The Relevance of Optimum Currency Area Theory to the Speed of Federal Integrations

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Abstract

This paper sought to establish a relationship between optimum currency area (OCA) theory and the speed of federal integrations. By doing so, it aimed to better understand the relative importance of the assorted forces that affect integration processes. Combining insights from the fields of OCA theory, the Balassa stages of integration, and fiscal federalism, this project presented a model that predicts the speed of an integration process based on a case’s fulfillment of four OCA measures. The four criteria included in this model were: 1) openness to trade, 2) production diversity, 3) factor mobility, and 4) macroeconomic preferences. The model was tested against three case studies. These cases were: 1) the American case in the late eighteenth century, 2) the German case in the nineteenth century, and 3) the European case from the end of the Second World War to the present day. Evaluating these cases individually as well as in comparison to each other yielded two prominent suggestions. First, it is a mistake to treat historical, contemporary, and future integrations the same. Distinctions including, but not limited to, differing views of national sovereignty and different types of currency systems make it imprudent to treat cases of all eras equally. Moreover, the assumption that the Balassa stages of integration hold their order becomes increasingly difficult to assure the farther back in time one goes. Second, economic criteria situate a case for a certain speed and direction of integration, but they are not the only contributing factors. The effects of non-economic forces are real and significant. These forces account for discrepancies between the results of the model and the results seen in practice. It was ultimately concluded that it might not be possible to create a solely economic model that replicates all of the particulars of an integration process. That said, model presented herein still proved effectual, though. It yielded accurate predictions as long as affecting variables outside of the scope of the model were accounted for.
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Part I: Introduction

Among social scientists, the integration of sovereign states into a single federal body is a well-studied process. Federal narratives, such as the formation of the United States of America and the ongoing European integration experiment, are as remarkable as they are important to understand. Accordingly, a great deal of scholarship has been dedicated to comprehending individual integration processes as well as the underlying forces that motivate these efforts. A question that has yet to be sufficiently asked and answered, however, is why some federations integrate at different speeds than others. This is the mystery this paper seeks to disentangle. To solve said puzzle, criteria from economics’ optimum currency area theory will be employed. Optimum currency area—often denoted as OCA—theory prescribes the most relevant criteria for choosing the optimal geographic size of a currency area. The four criteria in question here are: 1) openness to trade, 2) macroeconomic preferences, 3) factor mobility, and 4) product diversification. These economic measures are pertinent factors to the speed of federal integrations. A model will be presented—suggesting a relationship between how a federation fulfills the selected OCA criteria and the speed with which the federation integrates. By evaluating three test cases, the applicability of the model will be assessed and larger suggestions about the relationships between OCA theory, the Balassa stages of integration, and fiscal federalism made.

Literature review

Before further evaluating connections between federal integration speed and OCA criteria, it is important to properly place this endeavor within the context of similar works. A niche of this project is that it utilizes OCA criteria to examine a question of integration theory. While this does fill a hole in the existing literature, it also increases the difficulty of attaching this effort to an ongoing academic tradition. This paper does not follow the template of recent works testing OCA theory. Instead, it relies on previous works of OCA theory heavily and, thus, can be said to be most a part of that tradition.

1 Scholarship involving OCA theory usually focuses on testing the viability of a single case as a currency area or arguing the relevance of a particular criterion.
Accordingly, it is prudent to consider the literary tradition of OCA theory. To start, it is important to recognize that OCA theory stems not from a single author, but many. Specific contributions of OCA theory will be detailed later, but, for now, the point to be made is that OCA criteria came from different minds and at different times. In his 1975 paper “The Theory of Optimum Currency Areas: A Survey”, Yoshihide Ishiyama differentiates between the traditional approach taken by the first authors of OCA theory—Robert Mundell, Ronald McKinnon, and Peter Kenen—in the 1960s and the alternative tactics followed by several scholars in the 1970s and the years since. Ishiyama asserts that the traditional approach focuses on singling out specific, determining economic variables and uses those criteria to decide where the borders of an optimum currency area should be set. He claims that the alternative approach acknowledges that making decisions that are both political and economic—such as drawing up the lines of a currency union—requires a more holistic strategy that does not restrict itself to only a few economic criteria. Instead, the alternative approach advocates defining an optimum currency area as the point where the marginal costs and benefits of joining such a union intersect—i.e. at the margin. These costs and benefits are not limited to a few economic criteria and instead include a wide range of social, political, and economic determinants. The downside to the alternative approach is that because of its inclusive nature and vague terminology it is difficult to operationalize. While the traditional method has its limitations as well, it remains popular because it is easier to put into practice than the alternative approach.

The model herein favors neither the traditional nor the alternative approach because it does not follow the normal path of questioning whether a given region should be considered an optimum currency area. Instead, it uses the OCA criteria for a different purpose. That said, some of these criteria can be categorized as key parts of the traditional approach. Openness to trade, factor mobility, product diversification, and macroeconomic preferences are all judged on specific economic indicators and are used to make wider evaluations of political and economic actions. As such, one has to be careful when

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using these criteria and cognizant of the pitfalls that Ishiyama and other advocates of the alternative approach have identified. Nevertheless, while it does lean heavily on the use of traditional criteria, this paper’s qualitative tendencies make it just as sympathetic to the alternative approach. In practice, it is not necessary to choose one strategy over the other because neither approach is pursued here in its conventional manner.

As was mentioned earlier, OCA theory stems from no single source and incorporates several approaches even within the field. While this contributes to the diversity of applications the theory has, it leads to a central dilemma. As Thomas D. Willet and Edward Tower acknowledged in 1970, there is no agreement on the relative importance of the OCA criteria, nor is there a consensus on what criteria should be considered. This quandary becomes pertinent when one starts to consider which criteria to use. The selected four criteria are chosen because they are among the most widely accepted and tested criteria of OCA theory. However, the question remains as to why OCA theory traditionally limits itself to just these four criteria. Other economic indicators—as well as social, political, and cultural ones—are relevant to the task of drawing an optimum currency area, but they are typically left unconsidered for the sake of practicality. Little consensus has been reached as to which criteria are most important, vis-à-vis the others. Such questions may be best answered in another study as this paper is focused solely on assessing the relevance of the four chosen OCA criteria to the speed of federal integration processes. This appraisal may serve as evidence, in future studies, towards determining a general order of importance, among the OCA criteria, but that is not the intended aim of this work.

How this study does intend to contribute to the general field of OCA theory is by applying OCA logic in a previously untried manner. OCA theory is often used to determine whether or not a group of states should form a currency union, but is rarely considered in relation to other types of integration. Given the assumption that the success of a fiscal or political union is largely dependent on the strength of the economic and monetary unions that preceded it, should not the criteria used to judge the success of

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those unions also be relevant to assessments of fiscal and political unions? The model presented here implicitly argues yes by suggesting a relationship between OCA theory and the formation of all sorts of unions—not just currency unions. Traditionally, OCA theory does not consider speed of integration, just whether or not a union should occur. By repurposing the OCA criteria one can assess not should, but rather how well states integrate. The model presented here also hopes to yield tangible applications for modern-day policymakers. The speed of an integration process may be of little intrinsic importance, but it has several second order effects. One such implication is how the speed of integration affects the success or stability of a federation going forward. How quickly a group of states integrates may affect the ability of those states to remain united. The speed of an integration process certainly affects the stability and even shape of a federation. Translating the results of the model towards answering these sorts of inquiries will provide insights for future and current policymakers.

**Research orientation**

To properly orientate one to the subject matter of this research, it is necessary to first examine what it means to integrate into a federation and the sorts of union that occur throughout that process. Using the stages of integrations originally authored by Hungarian economist Béla Balassa, the model will measure integration processes as they proceed along four stages: 1) economic union, 2) monetary union, 3) fiscal union, and 4) political union. A key point of the model is that economic and monetary unions are closely related and, thus, occur in conjunction with or close to each other. The same is true of fiscal and political unions. Accordingly, the speed of an integration process—i.e. how quickly a group of states moves through the entire process—is determined largely by the length of the gap between economic/monetary union and fiscal/union. There is no set amount of time that signifies a long or quick integration because the results returned by the model are relative, opposed to absolute. This means that what can be labeled as a long or quick process is relative to each case. There are certainly other factors that affect the speed of integrations—and those factors will be properly considered later on—but the objective herein is to test the relevance of OCA criteria and how strong of a theory can be developed only using OCA measures. The three case studies being considered are: 1) the American case in the late
eighteenth century, 2) the German case throughout the nineteenth century, and 3) the European case from the end of the Second World War through the present day. The conclusions gathered from this study will come from the success or failure of this model and the repercussions those results produce. Before such an examination is undertaken, though, it is critical to elaborate on the specific research techniques employed. In particular, the research strategy can be divided into three distinct elements: 1) the choice of a qualitative approach, 2) the rationale of case selection, and 3) the decision to focus on only federal integrations.

First, let us discuss the reasoning behind taking a qualitative approach. Since there are only a few testable cases of federal integrations, it is difficult to accumulate a large enough sample size to have a workable quantitative framework. A qualitative approach is not merely the default option, though. That many factors go into how quickly a federation goes from one step of integration to another lends this project to needing the freedom of a qualitative approach. As the model is more thoroughly presented and evaluated shortly, one will realize the complexity of predicting integration processes and how even a quantitative model must acknowledge and account for the presence of unconsidered factors.

Second, it is important to analyze the cases selected. As mentioned before, the American, German, and European integration stories will be examined. These cases were picked based on four criteria. First, in each instance a similar order of integration is followed and similar results are achieved. This is critical because for the Balassa stages of integration to be used as a measuring stick, it is necessary that the studied cases follow a similar integration path. Second, the historical importance of these three integration processes has produced a large amount of academic scholarship on them. Previously accomplished work is necessary for a case to be included because the breadth of the project and the wide variety of data required prohibits conducting entirely original data collection. Accordingly, the large amount of available data for these three cases makes them viable choices for this study. Third, the three cases have necessarily different timeframes. Since speed is the variable being tested, it makes sense for the speed of each integration process to be different. As will be proven before long, the relatively quick American, long German, and ongoing European integration processes will provide a sufficient variety of
cases from which to perform this analysis. Lastly, each of these cases occurred in a different century. This allows for a comparison of how integration processes have operated over time.

Third, there is a rationale to only examining a single form of political organization—federal structures. Such a limitation is imposed for two main reasons: 1) the present day prominence of federations and 2) their basic structure. Federations are a vogue form of political organization. Of the approximately 200 recognized nations in the world today, one in eight is a federation. Moreover, around two billion people currently live under federal states—nearly forty percent of the world’s population. The point to be made is that a significant portion of the world is governed by a federation, making the study of how those societies come together all the more important. The trend towards federal systems of governance does not appear to be slowing down any time soon, either. As the world becomes increasingly globalized economically and political pressures to decentralize governments continue to increase, the idea of a federal structure will remain an appealing option to political actors and ordinary citizens alike. Additionally, the general structure of federations makes them conducive to interesting and telling integration processes. The basic federal idea—a national government sitting above more-or-less powerful sub-national governments—necessitates that an assortment of independent states come together to form a variety of unions. As such, federations provide ideal interplays of national and sub-national powers—allowing for integration processes that are worthy of intense investigation.

Part II: Theoretical Framework

Before evaluating cases individually, it is prudent to review relevant elements of OCA theory, Balassa’s stages of integration, federalism as well as monetary and fiscal policy.

Optimum currency area theory

To understand how OCA theory decides which criteria are most relevant to the size of a currency union, consider the general notion of currency areas. In theory, since all monies are exchangeable for each other and serve similar purposes—i.e. acting as a medium of exchange, store of value, and unit of

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account—the true size of a currency’s transactions domain is the world. In practice, though, wages, contracts, and payments are oftentimes fixed in the long run to a specific currency—making the receiver of those wages subject to positive or negative exchange rate fluctuations. Accordingly, if one wants to avoid considerable distributional differences between employers and employees, governments and their peoples, and creditors and debtors, then a region needs to be established that has smaller natural exchange rate differences. This is the problem OCA theory seeks to solve. It aims to find the criteria most relevant to the natural exchange rates of various national currencies. Then, it can prescribe which countries have the monies most ready to join into a union with each other—thus, offering the ideal size of a currency area.

Sharing money affects natural exchange rates because a common currency is one of the greatest ways to reduce transaction costs between regions. Economic transactions require the valuation and comparison of prices of goods and services. Executing such transactions takes time—one of the largest costs of trade. A shared money lowers the amount of time spent not only searching for products, but also the time spent negotiating a price. In this way, a common currency is an important facilitator of trade and can act as a promoter of economic growth between and within regions. As noted above, though, the whole world cannot be a currency area because of differences in natural exchange rates. This problem often results in disturbances in the balance of payments between economies. A country will suffer from a balance of payments deficit if it sends more money abroad than it receives from foreign consumers and investors. A state that suffers from a negative balance of payments the economy will have to endure either a rise in real prices—i.e. domestic prices vis-à-vis global prices—or a decline in real wages—i.e. what workers of that country can purchase with their nominal wages. Either the rise in real prices makes the country’s export industries uncompetitive—because they cannot afford to sell at the lower world price—or the decline in real wages hurts workers as their purchasing power is significantly less than before. Neither of these outcomes is desirable.

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6 Ibid., 638-639.
A currency union can function properly without incurring balance of payments problems, but only in the absence of adverse shocks. Asymmetric shocks, as well as symmetric shocks with asymmetric effects, occur invariably in all economies and are the source of many balance of payments troubles. Imagine a scenario in which the United States and Canada are considering forming a currency union. Each country has two exchange rates—one between themselves and one vis-à-vis the rest of the world. Let us say a demand shock affects the American and Canadian economies equally. It does not matter if the United States and Canada are in a currency union—the effects are the same. Each country must devalue its currency, in order to restore export competitiveness versus the rest of the world. The scenario becomes much more problematic if Canada and the United States are not equally affected. Let us say that only Canadian demand is affected by the shock. Now, it is only the Canadian dollar that needs to be weakened. This could be done easily enough if Canada and the United States each held monetary sovereignty, but if they decide to enter a currency union, they cede that sovereignty. In this situation, the United States will want to keep its exchange rate as it is—since it is unaffected by the shock—and Canada will want to devalue.\footnote{R. Baldwin and C. Wyplosz, \textit{The economics of European integration}, 4th Edition (McGraw Hill, 2012): 408.} Figures 1 and 2 illustrate this divide.

\textbf{Figure 1: American Economy (unaffected by demand shock)}

As one can see in Figure 1, the United States is not affected by the demand shock, so there is no pressure to change its exchange rate. Without shifts in the aggregate supply (AS) or aggregate demand (AD)
curves the exchange rate does not change. This is not the case in Canada, as the leftwards shift of the AD curve lowers the exchange rate equilibrium, in Canada, from $e_0$ to $e_1$.

**Figure 2: Canadian Economy (affected by demand shock)**

What results is that these two economies each have a preferred exchange rate—vis-à-vis the rest of the world—that they wish to operate at. However, by joining into a currency union, it is not possible that the United States can operate at $e_0$ and Canada can carry on at $e_1$ because they have linked their exchange rates together. The further apart these equilibrium levels are, the greater the effect the adverse shock will have. When the actual exchange rate of a state does not match the natural exchange rate, its economy is hurt. An economy will either face inflationary pressures or lose international competitiveness if its economy is artificially overvalued or undervalued.

The logic of OCA theory, at its most basic, attempts to compare the aforementioned costs of currency union with the benefits. Each new state added to a currency union brings with it a marginal benefit because a larger transactions domain increases the usefulness of a currency. At the same time, each new member also brings marginal costs because of the added risk of asymmetric shocks. OCA theory seeks to find the equilibrium where the marginal benefit of adding a new member is equal to the marginal cost. That point is the optimal size of a currency union.

The first criterion proposed as a measure of the optimal size of a currency area was factor mobility. In his 1961 article “A Theory of Optimum Currency Areas”, Robert Mundell argues that the
optimal size of a currency area is largely determined by the amount of factor mobility within that region. Mundell cites the Ricardian international trade model which assumes that the factors of production—e.g. labor and capital—are mobile internally, but immobile externally. He points to work by economists, such as Bertil Ohlin, who argue that those factors should not be considered externally immobile. Mundell contends that relaxing that assumption has devastating consequences. He asserts that factor mobility both internally and externally will cause harsh balance of payments problems. Mundell argues that the optimal size of a currency area is a region with internal factor mobility and external factor immobility.\(^8\) This allows that region to reap the benefits of lower transactions costs and not endure many of the negative consequences of currency union because labor and capital mobility will allow balance of payments problems within the region to work themselves out. For instance, imagine a currency union between Argentina, Brazil, and Uruguay. If structural forces cause the Argentinean economy to become relatively less competitive, then Argentina can expect to face balance of payments problems within their South American currency union. However, if labor is mobile among the three countries, then Argentinean workers can avoid lower wages by moving to Brazil or Uruguay. They will continue to do so until the marginal product of labor in Argentina rises enough to have relative wages equal to Brazilian and Uruguayan wages. In this manner, factor mobility acts as a sort of market mechanism that solves many balance of payments problems between members of a currency union.

The second criterion added to the literature of OCA theory was openness to trade. First offered in his 1963 paper “Optimum Currency Areas”, Ronald McKinnon argues that the more open an economic unit is to trade the less effective flexible exchange rates are agents of growth and the more destabilizing they are to internal prices levels. McKinnon defines openness to trade by the ratio of tradable to non-tradable goods produced within the country.\(^9\) He asserts that if an economy consisting largely of importable and exportable goods tries to institute a flexible exchange rate system, internal price instability

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will occur. The greater the variation in currency prices among the integrating states the larger the price instability—since a unit of open economies is especially exposed to highly elastic foreign supply and demands forces. McKinnon also claims that if strict price stabilization measures are taken the rise in the price of tradables will have to be met with a corresponding decline in the price on non-tradables—resulting in a damaging contraction of domestic demand and employment.\textsuperscript{10} Additionally, the benefit of a common currency—i.e. lower transactions costs—is greater for open economies. Since a larger share of their economic activity, by definition, involves international trade, employing a common currency between countries that are open to trade will have the greater impact of reduced transactions costs.

The third OCA criterion presented was product diversification. Outlined in his 1969 article, “The Theory of Optimum Currency Areas”, Peter Kenen argues that a country producing a sufficient variety of products will be less likely to suffer from large demand disturbances and, as a result, suffer from smaller balance of payments shocks. Kenen asserts that a diverse national economy will undergo fewer trade fluctuations than a less-diverse economy and that when faced with adverse shocks an economy producing a variety of products will see smaller increases in unemployment. Kenen reasons that any individual exported good may be subject to disturbances—due to changes in foreign demand or technology—but the more isolated those disturbances are from each other, the less impact they will have on the greater economy. The law of large numbers becomes relevant for countries with high product diversification because even a steep downturn in the economy of a specific good has little effect on the overall economic state of that country. Chances are that, at any given time, a diverse national economy will be experiencing several booms and busts within its specific national industries. But, because of the diversity of products, the chances of drastic swings in overall economic growth are much less.\textsuperscript{11} Kenen’s theory of product diversification applies to the optimal size of a currency area because members of such a union cannot undergo dramatic shifts in economic growth—be it positive or negative—since these shifts strain the natural exchange rates of the member economies and cause balance of payments problems.

