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The Impact and Potential of E-commerce

From a negligible base in 1990, e-commerce today accounts for over US\$25 trillion (S\$34 trillion) of transactions. Some of the fastest growth is taking place in large economies such as the United States, China and India. How do we account for this remarkable growth? How is it affecting the lives of consumers, and those of small businesses and the retail sector, which are likely to be the most affected? This paper explores the reasons behind the rapid growth of e-commerce and enquires into the likely effects on efficiency and prospects for inclusive growth.

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Introduction

Over the past two decades, the channels through which transactions take place among businesses and between business and consumers, as well as between governments and business have undergone radical change. From visits to the store, meetings between suppliers and procurers, and submission of documents for public procurement contracts, exchange entailed extended discussions in person, validation letters from bank and other intermediaries. Till late into the last millennium, businesses would open a storefront, enter into contracts with suppliers up and down the supply chain, place advertisements in the print, audio and audio

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visual media for shopping, while consumers would go to a mall or a store to purchase everything from groceries to appliances. For public contracts, bidders would need to submit detailed forms at the office designated to receiving them. Of course, mail order existed as did courier services, but these accounted for a miniscule proportion of transactions and were just an extension of services through phones or postal mail.

Today, the purchase of a best-seller or the latest accessories by a European cosmetics producer; booking a vacation with valet services; a furniture manufacturer in Italy sourcing upholstery and assembly services from a company in China; a toy retailer in Sweden ordering patchwork dolls from Peru, are examples of a growing volume of transactions taking place online. Many global businesses may have just a ‘web’ address, with corporate headquarters and regional offices that may be little more than a suite. Daily tasks such as booking a taxi on Grab or Ryde in Singapore, or on Uber in Sydney, a business in Cape Town ordering machine parts from Shenzhen, a French confectionary chain seeking Vanilla beans from Madagascar, a school district in Palermo inviting tenders for school supplies in the district, a state government inviting submissions for security services at public sector offices through e-procurement – these are examples of transactions carried in a burgeoning e-commerce sector out with a few strokes on a keyboard of a phone, a personal digital assistant or a notebook computer. The way we do business and interact with one another is increasingly drawing upon digital technology. An Accenture study concluded that 22 per cent of the global economy is based on digital skills, capital and intermediate goods and services.²

“E-commerce is the sale or purchase of goods or services conducted over computer networks by methods specifically designed for receiving or placing of orders. Even though goods or services are ordered electronically, the payment and the ultimate delivery of the goods or services do not have to be conducted online. An e-commerce transaction can be between enterprises, households, individuals, governments, and other public or private organisations. Included in these electronic transactions are orders made over the web, extranet or electronic data interchange.”³ From a negligible base in 1990, e-commerce today accounts for a growing volume of transactions in the global economy. In the Organisation for Economic Co-

² Digital Disruption: the Growth Multiplier, Accenture Strategy (2016). https://www.accenture.com/_acnmedia/PDF-4/Accenture-Strategy-Digital-Disruption-Growth-Multiplier.pdf

³ WTO (2013). “E-commerce in developing countries: Opportunities and Challenges for Small and Medium Sized Enterprises”, World Trade Organisation. https://www.wto.org/english/res_e/booksp_e/ecom_br ochure_e.pdf

operation and Development (OECD) economies, the value of e-commerce can be as much as 60 per cent of gross domestic product (GDP), the volume of e-commerce transactions among a sub-section of 10 OECD economies was equivalent to a third of their total GDP. In Japan and South Korea the proportion exceeded 60 per cent of GDP.⁴

