Research Statement

I am a macroeconomist interested in Public Finance, International Trade, and Applied Econometrics. My research focuses on advancing our understanding and management of public debt, as well as enhancing economic cooperation through international trade and monetary policy. In my research, I first use data to document empirical facts, and then I use theory by building macroeconomic models to make counterfactual analyses. I have three working papers (1 to 3) and three work-in-progress (4 to 6) presented as follows.

1. Balanced Budget Rule and Economic Growth [Job Market Paper]
This paper studies the impact of a new Balanced Budget rule (BBR) on economic growth adopted in Switzerland's constitution in 2003. Its distinctive feature is that the government deficit limit is flexible depending on the comparison between real and potential GDP, unlike the traditional fixed 3% deficit limit in the European Union. First, using a synthetic control method, I document that from 2003 to 2018, the adoption of the BBR positively impacted Switzerland's economic growth. Second, I build an endogenous growth model with a shortsighted government making inefficient decisions. I find that by reducing public debt, the BBR tempers the "crowding-out effect of debt" and frees up resources for private investment in R&D. Additionally, by reducing the service of the debt, it frees up resources for public investment in R&D. These investments, in turn, foster economic growth. Third, the model calibrated to Switzerland shows that the long-term yearly growth effect of the new BBR is 1.27 basis points, which compounds to a 1% GDP gain after 10 years. Furthermore, compared to traditional BBRs, which reduce welfare, the new BBR increases it, providing a rationale for the lack of enforcement of traditional BBRs.

2. Trade and Shocks Transmission in a Regional Trade Agreement, *with Régis Kouassi*
Using an IV strategy, we document that productivity shocks namely climatic and political shocks in an origin country affect inflation in the destination country through trade in Africa. Second, we develop an international trade model à la Eaton and Kortum (2002) extended to include money to discuss how Regional Trade Agreements (RTA) can amplify the transmission of productivity shocks across countries. We use the model to explore how the African Continental Free Trade Agreement (AfCFTA), adopted in 2021, could affect countries' inflation and its implications for their monetary policy.

3. Reevaluating the Impact of Regional Trade Agreements in Africa
I revisit the effect of Regional Trade Agreements (RTAs) on African intra-trade, finding that they have significantly increased trade by 62 to 77 percent from 1995 to 2019. These figures are lower than most estimates in the literature. I address several issues related to estimating the effects of RTAs, namely the selection bias due to the prevalence of zeros in trade data, the staggered adoption feature of RTAs, and their heterogeneous effects across regions and over time. To deal with these issues, I apply a structural gravity model, a Pseudo Poisson Maximum Likelihood (PPML) method, and a heterogenous robust Difference-in-Differences estimator. Interestingly, the estimates by these methods are close. The results also indicate that RTAs generally take between five and eight years to have a significant impact on trade.

4. WAEMU facing AfCFTA: Implications for Trade and Monetary Policy, *with Régis Kouassi*
The purpose of the African Continental Free Trade Area (AfCFTA) is to reduce trade barriers for greater integration between African countries. West African Economic and Monetary Union (WAEMU), having historically had its main trading partners outside Africa, will have to trade more within the continent. This paper identifies African countries with which WAEMU could increase its trade, and studies the implications of such an increase on macroeconomic stability, before proposing a monetary policy orientation to minimize the impact of external shocks. To do so, we develop a new approach to detect the trade expansion potential between two economies. This approach, applied to WAEMU countries using the Harmonized System's detailed four-digit product classification, over the period 1996 to 2016, reveals that South Africa, Egypt, Morocco, Nigeria, Tunisia, Kenya, and Ghana are the countries with the highest potential for trade expansion with WAEMU. With the AfCFTA, WAEMU could increase its imports by more than 12% on average with

each of the African partners listed above. This figure reaches 32% for South Africa, the first potential partner. Using a new Keynesian model in an open economy, calibrated to WAEMU, we simulate several trade integration scenarios, targeted at the partners identified above. We find that greater integration with these countries will increase the transmission of price and production shocks from African partners to WAEMU economy. The central bank (BCEAO) within a framework of an optimal monetary policy should, in addition to inflation, react more to variations in the effective nominal exchange rate.

5. Bridging Economies: Measuring Trade Potential Between Nations *with Régis Kouassi*
What is the trade expansion potential between two countries? In this work-in-progress, we propose a methodology that leads to a simple index designed to help countries identify and diversify their trading partners, along with the specific products they could trade. This index, which we call the Trade Expansion Potential Index (TEPI), has two main features. First, it considers the existing level of trade and quantifies the additional trade one country could achieve within its partner's total imports. Second, It accounts for trade costs between countries, encompassing all trade barriers. We apply this methodology to bilateral import data from WTO statistics at the H4 Harmonized System classification level, as well as to bilateral trade costs based on Novy (2013) from the ESCAP-WB dataset, covering 180 countries over the 1996-2019 period. The TEPI is tested for its predictive power in determining the likelihood of entering a Regional Trade Agreement (RTA). We find that a one standard deviation increase in the TEPI is associated with a 0.48 percentage point increase in the probability of entering an RTA. The results are robust across several specifications. Our next goal is to derive the TEPI from a structural model to enhance its theoretical foundation and further improve its applicability in trade policy analysis.

6. Transition to Renewables and Public Debt Sustainability
With Chaffa Lucien, Kodjo Koudakpo, and Alexandre Pavlov
How do economic shocks (e.g., sovereign debt crises and political conflicts) affect clean energy production relative to dirty energy? To address this question, we use data on sovereign debt crises from Reinhart and Rogoff (2009), combined with newly constructed data on political conflicts across 47 countries, spanning the period from 1971 to 2015. Our analysis reveals two key findings. First, before an economic shock, clean energy—proxied here by the share of hydro-energy in the energy mix—tends to follow an increasing trend. However, the trend of clean energy production is declining following a sovereign debt crisis or a political conflict. To explain these patterns, we are developing a Small Open Economy (SOE) model in which the government, facing a sovereign debt crisis, imposes taxes on firms in the dirty energy sector while providing subsidies to those in the clean energy sector. Ultimately, we aim to document how economic shocks can threaten climate transition objectives, and conversely, how pursuing climate transition objectives can threaten public debt sustainability.

7. Additional research project

7.1. Bureaucracy and Public Debt

7.2. Optimal Monetary Policy in a Monetary Union: The Case of a Large and a Small Member State

7.3. The cost of multiple currencies on trade: the case of Africa

I am driven by a constant pursuit of engaging research topics, with a particular emphasis on making meaningful empirical contributions. Looking ahead, I aim to continue striving for publication in top academic journals. I look forward to deepening my existing research relationships and initiating new collaborations.

This version is for October 31, 2024 and an updated version is available here, you can also visit my website here.