The fourth OCA criterion offered was macroeconomic preferences. Unlike the three previous criteria, the notion that successful currency areas need homogeneous macroeconomic preferences is not the creation of a single mind, but rather a criterion proposed by several scholars. The rationale behind this claim is that the states of a currency union must agree on how to respond to shocks. As discussed earlier, the effects of adverse supply and demand shocks can be disastrous for a currency union if the natural exchange rates of the member states drift too far apart. If there is not homogeneity of macroeconomic preferences it will be very difficult for a currency union to respond to shocks if the divide between natural exchange rates becomes too great. Due to historical, political, and social factors, certain countries are more or less tolerant towards inflation and unemployment. For example, the memory of hyperinflation in 1920s Germany has left the German populace and leadership wary of runaway inflation. As such, Germany tends to favor policies that limit inflation and are accepting if the cost of such policies is higher unemployment. Conversely, the high unemployment and social unrest that wrecked France in the 1930s motivates the French to de-emphasize inflation-reducing policies in favor of efforts that minimize unemployment. The result of these different national preferences is that an economic shock in Western Europe will not elicit the same response from all affected national governments. Once again, this is not inherently problematic if states with different preferences have monetary sovereignty. However, once a currency union is established, there is no room for different responses. All monetary actions must be taken on the supranational level. In the example mentioned above, the European Central Bank must decide between Germany-style low inflation and high unemployment and French-style high inflation and low unemployment. For this reason, a group of states is much better suited to form a currency union if such decisions do not have to be made because they share similar macroeconomic preferences. Figure 3 visualizes this gap in preferences.

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To this point, four of the most prominent OCA criteria have been discussed. These are, though, by no means the only criteria proposed. Scholars have advocated variables such as national interests, geographic proximity, and political willingness as contributors to whether or not a group of states should form a currency area.\(^{13}\) It is rash to discount these factors outright. Such dynamics will be considered, but the meat of this project will focus on the four major, solely economic criteria. The model proposed herein hopes to test how strong of a theory it can present relying only on economic OCA measures.

**Balassa stages of integration**

A field of study closely related to OCA theory is the stages of integration processes. While no two integration processes are exactly the same, a set of stages has been developed to define and compare different integration efforts. These stages largely stem from the work of Balassa and serve as important markers as well as determinants of the model this paper proposes to explain the relationship between OCA criteria and the speed of federal integration processes.

To start, let us consider the stages of integration first surmised by Balassa. Writing during the reconstruction of Europe following the Second World War, Balassa sought to categorize integration projects—such as the ones he saw being proposed and implemented in Europe—solely on their economic

\(^{13}\) Ettore Dorrucci, Stefano Firpo, Marcel Fratzscher and Francesco Paolo Mongelli, "The Path of European Institutional and Economic Integration: What Lessons for Latin America," *Journal of Economic Integration* (Center for Economic Integration, Sejong University) 20, no. 2 (June 2005): 240.
effects. Balassa started by defining a free trade area. In such a region, tariffs and quotas are eliminated between area members, but members keep their national trade barriers against outside countries. Second, he described a customs union. A customs union differentiates itself from a free trade area because a customs union creates a common set of tariffs and quotas that the member states issue against outside nations. Third, Balassa depicted a common market. A common market is a customs union that also abolishes non-tariff barriers to internal trade—e.g. technical and regulatory restrictions—and allows complete internal factor mobility. Fourth, he defined an economic union. An economic union is a customs union that also employs coordinated national economic policies—particularly with respect to fiscal and monetary decisions. Fifth, Balassa defined total economic integration. At this stage, all major economic policies are not merely coordinated among the states, but made at the supranational level.14

Since publishing these initial stages in 1961, several authors have added to and revised Balassa’s framework. A common extension of Balassa’s stages of economic integration is one that includes monetary, fiscal, and political union. This is the framework favored by the model proposed herein. This structure starts with a regional autarky that is completely isolated, aside from regional bilateral trade agreements. Second, is the common stage of a free trade area where internal tariff barriers are removed, but national barriers are kept for outside parties. Third, is a customs union with internal tariff barriers removed and a common set of trade barriers instituted for outside nations. Fourth, is a common market that, like in Balassa’s framework, allows for the free movement of labor and capital. Fifth, is economic union, which involves the coordination of certain national economic policies, such as interest rates. Sixth, is monetary union, which, like the European Central Bank or the Federal Reserve in the United States, unifies members under a single currency and a single central bank. Seventh, is fiscal union, connoting that the supranational authority can harmonize taxes and has fiscal sovereignty—i.e. the power to tax. The eighth and last step is political union. This means that there is an effective and democratically

Oftentimes, it is difficult to identify a single date as the establishment of a union. At times, the signing of a treaty or constitution signals the beginning of one or more sorts of union, but at other times the start is more difficult to ascertain. Accordingly, it is critical to consider both the de jure and de facto beginnings of each of these unions. This involves not only looking at when a given case reaches union by law, but also when it integrates into that union in practice. For instance, consider the case of monetary integration in nineteenth century Germany. As early as the 1830s, German currencies were linked to each other via a fixed exchange rate. However, was not until the 1870s and the political unification of Germany that only one German currency was deemed legal tender. By strict legal definitions of monetary union, Germany may not have reached monetary union until 1871. But, by looking at how German monetary policy was enacted, in practice, one can see that Germany did enjoy monetary union as early as 1838. As such, this paper claims that the German states joined into a monetary union in 1838. This sort of analysis can cut the other way too. For example, in the American case, the former American colonies did reach political union under the Articles of Confederation in 1777, but the federal government they

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15 Patrick M. Crowley, "Is there a Logical Integration Sequence After EMU?," *Journal of Economic Integration* (Center for Economic Integration, Sejong University) 21, no. 1 (March 2006): 3.
created was largely powerless and ineffective. As such, one cannot say that the American states entered into a meaningful political union until the implementation of the United States Constitution in 1789.

As has been discussed, the last four integration stages will be used to measure how a given case progresses through its integration effort. Regarding these stages, it is necessary to answer two questions. First, must these stages hold their given order? And, if so, why? Second, what gap in the process is the most important in determining the speed of an integration process?

Let us first address whether the stages must keep their order. In short, the answer is yes. A common market cannot exist without a customs union, just as a customs union cannot occur without a free trade area before it. At the most extreme these three sorts of union could all be instituted at the same time, but there is no way for a free trade area to come after a customs union or a customs union after a common market. Similarly, autarky, by definition, signifies the absence of any integration, so it must be the first stage in the process. The result is that the first four stages are locked in as the first four steps of any economic integration process. Now, consider why—in theory—economic union must occur before monetary union. Monetary union means that member states will give up their monetary sovereignty and unite under a single currency and central bank. To enter into such an arrangement the natural exchange rates of the member economies must have converged to a sufficiently similar degree otherwise balance of payments problems will ensue. Such convergence is not possible if the states do not also share some coordinated economic preferences, have free trade agreements, and allow for internal factor mobility—i.e. the characteristics of economic union. As the proponents of OCA theory have argued, these are the requirements for a successful monetary union, so such a union will not occur until those conditions have been met. As a result, economic union will occur before or around the same time as monetary union. While a long history of economic coordination might help ensure a smoother transition to monetary union, there is no theoretical reason why economic union must occur a certain amount of time before monetary union—just that it will not occur after.

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16 One qualification is that the Balassa stages only apply in the absence of significant non-economic shocks or historical circumstances. Events such as war or political crisis may necessitate a different or condensed order. This caveat will be addressed at length later in the paper.
In a similar vein, monetary union typically occurs before fiscal union. Reflect on the idea that for an economic body to have fiscal powers requires the ability to collect taxes and redistribute that income. Such a process is made incredibly difficult if that economic unit is comprised of different currencies. While history offers several examples of fiscal states with different currencies circulating within them—e.g. the United States prior to the Civil War—there was always official state money that was minted/printed and controlled by central bank. This currency was used to pay government debts and issued solely by the government. Regardless of whether this money enjoyed a monopoly in its transactions domain, it acted as evidence of a monetary union. Even that, though, is an extreme example. Typically the government-sanctioned currency is the dominant circulating currency. The point to be made is that monetary union typically occurs before fiscal union. It would be impractical to tax and redistribute income in areas that held different currencies, had varying economic regulations, did not freely trade with each other, and did not allow factors of production to freely cross borders. The only way to engage in such fiscal management would be through a sort of Soviet-style state-planned economy, which is out of the scope of cases this paper wishes to consider. Lastly, political union must be the last stage in the sequence for equally obvious reasons. Primarily, what good is political power if that political body does not have the resources—via taxation and redistribution—to affect its power? Without the ability to extract resources from its populace, a political entity is powerless. Accordingly, such a body will rarely form without first acquiring fiscal powers. And, as has been outlined, those fiscal powers also require economic and monetary arrangements.

Now, let us turn towards the second question. That being, is there a particularly important step in the integration process? As the leading nature of the question suggests, yes there is. The most important gap is between monetary and fiscal union. The rationale is that economic and monetary unions are so closely intertwined that one cannot successfully exist without the other. A similar relationship exists between fiscal and political union. The result is that the last four step of the integration sequence are reduced to two steps: 1) economic/monetary union and 2) fiscal/political union. Measuring this gap is the most clever and effective way of testing the speed of an integration process.
To better understand this point, consider why a group of states enters into an economic unit. The purpose of economic union is to reduce the costs associated with trade by reducing all sorts of trade barriers—e.g. tariffs, quotas, regulations, technical requirements, currency exchanges, etc. As such, the benefits of a free trade area and a common market—the biggest parts of an economic union—are lessened if the step towards monetary union is not also taken. Having a common money dramatically reduces the costs of doing all sorts of business and has a multiplier effect on the other benefits of economic union. One can imagine a case where a group of states is willing to integrate economically, but not monetarily out of fear of loss of too much national sovereignty. While this scenario is entirely plausible, it is not likely or rational. By joining into an economic union, a group of states has already made the decision to move towards some level of supranational integration. While independent monetary policies could be useful if the states operated largely independent economies—i.e. they did not trade goods, services, labor, and capital with each other—the states are not independent as evident by them joining into an economic union. In short, the incentive to create a monetary union increases enormously once an economic union is established. Accordingly, a group of states is much more likely to join into a monetary union if it has already created an economic union.

Let us also rationalize why fiscal and political union must occur in step. Fiscal union requires deciding on the appropriate levels of providing public services and the preferred public redistributive mechanisms. In other words, it requires that the public approve of how the state collects taxes and what it spends those resources on. This sort of approval—in a democratic state—requires elected officials and political representation. In this way political union is a necessary, and oftentimes immediate, successor to fiscal union.

A final crucial consideration is the possibility of strong relationship between the monetary and fiscal union. That is, it is possible that a case experiencing a quick monetary integration may be better positioned to undergo an equally quick fiscal integration. In other words, one of the assumptions of this paper—indeedence between monetary and fiscal union—would be broken. If these two unions are

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17 Patrick M. Crowley, “Is there a Logical Integration Sequence After EMU?,” 7.
strongly linked to each other in this way then it does little good to measure the gap between them. While this lack of independence is certainly a possibility, it is not a likely or grave enough concern to detract from the power of the proposed model. While certain cases may be especially open to integration due to historical and political circumstances, there is no evidence that these factors will affect any step in the integration sequence more so than any other. If anything, the existence of fiscal union hastens the need for monetary union, more so than the other way around. This, of course, is only possible if the order of the Balassa stages were changed—a possibility that will be addressed later on.

**The implications of federalism**

The notion of peaceful, democratic federalism is not a modern idea. Such an idea dates back to Aristotle in Ancient Greece and his suggestions stressing the importance of personal and political autonomy. The modern European nation states that we see today in many ways emerged after the fall of the Roman Empire and the feudal order that followed. It was not until the Enlightenment period, however, that federalism surfaced as a viable political system in the western world. Fighting against monarchy, feudal privileges, aristocratic privileges led political thinkers to consider the possibility of a democratic federal political organization.18 The ratification of the American constitution in 1788 and the formation of the Swiss Federation in 1848 stand as the best historical examples of federalism succeeding in the western world. In the centuries since, federalism has often been looked at as a means of organizing dissimilar polities politically. In that sense, federalism oftentimes acts opposite force to what OCA theory purposes to do. That is, federal structures provide fiscal and political union to a group of states that may otherwise not be motivated to integrate in such a way.

While no two federal systems are exactly the same, one must, at least loosely, define *federalism*. At it’s most basic, federal structures distribute political authority and resources between polities that were previously independent or had not even existed.19 In other words, there is a supranational government

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that presides over various national and sub-national governments with varying degrees of authority. It becomes easy to see why federations inherently match up well to stories of economic integration. The idea of joining previously distinct units—be they economic or political—is a common theme in both processes. States are motivated to join a federation for a multitude of reasons. Among those include being pressured by a regional/global hegemon, joining with other smaller states to create a common security force, and enhancing economic opportunities. The reasons to stay out of a federation are simple. Foremost is the desire to keep political authority. Becoming part of a federation does not constitute a complete loss of sovereignty—it is a federal, not a unitary system after all—but there is a certain amount of control a political unit must give up with respect to economic, monetary, fiscal, and political decisions. The logic of a state deciding to join or not join a federation is similar to the theory on the optimal size of a currency area. Federal structures emerge when states value the benefits of joining a federation more highly than the costs. As long as the benefits of cooperation outweigh the costs then a state will join a federation and the federation will continue to expand until the costs are equal or greater than the benefits.

A danger one faces in evaluating federations is that of treating them all the same. By focusing solely on economic criteria, the model presented here purposefully sets aside structural differences in favor of narrowing in on the effects of a few economic criteria. That said, there is one structural characteristic of federalism that should be introduced. That is the divide between competitive federalism and coordinated federalism. Competitive federalism is distinguished by hard budget constraints. Sub-national governments are not allowed to create or borrow money endlessly, and, the national government refuses to bail out troubled sub-national entities with economic assistance. This form of federalism gets its name because it forces the various sub-national units in the system to compete against each other. If a given sub-national polity underperforms—be it economically or politically—they will be punished, or at least not rescued, by the national government. Competitive federalism can only exist if the national

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government does not have the power to centralize tax collection and resource distribution because otherwise the national government would slowly appropriate competencies away from the sub-national and local units. This would prove unsustainable as the national government cannot have a monopoly on resource collection and also refuse to bail out troubled areas. Coordinated federalism is characterized best by economic and political harmonization. Coordinating and bargaining are the driving elements of this sort of federalism. Sub-national governments will try to persuade other sub-national jurisdictions to remain faithful to various agreements. If they cannot do so and the arrangements are broken then the competencies in question will be ceded to the national government. Since, in this set-up, sub-national governments are not entirely responsible for their finances, national governments are relied upon to bail out troubled regions.\textsuperscript{21} Opposed to competitive federalism, states in coordinated federations make policy decisions in cooperation with each other. Understanding how these two types of governments interact with each other in these two types of federations is important to understanding the relative power stakes between national and sub-national governments and the mechanisms that cause them to integrate either quickly or slowly.

Specific to the issue of integration speed and federalism, there are two questions that must be acknowledged by this study. First, is there a feedback loop between the speed of an integration process and federation type? It is important to consider the possibility that certain federation types are more likely to occur in integration processes that happen quickly and that certain federal structures may cause an integration processes to occur more quickly that it would have otherwise. This is a difficult question to definitively answer, but it will be re-addressed when evaluating the cases. Second, certain places and times may be inherently more accommodating to federal integration processes. To address this concern, the concept of integration momentum and the effect of non-economic forces on integration will be discussed in relation to each of these policy areas.

Considerations of monetary and fiscal policy

As detailed previously, the most important step in an integration process—with respect to measuring speed—is the step between monetary and fiscal union. Accordingly, it is critical to address a few key elements of each sort of policy.

Let us start with a key distinction made by monetary policymakers—the difference between a currency area and a monetary union. In 1997, Kenen defined a currency area “as a group of countries that undertake to contain their bilateral exchange rates within narrow bands, defined in respect of agreed central rates which they cannot change unilaterally.” He described a system that did not share a common hard currency, but rather a system of fixed exchange rates that simulated a shared money. This sort of system is not all that dissimilar from the arrangement that Europe employed prior to the creation of the European Monetary Union (EMU). Kenen then made a critical distinction between currency areas and monetary unions. In a currency area, each member keeps its own currency and central bank. This allows each member state to pursue its own monetary policy as well as the ability to suggest changes to the fixed exchange parities. In a monetary union, however, there exists only one money and one central bank. Accordingly, there is only one monetary policy. Because of this, members of a monetary union cannot pursue their own monetary policy nor can they make meaningful suggestions about changing existing exchange parities. Those decisions exist solely in the hands of the central bank. While the central bank is manned by the member states it is not beholden politically to the polities it serves. Therein lies the key distinction between currency areas and monetary unions. In a currency area, the member states—as a whole—hold control of their monetary policy and are free to change the fixed exchange rates they operate under. In a monetary union, however, the member states cede control of their monetary policy to a central bank that acts as an independent source of monetary decision-making.

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23 Ibid., 211.
24 Exchange rates will actually disappear under a monetary union as only one official currency will circulate.
This differentiation has several consequences. First, when factor mobility is high in a currency area it will act much like a monetary union—since natural exchange rates will converge to each other, mimicking a single currency—but that policy will ultimately be dominated by the strongest economic body using that currency. This trend reveals itself in this paper’s cases in examples such as Virginia in the United States, Prussia in the German Confederation, and Germany in the European Union. In each case, these dominant states were able to use their relative power to have national monetary decisions reflect their own monetary policy preferences. Second, one must realize that the difference between a currency area and a monetary union is in many ways artificial. Despite the key differences between them, the two terms are largely interchangeable. That means that regardless of whether a case enters into a currency area or monetary union it is still joining a type currency union. For that reason, this paper frequently employs a less-used term currency union in place of currency area or monetary union—when neither phrase is specifically required.

A good way to understand the importance of fiscal policy is by appreciating some of the differences between how monetary and fiscal policies operate and how those differences impact the decision to step from monetary union to fiscal union. One such dissimilarity is how the two policy types are targeted to different groups. Monetary policy is much more difficult to target to a specific segment of an economy than fiscal policy. Governments can issue across-the-board taxes or they can favor certain constituencies by manipulating sales or income taxes. Central banks do not operate with that amount of precision as the decisions they make affect the entire economy through which that currency circulates. They cannot affect a domain any larger or smaller. How this affects the speed of an integration process is quite simple. A group of states whose leaders have a high incentive to target only specific groups are more likely to favor a move towards fiscal union, and the more precise fiscal powers that accompany it, than a group of states whose leaders lack such an incentive and gain just as much benefit, in that regard, from staying at monetary union. Such concerns will be raised again when discussing the forces that affect

25 Peter B. Kenen, "Preferences, Domains, and Sustainability," 212.
how long political leaders are willing to delay instituting costly reforms. Another difference between monetary and fiscal policies is the jurisdictions they affect. As just mentioned, monetary policy affects only the economy in which the given currency circulates. This means that monetary policy generally does not go past its national borders. Not only does monetary policy stop at its border, it is usually made only at the national level. This means that the jurisdiction for a central bank is the national economy—not the global economy, not a regional economy, and not a local economy. One may point to the circulation of regional currencies by regional banks in pre-Zollverein Germany as a counter-example, but such instances fail to resemble strong currency unions, so they are not powerful criticisms. In contrast, fiscal policy can be shaped to fit almost any jurisdiction. Fiscal policies can be targeted, even by national governments, to affect only precise segments of the populace.