Table 1: Taxonomy of E-commerce Businesses

	What it is	Examples
Business-to-business e-commerce	Businesses sell final or intermediate goods or services to other businesses The transactions are between businesses, for example, a wholesaler and retailer, or a producer and retailer / wholesaler	Acme, Firerock, Blackbaud, Alibaba, Quill, Amazon Business,
Business-to-consumer e-commerce	B2C e-commerce entails businesses selling directly to the public, through online portals using ‘shopping cart’ software	Amazon, Alibaba, FlipKart, Snapdeal
	B2C e-commerce aggregator: E-commerce firm collects information from competing buyers and seller and matches them through the website	Uber, Didi Chuxing, Grab, Ola, Go-Jek
Business-to-government e-commerce	E-procurement: Between public sector entities and firms. Encompasses use of the internet for public procurement, licensing procedures, and other government related operations with the intent to increase efficiency and transparency.	
Consumer-to-consumer e-commerce	Online platform based transactions between individuals	eBay, Taobao, OLX
Government to Business	Government agencies use internet to reach out to business for public procurement or through e-tenders	

⁴ UNCTAD (2017). “Information Economy Report 2017”, United Nations Commission for Trade and Development. http://unctad.org/en/PublicationsLibrary/ier2017_en.pdf

Source: Compiled by the author.

The rapid growth of e-commerce raises questions about what has led to its remarkable rise. How does it benefit the economy? What does it augur for enterprises in the country? What is the economic rationale for e-commerce? Does e-commerce bring any benefits to the economy? Is access to e-commerce egalitarian, or conversely, what are the consequences of the digital divide? This paper focusses on the most visible business-to-consumer (B2C) sector which helps increase choices for consumers and offers broader market access to small sellers.

Table 1 summaries the four main types of transactions that constitute e-commerce:

- i. Business-to-business (B2B) types are transactions between enterprises. These include outsourcing, offshoring and reflect small and medium enterprise (SME) participation in regional and even global value chains;
- ii. Business-to-commerce (B2C) transactions are sales by businesses directly to consumers through online channels;
- iii. Consumer-to-consumer sales take place on platforms facilitating buying and selling between any two individuals on online platforms such as eBay and Taobao; and
- iv. Government-to-business transactions include e-procurement contracts offered by the governments.

Size of the E-commerce Sector

Estimates of the size of the e-commerce economy vary widely. The Organisation for Economic Co-operation and Development (UNCTAD)⁵ estimates the production goods and services in the information communications and technology (ICT) sector exceeds 6.5 per cent of global GDP, employing over 100 million people. Exports of ICT services grew by 40 per cent between 2010 and 2015. Global e-commerce sales in 2015 amounted to US\$25.3 trillion (S\$34.4 trillion). Ninety per cent of these was in the B2B segment, underscoring the

⁵ Ibid.

importance of the digital economy in global commerce. The remaining 10 per cent was in the more visible business-to-consumer (B2C) e-commerce sales. Ten per cent of B2C e-commerce was cross-border, reflecting increasing integration of commodity markets through a new channel accessed directly by the final consumer (UNCTAD).⁶ The United States (US) dominates B2B sales with the volume exceeding US\$6 trillion (S\$8.16 trillion), followed by Japan at US\$2.4 trillion (S\$3.3 trillion) (Table 2). This paper focusses on B2C commerce, which, with a growing, albeit 10 per cent share, is the tip of the e-commerce iceberg, the most visible segment and the one that has repercussions on consumer behaviour as well as on other sectors of the economy.

Table 2: Top 10 Economies by Value Added of ICT Services, 2015

	Economy	Value added (\$ billion)	Share in top 10 (per cent)	Share in GDP (per cent)
1	United States	1 106	42	6.2
2	European Union	697	26	4.3
3	China	284	11	2.6
4	Japan	223	8	5.4
5	India	92	3	4.5
6	Canada	65	2	4.2
7	Brazil	54	2	3.0
8	Republic of Korea	48	2	3.5
9	Australia	32	1	2.4
10	Indonesia	30	1	3.5
Total for top 10		2 657	100	4.5

(Table culled from UNCTAD Information Economy Report, 2017)

Source: UNCTAD, based on data from United Nations Statistics division and national statistics.

