it had a well developed manufacturing base before it entered the oleo-chemicals industry.

[151] Ghana's experience with other manufactured products made it easy for it to shift to palm oil. To compensate for its small manufacturing base, it might be more beneficial for Ghana to consolidate the palm oil sector with other oil-based sectors so that there is general capacity building in the food oils sector.

SITC Code	Product Description	Classic Product	Emerging Champion	Export Level 80-84 ('000 dollars)	Export Level 00-04 ('000 dollars)	Path	Density	Expected gains from diversification
6841	Aluminum and aluminum alloys,unwr	x		196,795	127,229	117	0.102	
2771	Industrial diamonds,sorted,whether	x		2,062	2,524	78	0.102	
2877	Manganese ores and concentrates	x		11,374	81,972	64	0.119	
2873	Aluminum ores and concentrates (in		x	3,926	19,011	78	0.110	
2882	Other non-ferrous base metal waste		x	1,197	5,109	129	0.105	
V	**Food & other oils industry**							Short-medium term
4242	Palm oil		PSI	4	5,677	67	0.157	
4249	Fixed vegetable oils,n.e.s		x	3	4,020	122	0.107	
2223	Cotton seeds		x	5	1,628	85	0.141	
2238	Oil seeds and oleaginous fruit.		x	722	5,481	125	0.116	
VI	**Other processed natural products**							Short-medium term
548	Vegetable products, roots & tubers,		PSI	113	11,601	108	0.136	Short term
2631	Cotton (other than linters),		PSI	522	8,111	80	0.168	Short term
2783	Common saltsalt;rock sat,sea salt;pur.s		PSI	1,089	2,553	129	0.108	Short term
2320	Natural rubber latex; nat.rubber industry		x	685	9,352	56	0.181	

WHY SECTOR-SPECIFICITY MATTERS FOR GHANA

5.54 **Section 6 indicates that for an income enhancing export diversification strategy, Ghana needs to export more products that are similar to those exported by richer countries.** It also shows that presently, there are many *such* 'rich country' products, albeit with very small export values, in the Ghanaian export basket. This raises two critical questions: (a) should policy makers extend public support to *all* nontraditional 'rich country' products or should they be selective ? And, (b) should they focus on existing products and, if yes, which ones? Or should they also seek the discovery of new products? The case for sector-specificity rests on the answers to these two questions.

5.55 **Interestingly, Ghana has maintained a RCA over the past 25 years in a fairly large number of nontraditional 'rich country' products.** The fact that they still have very small values suggests that something in the economic environment continues to deter private firms from scaling them up. As the overall macroeconomic environment has been relatively stable, and as the discussion in sections 1 and 2 suggest, sector specific policies may be necessary to alleviate sector specific constraints related with externalities. As an example, the growth of horticultural exports may be constrained by the lack of compliance with the phytosanitary, pesticide, and quality standards required to penetrate developed country markets and/or farm to airport feeder roads and regular air transport to the European market. In contrast, diversification in more sophisticated wood products may be constrained by poorly developed industrial areas, shortage of power, water, a weak investment climate etc..

5.56 **The case for sector specificity is motivated by the prevalence of distinct constraints to scaling up in each sector.** A second reason is that in the presence of scarce financial and government capacity-related public resources, it would be prudent for policy makers to focus on a manageable number of sectors as opposed to spreading scarce public resources too thin without providing adequate support to any sector. An appropriate sector specific strategy would entail

providing comprehensive support to a selected sector until its exports started tracking a high growth trajectory. The next question then is 'which sectors?' Our analysis in section 6 identifies a set of 6 sectors that would be most feasible for Ghana to diversify into.

5.57 **The choice of products can be tricky, and Ghana has neither the resources nor the luxury of time to experiment with new products.** Besides, global experience suggests that product/export discoveries are mostly outcomes of serendipity which has well known hazards and should be avoided. The long list of 'marginals' in text table A is evidence of export discoveries in which Ghana does not have a RCA and which have not scaled up. Many of these are likely to be dead-end sectors that would not prepare incumbent firms to evolve toward other sophisticated activities.