Fiscal policy is not always made at the same level across federations, either. While monetary policy is always made at the national level—by a central bank—and affects the economy at the national level, fiscal policy can affect an economy in many different magnitudes and those decisions are made differently in each federal system. Some structures are more decentralized and most fiscal policy decisions are made at the local level, while some systems are more centralized and the reverse is true of fiscal choices. Fiscal policies can also have transnational impact. Consider what would happen if the United States cut federal income taxes by fifty percent. Ceteris paribus, American consumers would have much more money in their pockets. This would lead to a spike in consumption. Americans do not only consume American goods, though. Major exporters of goods to the United States would benefit greatly from these tax cuts, as demand for their exports would increase. This phenomenon actually decreases the incentive to issue tax breaks. The impacts of these differing jurisdictions on the speed of integration processes are interesting. Federations with very similar sub-national and national economies may prove to be very content to stop at monetary union, since the benefits of fiscal union—i.e. smaller and more

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27 Certain currencies can be appropriately described as international currencies because of their widespread use and large transactions domain. This claim does not hold for these monies as their influence extends past national borders.
28 Mark Hallerber, "Veto Players and the Choice of Monetary Institutions," 783.
29 Ibid., 783-784.
targetable jurisdictions—are less important. Conversely, a group of states with more diverse economic preferences may need the flexibility of fiscal power to successfully manage their economies. In this case the gap between monetary and fiscal union should be relatively small.

The purpose of this brief discussion of monetary and fiscal policies is to emphasize the importance of shared fiscal competencies in integration processes. Unlike monetary policy, the acting government typically directly controls fiscal policies. In addition, fiscal policies are easily targeted to affect specific constituencies—giving fiscal authorities a certain amount of greater power. As such, the decision to share these powers is of the utmost importance when determining the speed of an integration process. As one will see in the upcoming evaluation, the decision to join or not to join into a fiscal payments union is oftentimes the most critical point in an integration process.

**Approach of this paper**

Now that a theoretical framework has been established it is useful to repeat the intended aims and arguments of this paper. Using this background of OCA theory, integration theory, federalism implications, and policy theory already presented, a model will be proposed that offers specific predictions of the effects of the four OCA criteria towards the speed of integration processes. This will provide a comprehensive theory that unites the four criteria, reconciles possible differences between them and offers a single speed prediction for any given case study. As has been emphasized in this theoretical discussion, federal integrations are not purely economically driven processes. Consequently, the impact of factors not considered by the model—e.g. social and political forces—will be properly treated. Then, each case will be evaluated with reference to the four OCA criteria and assertions will be made as to what this paper’s theory predicts for each case. Those predictions will then be compared to actual results, conclusions about the validity and usefulness of the model discussed, and the broader implications of those results anticipated.
Part III: OCA Criteria and a Comprehensive Model

OCA criteria and individual predictions

While the four relevant OCA criteria have already been discussed with respect to the traditional theory of optimum currency areas, they have yet to be formally presented as criteria for the proposed model.

The first criterion to think about is openness to trade. The model argues that if a group of integrating states is open to trade, then the gap between monetary and fiscal union will be long—meaning that the integration process will be slower. A simple trade share index will be employed to determine if an economy is considered open or closed to trade. Both internal and external trade data will be included in this calculation because it is less important whom an economy is trading with as it is to what extent they are trading. Closed economies are those with less than a third of their GDP coming from trade. To make this assessment, a sum of imports and exports will be calculated and then divided by the GDP of the economy.\footnote{\[
\text{Trade's share of GDP} = \frac{\sum \left( \frac{1}{2}(X + M) \right)}{\text{GDP}}.\]}

If the resulting number is greater than thirty three percent, then the case will be said to open to trade. This is a rather loose definition of openness—many studies require a fifty percent trade share to signal openness. However, because of technological differences between contemporary test cases and the chosen cases—particularly the American and German cases—a lower threshold of openness is required. It is likely that no matter how open policies and attitudes were to trade in eighteenth century America and nineteenth century Germany, because of the higher—relative to today—transportation and communication costs, reaching a fifty percent trade share is highly unlikely.

Now, let us consider some of McKinnon’s first thoughts on how an economy’s openness to trade affects its integration process. Remember that McKinnon argued that if a group of states trades heavily with each other and decide to form an open economic unit, then there is great incentive for them also to form a currency union.\footnote{Yoshihide Ishiyama, “The Theory of Optimum Currency Areas: A Survey,” 350.} This motivation exists because by forming a currency union, a group of states can eliminate the variation of currency prices and, accordingly, eliminate much of the price instability that
comes from instituting a free floating exchange rate system, while still maintaining an open economy. More recent proponents of McKinnon’s criterion have used a simpler approach to explaining the relation between openness to trade and the incentive to join a currency union. They argue that states joining a currency union must relinquish their monetary sovereignty, but they do so because a shared currency offers greater advantages. The most obvious of these benefits is that common money reduces transaction costs. It follows, then, that a group of states that are closely related to each other by trade would benefit most from the reduction in transaction costs—opposed to states whose tradable goods comprise a small proportion of their GDP. It is these gains that motivate open economies to form a currency union, more so than closed economies.\footnote{Tamim Bayoumi, "A Formal Model of Optimum Currency Areas," \textit{Staffs Papers—International Monetary Fund} (Palgrave Macmillan Journals) 41, no. 4 (December 1994): 551.} From this basic incentive structure, one can see how openness to trade affects the speed of integration processes. Ceteris paribus, an assembly of economic units, that are open to trade with each other, will form a monetary union more quickly than they would without such openness. Moreover, there is no significant theoretical connection between fiscal union and openness to trade. Consequently, for an open group of economic states, monetary union occurs before it would have otherwise and fiscal union occurs at the same point in the integration process. The result is a larger gap between monetary and fiscal union in federations with open trade relations. The reverse is equally true. States without much trade between them have less of an invitation to form a currency union, so they will do so later than they would otherwise. In turn, the gap between monetary and fiscal union for closed economies is smaller.

The second criterion to consider is product diversification. The model asserts that an economic unit without sufficient product diversification will have a smaller gap between monetary and fiscal union, while a group of economies with such diversity will have a larger gap between monetary and fiscal union. Examining export data and growth rates for each case—broken down by industry—will render such a judgment. Specifically, a case will be deemed to have sufficient product diversification if no single good consists of over fifty percent of exports and no less than five products make up more than ninety percent
of exports. In cases where such evidence is not available, the best accessible data will be assembled and a judgment rendered as closely related to the above definition as possible.

In his original 1969 work, Kenen proposed production diversity as a viable gauge of whether a group of states should form a currency area—reasoning that a country that produces a wide range of products also exports a variety of products. This logic leads to the conclusion that industrially diverse states are more greatly incentivized to join a currency union than less diverse economies. Since economic groupings that have greater production diversification are more insulated from outside disturbances, there exists a lower variance of external exchange rates. Accordingly, the costs of these economies forming a currency union are lower—making the benefits relatively greater—because it is less likely for foreign demand shocks to cause asymmetric shocks that stress the union. The opposite is also true as economies with little industrial diversity are less inclined to form a currency union, since the benefits of such union are less. The fact that emerging economies in Latin America, Africa, and Southeast Asia have failed to establish durable and meaningful currency areas offers support to this theory. These regional economies focus largely on one or two products and trade more with the United States and the European Union than they do with their neighbors. Accordingly, such countries are incentivized to maintain independent currencies as that choice allows them to devalue their money in times of trouble. What may not be clear at this point, however, is how Kenen’s theory affects the speed of integration processes. Since high product diversity amongst states in an economic entity incentivizes the creation of a monetary union, the gap between monetary and fiscal union will be larger, since, ceteris paribus, monetary union will occur sooner than otherwise predicted. Conversely, if there is little product diversification, then the gap between monetary and fiscal union will be smaller as monetary union will occur later than normal.

The third criterion offered is factor mobility. If factor mobility exists then there will be a larger gap between monetary and fiscal union, while if there is factor immobility then there will be a smaller gap between monetary and fiscal union. This criterion ultimately requires a subjective choice between factor mobility and immobility. Using historical studies, legal documents, and anecdotal evidence, it will be

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determined if labor and capital were allowed to legally move amongst states in each of these three cases.

Factor mobility means more, though, than just its legal definition. Other forces—such as cultural similarities and differences—can prevent or encourage factors of production to cross borders. These indirect effects will be considered before passing judgment on whether the factors of production in each case were sufficiently mobile or not. Oftentimes, such deliberation will include statistical evidence that attempts to measure these indirect effects.

Mundell reasoned that many of the losses that stem from creating a monetary union are caused by the nominal rigidity of wages. He claimed that that if labor were mobile within a currency union then many of the inefficiencies created by the wage rigidities would disappear.34 Mundell rationalized that if factors of production—he was primarily concerned with labor, but capital can be equally evaluated—are made mobile then potential balance of payments disequilibria caused by the formation of a currency union can be resolved.35 For instance, consider the hypothetical effects of Mexico and the United States sharing a currency. Unskilled American labor is significantly more expensive than unskilled Mexican labor, so, to avoid disequilibrium, the free flow of Mexican workers to the United States is needed. Otherwise, Mexican exports—and its relatively cheap labor—would dominate the exports of the new currency. The price level of the currency would settle at the average of American and Mexican levels, meaning that American exports would suffer and Mexican exports would benefit, due to the variance in labor prices. However, if labor were able to move freely between the two countries, cheaper Mexican workers would move to the United States, begin to enjoy higher wages, and the price of labor would normalize between the two economies. This would eliminate the disequilibria caused by joining the two economies. This speculative situation exemplifies Mundell’s notion that economies with sufficient factor mobility are better situated to form a currency union than those with factor immobility. From that rationale, the model offered herein claims that if the factors of production are mobile within a given economy, then there will be a larger gap between monetary and fiscal union as the incentive to form a

monetary union sooner, rather than later, is greater. Likewise, if the factors of production are immobile, then there will exist a smaller gap between monetary and fiscal union because there is less incentive to form a monetary union—meaning that monetary union will be more likely achieved as a necessary step on the way to fiscal union, not for its own merits.

The fourth presented criterion concerns the macroeconomic preferences of integrating states. The only macroeconomic variables considered will be inflation and unemployment. States tend to have different perspectives on the ideal inflation and unemployment rates, however, assessing what each federation views as the optimal inflation and unemployment level is not necessary. Instead, what needs to be determined is if the integrating states had similar preferences or dissimilar preferences. Comparisons of inflation and unemployment rates of each state in a union will allow such a judgment. It also important to note that in centuries past—e.g. the American and German cases—unemployment was more difficult to measure and manage than inflation. Accordingly, it may be that unemployment preferences differ little or are difficult to detect in those cases.

The general agreement on macroeconomic preferences is that currency union members must share a wide consensus on how to deal with external and internal shocks. The closer the macroeconomic preferences of member states are to each other, the greater the chance of a successful optimum currency area. The rationale is that if the states in a currency area are aiming at different inflation and unemployment rates, then some members will struggle to remain competitive at exporting goods abroad. To explain this point, consider a semi-true example of Italy and Germany. Let us say that Italy has an inflation rate of eight percent, while Germany has a rate of three percent annually. If Italy and Germany are not in a currency union, then all Italy has to do to remain competitive internationally—versus Germany—is to devalue its currency by five percent. By devaluing Italian money, Italy lowers its real inflation rate to three percent and makes Italian products just as competitive abroad as German goods. However, if the two countries are in a currency union together, then Italy cannot devalue its currency because it does not have monetary sovereignty and the interest rate decisions made by their central bank have to account for the interests of the union as a whole—not just Italy. Accordingly, Italy suffers a loss
of competitiveness and its ability to exports its products decreases. From this example, one can see that if inflation rates do not sufficiently converge, prior to joining a currency union, then serious competitiveness problems will occur for at least some members of the union. Differing unemployment preferences causes similar problems as unemployment rates are typically managed in ways that affect inflation. In other words, for a government to keep unemployment artificially low—i.e. below what the structural strength of that economy prescribes—greater government spending is often required. This will lead to inflationary pressures.

How does this discussion relate to the topic of integration speed, though? As detailed above, states with homogeneous macroeconomic preferences are able to form a monetary union without suffering prohibitive competitiveness problems, while a group with heterogeneous preferences cannot do so because of the aforementioned competitiveness issues. The result is that a collection of integrating states with homogeneous preferences is incentivized to enter a monetary union sooner than a heterogeneous group. Accordingly, a larger gap exists between the monetary and fiscal union of a states with homogeneous—because they joined together monetarily earlier—and there is a smaller gap for states with heterogeneous preferences. The argument can be made that states with homogeneous macroeconomic preferences may be more susceptible to quicker fiscal and political union—making the speed of the integration process ambiguous. This line of reasoning loses some of its muster when one remembers that the economic reasoning for a group of states forming a fiscal and political union is largely based on the need for a supranational authority to enforce demanding policies on incongruent economies. If these integrating economies share macroeconomic preferences, this incentive is non-existent. Instead, outside factors—i.e. non-economic forces—will be the greatest motivation behind moving towards fiscal and political union. While these are certainly important factors to consider, and it is possible that a group of states with homogeneous macroeconomic preferences integrate quickly, they will not do so solely for economic reasons. This model purposefully ignores non-economic factors. And, since the four OCA criteria considered here do not give any reason why a collection of economies with similar macroeconomic preferences would quickly move towards fiscal and political union, one can claim that
homogeneous macroeconomic preferences promote longer integrations and heterogeneous macroeconomic preferences promote shorter integrations. The role of non-economic forces will be evaluated and related to the model towards the end of this paper.

**Comprehensive theory and model**

In isolation, the abovementioned predictions are of little worth, as each case is subject to all four criteria and it is necessary to find a way to yield a single prediction of the speed of an integration process. Such a calculation must be able to treat the criteria appropriately, with respect to their relative importance, as well as reconcile differences in the predictions individual criteria may yield. In other words, each criterion cannot be treated equally. The model—presented in the form of a dichotomous key—acts as a solution to both of these concerns. This design is based on two key premises. First, two of the four OCA criteria—macroeconomic preferences and factor mobility—are considered strong determinants of integration speed, while the other two OCA criteria—production diversification and openness to trade—are considered weak predictors of integration speed. Second, the two strong criteria are inherently linked in a way that ensures that only two possible combinations of the criteria can be reached. That is, between the two variables macroeconomic preferences and factor mobility, there exist only two possible, theoretically consistent outcomes.

Let us start by addressing the two weak criteria. Openness to trade is a weak indicator because, while closed economies should have a larger gap between monetary and fiscal union and open economies should have a smaller gap between monetary and fiscal union, there is concern that this criterion loses some of its power when applied in practice because it assumes that the external environment is more stable than the federation in question. As Max Corden argued in 1972, the openness to trade criterion may only apply to domestic microeconomic demand changes, not necessarily foreign macroeconomic forces. For it to affect both sorts of forces the assumption must hold that the closed economy has more stable internal economic conditions.\(^{36}\) Said otherwise, for closed economies to have a noticeably smaller gap between monetary and fiscal union than open economies, the closed economy must have a more

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stable internal economic environment than the larger, global economic environment.\textsuperscript{37} This is a difficult condition to guarantee. Accordingly, the usefulness of openness to trade, as a predictor of integration speed is somewhat weakened. Production diversification is also a weak criterion because, while production diversity predicts a large gap between monetary and fiscal union, there is a lack of complete independence between product diversity and fiscal union. Since it is dangerous to have an economically diverse group of economic units join into a monetary union without some sort of fiscal union, even with production diversity the gap between monetary and fiscal union may not be all that large. The prediction of a large gap is weakened by the fact that an earlier fiscal union may follow an earlier monetary union. This may result in a smaller or larger gap—than otherwise would have occurred. The overarching point is that there are concerns about how reliable openness to trade and production diversity are as predictors of integration speed. Accordingly, this model chooses to classify them as weak and lessens their power.

Now, consider the two strong criteria. Factor mobility is a strong factor because not only does mobility encourage monetary union, but also because it makes fiscal union less necessary—meaning that monetary union will occur much earlier than fiscal union, causing a large gap. Likewise, factor immobility is a strong deterrent against monetary union and only allows such a union if fiscal union closely follows. This convincingly prescribes a small gap between monetary and fiscal union. Consequently, factor mobility affects both the emergence of monetary and fiscal union, making it a strong indicator of the gap between these two unions. Macroeconomic preferences is a similarly strong criterion because if homogeneous preferences exist not only is the creation of a monetary union incentivized, but the need to group those economic units under a single fiscal authority is lessened—because their individual governments share alike enough macroeconomic preferences. Accordingly, not only do homogeneous preferences call for an earlier monetary union, but also a later fiscal union—resulting in a definitively larger gap between monetary and fiscal union. Similarly, heterogeneous preferences not only disincentivize states to form a monetary union, but demands that if they do that fiscal union shortly follow. It is theoretically inconsistent that a group of states with significantly different inflation and

unemployment preferences could create a currency union without developing a strong supranational fiscal and/or political authority soon thereafter. That would be the only way they could account for their different policy preferences.

The model groups together these two strong criteria and uses them as the principal factors in predicting the speed of an integration process. Heterogeneous preferences and factor immobility—both predictors of a small gap—are lumped together, as are homogeneous preferences and factor mobility—both predictors of a large gap. These groupings are the only two plausible combinations of these two criteria because the two other combinations—heterogeneous preferences and factor mobility and homogeneous preferences and factor immobility—are not theoretically plausible. Heterogeneous preferences and factor mobility are inconsistent because in a federation with factor mobility, heterogeneous preferences cannot exist in practice. With the free movement of capital and labor, wage and prices rigidities will be eliminated. This leads to a convergence of inflation rates. Unemployment will also become less a factor of macroeconomic preferences and more a function of structural economic conditions. While the states in a federation may have different macroeconomic preferences, those preferences will converge, resulting in de facto homogeneous preferences. A combination of homogeneous preferences and factor immobility is equally as implausible because a group of states with similar preferences has little reason to limit the movement of capital and labor. The restriction of such movements is typically a tactic used to maintain a country's preferred inflation and unemployment rates. If those rates are similar to the other states in an integration effort, then the need for factor immobility is eliminated. In other words, there would be no reason, de jure, to restrict factor mobility. Instead, one would expect that efforts at increasing factor mobility would be made, in order to improve economic growth in the region. Moreover, if factor mobility were hindered by social or cultural factors, then it would promote heterogeneous preferences—not homogeneous ones.

The result of the grouping of the four OCA criteria is a model that delivers a ranked order of the eight possibilities—from smallest to largest gap. Following the evidence of any given case, one can produce a specific prediction of the speed of an integration process. The key below displays this model.
As one can see, the first partition occurs between the two strong criteria. As detailed previously, there are only two consistent combinations of macroeconomic preferences and factor mobility. A case is deemed to either have heterogeneous preferences and factor immobility or homogeneous preferences and factor mobility. Once that decision has been made, production diversity is considered. A case, then, is judged to have either sufficient or insufficient production diversification. The last divide is between being open or closed to trade. By making these choices, the model returns a relative prediction of the speed of a case of federal integration. For example, consider that several states are integrating into a federation. If those states have heterogeneous macroeconomic preferences, factor immobility, insufficient product diversity, and are closed to trade, then they would have the smallest possible gap between monetary and fiscal union—predicting a relatively quick integration process. If those same states have homogeneous macroeconomic preferences, factor mobility, sufficient product diversity, and are open to trade, then they would have largest possible gap between monetary and fiscal union—calling for a relatively slow integration process. All other plausible combinations of the four OCA criteria would fall somewhere between these two extreme predictions.