Note: Data refer to International Standard Industrial Classification of All Economic Activities (ISIC) Rev.4 section J, Information and Communication Services. Data are in current prices and converted to United States dollars using annual average exchange rates from mostly national sources

The growth of B2C e-commerce across the globe is uneven. Markets in Latin America and Africa have grown fast, as has North America. However, growth in the Middle East and most of continental Europe has been relatively sluggish.⁷ The fastest growth is taking place in the Asia-Pacific region. Of course, the landscape can shift rapidly as incentives and shopping preferences change, as they have in Asia. B2B commerce accounts for an overwhelming 90 per cent of total e-commerce among these economies. As these are the rich OECD states, the numbers for the global economy are not likely to shrink significantly.

⁶ Ibid.

⁷ Ibid.

E-commerce sales in the Asia Pacific region are carried out primarily through mobile phones (M-commerce). Nearly three-quarters of e-commerce sales in China and India are through mobile phones.

Evolution of E-commerce

E-commerce is a disruptive technology with consequences for retail trade, consumers, government and for efficiency. Retail trade evolves along different trajectories in countries with different economic models and at different stages of development. In the US and Canada, retail metamorphosed from small retail outlets to marts to department stores to large stores and hypermarts. In most of Europe, the transition is from smaller stores to larger marts, with larger stores such as Carrefour present in suburbs.

Over the past 15 years, e-commerce has proliferated across the globe. While some large retail stores have also developed online delivery platforms, the emergence of well-funded e-commerce retailers such as Amazon, Alibaba, Taobao, JD.com, Rakuten, Flipkart and Lazada offering a rapidly increasing menu of goods and services, often at significant discounts, is supplanting traditional retail. The transition in technology has been gradual, as traditional stores develop online sales to complement their presence and cater to the preferences of demographics of younger and tech-savvy cohorts that seek the convenience and ease of online shopping.

Although the absolute size of e-commerce transactions is still small, the sector has grown rapidly, posing an existential challenge to retail, especially in large cities. This is leading to a rapid restructuring of retail trade across the world as consumers shift from retail purchases at stores to shopping online. The steadily expanding scope of e-commerce, particularly as evident from Amazon broadening its reach into new markets, is necessitating a restructuring of traditional retail. Amazon's recent purchase of Whole Foods indicates that the contours of e-commerce are fluid and incumbent's advantages can dissipate rapidly as technology and new agreements constantly shift the boundaries of who sells what and how do they sell.

Why has e-commerce grown so fast? Growth Drivers on Demand side

The growth of e-commerce has been driven by developments on both the demand and supply side. Demand for e-commerce services grew with the spread of the internet, rapid fall in cost of data usage and the proliferation of smart phones – the main instruments for e-purchases. Rising incomes have placed more funds for discretionary spending in the hands of consumers, especially the young and the upwardly mobile. The sheer convenience of purchasing groceries through a mobile phone or a notebook coupled with deep discounts resulting in lower prices lower than those that obtain at retail outlets, have led to a sustained increase in e-commerce for purchases. The discounts are feasible because of lower fixed costs, as e-commerce enterprises do not bear overheads on expensive rentals in malls, and on sales staff. They are also a part of the strategy to increase the consumer base. The ability to compare prices across producers imparts transparency in transactions; ratings on individual sellers provides important information on the credibility of sellers. Marketing initiatives, such as the Singles Day (November 11 or 11/11) in China has, over a few years, evolved into the biggest shopping day of the year, soon expected to rival Black Friday, the day after Thanksgiving in the US. Retail e-commerce sales will continue to grow, more than doubling to US\$3 trillion (S\$4.1 trillion) by 2021.

Supply Side

E-commerce firms can sell at lower prices as they do not incur the costs of expensive rentals in malls, or maintenance of a sales-force and multiple storage facilities. Low spending on physical infrastructure, easily reversible decisions, and the value derived from creating synergies in markets between many small producers/sellers and the purchasing public, helps e-commerce firms to sell at lower prices. Furthermore, economies of scale and scope, including bulk purchases of a wide range of goods, help the firms to sell at prices below brick and mortar retailers.