5.58 **In the Ghanaian context, based on the technical analysis, a strategy of *rewarding or scaling up known* and winning sectors is superior to picking unknown winners, some of which are yet to be discovered.** The 6 winning or emerging[152] highlighted in text table A shows that their collective value shares are adequate to constitute the critical mass necessary to increase income levels in Ghana.

CONCLUSIONS

5.59 **Our objective was to explore the options for export diversification in Ghana when the development goal is accelerated and sustained increase in per capita income.** For the past twenty five years, Ghana practiced the standard rule of comparative advantage, i.e., continue to export cocoa and gold, and more of them, but in spite of a reasonably favorable environment, the anticipated gains in income gains did not accrue. Nevertheless, with recent strengthening of macroeconomic stability, Ghana's overall growth and export performance improved.

5.60 **Ghana's merchandise exports presently account for about 40% of GDP which makes them a critical driver of its growth.** If it wishes to achieve a middle income status in the next ten years, export diversification is an imperative.

5.61 **This chapter presents a *tentative* analysis with at least five preliminary contributions**—and it should be noted that, strictly interpreted, they flow somewhat beyond the mainstream literature on export growth and diversification in Sub-Saharan Africa and Ghana. The main contribution is to show what an income enhancing export diversification strategy could be and what it implies for Ghana's export mix. By appealing to a new and innovative methodology (Hausmann, Hwang and Rodrik (2005) and Hausmann and Klinger, 2007) which links an exported product to the income levels of countries that export it, we benchmark Ghanaian exports in the universe of products exported by all countries.

5.62 **We find that if Ghana would export more of at least some products 'rich country' products that it already produces, it may be able to leapfrog and transform itself into a modern economy, just like some developing countries in East Asia did in a relatively short time span.** Interestingly, our analysis indicates that presently, Ghana already exports many 'rich country' products but their export values and shares are too small to affect its income levels. After applying stringency tests to this list of products, as a second contribution, we identify six *potentially* efficient sectors and speculate that *rewarding or scaling up* these known and winning sectors would be superior to the more risky strategy of picking unknown or inefficient winners or seeking export discoveries.

5.63 **The proposed diversification strategy does *not* imply that the GoG should neglect the traditional export sectors.** In the short term, they are indispensable; over the longer term, as

[152] Efficient products are based on the analysis in section 6. They have a high income potential (PRODY), pass the RCA test, for which Ghana either has or could develop appropriate technological capabilities (Density) and have a high potential to foster forward linkages to more sophisticated products (path).

the new, potential emerging champions are scaled up, the share of traditional exports should diminish. As Ghana's current skills mix would have to be adapted and developed further to satisfy the skills requirements of the six emerging sectors, the proposed strategy would likely evolve in three stages.

- In the ***short term***, the quick wins would be fresh or processed produce that form the (1) horticultural and (2) fishery sectors which engage small producers who have the basic skills but need other complementary inputs such as public goods to attract investors and scale up. The experience of at least three Sub-Saharan African countries—Uganda, Kenya and Tanzania—demonstrates that with political commitment, this goal is achievable. Scaling up the remaining four sectors is technically feasible but a policy challenge for Ghana.
- The second stage or the **medium term** would involve emerging champions such as the fledgling salt and starch products that presently fall under the (3) processed natural resources sector, and oils from palm, cotton seeds and vegetables that form the (4) food and vegetables oils sectors.
- In the third stage or the **longer term**, products such as furniture, plywood, and other construction materials made of wood that form the (5) wood manufactures sector, and, perhaps, some (6) metal products sectors are possible. Demonstrating the need for s*ector specificity* as the core of our proposed export diversification strategy is our third contribution.

5.64 **The recommendation for sectors (3)—(6) is based on the result that countries that presently export what Ghana exports in these sectors but in raw form, *also* export these products.** Their technological capabilities were similar to Ghana's, but were adapted to facilitate exports of more sophisticated products. This finding does not imply that diversification in these four sectors would be market driven and occur naturally.[153] Nor has it in the past twenty five years. Rather, it shows that other natural resource exporters like Ghana were able to diversify in this direction, and the probability that Ghana could do the same is the highest in these than in the universe of sectors. Can Ghana do it?