It is important to note that the model does not give absolute predictions, but rather relative ones. This means that the expected integration speed is less a prediction of a specific number of years, but
instead a comparison of how quickly that integration process would proceed given a different fulfillment of the four OCA criteria considered. For example, if the model predicts that a case it will have the second quickest integration, this means that for that group of states there is one combination of OCA criteria that will encourage a quicker integration and six solutions that will promote slower integrations. This also means that just because one case is predicted to have a quicker integration is not to say that in absolute terms that case will integrate more quickly than a case predicted to have a slower integration. While this may sound counter-intuitive, it can be readily reasoned. Each integration process is its own unique experiment. Due to the multitude of factors that affect any political and economic decision, it is nearly impossible to compare the speed of integration processes to each other in absolute terms. This is especially true when considering cases that take place in different centuries. As such, this model merely makes predictions for a case compared to how that case would turn out if it were under different conditions. Simply put, the predictions are relative—not absolute.

The relative nature of this model lends itself to several obvious limitations. The first being that the predictions rendered are not very defined. This is problematic because it does not allow for precise planning. If European leaders wish to predict how many years until the European Union (EU) reaches meaningful fiscal and political union, this model will not give them their desired results. However, if they want to know how quickly European states will integrate under certain economic conditions—compared to other circumstances—this model will be helpful. The second limitation this model has is that it does not consider outside factors. Several possibly important determinants of integration speed—e.g. governmental conditions or national interests—are left out of this theory. That is a forfeiture this model is ready to make, though. Concentrating only on four economic OCA criteria allows for a more focused and defined set of results. By admittedly not evaluating certain determinants, the model may lose some of its effectiveness as a predictor of overall integration speed, but it makes that sacrifice in order to increase the power of its conclusions regarding the relevance of the four OCA criteria it examines.

The relative nature is a strength in several respects, though. One such strong point is that the model is able to combine the four criteria into a single result. This is a unique attribute and would not be
possible if the model returned absolute predictions. Another strength is that the model yields practical results. Policymakers do not care as much about how their case compares to other cases—historically and contemporarily—as they do about how their decisions can affect the speed of their particular integration process. In other words, a European politician cares less about how the EU’s efforts at integration compares to past cases and more about how the decisions they make affecting macroeconomic preferences, factor mobility, product diversification, and openness to trade can impact how quickly the EU proceeds along the path of integration. It is ultimately this usefulness that makes this paper not worry about yielding relative predictions.

Part IV: Case Evaluations

Each case evaluation will include a brief historical survey as well as individual treatments of each of the four OCA criteria. This will allow for a full test of the proposed model as well as consideration of determining factors that are outside the scope of the model.

American Case

To start, let us consider the history of political organization in early America. As early as the 1630s, British colonists made efforts to organize. Over a century later, in 1754, Benjamin Franklin advocated for his Albany Plan of Union. Franklin’s plan would have established two bodies—an executive and a legislature—both responsible for national competencies. The Plan never materialized, however, because of both British and American opposition. The British Crown feared any sort of union among the colonies, while the colonies themselves saw little need to give away their autonomy. By the 1770s, though, those attitudes started to shift and the colonies opened up to the idea of breaking away from British rule and creating a more cohesive—and distinctly American—economic, monetary, fiscal, and political unit.

A number of colonial sources suggest that, prior to 1776, colonists’ frustrations were directed not at the British King, but rather at Parliament. In a series of essays written in 1767-1768, titled Letters from a Farmer in Pennsylvania, John Dickinson strongly argued against the recently imposed Townsend Acts. The Acts intended to raise revenue for the British, so they could afford the rising costs of maintaining an
army in North America. Dickinson insisted that even the smallest of duties placed on the colonies must be resisted or Parliament would eventually take all liberty away from the colonists. The solution, for Dickinson, was to gain colonial representation in Parliament. The American colonies would remain under British rule, but would have a say in their own governance. In Letter III, Dickinson warned against outright independence from Britain. He cited strong economic and cultural ties with Britain and feared that the American colonies would not be able to form a more suitable government. Dickinson’s letters are a great example of colonial attitudes before 1776 because he directed his venom at Parliament, warned of the dangers of independence, and re-affirmed colonial loyalty to the British crown. Written in November of 1772, Samuel Adams’ The Rights of the Colonists was one of the first reports issued by the Committees of Correspondence. According to Adams, the colonists were proud British subjects and shared a long history of cultural and political principles with Britain. Disagreement with Britain came not from differences in principle, but rather in how those principles was implemented through Parliament. Adams contended that it was American underrepresentation in Parliament that made it an unsuitable governing body. Similar to Dickinson, Adams contended that Americans had no liberty if they were not allowed to send their own representatives to Parliament.

One can see in the writings of Dickinson and Adams that, before 1776, American relations with their British rulers were certainly strained, but not entirely revolutionary. American dissent towards Britain centered on the lack of proportional representation within the Parliament, but fell short of complete rebellion. Both Dickinson and Adams stressed the strong cultural and economic ties between Britain and America. Neither man was seeking to break away from the British Empire and start an independent American integration process. They simply wanted better representation for the American subjects of Britain. By the summer of 1776, though, that had all changed. Following the passing of the

40 Ibid., 19.
Coercive Acts in 1774, colonial disdain towards British rule was at an all-time high. By 1776, war with England was unfolding and American independence seemed more likely than ever. As American independence from Britain became a more real possibility, so did American resentment towards King George III.

In great contrast to the pragmatism and cool-headedness of Dickinson’s letters, Thomas Paine’s 1776 pamphlet, *Common Sense*, put a face to America’s problems—King George III—and sharply insisted that there was no way to escape his tyranny other than to completely separate from Britain. Paine’s piece was an excellent example of the shift towards American hatred of the British monarchy because he took the time to thoroughly detail the offenses of the British Crown and why America would never be free under such rule. Paine argued that the British king was a tyrant because he assumed a hereditary throne and there were no sufficient government institutions “of the people” to curb his powers. Paine acknowledged that the House of Commons was a republican body, but the other two hereditary branches of British government—the Crown and the House of Lords—outweighed the influence of the people’s house. Using this logic, even if the American colonies were to secure proper representation within Parliament—through the House of Commons—they would still have been subjected to an un-republican and autocratic government, since they would have been unable to check the tyranny of the King. Said otherwise, Paine viewed the British monarchy as the source of failure within Britain’s government. As such, he failed to blame Parliament and instead focused on what he calls the “thirst for absolute power [that] is the natural disease of monarchy.”

The Declaration of Independence also signaled the swing against King George III both in its language as well as in its content. An early paragraph of the Declaration states “The history of the present King of Great Britain is a history of repeated injuries and usurpations, all having in direct object the establishment of an absolute tyranny over these states.” Clearly, the concerns of colonists were not cause by a malproportioned Parliament, but rather a tyrannical king. The first few clauses of the

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Declaration addressed the King’s role in controlling royal governors, disassembling colonial assemblies, and obstructing justice in America, a far cry from the issues colonists had focused on in previous years. References to the acts of Parliament, the same measures that the colonists so strongly opposed only a few years earlier, appear much later in the Declaration and seem almost hidden among the other charges.

Since the Declaration of Independence was an indictment against the British king—not Parliament—it helped to focus on charges that could be stuck firmly to King George III and not the actions of Parliament.

After the outbreak of the Revolutionary War, the thirteen American colonies needed a form of government to replace the British Crown they were attempting to overthrow. The Founding Fathers’ first attempt at such governance was formed around the Articles of Confederation. The Articles of Confederation were first proposed at the Second Continental Congress in 1777 in Philadelphia. They were fully ratified and put into effect in 1781. The reign of the Articles of Confederation was brief, though, and by 1789 the former colonies were under the law of a new governing document—the Constitution of the United States of America. The inherent weakness of the Articles of Confederation stemmed from the fact that it called for a confederacy—placing sovereign power in the hands of the states. This is most explicitly stated in Article II, which reads, “Each state retains its sovereignty, freedom, and independence, and every power, jurisdiction, and right, which is not by this Confederation expressly delegated to the United States, in Congress assembled.”

This distribution of power was chosen by the Founding Fathers because American colonists were wary of strong national governments. Having dealt with the British Crown for so many years, the American colonies did not want to create yet another out-of-touch, national government. Additionally, Americans identified most strongly with their individual colony, so it seemed natural to construct an American government based on powerful state governments. That said, during its short lifespan, the Articles of Confederation became increasingly ineffective at governing the continually growing American states. The main cause of this ineffectiveness

stemmed from a lack of what the Articles sought to avoid—a strong, central government. This futility necessitated the drafting of a new American constitution. Written in 1787 and implemented in 1789, the Constitution of the United States of America solved many of the issues of the Articles of Confederation. It established a stronger, federal government that had the power to tax and was sovereign in many domains over the states. It was under this governing document that the American states finally reached meaningful fiscal and power union.

It is also important to review early American history from a monetary perspective. Such a narrative begins in the first half of the eighteenth century when British North American colonies became some of the first western economies to issue paper fiat bills. As early as the 1720s, American colonies began issuing bills of credit to pay for their government’s expenses. Unlike European bills of credit, which functioned as credit arrangements between private actors, colonial bills were exchanged between colonial legislatures and private lenders. Moreover, they were not backed by specie—like other private-public credit agreements—but rather by the promise of future tax payments. The bills were supposed to be removed from circulation once those taxes came due, but that promise was not always kept. Both the South Carolina pound in the 1720s and the Massachusetts pound in the 1740s endured damaging depreciation because those colonial legislatures failed to pay back their bills of credit. The British Crown responded by instituting the Currency Act of 1751, which prohibited colonial legislatures from issuing paper money unless they assured that taxes were in place to remove the bills from circulation in a timely manner.45 The colonies learned from these early monetary mistakes and engaged in relatively active and responsible monetary management until the outbreak of the Revolutionary War in 1775. They did so because colonial legislatures had a good understanding of the economic forces that affected the money supply in their colonies. First, they were cognizant that the American colonies were specie scarce. The Spanish silver dollars that circulated widely in the colonies had to be imported from abroad—an expensive endeavor. By creating an internal source of currency, the colonies maintained a money supply

that corresponded to their growing economies and they did not have to import specie to use as a medium of exchange. Second, the colonies appreciated the benefits of seigniorage. The money generated by issuing fiat currency was a crucial source of government revenue. Colonial legislatures understood that during times of war and unexpected emergency the levels of spending needed could not be met solely by increasing taxes and borrowing from abroad. In this regard, seigniorage was a useful tool.46

The colonial currency system changed once the need to finance a national war—the Revolutionary War—emerged. In 1775, the Continental Congress began financing the war by issuing bills of credit—known as Continental dollars or notes—that were redeemable in Spanish silver dollars. This gave America its first truly national money. It would have been nearly impossible after all to finance a war against Britain with the British pound sterling.47 The Continental Congress first issued two million dollars worth of notes, but that number increased in subsequent issuances. Each state responded by calculating the relationship—i.e. the exchange rate—between its own state currency—often denominated in terms of British pound sterling—and the new national currency—denominated in terms of the Spanish dollar. During the early years of American independence, as the Continental Congress was issuing its own paper money, individual states continued printing paper money. New York, for example, printed notes that were actually expressed both in the traditional British denominations as well as the national denomination the Spanish silver dollar. The Articles of Confederation gave the national government the ability to regulate the value of the coins struck by the individual states. With this power, Congress—largely under the leadership of Alexander Hamilton, Thomas Jefferson, and Robert Morris—attempted to create a unified American monetary system in 1782.48 Despite opening the Bank of North America in that year, the American states failed to reach a real monetary union until the implementation of the Constitution of the United States in 1789. This is because the Continental bills that the circulated throughout the war depreciated close to zero. By April of 1781, these notes had depreciated to a point of

46 Farley Grubb, "Creating the U.S. Currency Union, 1748-1811: A Quest for Monetary Stability or a Usurpation of State Sovereignty for Personal Gain?," 1780.
near worthlessness. This depreciation was the cause of both overissue and the national government’s inability to levy taxes under the Articles of Confederation.

The United States Constitution asserts in Article 1 Section 10 that no individual state could engage in “coining money, emit Bills of Credit; make anything but gold and silver a tender in payment of debts.”

With this declaration, it became clear that the American dollar—as promoted by the newly formed federal government—would be the unit of choice for the developing American monetary system. The Mint Act of 1792 furthered American monetary union. This Act prohibited the production of state currency, which was supposed to, in time, be removed from circulation via tax collection. By the early 1790s, the American money supply was dominated by federally issued banknotes and no longer by state issued paper bills.

What does all this mean for the history of American integration? While certainly an interesting story, the American integration offers a fairly boring timeline. Due to British control over the colonies for much of the eighteenth century, American economic, monetary, fiscal, and political union only occurred after American victory in the Revolutionary War. And, as the troubles associated with the effectiveness of the Articles of Confederation suggest, it was not until the ratification of the Constitution that the former American colonies reached any sort of meaningful union. As such, it was the implementation of the Constitution, in 1789, that signals the beginning of American economic, monetary, fiscal, and political union. This is not to say that these unions had no precedents prior to 1789, just that there is little evidence of effective union, prior to that date.

Consider American economic union. As will be discussed at greater depth later on, the American colonies were highly integrated economies, but they were not governed as a single, sovereign economic

51 This is not to say that the creation of American political union in 1789 guaranteed stability. The American Civil War serves as evidence that while America integrated fully in the century prior, the completion of that integration did no ensure stability. It is not a focus of this paper, but American federalism has evolved greatly since 1789. Further studies may want to consider the relevance of changes in American federalism—e.g. Reconstruction and the New Deal—on the results presented here.
union. Rather, they were largely ruled by the British through the implementation of the Navigation Acts of 1651—which heavily regulated trade coming out of the American colonies—and the British economic policies that followed those Acts. While the American economies surely united together during the Revolutionary War, as well as their time spent under the Articles of Confederation, the lack of a federal body with significant powers to regulate commerce indicates that no true economic union was reached. Also, reflect on the timeline of American monetary union. America failed to reach a monetary union until 1789. This was the first time that a federal body was granted the power to mint and print money that was guaranteed to circulate as legal tender. The same is true of fiscal union. Without the power to tax, any national-level government lacked fiscal power in early America. Consequently, one cannot call the states under the Articles of Confederation a fiscal union. Instead, it was the ratification and implementation of the Constitution that signified the creation of a fiscal union in America. Lastly, and possibly most obviously, 1789 also signaled the creation of political union in the United States. As a combination of the previously mentioned sorts of union, the Constitution introduced the first consequential form of national political union in America. Figure 6 illustrates this all-at-once integration process.

**Figure 6: Timeline of American Integration**

![Timeline of American Integration](image)

**Openness to trade**

In this case, it is especially difficult to calculate precise trade share figures because of the poor record of data collection among the American colonies and the trouble of combining dissimilar colonies/states into a single calculation. That said, it is possible to reasonably estimate that the American case was not sufficiently open to trade. This judgment comes from a selection of evidence suggesting
that, while the early American economy was heavily reliant on a good deal of both external and internal trade, that trade did not make up a sufficiently large portion of early American GDP.

Trade patterns of early Americans are a commonly ignored area in American economic history. As historian Arthur Jensen states, “Trade among the continental colonies has been treated as something of a poor relation in many studies of colonial commerce.”

And, when that trade is discussed, early American communities are often portrayed as isolated economic units—self-sufficient and largely detached from both each other and the British Empire. This view, however, is misleading as it ignores the important commercial relationships colonists had both with the British and themselves. The British North American colonies were not isolated units, but rather dependencies of the British Crown and a key cog in a colonial network that spanned from the Americas to Asia. Moreover, they communicated regularly with the settlements and colonies of other major colonial networks—such as those of Portugal, Spain, France, and Holland. Recent historical scholarship paints a clear picture of colonial economies. These works detail the extensive distribution networks colonial traders worked as well as synchronized price fluctuations amongst the colonies—suggesting a high degree of market integration.

Starting in 1651, the Navigations Acts regulated the trade coming out of Britain’s colonies—ensuring that the terms of trade benefited the home country. Except for the Molasses Act of 1733, American colonists largely obeyed these Acts—allowing these laws to form the basis of British international commercial policy for nearly two centuries. From the passage of the Navigation Acts in the mid seventeenth century through the start of the Revolutionary War in the late eighteenth century, a significant network of trade between Britain and her American colonies developed. As new lands were discovered and populated, new commodities were introduced to the trade, new ports founded, and the volume of trade increased dramatically. While the Navigation Acts dictated that the trade between the

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Americas and Britain was rather one-sided—i.e. the American colonies exported cheap raw materials and Britain exported pricier finished products to the colonies—the exchange benefitted both parties. The American colonies—especially the northern ones—experienced a period of dramatic industrial growth in the early years of the eighteenth century. By the middle of the century the American economy competed with—opposed to complementing—the British economy. The question remains, however, if the American colonies were reliant enough on international trade flows to be considered open to trade.

To prove that the early American economies were not sufficiently open to trade, one must examine both internal trade and external trade. Let us start with internal trade—i.e. exchanges between the colonies themselves. This sort of trade, often referred to as coastal trade, was conducted primarily for two reasons: 1) to distribute colonial products intended for domestic consumption and 2) to aggregate commodities at large colonial ports—e.g. Boston, Charleston, New York, etc.—in preparation for export to Britain. Evidence of these trade flows for domestic consumption can be found in accounts of merchants from the middle and southern colonies exporting grain and flour to New England. Likewise, foodstuffs produced in New Jersey were oftentimes sent to New York before export to Britain, just like Delaware’s products were frequently shipped to Philadelphia before making the voyage across the Atlantic. While the inter-colonial trade never reached as great a proportion of overall trade as overseas exports, coastal trade was a significant part of the early American economy. James Shepherd and Samuel Williamson, in their 1972 paper “The Coastal Trade of the British North American Colonies, 1768-1772”, claim that the value of goods exported internally was approximately a quarter of the total value of commodities exported overseas. They estimate that the average annual coastal exports among the American colonies between 1768 and 1772 were nearly 800,000 pounds sterling.

American external trade in this period was much greater than the internal trade. Compared to the 800,000 pounds of silver sterling worth of goods traded coastally, between 1768 and 1772, the colonies

57 Ibid., 798-800.
exported over 3,000,000 pounds of silver sterling to Britain. This was a significant jump from the beginning of the eighteenth century. Between 1699 and 1701, this exchange only generated 539,000 pounds sterling annually. By the start of the Revolutionary War, the trade reached nearly 4,200,000 pounds sterling. This increase can also be observed anecdotally as colonial merchants note more diverse inventories and an increase in the variety of products desired by American consumers. This supports the notion that American exchanges with foreign economies—especially Britain—increased dramatically in the eighteenth century.