Efficient logistics spanning the entire spectrum of services from the initial order to the final delivery of the product, is a concomitant of e-commerce. Improving logistics help streamline the supply chain and lower costs. The emergence of online market platforms, Amazon and

later Alibaba among the first, bringing together millions of small and medium-sized enterprises, and extending their reach into rural and remote communities – areas hitherto untapped by the retail sector.

The Economics of E-commerce

How can we explain e-commerce through an analytical lens? E-commerce generates significant network economies. Network economies arise in two-sided markets.⁸ The growth of e-commerce companies creates economies of scale that benefit both consumers and sellers on the platform. These economies of scale can translate into increasing returns to scale, helping to explain why firms persist with subsidising products to gain increasing market shares and how monopolistic and often duopolistic market structures prevail in most economies. This is evident among major B2C platforms in several countries, for example, Flipkart and Amazon in India, JD.Com and Tmall in China, Lazada and 11Street in Thailand, Amazon, C-discount and Fnac in France, and Wal-Mart stores and Amazon in the US. This has implications for anti-trust regulation.

Among developing economies, strengths in logistics and supply chain management are key to efficient functioning of e-commerce markets. E-commerce deploys disruptive technologies but it leverages traditional constructs (logistics, supply chain management) and bring new elements – two-sided markets and network economies to enhance competitiveness.

From an analytical prism, the case for e-commerce is strengthened by its ability to address fundamental deviations from the perfectly competitive model. It helps reduce market frictions, including transaction costs and information asymmetries. By bringing together large cohorts of buyers and sellers for individual products and services, it helps to strengthen competitive forces, eventually enhancing efficient allocation of resources.

⁸ Two-sided markets are markets or economic platforms with two distinct user groups that trade with each other providing network benefits. Value is created when the two groups provide value to each other. Examples include credit card companies (cardholders and merchants), employment platforms or exchanges (job-seekers and recruiters), e-commerce platforms such as Amazon, Alibaba, Flipkart and Lazada (consumers and firms selling on the platform). As the number of participants grows, it provides economies of scale to the market.

E-commerce poses low barriers to entry. Fixed costs are low, and other costs incurred (primarily personnel, and products or intermediate goods created, for example, software development) are of a short-term nature, often reversible and can be partly transferred to other uses or monetised by selling the software. E-commerce platforms enhance market efficiency by connecting supply and demand sides of the market at low cost. UNCTAD (2017) highlights the benefits of market integration through easing SME access to global value chains. This helps enhance productivity and eventually growth in the economy.

Lower Transaction Costs

Through e-commerce, the firm can eliminate middle-men and reduce costs. With improved logistics and streamlining bulk storage and delivery, the business can reduce costs as well as labour requirements. Reduced rentals costs further reduce pressures on price mark-up. Efficient logistics networks and lean supply chains enhance competitiveness of e-commerce.

Mitigate Information Asymmetries

Consumer purchase decisions start with a search of prices, competitor services and product reviews. Access to this information on a single website reduces the information gap between the buyer and the seller. E-commerce helps to narrow this information asymmetry and enhance the efficiency of consumption decisions.

The ability to access information on a supplier's track record further refines the purchase decision. The transparency in prices as well as the credibility of sellers helps reduce search costs that can become significant in shallow markets. Customers benefit from price transparency and the ease with which they can compare prices across retailers. This, in turn, promotes competition among e-commerce companies.

On the flip side, it helps small retailers reduce the information gap with potential consumers in the market, be it in the case of transactions with other firms or directly with consumers.

The e-commerce company can step as an intermediary to help answer questions about credit history, product quality and customer service, among others.

Benefits for Micro Small and Medium Enterprises

SMEs play a critical role in most economies, accounting for 50 to 80 per cent of employment, and at least 40 per cent of GDP.⁹ Their growth in global trade should boost economic growth. The development of micro small and medium enterprises (MSMEs) and their increased direct participation in regional and global trade is one of the keys to making growth more inclusive in many economies.