5.65 **Excluding the necessity of maintaining a reasonably stable macroeconomic environment, *a sector specific diversification strategy has sector specific policy implications***. As we noted earlier, our objective in this paper was to demonstrate what an income enhancing export diversification strategy for Ghana could look like. Accordingly, we leave the detailing of sector-specific policy recommendations for a later exercise to be completed with the benefit of a field study, including that of the institutional mechanisms. Below, we highlight the central justification—technological capability building—for sector specific policies.

5.66 **The fact that in spite of Ghana's revealed comparative advantage in them since the early 1980s, these sectors have not scaled up suggests that externalities and/or institutions, possibly specific to each sector, have deterred new firms from entering or expanding in that sector**. The brunt of our sector specific diversification strategy falls directly on the fostering of *technological capabilities* that Ghanaian firms have little incentive or expertise to develop. If we reasonably assume that in an integrated global market, private capital and most other material inputs are mobile or importable, then the most costly public inputs that private investors seek and the GoG can facilitate are technological skills and some other location specific inputs such as standards and infrastructure. As these prerequisites for scaling up the 6 sectors are distinct,[154]

[153] In fact, in a related context, the complexities of the global market would suggest that the scaling up of new sectors would be challenging.

[154] The horticultural and fishery sectors would need incentives such as the distribution and dissemination of superior plant technologies, regulation of phytosanitary standards, marketing and other logistical support,

entail high fixed costs and long time horizons, there is no substitute for GoG facilitation, especially to ensure that a sufficiently large pool of high quality capabilities is delivered. It would be a mistake to postpone the development of technological capabilities for the woods and metals related manufacturing sectors as these should, in the longer term, become the backbone of a modern natural resource based economy.

5.67 **Arguably, skills or infrastructure are ingredients in almost any development policy package but there is an important distinction.** We suggest that these and other essential non-tradable public inputs, as well as institutional hurdles could be diagnosed after further fieldwork and be considered an integral part of a comprehensive support package provided by the GoG to each selected sector until it achieves a critical mass. Sector specificity implies dedicated sector specific policy implementation.

5.68 **GoG may find it useful to learn from the experience of other countries that successfully nurtured sector-specific export strategies** (Appendix 2).[155] In the short run, governments often overcome the technical skills constraint by welcoming FDI that is usually endowed with the technology and skills needed to operate the host sector, but recognized this as an interim measure.

5.69 **An evaluation of the four recent Presidential Sector Initiatives intended to spur export diversification shows that it may be efficient for Ghana to export 3 of the 4 PSI products—salt, starch and palm oil.** The efficiency of the textiles PSI is ambiguous. It would be efficient if it covers exports of cotton without linters, but inefficient if it covers textiles or fabrics in which Ghana does not presently have a revealed comparative advantage. Individually as well as collectively, the PSIs are unlikely to have a significant effect on export and income growth, as well as employment creation because their collective export value is only 1% of Ghana's total exports.

5.70 **We make two other contributions**. We show that an income enhancing export diversification strategy for Ghana cannot be formulated by simple formulae that produce a unique recipe. Sector specificity introduces tradeoffs between selection criteria such as the income potential, ease and scope for diversification. As an example, catalytic government support to scale up the PSIs without cognizance of their skills requirements or potential to spawn other sophisticated sectors can be counterproductive for Ghana's development in the longer term.

5.71 **We find that for low income Ghana, the path to a middle income status is possibly but not necessarily paved with only manufactured exports.** After all, very few low-income African countries have managed to develop significant manufacturing sectors (See chapter on investment climate above in this volume). The tentatively identified sectors indicate that there may exist multiple paths to income enhancing export diversification. Natural resource based sectors such as wood and metals are not necessarily a 'curse,' and if scaled efficiently and sufficiently, they can boost income levels significantly. In fact, the income potential of these sectors often exceeds that of some low tech manufactures.

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and foreign assistance from soil scientists and fishery experts. This strategy would not be transferable to the timber and metals manufacturing sectors where the main productive agents, the firms, are few and need a workforce that has the forestry and metallurgy type engineering and related technical capabilities. Concurrent and large scale investments in building technological capabilities in all six sectors would be indispensable but also quite distinct.

[155] Ten sector specific successful diversification experiences of developing countries are documented in "Technology, Adaptation and Exports: How Some Developing Countries Did It" (Chandra, ed. 2006).

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