To this point, it has been explained that the trade networks—both internal and external—in colonial America were real and significant. Were they sizeable enough, however, for America to be considered sufficiently open to trade? Remember that, by the definition used in this paper, a group of states must have a halved total of their exports and imports be greater than one third of national GDP to be considered open to trade. Due to lack of solid estimates of the collective GDP of the American colonies prior to the 1790s, it is difficult to make that estimation with a single number. Instead, a rather odd approach must be taken. The best and earliest estimate of total American GDP that can be found is for the year 1790. That estimate claims that the United States’ nominal GDP in that year was $189,000,000. At that same time, the newly formed United States is estimated to be home to 3,929,000 people. This results in a GDP per capita of $48.01. Given the common exchange rate of 6/20 between the British pound sterling and the Spanish silver dollar—which was dollarized to the American dollar—the GDP per capita can be said to have been 14.43 pounds sterling. In 1770, the American population is estimated to have been 2,148,000. In that year the amount of internal trade in the colonies was a sum of exports—767,000 pounds sterling and imports—743,000 pounds sterling—for a total of 1,510,000

61 Dollarization is a fixed/pegged ratio of 1:1 between two currencies.
pounds sterling. That same year colonial exports to Britain totaled 1,632,000 pounds sterling and imports equaled 3,112,000 pounds sterling. Accordingly, the total amount of American trade in 1770 can said to be a sum of both internal and external trade, equaling 6,254,000 pounds sterling. Given the 1770 population, the trade per capita was equal to 2.91 pounds sterling. Given that inflation between 1770 and 1790 was minimal—Farley Grubb estimates that prices rose from approximately seventy-five percent of to eighty-five percent of 1842 prices—the amount of trade per capita in the United States was not nearly high enough to constitute one third of GDP. In other words, even accounting for ten percent inflation, 2.91 pounds sterling of trade per capita, in 1770, is nowhere near a third of the 14.43 pounds sterling of GDP per capita of 1790. Rather, it is just over twenty-two percent. Accordingly, one can safely claim that the case of the early American economy should be considered closed to trade.

**Product diversification**

The second OCA criterion to test is product diversification. Similar to determining openness to trade, the lack of sound economic data on early American economies makes it difficult to reach a quick conclusion for this criterion. The best approach is to examine the available data and make a subjective judgment as to whether the American colonies and states were diverse enough in their production. Such a conversation should start with a mention of the economic advantages early America held. Like any economic unit, early America was relatively abundant in certain resources and scarce in others. Accordingly, American industrialization followed a different path than that of British industrialization.

One of the main reasons that America could not follow Britain’s industrialization blueprint was due to geography. Even in the late eighteenth and early nineteenth centuries, American possessions along the eastern seaboard alone dwarfed Britain’s geographic size and provided American industrialists with resources that their British counterparts did not have. The relatively untouched forests and rivers along

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65 Farley Grubb, "Creating the U.S. Currency Union, 1748-1811: A Quest for Monetary Stability or a Usurpation of State Sovereignty for Personal Gain?,” 1782.
the east coast proved very beneficial. The large number of rivers and streams were conducive to the development of waterpower. Wooden water wheels powered many of the mills that sprang up along the east coast. This form of power was considerably cheaper and easier to build than the British model based on steam power. America also had an abundance of timber. Unlike Britain, which had already consumed much of its timber supply, America had vast forests that could be used to supply the burgeoning timber industry. The growth of the American timber industry led to the development of lumber mills and allowed industrialization to be powered by cheap and abundant timber.66

Early American industrialization can also be characterized by a variety of social dynamics. Although the United States were large spatially, its population was significantly less than Britain’s. For industrialists, this meant a smaller pool of workers. As a result, Americans became incentivized to mechanize and invent ways to make the workers they did have more efficient. This meant that Americans needed to develop tools such as the horse rake. The invention of the horse rake in 1820 allowed American farmers to harvest ten times the amount of grain that they could have done by hand.67 Another social characteristic of early American industry was flexibility. The typical American industrialist was not at all like the stereotypical European capitalist. Instead, he was a man who embraced the American frontier spirit and used industrialization to maintain his self-sufficiency. American steam engine builder Oliver Evans described the average mill worker as a man of many talents: “(He) could handle the axe, hammer, and plane with equal skill and precision; he could turn, bore, or forge ... He could calculate the velocities, strength, and power of machines; he could ... construct buildings, conduits and water courses.”68

This unique combination of geographical and social factors allowed early American to specialize in a particular set of products. For instance, the vast and untouched forests of North America suited the colonies well for iron and leather manufacturing, just like textile production was enhanced by the lack of

68 John H. Lienhard, American Industrial Revolution.
breeding controls placed on sheep. This implies that, while much recent historical research has focused on the large proportion of the colonial population that was engaged in agriculture production, there was opportunity for a significant manufacturing sector to develop in North America—one that held certain advantages over its trading partners.\(^69\) The issue becomes whether or not that manufacturing sector was diverse enough to meet the requirements of this paper.

To answer that, let us look at the diversity of exports produced by early colonial economies. The picture historian John H. Andrews paints in \textit{Anglo-American Trade in the Early Eighteenth Century} (1955) is hardly one of much product diversity. Andrews notes that British American export trade was dominated almost exclusively by the exchange of tobacco. Tobacco trade constituted over fifty percent of total exports and no other product exceeded a fifteen percent share of exports. Tobacco at this time came mostly from Virginia and Maryland and almost all of those colonies’ exports were tobacco. However, because of the extractive nature of tobacco cultivation—i.e. it was farmed with little regard to land conservation, making its continued production unsustainable—tobacco farming could not persist as the predominant American export.\(^70\) Consequently, over the course of the eighteenth century, other American industries emerged. In Maine and New Hampshire, furs, fish, and lumber production dominated the economy. New England produced similar products, also adding in livestock and shipping supplies. The region around Philadelphia specialized in both trade as well as the production of wheat, lumber, and meat products. The upper south continued to produce little outside of tobacco, but their share of the overall colonial trade gradually lessened over the century. South Carolina did diversify a bit as it transitioned from producing almost exclusively rice in the early eighteenth century to also producing indigo, shipping supplies, furs, and fine lumber later in the century.\(^71\) The point to be made is that as the American colonies drew closer to integration—although they did not consciously know this—they became increasingly diverse economic producers. The colonies’ relationship with Britain greatly affected

American production diversification, especially in the middle of the eighteenth century. As the colonies diversified their economies, they became less reliant on British imports for essential goods.\textsuperscript{72}

By the 1760s and 1770s, the American economy shared little in common with the tobacco export-based economy that existed in the early years of the eighteenth century. Consider the following table detailing American export earnings from 1768 to 1772.

\begin{table}[h]
\centering
\begin{tabular}{|l|l|}
\hline
Export Product & Earnings (pounds sterling) \\
\hline
Tobacco & 766,000 \\
Grain (bread, flour, rice) & 722,000 \\
Shipping supplies and services & 610,000 \\
Fish & 287,000 \\
Indigo & 117,000 \\
\hline
\end{tabular}
\caption{Average Annual American Export Earnings (1768-1772)\textsuperscript{73}}
\end{table}

As one can see, while tobacco was still the leading export, its hold on American exports was not as dominant as before. Instead, several products made up a large percentage of American export earnings. Consequently, this paper reasons that by the time the American colonies started integrating they were producing an adequately diverse selection of goods.

\textbf{Factor mobility}

For the factors of production examined here—i.e. labor and capital—to be considered mobile, they must be able to move freely between the various American economies. To evaluate this movement, consider a key part of the evolving American economy—the implementation of new organizational strategies aimed at increasing production. American manufacturers organized their laborers around machinery that allowed them to produce more goods at lower costs. European manufacturers were so impressed with these methods that they labeled this form of production “the American factory system.”\textsuperscript{74} Under this structure, work was done on a much larger scale from a centralized location—resulting in increased efficiency and reduced transportation costs. The factory


\textsuperscript{74} S. Mintz, \textit{Early Industrialization}. 

system did have a few drawbacks, though. Without the help of strong unions to fight for their rights, wage laborers were often exploited by their employers. Many times this took the form of dangerous working conditions and long hours. Additionally, laborers were often kept from moving into or away from jobs. In this manner, the factory system hindered labor mobility in early America.

Similar to manufacturing, American farming experienced its own transformation in the early nineteenth century. Throughout the seventeenth and eighteenth centuries, farming communities were self-sufficient and farm families grew their own food and made their own clothing. But, even when farmers had surplus goods to sell, they struggled to sell them. Transporting agricultural products was difficult due to inadequate roads and food spoilage. Farming in the United States was labor-intensive and done mostly by hand. European farmers joked about the backwardness of American farmers, citing their aversion to laborsaving machinery and lack of knowledge of the science behind farming. Outside of plows, early American farmers did not incorporate much machinery into their work and rarely employed fertilizer or crop rotation. Beginning in the late eighteenth century and carrying on into the nineteenth century, American agriculture began to become much more industrialized. This process started with the re-introduction of cash crops to America. Large tracts of available land and a warmer climate made the southern colonies the ideal location for the production of such crops. However, after American independence, many American farmers turned towards subsistence farming because they feared relying on British or other European markets. After Britain began to industrialize, growing demand for cotton for Britain’s textile mills incentivized the production of cotton in the United States. Southern states, such as Georgia and South Carolina, became cotton-producing hubs. Eli Whitney’s invention of the cotton gin in 1793 made growing cotton even more lucrative. Southern farmers also began to grow other cash crops, such as rice and sugar. Because of long winters and rocky soil the climate of the northern states was not conducive to the production of cash crops. However, the development of factory towns and urban cities led to a greater demand for goods that Northern farmers could sell—e.g. butter, milk, corn, and cattle.

That said, for the timeframe under consideration, these innovations come several years too late. As such, during the American integration process—i.e. prior to the signing of the Constitution—labor was immobile.

Increased production in New England’s cotton mills and Carolina’s cotton plantations were vital parts of the American part of Industrial Revolution. But, without an improved transportation system or an enlarged pool of credit, these goods struggled find themselves in the hands of consumers. State governments recognized the importance of these elements and actively promoted better banking institutions and improved transportation networks. That is, efforts were made to increase capital mobility. For instance, American industrialists needed an expanded banking system in order to get their hands on the capital necessary to fund their business ventures. In 1791, Hamilton founded the Bank of the United States with a charter from Congress. The National Bank expanded into eight regional offices—providing much needed credit to America’s burgeoning capitalist class. The bank was an economic success that also provided many charters to companies or individuals that promised to build needed infrastructure. Road and canal construction were pricey ventures that the American government did not have the money to fund completely. Consequently, the states used government charters to help create the infrastructure needed to stimulate economic growth.76 The point to be made is that these agricultural, industrial, financial, and infrastructure developments did foster industrialization and integration in early American economies, but they largely occurred after the American case had already reached political union. Consequently, one must regard early American capital as immobile. And, since labor was also immobile, American factors of productions—on the whole—should be noted as immobile.

**Macroeconomic preferences**

To determine whether the American colonies and states had homogeneous or heterogeneous macroeconomic preferences, one must evaluate how the different American regions responded to inflation and unemployment. Unfortunately, because of a lack of reliable data, unemployment is unable to be

analyzed, in this case. Accordingly, inflationary pressures and price stability among the colonies and states will be the primary determinant of whether those economies had similar preferences or not. To start, let us consider the great fear many American colonials had of inflation. In 1739, physician and writer William Douglass condemned paper money, claiming that it was an instrument of a despotic government, as it could be used to manipulate elections and artificially increase the spending levels of the government. Defenders of fiat bills in the colonies, however, argued that the colonies had a good track record of avoiding inflation from paper money—examples of inflation scandals in New England aside. They also claimed that it was commonplace in Western Europe to finance wars with paper money, so the colonies were justified in doing the same. Lastly, they asserted that the colonies were subject to a chronically unfavorable trade balance with Britain that drained North America of specie. Paper bills were needed as a substitute medium of exchange. This debate over the risks and rewards of paper money is important to recall less because of the specific arguments and more because it is evidence that colonial leaders were aware of inflation and sought to manage it. As discussed earlier, until the implementation of the Constitution in 1789, the American colonies, and later on states, failed to be in a meaningful or effective monetary union. Up to that point, each economic unit had its own currency and could devalue or revalue that currency as it saw fit. Accordingly, looking at the price levels of each colony—accounting for exogenous shocks such as wartime financing—will yield a determination of whether the American colonies had homogeneous preferences towards inflation prior to their fiscal and political integration.

At first glance, the data on American colonial price levels is slightly misleading. Grubb’s index of price levels for Philadelphia, New York City, and Charleston ranges from 1761 to 1811 and shows that American prices, on the whole, gradually rose across that time—with few dramatic peaks or valleys. Grubb’s measure, though, is merely an aggregate and only considers the prices of three—albeit important—American cities. To tell if the colonies shared inflationary preferences, one has to see the

change in prices for individual colonies, over time. The following graph compiled with data provided by Roger Weiss does just that.

Graph 1: Exchange Rates of Colonial Currencies versus the British pound sterling

As Graph 1 depicts, the depreciation of these five colonial currencies were anything but alike. Starting with a base year index of 1720 = 100, one can see that the currency depreciated 330% in Massachusetts and 1340% in Rhode Island, but only by 27% in Pennsylvania, 12% in New York, and 13% in Virginia. In other words, vis-à-vis the British pound sterling, three colonies—Pennsylvania, New York, and Virginia—saw very little decrease in value between 1720 and 1774, whereas two other—Massachusetts and Rhode Island—saw a dramatic decrease in their currencies’ value. It is vividly clear that the American colonies did not have homogenous inflation preferences, throughout much of the century before their unification. Other data sets corroborate this conclusion. In his “Wholesale Commodity Prices in the United States, 1700-1861” (1938), Arthur H. Cole compiled an index of fifteen commodities in order to measure inflation levels in the American colonies. Similar to the results above, Cole identified mild inflations in New York and Pennsylvania, but a striking inflation in the price of Massachusetts’s wheat—a four percent increase annually over the period 1720 to 1774. In a 2003

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80 Ibid., 777.
study, in which he tested the volatility of colonial currencies, Grubb reached a similar conclusion as well. He claimed that if one does not consider pre-1776 Massachusetts or Rhode Island, then colonial price fluctuations are actually much lower than what was experienced in Britain at the same time. His greatest qualification is exactly the point this paper is trying to make, though. Massachusetts and Rhode Island cannot be ignored. That they differed so greatly from the other colonies—in terms of inflation—is an indication that the American colonies did not have homogeneous natural rates of inflation. Rather, they had distinctly heterogeneous preferences.

Conclusion

Figure 7 presents the results for the American case. As is illustrated in red, with a combination of heterogeneous preferences, factor immobility, production diversity, and closed economy, the American case is predicted to have a relatively small gap between monetary union and fiscal union.

This prediction bears out in the sense that the American integration process was a quick process. Since the implementation of the Constitution signified the creation of economic, monetary, fiscal, and political union, there was no gap between monetary and fiscal union in early America. Given that quick of an integration process, an argument can be made that this model should have predicted the smallest gap possible between monetary and fiscal union in this case. The struggles, though, that Americans faced in
the 1780s made it very difficult for the American colonies to win their independence from Britain, create economic and monetary union, but then wait to proceed to fiscal and political union. In other words, given the immediate security and political risks of the 1770s and 1780s, there was little chance of a lengthy integration effort in North America. As will be addressed later, this timeline also raises the possibility that the Balassa stages of integration do not always hold true.

The immediate integration of the United States is the result of the inability of the Articles of Confederation to combat internal and external threats. It seems counterintuitive that a body of government would be tasked with declaring war, but not be allowed to commission an armed force. However, per the Articles of Confederation, Congress had the sole power to make peace and war, but did not have the authority to raise an army of its own: “The United States in Congress assembled, shall have the sole and exclusive right and power of determining on peace and war.”81 Instead, the national government had to rely on state militia. Since it was dependent on state troops, Congress hardly was able to quickly and effectively respond to internal and external threats. Abroad, Congress failed to defend America from the continuing threat of Britain. Shortly after the signing of the Treaty of Paris in 1783—which ended the Revolutionary War—Britain began to break the agreement. By 1784, the British were infringing upon American fishing rights and the British Royal Navy was impressing American sailors into forced conscription. Without the aid of a unified military, though, Congress was incapable of fighting back and protecting America’s sovereignty. At home, the inability of Congress to decisively put down Shay’s Rebellion was a direct result of the lack of a capable national army. The rebellion began in 1786 due to the post-war economic depression and the American government’s harsh policies in response to the economic downturn. The rebels started by peacefully protesting and resisting the collection of taxes and debts from struggling Americans.82 However, following the arrest of several of their leaders, the rebels became much more militant. The national government failed to come up with the funds to raise an army

capable of putting down the rebellion. It took a group of rich merchants from Massachusetts to pool their resources in order to pay for a militia.\textsuperscript{83} The rebellion was eventually put down, but the inability of the national government to act effectively made the weaknesses of the Articles of Confederation ever more apparent.

These examples show that a strong central government—in the form of fiscal and political union—was needed for the early American states to survive as sovereign political entities. As such, the possible outcomes for this particular integration story are not all that dissimilar. One can speculate that even if the American case would have fulfilled the OCA criteria in a different manner and forecasted the largest possible gap between monetary and fiscal union, that gap would not have been that large in absolute terms. External and internal hazards in the 1780s necessitated that the United States push towards greater union. Consequently, the integration process had to be quick. In a way, these threats suspended the consideration of economic concerns. Invading European armies and rebellious farmers are a more present and motivating danger than the promise of marginally better macroeconomic performance. This may seem to contradict the theory that economic factors—namely the selected OCA criteria—are a determining factor in the speed of integration processes. That belief still stands, however, as there is still room for economic motivations to play a role. At times, though, they can be superseded by more pressing distresses. In that sense, maybe the American story is not the perfect test case for this sort of a project, since the integration effort was often driven by political and security concerns more so than economic ones.

In sum, the facts of the American integration case support the model proposed herein, but not wholeheartedly. American fulfillment of these four OCA criteria situated the American case for a relatively quick integration process. That the entire process was completed with the signing, ratification, and implementation of a single document leads one to believe other factors were also at play. The security and political crises of 1780s America, coupled with the ineffectiveness of the Articles,

\textsuperscript{83} David P. Szatmary, \textit{Shay's Rebellion: The Making of an Agrarian Insurrection}, 84-86.
necessitated an exceedingly quick jump from monetary and economic to fiscal and political union. This suggests that non-economic forces can augment the effects of economic criteria on integration speed.

**German Case**

When the Holy Roman Empire dissolved in the first years of the nineteenth century, it disintegrated into over three hundred politically autonomous German states. Each German polity made its own fiscal and economic decisions—causing hundreds of dissimilar—oftentimes wildly different—customs duties and taxation policies. The result was an economically and politically disjointed Germany. Such was the landscape of Germany when the Napoleonic Wars spread across Europe from 1803 to 1815. The Congress of Vienna in 1815 ended the conflict, created the German Confederation, and reduced Germany to thirty-nine autonomous states—a much more manageable number for future integration efforts.⁸⁴ Germany still lacked, however, the sort of political cohesion that rivals like France and Britain enjoyed at that time.⁸⁵ By the end of the nineteenth century, the numerous German states would reach meaningful political union, but the process was by no means conscious or quick.

The first step was the creation of a customs union—the German Zollverein. Implemented in 1834, the Zollverein was a community of eighteen independent states and over twenty three million people.⁸⁶ It evolved out of the Prussian tariff system and came to encompass a majority of German economic activity. The Zollverein was more than a mere customs union, though. The removal of internal tolls—allowing the freer movement of goods and products—as well as the coordination of union-wide economic decisions qualified the Zollverein as an economic union.⁸⁷ As such, one can say that the German case entered into an economic union in 1834. The largest states of this union included Prussia as well as the Hessian states—Nassau and Darmstadt—Württemberg, Baden, and Bavaria. Map 1, presented

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below, details the locations of the various German states as well as the growth of the Zollverein throughout the middle of the nineteenth century.