E-commerce offers a promising avenue for the internationalisation of SMEs by powering growth in retail trade. Global e-commerce sales are expected to increase threefold to US\$3.6 trillion (S\$4.9 trillion) in 2019, particularly in the Asia-Pacific which has a powerful growth momentum. At current growth rates, the e-commerce share in global retail sales may double to nearly 13 per cent by 2019 (eMarketer 2015). While most e-commerce sale is domestic, buyers are increasingly shopping across the border. E-commerce companies and governments have made substantial efforts to help SMEs participate in international supply chains, which account for nearly 80 per cent of global trade. However, the recent surge in protectionism is likely to hinder such efforts in the immediate future.

In recent years, industry and policymakers are paying increasing attention to helping SMEs participate in trade via access to global value chains (GVC). These GVCs account for roughly 80 per cent of global trade (UNCTAD 2013). SMEs are, however, stymied by, among others, certification hurdles and the lack of capacity to supply the scale and quality needed by multinational operations. SMEs are handicapped for want of certification and lack the capacity to supply on scales required by multinationals.

⁹ Digital Disruption: the Growth Multiplier, Accenture Strategy (2016).

A Nielsen¹⁰ (2016) survey revealed that among APEC economies, the percentage of online shoppers who purchase from overseas sellers (within the preceding six months of the survey period) range between 29 per cent (US) to 69 per cent (Chile). This shows increasing direct exporting possibility for all firms, including SMEs, using e-commerce.

An increase in the number of buyers and sellers stimulates competition, resulting in greater price transparency. E-commerce can help fill ‘missing markets’, create markets for rural products, expand market size by creating a seamless national and even an international market for a small producer. E-commerce platforms have created markets for goods that hitherto were in the non-tradable sector, for example, goods produced in rural areas, by artisans, traditional handicrafts, etc. Bringing together small buyers and sellers and providing additional marketing and financial services generates positive externalities.

The impediments in the way of MSMEs participating in GVCs are pervasive. Limited digital capabilities and skill gaps, poor connectivity, resource constraints and the high cost of accessing the digital economy can be powerful inhibitors. The benefits of these investments are not always obvious, reducing incentives to invest in digitisation. There are compelling grounds for the state to intervene to facilitate digitisation. Governments across the world have set up programmes to enhance connectivity and offer incentives. Integration of small firms into value chains is challenging and requires interventions extending well beyond connectivity and help with basic business services. Beyond niche markets, these firms will be competing in the global arena.

Financial Development

The absence of a credit history and the inability to raise collateral makes it difficult for SMEs everywhere to obtain credit. However, for SMEs registered on e-commerce platforms, the company owning the platform can generate real time information about cash inflows and outflows, and collate this information on the cash flow situation of the enterprise – vital inputs for decision-making on loans. As larger proportions of sales move online, firms’ credit

¹⁰ Nielsen (2015). Shopping on The Go Is In With Young Consumers – 2015 Nielsen Taiwan Virtual Shopping Report. <http://www.nielsen.com/content/dam/nielsen/global/tw/docs/Taiwan-eCommerce-Report2016en.pdf>. Accessed on 15 July 2018.

histories grow, making it easier to develop a database to help assess creditworthiness. In China, this is done through Ant financial services, while in India, Paytm with more than 120 million accounts, has become an important player in the digital payments space.

By compiling data on cash inflows and outflows for each participant in online markets, the e-commerce company can provide reliable measures of creditworthiness helping small businesses obtain loans that they would otherwise have struggled to raise. Amazon, Alibaba, Snapdeal, Rakuten and many other e-commerce firms have launched programmes to enable firms listed on their platforms to raise loans.

In areas where credit cards are not widely used and there is hesitancy about paying for goods prior to delivery, e-commerce companies can offer Cash on Delivery (CoD) a popular payments strategy in India and several other developing economies or deploy the Alibaba-Alipay model wherein the shopper's payment is held in escrow by Alipay until the order is received. Alipay was created by Ant Financial for this specific purpose.

