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Dissertation Abstract

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**Diversity of Industrialization in Africa: Transformation of Employment and
Emergence of Telecommunication (1960-2021)**

アフリカにおける工業化の多様性:雇用の変革と通信の出現(1960-2021 年)

<abstract>

Industrial Revolution (IR) and industrialization are the most central issues in economic history. However, the counting of the IR is a controversial matter among scholars. Several studies refer to our current era as the Fourth Industrial Revolution while the three previous ones have still not yet been fully fathomed out. In this thesis, we explore the question of industrial revolutions globally and focus on its expansion to African countries. We discuss sectoral changes, manufacturing development, telecommunication, and the leapfrogging effect. Industrialization in Africa being a complex, dynamic and very broad topic, we ensure from each chapter to approach a specific independent aspect all connected under the shade of industrialization. The thesis is structured as follows. Chapter 1 reviews in detail the literature on the industrial revolutions globally and the situation of industrialization in Africa, particularly. Two main strategies were identified in the case of African industrialization. The first is manufacturing, which corresponds to the first and second industrial revolutions and the second is ICT development, which corresponds to the third industrial revolution. In Chapter 2 we present the sectoral shifts that have occurred in Africa in the recent decades employing ternary graphs for a clear visual description. We examine industrialization in 52 African countries and present four models of African industrialization that differ from the classic Three Sector Model (known in Japan as Petty-Clark's Law) used in Western developed countries. The 4 models identified include the least industrializing countries, the slowly

industrializing countries, the de-industrializing countries, and the industrializing countries. Chapter 3 analyzed the pattern of industrialization based on manufacturing data with a focus on 9 African countries considered as representative of the different industrial stages from the three most significant categories of the previous chapter 3. The findings of this chapter reveal that the African model of industrialization is a resource-based industrialization whereby countries' manufacturing sectors use local agricultural resources (Kenya, Benin, Senegal) or mineral resources (South Africa, Nigeria, Egypt, Tunisia, Morocco, Senegal) in industries. Chapter 4 reviews the question of telecommunication which is an important field of industrialization experience in Africa pointing out the leapfrogging experience and appropriate technology adoption in the field. The findings in Chapter 4 also reveal that there is a varied correlation between the GDP per capita and mobile subscription respectively for African countries. Mauritius shows a strong correlation while South Africa, Egypt, and Tunisia have a weak correlation and, countries such as Senegal, Kenya, and Benin rather have no correlation between the two variables. Besides it was found that although mobile subscriptions are high in African countries, the number of internet users remains low. Chapter 5 presents a case study on telecommunication companies' performance in Benin, a West African country with a dual French-English influence. The analysis reveals the importance of experience and strategic investments in 3G technology and submarine cables as important for telecommunication companies' growth in Benin.

Key Words: Industrial revolution, industrialization, Africa, sectoral shifts, ternary graphs, manufacturing, employment, value-added, leapfrogging, appropriate technology, telecommunication, multinationals performance, economic growth.