Map 1: German Economic Integration in the Nineteenth Century

The creation of the Zollverein also corresponded closely with the start of national-level monetary policymaking in Germany. Prior to the establishment of the Zollverein, nine separate currencies circulated throughout Germany. The Munich Coin Treaty (1837) and the Dresden Coinage Convention of 1838 organized monetary policy across Germany. These steps established a currency standard among Zollverein member states. While no single German money was created and issued by a supranational body, Germany enjoyed de facto monetary union as all German currencies were linked to each other by a fixed exchange rate. This is not all dissimilar from Europe’s early efforts at monetary integration, when

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90 Carol H. Shiue, “From political fragmentation towards a customs union: Border effects of the German Zollverein, 1815 to 1855,” 137.
the European Monetary System offered not a single currency, but rather a mechanism of linking all European currencies together via a fixed table of exchange rates. While Germany did not reach de jure monetary union until after the establishment of the German Empire and the Coinage Acts of 1871 and 1873, Germany did experience de facto monetary union as early as 1838—following the implementation of the Zollverein, the Munich Coin Treaty, and the Dresden Coinage Convention.

In the years following German integration into economic and monetary union, there were several attempts at fiscal and political union, but such assimilation failed to occur until 1871. As mentioned previously, the Congress of Vienna brought Germany together under a limited form of political union. The Congress created the German Confederation—an institution that lasted from 1815 to 1866. Under the Confederation, steps were taken by German governments to increase transparency both with each other and their constituents. Especially after the Revolutions of 1848, German governments realized that they had to explain their decision-making processes implement democratic methods of governance.91 Measures such as these forced the disparate German states to become increasingly aware of the costs and benefits of greater political union. On one hand, the German states became progressively more involved in the areas of education, economic, and infrastructure policy—initiatives that could benefit from the creation of a supranational federal government.92 On the other, German states were wary of the others’ motives and oftentimes reluctant to cooperate. For example, in the 1840s and 1850s, several authors touted the idea of not only a German economic union, but also a single Central European market. Prussia acted aggressively to defeat such schemes as it enjoyed being the dominant voice in the Zollverein. Incorporating Austria and other Central European powers into the community would cause Prussian influence to wane—making the end goal of national unity under Prussian command more difficult to achieve.93

Accordingly, German integration was often slowed down and sped up by the whims of its largest state—Prussia. In some instances, Prussia was a driving force of German integration—such as in the creation of the Zollverein, which was largely the work of Prussian political actors. In other instances, however, Prussia slowed the process of integration by opposing efforts of greater political coordination. The exclusion of Austria from the Zollverein—due to Austria’s high protections of domestic industries—exacerbated the Austro-Prussian rivalry. Both states strove to be the chief political and economic voice in Germany. The Austro-Prussian War (1866) largely settled this argument, as Prussian victory made it the greatest German power. Prussia’s hegemony over Germany was expanded with victory in the Franco-Prussian War (1871). This triumph allowed Prussia to expand her influence and formally include the southern German states into her empire with the signing of the Treaty of Versailles of 1871—officially unifying the German states into a single German Empire.

The German Empire included twenty-five sovereign German states. This incorporation realized what many political theorists called the “Lesser German Solution”—i.e. a unified Germany, minus Austria. 1871 is important as it signals the year during which German entered both fiscal and political union. The fiscal system of the German Empire was largely based on the North German Confederation—the successor of the German Confederation following the Austro-Prussian War—as well as the prior Prussian system. The central government held the power to collect tariffs and indirect taxes. With these revenues, the federal government was responsible for conducting foreign relations, coordinating economic and monetary policies, providing military defense, and funding a social security system. Political union was enacted at the federal level in three different capacities: 1) an executive branch—comprising of the Kaiser, the chancellor, and other executive authorities, 2) the Bundesrat—a federal council that represented the individual member states, and 3) the Reichstag—the popular parliament.\footnote{Carsten Hefeker, “The agony of central power: Fiscal federalism in the German Reich,” European Review of Economic History (Oxford University Press) 5, no. 1 (April 2001): 121.} The power stakes between the federal government and the individual states were a constantly evolving and contested relationship. The states often fought to be less financially dependent on the central
government, in order to avoid shifting power to the center. The states were actually quite successful at accomplishing this task. They were able to keep the imperial government from extracting income taxes—making the federal government financially poor, in comparison to the states.\textsuperscript{95} Figure 8 illustrates the chronology of German integration.

![Figure 8: Timeline of German Integration](image)

**Openness to trade**

The greatest difficulty in determining whether or not the states that formed the German Zollverein were open or closed to trade is that after the establishment of the Zollverein internal tolls and tariffs were eliminated—meaning that intra-Germany trade data is scarce at best. As such, it is difficult to determine at what levels German states traded with each other throughout the nineteenth century. In order to make an educated guess, though, it is necessary to first consider the structure and flows of pre-Zollverein internal trade in Germany. Then it is prudent to examine how those flows changed after 1834 as well as the extent of German exports and imports to non-German states.

Let us start by looking at the internal trade structure of Germany prior to the creation of the Zollverein. In very general terms, northern Germany—i.e. Prussia, Saxony, and industrialized parts of Hanover—exported manufactured goods to southern Germany—i.e. Bavaria, Baden, and Lorraine—in exchange for agricultural goods. While this is certainly an oversimplification of internal German trade flows, this was the dominant pattern of trade in the early part of the nineteenth century. Agrarian goods dominated southern production as they accounted for over two-thirds of northern imports from the South.

\textsuperscript{95} Carsten Hefeker, “The agony of central power: Fiscal federalism in the German Reich,” 125.
Likewise, manufactured goods made up over three-fourths of all southern imports from the North.\textsuperscript{96} Given the production specializations of these two regions, one would expect that after the elimination of trade barriers in 1834 that southern Germany would increasingly import manufactures and export primary goods and northern Germany would increasingly import primary goods and export manufactures.

For the purposes of this paper, it is good news that even after 1834 not all interior tolls were removed. The Zollverein did not guarantee free trade in all goods. There were exceptions, such as tobacco, salt, alcohol. Consequently, regional tollbooths were maintained until a standardized system of excise taxation could spread across Germany. From these leftover booths, there is a limited amount of data on trade between German regions, after 1834. On the whole, this data explains that increased specialization of German regions occurred as Bavaria, Baden, and other southern regions became increasingly agricultural after the elimination of internal tariffs.\textsuperscript{97} However, examining the trade tables of other central and southern German states—those who one would expect to receive the bulk of Prussian manufactures—reveals a contradictory conclusion. States, such as Hessen-Darmstadt, although they continued to specialize in agrarian products, seem to have increased manufacturing in the years post-Zollverein. Rolf Horst Dumke argues in “Intra-German Trade in 1837 and Regional Economic Development” (1977) that the most convincing explanation for this contradiction is that there was a significant trade of manufactured goods between the southern German states. In a sort of shadow economy that operated outside the traditional north-south trade pattern, this trade of manufactured goods allowed southern, agrarian states to specialize in agricultural for national trade, but still produce manufactured goods for more regional and local consumption.\textsuperscript{98} The resulting picture is one of a German trade network that not only exchanges goods from its northern and southern states, but also engages in regional trade within the North and the South. This is a network that existed, in much the same form, both before and after the creation of the Zollverein.

\textsuperscript{97} Ibid., 480-484.
\textsuperscript{98} Ibid., 481-482.
Another aspect of German trade that is necessary to consider is foreign trade. In the late eighteenth century, Germany’s best-known foreign export was its steel. Highly valued for its superior quality, German steel found its way in great quantities to British ports as a necessary commodity for the manufactories of London and Sheffield. By the 1830s, that trade had flipped and the increasingly industrialized Germany began importing pig iron and other commodity goods from Britain. It is estimated that German raw material imports leaped from 12,600 tons in 1836 to 137,800 tons in 1864. Cotton and yarn imports from Britain experienced a similar jump, over the same timeframe.\textsuperscript{99} In exchange for these goods, Germany exported large quantities of grain from its grain producing regions in eastern Germany.\textsuperscript{100} This pattern of external trade largely held until the 1870s when calls emerged for Germany to enact protectionist policies.

So far, however, this discussion has yet to yield a definitive categorization of Germany as either open or closed to trade. To reach such an answer, a little bit of mathematical aerobics must be done. The first step is to calculate the amount of internal trade conducted in Germany. Dumke offers several trade tables of intra-Zollverein trade. Using this data, it can be deduced that southern Germany—i.e. the states of Württemberg, Bavaria, and Baden—engaged in 33,208,600 worth of intra-German trade, in terms of Prussian thaler, in 1837.\textsuperscript{101} \textsuperscript{102} Corresponding trade tables do not exist for southern German international trade, but Wolfgang Keller and Carol H. Shiue assert that between 1833 and 1842 most of the trade conducted by German states was done with other German states, not foreign ones.\textsuperscript{103} As such, this paper assumes that the total amount of trade conducted by the southern German states in 1837 was no more than double the amount of the intra-German trade for that year. In other words, trade in 1837 southern Germany must not have exceeded 66,417,200 thaler.\textsuperscript{104}

\textsuperscript{100} Ibid., 142.
\textsuperscript{101} Rolf H. Dumke, “Intra-German Trade in 1837 and Regional Economic Development,” 492-494.
\textsuperscript{102} The South exported 9,573,000 thaler worth of goods to the North in 1837. The South imported 23,635,300 thaler worth of goods from the North in 1837. As such, the sum of intra-German trade in 1837 was 33,208,600 thaler.
\textsuperscript{103} Wolfgang Keller and Carol H. Shiue, "The Trade Impact of the Zollverein,” (University of Colorado) March 2013: 8.
\textsuperscript{104} 33,208,600 thaler x 2 = 66,417,200 thaler.
For Germany to be considered sufficiently open to trade, that number should account for at least a third of southern Germany’s national income in 1837. Gerd Hohorst estimates that in 1840—a close approximate to economic conditions in 1837—that the per capita national income, throughout Germany, was 319 Goldmark, set in 1913 prices. This is an appropriate estimation to use because Hohorst proves that there is little difference in per capita income, for those years, between the German states. As such, data for German states, as a whole, can be used to properly approximate the per capita income of the southern states. Converted to Prussian thaler, the estimation is 106.33 thaler per capita, in 1913 prices.\textsuperscript{105}

Using Rainer Fremdling’s calculations to normalize to 1840 prices, the estimate is reduced to 30.62 thaler per capita.\textsuperscript{106} Using population estimates of 1840 Germany, this paper calculates the population of the three aforementioned southern German states to be 7,673,000.\textsuperscript{107} \textsuperscript{108} Combining that population estimate with the estimate of per capita income, one can estimate the national income of Bavaria, Württemberg, and Baden to be 234,947,260 thaler.\textsuperscript{109} Accordingly, southern Germany’s imports and exports only made up 28.27% of the region’s national income.\textsuperscript{110} While this figure is close to the 33.33% required to be open to trade it falls short. As such, the German case should be treated as closed to trade.

\textbf{Product diversification}

As discussed above, the biggest divide within the nineteenth century German economy was between the northern and southern states. And, as with the analysis of openness to trade, examining that partition will render a result on the diversity of German production. Northern Germany exported much of their finished products to the South in exchange primary goods—i.e. agrarian products and raw materials. Conversely, the southern states traded their agricultural goods northwards for finished manufacturing products. Dumke substantiates these claims. In “Intra-German Trade in 1837 and Regional Economic

\textsuperscript{105} After the institution of the Goldmark in 1873, an exchange rate was established at 1 thaler = 3 Goldmark.


\textsuperscript{107} Bavaria (4,371,000) + Württemberg (1,646,000) + Baden (1,296,000) = 7,673,000.


\textsuperscript{109} 30.62 thaler per capita income x 7,673,000 = 234,947,260 thaler.

\textsuperscript{110} 66,417,200 thaler is 28.27% of 234,947,260—far less than the necessary 50%.
Development” (1977), Dumke compiles an array of 1820s trade tables—claiming that from 1822-1823 between 67.7% and 85.0% of Germany’s primary goods were imported from the South and 76.0% of German manufactured goods were exported to the South. He performs the same analysis for the northern state of Saxony—reaching opposite results. Exports from Saxony, to the rest of Germany, were between 81.9% and 83.1% manufactured products. Imports from the other German states to Saxony, on the other hand, were between 42.2% and 47.0% primary goods.¹¹¹ For further evidence, consider the below table, which uses Dumke’s raw data to present aggregated evidence of the nature of the trade between the southern German states and the northern states, in 1837.

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<tbody>
<tr>
<td>Agricultural Products</td>
<td>33.2%</td>
<td>8.6%</td>
</tr>
<tr>
<td>Raw Materials</td>
<td>36.1%</td>
<td>4.3%</td>
</tr>
<tr>
<td><strong>Total Primary Goods</strong></td>
<td><strong>69.3%</strong></td>
<td><strong>12.9%</strong></td>
</tr>
<tr>
<td>Intermediate Goods</td>
<td>8.6%</td>
<td>9.4%</td>
</tr>
<tr>
<td>Finished Manufactured Products</td>
<td>22.1%</td>
<td>77.6%</td>
</tr>
<tr>
<td><strong>Total Manufactures</strong></td>
<td><strong>30.7%</strong></td>
<td><strong>87.0%</strong></td>
</tr>
</tbody>
</table>

It should also be noted that there was a significant amount of agricultural production in the North. These products were exported primarily abroad to foreign states, such as Britain. The majority of this northern agrarian production came from the eastern Prussia. One can argue that nineteenth-century Germany should be categorized into three economic regions—north, south, and east. Typically labeled as a northern state, the eastern parts of Prussia, in many ways shared more in common with the agrarian South than the industrial North. Some scholars have argued that eastern Germany was even more reliant on agriculture that the southern states.¹¹³ This argument appears at least plausible given the recession that wrecked eastern Prussia in the middle and later decades of the nineteenth century—when Prussian grain production was threatened by increased competition from foreign competitors. The result was a severe retraction in the Prussia economy that included a loss of capital resources and large-scale labor

¹¹² Ibid., 486.
¹¹³ Ibid., 472-475.
The South, however, was able to diversify its economy enough to produce some manufactured goods for trade among the southern states. This allowed the region to avoid the same severe specialization fate felt by eastern Prussia. Additionally, agriculture in the East focused primarily on large-scale grain production, while southern production consisted of more mixed farming and on a smaller scale. Both of these attributes contributed to the southern states having a more diverse and stable economic structure than the East.

From afar, it seems that the nineteenth century German economy was fairly diverse. The North specialized in manufacturing manufactured goods, which were largely exported to the more agrarian South. The South and the East both focused their efforts on agricultural and primary products, with the South relying on more mixed, smaller farms and the East on larger, single product farms. However, it is necessary to statistically prove whether or not German production was diverse enough for the model offered herein. To do so, one must determine whether the major trade flows of nineteenth century were dominated by a few essential products or whether the terms manufactured and primary goods consisted of a sufficiently diverse grouping of products. Luckily, there are several good data sources available to answer this question.

First, let us return to the data of early Zollverein economic activity gathered by Dumke. Dumke breaks down the imports and exports of the southern and northern states into specific goods. As mentioned above, the South specialized in agrarian products, while the North focused on manufactured goods. Within those specializations, though, there seems to be no dominant good or goods. The following tables list the products that had the highest share of the goods exported by the southern and northern states in 1837. All products that won a greater than five percent share are listed.

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114 Rolf H. Dumke, “Intra-German Trade in 1837 and Regional Economic Development,” 473.
115 Ibid., 487-488.
Table 3: Export Shares of Southern German States\textsuperscript{116}

<table>
<thead>
<tr>
<th>Export Product</th>
<th>Share of all Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lumber (construction)</td>
<td>20.68%</td>
</tr>
<tr>
<td>Fine Wooden Utensils</td>
<td>9.40%</td>
</tr>
<tr>
<td>Wheat</td>
<td>8.29%</td>
</tr>
<tr>
<td>Wine and Must</td>
<td>8.22%</td>
</tr>
<tr>
<td>Wood (fuel)</td>
<td>7.62%</td>
</tr>
<tr>
<td>Hops</td>
<td>5.14%</td>
</tr>
</tbody>
</table>

Table 4: Export Shares of Northern German States\textsuperscript{117}

<table>
<thead>
<tr>
<th>Export Product</th>
<th>Share of all Exports</th>
</tr>
</thead>
<tbody>
<tr>
<td>Finished Woolen Goods</td>
<td>29.53%</td>
</tr>
<tr>
<td>Finished Cotton Goods</td>
<td>15.39%</td>
</tr>
<tr>
<td>Finished Silk Goods</td>
<td>14.38%</td>
</tr>
<tr>
<td>Sugar</td>
<td>5.47%</td>
</tr>
<tr>
<td>Linen Bands</td>
<td>5.42%</td>
</tr>
</tbody>
</table>

One of the most striking characteristics of these lists is how short they are. In the southern case, only six products had a share greater than five percent, while in the North that number was only five. It is also obvious that no single product dominated the exports of either region. Only two products—lumber in the South and finished woolen goods in the North—had a share greater than twenty percent and no product topped thirty percent. Remember that per the definition of product diversification, a case must have not have a single product have a greater than fifty percent share of exports and no group of five products make up more than ninety percent of exports. Dumke’s evidence gives good support to the claim that in 1837 German production easily met both of those criteria—making it sufficiently diverse.

Second, consider evidence of German production a few years later—in 1851. In their “A Compromise Estimate of German Net National Product, 1851-1913, and its Implications for Growth and Business Cycles” (2005), Carsten Burhop and Guntram B. Wolff estimate employment shares for various sectors of the German economy. While not a perfect approximation of output, their data does offer a rough outline of how the German economy, in 1851, was divided among its different sectors. The table below presents a synopsis of their evidence. Once again, only sectors with greater than a five percent share are listed.

\textsuperscript{116} Rolf H. Dumke, “Intra-German Trade in 1837 and Regional Economic Development,” 492-493.
\textsuperscript{117} Ibid., 494-496.
Table 5: Employment Shares of German Industries in 1851\textsuperscript{118}

<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment Share, 1851</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>24.05%</td>
</tr>
<tr>
<td>Textiles</td>
<td>23.06%</td>
</tr>
<tr>
<td>Food</td>
<td>14.89%</td>
</tr>
<tr>
<td>Wood</td>
<td>10.56%</td>
</tr>
<tr>
<td>Construction</td>
<td>10.19%</td>
</tr>
<tr>
<td>Metal Processing</td>
<td>8.80%</td>
</tr>
</tbody>
</table>

Burhop and Wolff’s data give a similar impression as Dumke’s. No industry has an employment share greater than twenty-five percent and the top five industries make up only 82.75\% of total German employment. As such, using this data as an estimate of industry output distribution, one can conclude that German production was still sufficiently diverse in 1851. Since German production remained diverse throughout much of the life of the Zollverein—i.e. both in 1837 and 1851—one can safely categorize the German case as having sufficient product diversification.