Employment

Estimates at multilateral agencies reveal the powerful impact and potential e-commerce offers for creating jobs. UNCTAD¹¹ estimates indicate that the ICT goods and services employed approximately 100 million workers, or 1.5 per cent of the workforce, in 2015. The number ranges from one per cent in developing economies such as Brazil, India, Nigeria and Indonesia to four per cent in some OECD economies. Employment in the 'gig economy' has grown rapidly with the growth of e-commerce. Unfortunately, systematic data is not readily available to ascertain this assertion. Many contract workers in areas ranging from delivery services to logistics and software development are in the informal sector. These jobs have kept apace with the evolving e-commerce market.

The World Economic Forum (2013) research revealed that digitisation created six million jobs annually. By 2020, the World Bank estimates that 20 per cent of jobs could be contracted online. With structural changes wrought by the digital economy, frictional

¹¹ UNCTAD (2017), op. cit.

unemployment will increase as traditional sectors shrink and jobs shift to growing sectors, including those deploying technology intensively. A study of eight developing economies by the McKinsey Global Institute encouragingly pointed out that the SME sector created 3.2 jobs for every job lost. The potential for growth of the SME sector and bringing in marginalised and far flung regions into the e-commerce ecosystem is boosting employment among women as well as demographic groups side-lined by the mainstream economy.

Challenge: Data

The poor quality of data on e-commerce hinders analysis and an understanding of the digital ecosystem. Without reliable data, policymaking is constrained. Governments cannot finetune decision making, and enterprises cannot make informed decisions on important issues such as strategy and investment. It is incumbent on the government to develop the capacity to conduct micro level surveys among households and enterprises to gauge digital strengths, weaknesses, responses to policy and private sector initiatives, and identify where bottlenecks and other structural impediments, such as logistics bottlenecks or financing constraints on working capital, lie.

This is particularly important in the domains of B2B and B2C e-commerce. The returns on digital inclusion and enhancing GVC participation and the positive externalities generated will more than pay for any outlays in this domain.

Conversely, an enduring digital divide can accentuate inequalities pushing large segments of enterprises out of the mainstream economy. A vast majority of the population in developing economies buys online – the comparative number in the developing world is barely two per cent. Most MSMEs in developing economies are ill-equipped to participate in the digital economy, constraining prospects for increasing productivity and growth.

Small firms generally use the Internet much less than large ones for selling online. The reasons for the pervasive digital divide are well known. Smaller enterprises lack the resources and the capability to deploy digital resources, as often the lower socio-economic groups do. Through schooling and access to smartphones, and growing up in an eco-system where the

use of digital media among the young is almost pervasive, it is easier for younger cohorts to catch up and bridge the divide.

With multilateralism under threat, the endeavour is all the more challenging as open borders and rules based systems come under threat. Under these circumstances, the best that policymakers can do is to carry out reforms that increase the efficiency of the domestic economy.

Aside from the benefits of financial development, boost to the logistics sector, a paradigm change for SMEs, policies oriented towards developing the information technology infrastructure generate positive externalities. Studies show that increasing access to broadband boosts firm productivity. Digitisation is a powerful catalyst¹² for boosting employment, directly and through the ‘gig economy. The largest number of jobs is created through the digitisation of the MSME sector.¹³ An increasing number of SMEs are now able to access GVCs, giving a boost to growth prospects. E-commerce has the potential to make a singular socio-economic impact in integrating national economies by bringing marginalised groups, including increasing numbers of women entrepreneurs, and entrepreneurs in the informal sector into the economic mainstream. The case for governments to proactively nurture e-commerce is, indeed, compelling.

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¹² World Economic Forum. 2013. *The Global Information Technology Report 2013*. Geneva.

¹³ McKinsey Global Institute. 2011. “Internet Matters: The Net’s Sweeping Impact on Growth, Jobs, and Prosperity”, May 2018. <http://www.mckinsey.com/industries/high-tech/our-insights/internet-matters>. Accessed on 23 July 2018.