Factor mobility

To test whether or not German factors of production were mobile in the nineteenth century requires an analysis of both labor and capital mobility. Labor mobility will be the focus of this investigation because this factor has the most and best available data. One of the finest ways to measure capital mobility is to examine the ease with which capital circulates around an economic unit. Unfortunately, this data is only available for the years after 1871—following the creation of the German Empire—making that data less relevant to this study.\textsuperscript{119} There does not appear to be sound data measuring capital flows between German Confederation states prior to 1871. Accordingly, a rough estimate will have to be made on the mobility of capital in nineteenth century Germany based on secondary sources and loosely related statistical evidence. Labor mobility is, however, an easier criterion to judge. Sufficient data exists to determine whether or not labor was able to freely move throughout


\textsuperscript{119} Ibid., 624-625.
Germany in the nineteenth century. As such, labor mobility will be given a greater weight than capital mobility when determining whether or not Germany enjoyed factor mobility in this case.

Before starting a discussion on capital and labor mobility, it is important to recognize one of the great technological and industrial achievements of nineteenth century Germany that enabled these factors to move across the German Confederation—railroads. First built in the years following the creation of the Zollverein, German railroads helped connect the oftentimes-disparate German states both economically and politically. The mid and late nineteenth century became known as the “Railway Age” in Germany as tracks were laid that crossed and connected all of Germany. These railroads also had the secondary effect of increasing the value of existing canals and roadways as they enabled travel along those paths to extend further across western and northern Europe.\footnote{Carl Brinkmann, “The Place of Germany in the Economic History of the Nineteenth Century,” 138-139.} The impact of the railways on factor mobility is obvious. By reducing the costs of movement—e.g. time, money, etc.—the expanded German transportation network allowed workers to travel and engage in or seek out work in new regions and new industries. Likewise, capital goods could be moved much easier by rail than by boat or wagon. While an in-depth study of the impact of German railroad expansion on factor mobility is an ambitious and different project, one can see the impact the rails had on the ease with which German labor and capital moved in the nineteenth century.

With increased rail-building activity in mind, let us turn our attention towards rendering the best judgment possible on capital mobility. As mentioned earlier, there is little data available relevant to this question. From what there is, though, it seems that capital was mobile. That means that proof of capital stocks growing and capital shifting between industries substantiates the idea that capital flows were not entirely immobile. For instance, reconsider the effects felt by eastern Prussia when grain producers in that region had to compete against foreign competitors who were able to reduce their prices in the latter half of the nineteenth century. As Dumke explains the effects of this competition on the Prussian economy, he details the shift of capital resources away from large-scale grain farming and towards other
industries.\textsuperscript{121} Although it may not seem like much, this bit of history does serve as anecdotal evidence of capital mobility. That Prussian agricultural resources were able to either repurpose themselves for use in other industries or leave Prussia altogether supports the notion that German capital had some amount of freedom of movement. Additional evidence of capital mobility can be found in the data accumulated by Burhop and Wolff. Burhop and Wolff calculated the industrial capital stock for Germany from 1850-1913. Consider the below table, which aggregates Burhop and Wolff's data. Industrial capital stock is measured as a portion of total capital stock, where the 1913 total capital stock is equal to 100.

\textbf{Table 6: German Industrial Capital Stock (1913 total capital stock = 100)}\textsuperscript{122}

<table>
<thead>
<tr>
<th>Year</th>
<th>Industrial Capital Stock</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850</td>
<td>5.76</td>
</tr>
<tr>
<td>1855</td>
<td>6.11</td>
</tr>
<tr>
<td>1860</td>
<td>6.45</td>
</tr>
<tr>
<td>1865</td>
<td>7.42</td>
</tr>
<tr>
<td>1870</td>
<td>8.25</td>
</tr>
<tr>
<td>1875</td>
<td>10.59</td>
</tr>
</tbody>
</table>

As is evident in Table 6, Germany’s industrial capital stock grew steadily from 1850 through the formation of the German Empire in 1871. While looking at capital growth is not a direct measure of capital mobility, it is circumstantial evidence. Without a degree of mobility, it would be difficult for industrial capital to grow at the rate it did—nearly 100% growth—during this timeframe. This is especially true given that Germany began importing much of its pig iron—a necessary material for capital accumulation—from Britain, following the 1830s.\textsuperscript{123} If capital were not able to move into and around Germany, this sort of growth would not have been likely. In short, these two sources of evidences are not the most convincing, but they—at the very least—imply that capital was likely to be mobile in nineteenth century Germany.

An easier judgment to make is on labor mobility. Evidence of the mobility of German labor comes from several sources. Remember the account Dumke gives of eastern Prussian grain producers.

\textsuperscript{121} Rolf H. Dumke, “Intra-German Trade in 1837 and Regional Economic Development,” 473.
\textsuperscript{123} Carl Brinkmann, "The Place of Germany in the Economic History of the Nineteenth Century," 134-135.
One of the effects he cites is considerable emigration of labor away from Prussia.\textsuperscript{124} Such labor movement would be impossible if labor were not sufficiently mobile. This story hints that German labor was mobile in the nineteenth century, but does the data back that assertion? The evidence accumulated by Burhop and Wolff does. Consider a revision of Table 7, which includes employment shares, by industry, for not only 1851, but also 1913.

Table 7: Employment Shares of German Industries in 1851 and 1913\textsuperscript{125}

<table>
<thead>
<tr>
<th>Sector</th>
<th>Employment Share (1851)</th>
<th>Employment Share (1913)</th>
<th>Change in Employment Share</th>
</tr>
</thead>
<tbody>
<tr>
<td>Clothing</td>
<td>24.05%</td>
<td>14.79%</td>
<td>-9.26%</td>
</tr>
<tr>
<td>Textiles</td>
<td>23.06%</td>
<td>10.55%</td>
<td>-12.51%</td>
</tr>
<tr>
<td>Food</td>
<td>14.89%</td>
<td>13.67%</td>
<td>-1.22%</td>
</tr>
<tr>
<td>Wood</td>
<td>10.56%</td>
<td>8.85%</td>
<td>-1.71%</td>
</tr>
<tr>
<td>Construction</td>
<td>10.19%</td>
<td>15.62%</td>
<td>5.43%</td>
</tr>
<tr>
<td>Metal Processing</td>
<td>8.80%</td>
<td>18.08%</td>
<td>9.28%</td>
</tr>
</tbody>
</table>

Table 7 includes Burhop and Wolff’s calculations of 1913 employment shares as well as a calculation of the change in employment share. This simple arithmetic reveals that there was a noticeable shift in the employment, by sector, of the German economy between 1851 and 1913. Some industries saw negligible declines in their employment numbers—food and wood—but others saw significant declines in employment share—clothing and textiles—or substantial increases in employment—construction and metal processing. That four of the six industries with the highest shares of employment in 1851 saw significant changes in their employment numbers by 1913 is evidence of a good amount of labor movement. If workers were not able to move between sectors, such shifts would not have occurred. Since it is likely that both capital and labor were able to move—and did so—in nineteenth century Germany, one can categorize the German case as one with sufficient factor mobility.

**Macroeconomic preferences**

Much like the American examination, there is little data available to calculate unemployment rates, in nineteenth century Germany. While Walther G. Hoffmann has compiled many tables of

\textsuperscript{124} Rolf H. Dumke, “Intra-German Trade in 1837 and Regional Economic Development,” 473.

employment data, he has done so by industry—rather than by region or state—and fails to include the size of the labor force with each employment calculation. As such, approximations of changes in the unemployment rate across time are little more that wild guesses. Without consistent data of both employment by region and the size of the labor force of each region, calculating unemployment rates becomes prohibitively difficult. Consequently, this analysis of macroeconomic preferences will be limited to looking at differences and similarities in inflation rates.

Before looking at the evidence that will tell us whether or not members of the German Confederation shared similar inflation rates, it is critical to understand the power stakes involved in nineteenth century German economic governance. To start, before becoming politically unified under Bismarck in 1871, the various German states oftentimes strove for conflicting economic and political objectives. In several instances, members of the Zollverein used their veto power at the General Congress to block measures that were supported by the majority of Zollverein members. The existence of one or a few states that disagree with the rest of the German states is not definitive proof that Germany generally failed to share macroeconomic preferences, but it is, at the very least, proof that there was a lack of concord at times. A cause of this discord may have been the relative dominance of Prussia over the other German states. Unlike many other federations, the German integration process was not one between many states of similar sizes, but rather a union between one great power—Prussia—and a multitude of many other smaller states.

In terms of population, economic activity, and industrial capacity Prussia was far and away the largest German state. Consider that in 1864, Prussia held 54% of the German Confederation’s population, while the second largest state, Bavaria, only accounted for 13.5%. The only other two states to surpass a five percent share were Saxony (6.5%) and Hanover (5.4%). The point to be made is that there was little incentive for Prussia to conform to the preferences of its German neighbors. Instead, the size of Prussia forced the other German states to adopt the preferences of Prussian economic decision

127 Ibid., 494.
makers. This is actually not all that dissimilar from the organization of the European economy in the late 1980s and early 1990s, when the rest of Europe largely followed the lead of Germany and the Bundesbank. In the case of the European Economic Community, however, this convergence of preferences was voluntary—a sort of self-imposed discipline—as Germany did not make up anywhere close to a majority of European population or economic activity. That said, the concern is not whether or not smaller German states wished to enact different macroeconomic preferences than Prussia, instead, it is whether or not those states had different or similar inflation rates, in practice.

To assess if a significant difference existed between the German states, it is necessary to first consider the inflationary trends of Germany, as a whole, in the nineteenth century. Using price level estimates derived by Alfred Jacobs and Hans Richter, it can be seen that Germany witnessed its greatest inflation in the early 1850s as prices jumped from 70% of 1913 prices to 101% of 1913 prices. The table below details this inflationary period.

<table>
<thead>
<tr>
<th>Year</th>
<th>Price Level (% of 1913 prices)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1850</td>
<td>70</td>
</tr>
<tr>
<td>1851</td>
<td>72</td>
</tr>
<tr>
<td>1852</td>
<td>78</td>
</tr>
<tr>
<td>1853</td>
<td>88</td>
</tr>
<tr>
<td>1854</td>
<td>97</td>
</tr>
<tr>
<td>1855</td>
<td>101</td>
</tr>
</tbody>
</table>

One can see that between 1850 and 1855, prices jumped over thirty percent. What is equally telling is that from 1855 to 1913 the price level remained the same, on the whole—actually dropping a percentage point. This evidence suggests that German prices were hardly different in 1855 than they were in 1913. What it fails to account for is the inflationary boom Germany experienced in the 1870s after the end of the Franco-Prussian War. German prices rose after the war, following the French transfer of five billion francs to Germany as a war indemnity.\(^{129}\) For the inflation that occurred after the Franco-Prussian to remain consistent with the data presented above, Germany must have experienced a deflationary period


sometime between 1855 and 1870 or 1870 and 1913. As such, the price stability Germany may have seemed to enjoy between 1855 and 1913, at first glance, does not appear to have existed. Consequently, the best time to measure how closely related the prices of the various German states are before 1855—when prices became considerably less stable.

Looking at price data broken down by region, in the years prior to 1855, one can see a convergence of German prices. Keller and Shiue’s “The Trade Impact of the Zollverein” (2013) calculates the average price gap between German Zollverein states. Per Keller and Shiue, the gap dropped from over 20% to under 15% between 1820 and 1835. This means that in the years leading up to and the first years of the Zollverein, the prices of member states noticeably converged. While Keller and Shiue’s analysis does not continue past the 1830s, one can expect that the convergence continued as the German integration process persisted. Fremdling’s calculation that between 1851 and 1855 German and Prussian nominal per capita production levels—not accounting for price differences—were within 4% of each other validates this assumption. The story emerges that as the German states teamed up with Prussia in a customs union their prices began to converge together. Whether this was purposeful or the result of Prussia’s economic clout is irrelevant. What is relevant is that members of the German Zollverein, from 1820 through 1855, experienced significant price level convergence. As such, one can confidently claim that the German case was one with homogeneous macroeconomic preferences.

Conclusion

As Figure 9 details in red, the combination of homogeneous preferences, factor mobility, production diversity, and a closed economy yields the prediction that the German case should have had a relatively large gap between monetary and fiscal union. Specifically, this model predicts the fourth largest gap—meaning the fourth slowest integration process.

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The prediction of a relatively slow integration process comes through in the German case as the integration process lasted thirty-seven years (1834-1871). As the model offered herein prescribes, the German principalities had great incentive to join into economic and monetary union because of the proximity and similarity of their economies. Those same similarities, however, lessened the need for a supranational fiscal or political body to oversee economic and monetary union. Accordingly, the gap between the creation of monetary union and fiscal union was relatively large.

It is important, though, to examine why the disparate German states did eventually form the united German Empire in 1871. Such union was largely the result of the political ambitions of Germany’s largest state—Prussia. As has been mentioned, wars and rivalries with France and Austria in the 1860s and 1870s motivated Prussia to realize their long-term goal of uniting the German principalities into a consequential fiscal and political body. One could certainly argue that had the Austro-Prussian War occurred earlier than 1866 or the Franco-Prussian War had broke out prior to 1871 that the date of German political unification could have been much earlier. Likewise, if these conflicts transpired decades later—or not at all—then German unification could have been delayed. This is merely speculation, but it is important to note that a pattern is emerging among the cases. That is, it seems that the economic
climate situates a case either for or against greater integration, but ultimately a more immediate spark—e.g. political ambitions or security concerns—is required for the final integration steps to be taken.

Does this claim not contradict the model? No. It is actually consistent with it because the German provinces were positioned to integrate into economic and monetary union. They had less incentive for a strong fiscal and political state to hold their economic and monetary union together. War with Austria and France—coupled with the Prussian nationalism that peaked during those conflicts—provided that motivation. Such a spark actually substantiates the model because it supports the idea that states that easily form economic and monetary union may need a strong incentive to bridge the gap to fiscal and political union. What may be also critical in this case is the existence of a dominant state—i.e. Prussia. By far the largest German state—in terms of population and economic might—Prussia had the ability to speed up integration and slow it down, based on its own interests. As one will see in the upcoming discussion of the European case, modern-day Europe and nineteenth century Germany receive similar predictions from the model—with respect to the predicted integration speed. Why is it then that the German integration process did result in fiscal and political union and the European case has yet to take that step? One could argue that Europe will in time, but one could also assert that the delay in European fiscal and political union is the result of a lack of a dominant state. Prussia was able to feed German integration onto the rest of the German principalities. Germany—the Prussian equivalent in the last few decades of European integration—has yet to do the same. Despite bearing many of the greatest costs of economic and monetary union, Germany has been unable to push the integration process forward. This is not to say that modern-day Germany has the same ambitions as nineteenth century Prussia, but rather that European integration may be sped more quickly towards fiscal and political union if Germany is able to wield the same amount of influence as its Prussian ancestors.

In short, evaluation of the German case supports the proposed model and yields some interesting conclusions. First, the German integration story matches the timeline forecasted by the model. The prediction and fulfillment of a relatively long integration corroborates the relationship this model identifies as existing between these OCA criteria and federal integration speed. Second, as in the other
cases, the economic climate created by meeting certain OCA criteria only affected the integration process to an extent. The German case supports the claim that outside forces—be they political, social, military, etc.—are needed to push a case either towards or away from the final integration steps. That said, the exact relationship between the four OCA criteria used in this model and other actors on integration is not yet entirely understood. Taking a wider view of all three cases and their validation of the model, in the concluding sections of this paper, will help to better understand this association.

**European Case**

Following the devastation of the two world wars that wrecked Europe in the first half of the twentieth century, there was plenty of motivation to prevent another conflict from tearing Europe apart. In the late 1940s, three alternatives surfaced as possible solutions to the destructive nationalism and imperialism that brought the continent to war in the decades prior: 1) the adoption of communism, 2) the Morgenthau plan of industrial disarmament, and 3) Europe integration. As Cold War tensions rose between the East and West in the 1950s, European integration emerged as the most viable solution. This plan was supported by the United States and Britain, who both pushed for the idea of a capitalist and unified Europe. Through the aid offered by the Marshall Plan and the creation of the Organization for European Economic Cooperation (OEEC)—the organization that dispersed the aid given by the United States through the Marshall Plan—Europe secured the funding and coordination needed to rebuild the continent.132 Frenchman Jean Monnet, considered by many as the father of the European Union, argued that the best way to protect against a third devastating war was to get the continent’s people to view themselves as European—opposed to British, French, etc. Monnet theorized a snowball effect, in which small, easy integration steps would allow states and peoples to witness the benefits of integration and encourage the undertaking of larger, more difficult steps. Under Monnet’s leadership, the first step towards integration—the Treaty of Paris—was signed in 1951. The Treaty of Paris created the European Coal and Steel Community (ECSC) between Luxembourg, Belgium, West Germany, Netherlands,

France, and Italy—regulating the price, trade, and production of coal and steel. The ECSC was a great success and acted as a training exercise for future European integration efforts.\textsuperscript{133}

In the years after the creation of the ECSC, intra-European trade flourished and the continent started to regain its economic might. The industrial growth Europe experienced in the 1950s encouraged the signing of the Treaty of Rome in 1957. This agreement created the European Atomic Energy Community (Euratom) as well as the European Economic Community (EEC). The EEC eliminated internal tariffs and quotas and guaranteed a customs union by 1968. There still existed many impediments to the movement of labor and capital between states, however, so it cannot be said that Europe had an economic union—yet. The EEC was an economic success, though. It persuaded many European countries outside of the six member nations to trust in the benefits of economic cooperation and form a rival union—the European Free Trade Agreement (EFTA).\textsuperscript{134} By the mid and late 1960s, Europe’s trading partners began to favor EEC states more heavily than EFTA states. This preference increased the pressure for countries outside of the original six to join the EEC. Such demands led to the European integration process’s first admission of new member states—the northern enlargement.\textsuperscript{135} In 1973, Britain, Ireland, and Denmark joined the EEC. This enlargement followed several years of political drama, however. Fearing an increase in the size of the EEC—and the resulting decrease in its relative power—France strongly opposed enlarging the EEC for much of the 1960s. The conflict came to a head in 1965, when French president Charles de Gaulle pulled France out of EEC negotiations, resulting in the “empty chair crisis”. Without one of its two largest members—Germany being the other—at the table, the EEC had to stall negotiations until France returned. The solution was the Luxembourg Compromise of 1965. The Compromise appeased de Gaulle by removing several laws and leaders opposed by the French

\textsuperscript{133} Loukas Tsoukalis, \textit{The New European Economy Revisited}, 12.
\textsuperscript{134} Ibid., 12-15.
\textsuperscript{135} When data is presented here, it is often done so in reference to the number of members in the European Union or euro area. For instance, EU6 represents the original six members of the EU—then known as the EEC. Likewise, EU28 represents a collection of data for all twenty-eight current EU members. The same is often done for euro area members. Euro18, for example, means that all eighteen current euro area members are considered in the data set. Such notations are helpful because the data used in a given calculation cannot always include the same grouping of EU or euro area states.
as well as giving each state veto power. This ensured that France, or any other country, would not be forced into any policy it did not support. The Luxembourg Compromise may have been a victory for France, but it slowed down the European integration process as little could be accomplished as long as it only took a single member state’s veto to reject a proposal.

It was not until the implementation of the Single European Act in 1986 that the integration effort experienced anymore significant progress. In 1985, European Commission president Jacques Delors promised to end the image of a disjointed Europe and to create a truly free and integrated economic body. The Single European Act did this by building on the goals of the Treaty of Rome and explicitly guaranteeing the free movement of capital, goods, persons, and services throughout Europe. Europe was now in an economic union because not only were internal trade barriers removed, but the movement of factors of productions were also freed. Some may argue that after the institution of a customs union in 1968, even with restricted factor movement, Europe experienced true economic union, but that claim is misguided. It was not until 1986 that non-tariff barriers were removed. Prior to 1986, European economies protected domestic producers through differing technical standards and industrial regulations, preferential public procurement contracts, taxation differences, and varying transport regulations. These barriers promoted domestic industries and established informal trade barriers. Per Delors’ prescription, the Single European Act made such measures illegal—allowing the free movement of capital, goods, persons, and services.136

As the Single European Act established a common market across Europe, in which capital controls were progressively dismantled, the option of monetary union became increasingly necessary. As Europe learned in 1992 and 1993, the elimination of capital controls without monetary union can lead to disastrous consequences. Before discussing the crisis of 1992 and the decision to join into monetary

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136 At this point it may be helpful to clarify what the terms Europe, the European Union, and the euro area signify. Europe refers to the entire continent, but more specifically to the countries involved in the integration process. In a sense, Europe is interchangeable with terms such as the European Union or the European Community. While not formally created until 1993, the European Union is often used to refer to the states that participated in past iterations of European integration—predecessors to the EU. The euro area, conversely, specifically refers to the states that are part of the EMU and use the euro.
union later that same year, though, let us consider earlier European attempts at coordinating monetary policy. Such efforts start with the United States’ abandonment of the gold standard in August of 1971. This action effectively brought an end to the Bretton Woods system of international monetary coordination.\textsuperscript{137} Europe’s response to the collapse of the Bretton Woods system was the creation of the European Monetary System (EMS). Established in 1979, the EMS consisted of four main features.\textsuperscript{138} First, there was a parity grid of fixed exchange rates—known as the Exchange Rate Mechanism (ERM). The ERM was a table of weighted and fixed exchange rates between European and foreign currencies. Parities were not allowed to change—i.e. currencies were not allowed to revalue or devalue—without unanimous consent. Second, mutual and unlimited support was guaranteed if the parities were challenged. This meant that all member currencies—both weak and strong—would undertake market interventions if the fixed exchange rates faced inflationary or deflationary pressures. Third, the European Currency Unit (ECU) was created. This was not an actual circulating currency, but rather a basket of all EMS currencies that acted as a unit of account.

These fixed exchange rates were intended to facilitate greater trade and cooperation among EMS members, but the parity grid provided by the ERM often failed to reflect the true value of the currencies. One of the greatest weaknesses of the EMS was that it failed to accurately account for structural differences among its economies. For instance, the German mark was often stronger than the grid granted, so the ERM required European central banks to sell German marks, in order to lower the price of the mark—raising the risk of inflation in Germany. In contrast, the Italian lira was often weaker than the grid granted, so the ERM required European central banks to buy Italian lira, in order to raise the price of the lira—raising the risk of deflation in Italy. Countries, such as Germany and Italy, were willing to make such sacrifices—e.g. the loss of national monetary sovereignty and the freedom to pursue national preferences—because they were committed to the idea of European integration, throughout the 1980s.

\textsuperscript{137} Established in 1945, the Bretton Woods system tied all participating currencies’ exchange rates to the United States dollar—based in gold—and created the International Monetary Fund (IMF) to help cover the temporary balance of payments problems that arose.
\textsuperscript{138} Loukas Tsoukalis, \textit{The New European Economy Revisited}, 143-145.
For the first several years of the EMS, states were tolerant of inflationary and deflationary pressures as well as occasional realignments. By the mid 1980s, however, several of the weaker currencies were undergoing frequent realignments—putting the whole system at risk. Consequently, starting in 1986, the EMS became increasingly centered around the German mark—a large and stable currency. EMS members agreed to sacrifice their own monetary sovereignty and follow the prescriptions of the German Bundesbank.\textsuperscript{139} As Europe began to follow the interest rate manipulations of the Germans, the European economies started to synchronize and inflation levels began to fall. In this sense, the German-dominated version of the EMS was a success because it brought much of Europe together under a single monetary policy and, by doing so, increased the credibility of EMS monies.\textsuperscript{140} European did not yet have a monetary union, though, because this sort of coalition was not lasting. Several EMS members, particularly France, despised being in a German currency system. They preferred a European monetary authority that would decide what was best for Europe as a whole, not just Germany. It was a combination of these national jealousies and the speculative crisis of 1992 that brought an end to the EMS and paved the way for the European Monetary Union (EMU)—i.e. true monetary union.

As mentioned before, the parity grids of the ERM were fixed, but did not always reflect the true value of the currencies. Accordingly, speculators often bet on the bilateral exchange rates between strong and weak currencies. Interest rate manipulations, prescribed by the Bundesbank, and central bank interventions in foreign exchange markets could fight off such speculation—in small doses. Following the start of the elimination of capital controls in 1986, it became increasingly easy for speculators to bet against currencies all across Europe. Consequently, by 1992, currency speculations had reached critical mass and were too large for the EMS to fend off. By August 1993, the EMS no longer had the ability to protect its artificial, fixed parities and had to abandon its narrow bands of fluctuation, in favor of newer, much wider bands.\textsuperscript{141} In effect, the fixed rates of the EMS were ruined and the system was defunct. It

\textsuperscript{139} By law, the various European central banks were still independent of each other, but, in practice, they all followed the lead of the Bundesbank.
\textsuperscript{140} Loukas Tsoukalis, \textit{The New European Economy Revisited}, 150.
\textsuperscript{141} Ibid., 152.
should noted, that European Community did try to include monetary union along with economic union. As this paper has argued, these two sorts of union are invariably linked and typically must accompany each other. The failure of the EMS as a stand alone monetary system should not be taken as evidence that Europe was definitely ill-suited for monetary integration, but rather that the EMS was a poorly devised system.

Around the same time that the EMS was under attack from currency speculation, Europe’s political actors were at work designing the next stage of European integration. Signed on February 7, 1992, the Maastricht Treaty officially created the European Union, established the three-pillar system to govern the Union, and signified the start of monetary union in Europe. Regarding monetary union, the most significant step the Maastricht Treaty took was to transfer national monetary sovereignty over to a supranational body—the European Central Bank (ECB)—and set a timeline for the abandonment of national currencies and the implementation of the euro. The Maastricht Treaty sought to solve many of the problems facing the EMS in the late 1980s and early 1990s. In those years, Europe violated the Impossible Trinity that requires that a country cannot have free capital controls, independent monetary policy, and fixed exchange rates. As European economies learned, trying to have all three of these policies in effect resulted in capital flight from overvalued currencies to undervalued ones. Financial crisis ensued. Consequently, the Maastricht Treaty called not for a table of fixed exchange rates among European currencies, but rather a single European currency—the euro—with a single monetary authority—the ECB. While not introduced as a circulating currency until January 2002, the ratification of the Maastricht Treaty in 1993 signaled the creation of monetary union in Europe.\(^{142}\)

Map 2 illustrates the several integration waves that Europe has undergone both before and after the ratification of the Maastricht Treaty.

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\(^{142}\) Loukas Tsoukalis, *The New European Economy Revisited*, 166-167.
In the years since 1993, several amendments have been made to the Maastricht Treaty, in order to better govern an increasingly expanding European Union. While these treaties are not insignificant, they have little effect on this study as they fail to bring Europe much close to either fiscal or political union. Focused almost entirely on monetary union, the Maastricht Treaty failed to incorporate any institutions that would address fiscal or political concerns at a supranational level. Moreover, the idea of a dramatically expanded EU budget was ignored—meaning that the EU’s central governments had little chance of gaining greater powers. The closest the EU came to meaningful fiscal and political union was the EU Constitution of 2004. This proposed constitution meant to bring all previous EU treaties together under a single document and create a European bill of rights. However, the strong, pro-European

144 Loukas Tsoukalis, The New European Economy Revisited, 167.
language of the document scared many constituencies and the constitution failed to pass several national referenda.

The point is that while participating European countries have been in an economic union, since 1986, and a monetary union, since 1993, they have yet to reach fiscal or political union. In its present form, the European Union holds few supranational competencies—outside of economic and monetary policies. It does have certain fiscal powers, but those powers are limited by the relatively small size of its budget. With a total budget around one percent of the Union’s total GDP, the EU it is by no means a fiscal power. Moreover, nearly half of its budget is dedicated to Common Agricultural Policy (CAP)—a system of agricultural subsidies meant to protect European farmers. Accordingly, the EU has a relatively small pocketbook with which to affect its fiscal authority. As will be discussed shortly, the aftermath of the 2008 euro area crisis is important to consider because it may impact whether Europe accelerates or decelerates its drive towards fiscal and political union. Figure 10 illustrates the history of European integration—to this point in time.

**Figure 10: Timeline of European Integration**

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**Openness to trade**

The signing of the Treaty of Rome signaled not only the birth of the EEC, but also the start of a period of tremendous trade and GDP growth. West Germans and Austrians referred to this time as a *wirtschaftswunder*—the German expression for “economic miracle”.145 From 1958 to 1970 Europe witnessed remarkable increases in trade flows. Was this increase in trade enough to make the EEC sufficiently open to trade? The short answer is *yes*.

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Throughout the 1960s, trade actually grew considerably faster than total output. This was largely the cause of a dramatic increase in intra-Europe trade. Trade among European countries—as a share of total trade—rose from below 35% of total European trade in 1960 to nearly 50% in 1970. By 1990, that share had surpassed 60%.\(^{146}\) It was not just trade between European states that was growing, though. Europe became increasingly open from 1960 onwards as the percentage of its GDP accounted for by imports and exports grew steadily. Table 9 details the trade share of the EU12 economies from 1960 to 1994.

Table 9: Trade Share for EEC (EU12) Economies, 1960-1994\(^{147}\)

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Belgium and Luxembourg</td>
<td>75.0</td>
<td>85.6</td>
<td>97.8</td>
<td>123.0</td>
<td>121.6</td>
<td>106.6</td>
<td>29.64%</td>
</tr>
<tr>
<td>Denmark</td>
<td>54.0</td>
<td>46.8</td>
<td>50.6</td>
<td>58.2</td>
<td>53.4</td>
<td>50.8</td>
<td>-6.30%</td>
</tr>
<tr>
<td>Germany</td>
<td>31.8</td>
<td>35.2</td>
<td>40.8</td>
<td>49.6</td>
<td>49.8</td>
<td>41.4</td>
<td>23.19%</td>
</tr>
<tr>
<td>Greece</td>
<td>25.4</td>
<td>25.4</td>
<td>35.2</td>
<td>39.0</td>
<td>41.6</td>
<td>34.0</td>
<td>25.29%</td>
</tr>
<tr>
<td>Spain</td>
<td>16.2</td>
<td>18.4</td>
<td>22.4</td>
<td>28.8</td>
<td>28.8</td>
<td>30.4</td>
<td>46.71%</td>
</tr>
<tr>
<td>France</td>
<td>22.0</td>
<td>25.0</td>
<td>33.2</td>
<td>37.8</td>
<td>37.2</td>
<td>37.4</td>
<td>41.18%</td>
</tr>
<tr>
<td>Ireland</td>
<td>67.2</td>
<td>70.6</td>
<td>91.6</td>
<td>100.2</td>
<td>104.0</td>
<td>100.6</td>
<td>33.20%</td>
</tr>
<tr>
<td>Italy</td>
<td>23.4</td>
<td>26.2</td>
<td>36.8</td>
<td>38.8</td>
<td>33.8</td>
<td>31.8</td>
<td>26.42%</td>
</tr>
<tr>
<td>Netherlands</td>
<td>75.4</td>
<td>72.8</td>
<td>81.2</td>
<td>95.6</td>
<td>98.0</td>
<td>87.8</td>
<td>14.12%</td>
</tr>
<tr>
<td>Portugal</td>
<td>39.6</td>
<td>40.6</td>
<td>44.4</td>
<td>60.2</td>
<td>65.0</td>
<td>57.0</td>
<td>30.53%</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>32.0</td>
<td>33.4</td>
<td>44.6</td>
<td>43.2</td>
<td>42.0</td>
<td>40.4</td>
<td>20.79%</td>
</tr>
</tbody>
</table>

One striking feature of this table is that every listed EEC member—this table includes only EEC members who joined prior to the 1995 enlargement of Austria, Finland, and Sweden—experiences a marked increase in the share of trade in their economy, except for Denmark.\(^{148}\) This is evident in the positive change in trade shares from 1960 to 1994—denoted by ∆ Trade. By 1994, every EEC member, save Spain and Italy, had trade shares higher than the 33.33% required to be considered open to trade. This table may not serve as definitive proof that the European Economic Community was, as a whole, open to trade, but it does show that there was a definite increase in trade between 1960 and 1994, and that in the years leading up to the introduction of the euro a majority of euro area countries were sufficiently open to trade.

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\(^{146}\) Loukas Tsoukalis, *The New European Economy Revisited*, 19.

\(^{147}\) Eurostat, 2014.

\(^{148}\) Coincidentally, Denmark and the United Kingdom are the only EU12 states not to use the euro, as they both negotiated an opt-out from the euro area.
trade. It should also be noted that it may seem statistically impossible for a country’s trade share to be greater than one hundred percent of GDP, but it is possible in extreme cases. GDP is a calculation of consumption, investment, government expenditures, and net exports—exports minus imports. As such, if imports are considerably greater than exports, then the GDP can be less than the sum of exports and imports. This abnormality is often found in small countries whose economies are heavily import focused. They rely greatly on imports and have little domestic production, so their trade share exceeds their GDP. Belgium/Luxembourg and Ireland both meet these criteria, so it is no surprise that their trade share actually exceeds one hundred percent.

Unlike the American and German cases, the case of European integration is still in progress. Since the leap from monetary union to fiscal union has yet to occur—or may not occur—the most relevant measure of whether or not Europe is open to trade is current trade data. One would expect this data to reveal an even greater trade share of GDP because of the pro-trade effects of joining into a currency union. By removing the need for traders to purchase and sell foreign currencies when trading within Europe, as well as reducing currency investment risks that impair trade between regions with different currencies, the creation of the EMU fosters the growth of intra-Europe trade and, as a result, total trade.149 The tables below present the trade shares for the EU as a whole—not including Croatia who is only a member as of July 2013—and the seventeen member countries of the euro area.

Table 10: Trade Share of EU27 (2010-2012) measured in millions of euro150

<table>
<thead>
<tr>
<th></th>
<th>2010</th>
<th>2011</th>
<th>2012</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exports</td>
<td>1,360,059</td>
<td>1,561,890</td>
<td>1,686,295</td>
</tr>
<tr>
<td>Imports</td>
<td>1,532,043</td>
<td>1,726,514</td>
<td>1,791,618</td>
</tr>
<tr>
<td>GDP</td>
<td>12,292,606.9</td>
<td>12,667,319.6</td>
<td>12,927,217.6</td>
</tr>
<tr>
<td>Trade Share</td>
<td>23.52%</td>
<td>25.96%</td>
<td>26.90%</td>
</tr>
</tbody>
</table>

150 Eurostat, 2014.
Since this paper is concerned with examining the European integration process from monetary to fiscal union, the most appropriate group of countries to analyze is only those who are part of the euro area—opposed to the whole European Union. It is of less use to examine countries who are part of the EU, but fail to employ the euro, since they are not part of Europe’s monetary union. As the data above reveals, this distinction has significant effects. In no year, from 2010-2012, did the European Union, as a whole, have a trade share greater than 33%. However, in each of those years, the euro area did have a trade share greater than the 33% threshold. Accordingly, this paper can state that the euro area, and thus the European case, is sufficiently open to trade. It is interesting that the simple difference between including all twenty-seven EU member states or just the euro area’s seventeen members in these calculations has an important effect on the result of the analysis. That said, one should not be surprised. Given the benefits of monetary union—lower transactions costs that make facilitating trade easier—it is not shocking that the Euro17 has a higher trade share than the EU27.

**Product diversification**

One of the reasons why the elimination of internal barriers to trade led to so much growth in Europe is that Europe’s different economies were just that—different. Endowed with an assortment of natural resources, labor forces, and political focuses, the key players in European integration demonstrate the necessary amount of product diversification. The European integration experiment has combined these diverse economies into a single market, allowing each state to specialize more greatly on its comparative advantage. This trend towards increasingly diverse production appears to only continue in future years. As Richard Baldwin and Charles Wyplosz argue, Denmark and Latvia are among Europe’s.

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151 Eurostat, 2014.
most dissimilar economies—meaning that they contribute the most to production diversity.\textsuperscript{152} While Denmark has an opt-out to joining the euro, it still may do so in the near future. Latvia, however, joined the euro area in January 2014. Accordingly, the euro area will become only more diverse after adding Latvia to its member list.

One of the few exceptions to Europe’s diverse production of goods, since the Second World War, has been the consistent commitment to maintaining a strong agriculture sector. As discussed earlier, CAP constitutes a significant portion of the EU budget and is a hotly contested topic amongst EU and euro area member states. Despite not occupying a significant share of exports, agriculture represents more than one fifth of the EU’s labor force.\textsuperscript{153} This has been the case throughout the European Community’s history. Accordingly, the agricultural sector has often been the recipient of government intervention—both at the national and supranational level. That said, agriculture does not appear to represent enough of a share of European production to disrupt the clear product diversity that Europe enjoys.

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Food products</td>
<td>8.2</td>
<td>8.7</td>
<td>8.5</td>
<td>7.4</td>
<td>7.5</td>
</tr>
<tr>
<td>Crude materials</td>
<td>2.4</td>
<td>1.8</td>
<td>1.9</td>
<td>2.1</td>
<td>1.9</td>
</tr>
<tr>
<td>Fuel products</td>
<td>3.0</td>
<td>4.5</td>
<td>5.0</td>
<td>2.3</td>
<td>2.6</td>
</tr>
<tr>
<td>Chemicals</td>
<td>10.6</td>
<td>10.3</td>
<td>10.8</td>
<td>12.3</td>
<td>13.3</td>
</tr>
<tr>
<td>Manufactured goods</td>
<td>23.0</td>
<td>21.8</td>
<td>19.5</td>
<td>18.1</td>
<td>16.5</td>
</tr>
<tr>
<td>Machinery and transport</td>
<td>40.4</td>
<td>37.1</td>
<td>35.8</td>
<td>38.9</td>
<td>43.2</td>
</tr>
<tr>
<td>equipment</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Miscellaneous manufactured</td>
<td>10.3</td>
<td>9.9</td>
<td>11.7</td>
<td>13.4</td>
<td>13.4</td>
</tr>
<tr>
<td>articles</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Goods not classified elsewhere</td>
<td>2.2</td>
<td>5.9</td>
<td>6.8</td>
<td>5.5</td>
<td>1.8</td>
</tr>
</tbody>
</table>

Table 12 shows the historical breakdown of the EU12’s exports, by industry, from 1970 to 1994. As one can see, no single industry—let alone an individual product—has dominated European export production. Moreover, the distribution of industries has remained relatively consistent—i.e. no industry gained or lost a significant share of exports. Product diversity surely increased, however, over this

\textsuperscript{152} R. Baldwin and C. Wyplosz, \textit{The economics of European integration}, 421.
\textsuperscript{153} Loukas Tsoukalis, \textit{The New European Economy Revisited}, 13.
\textsuperscript{154} Ibid., 228.
timeframe, as the European Community added more members. This calculation only considers EU12 countries, though. What this data also fails to account for is the increase in intra-industry trade that has become increasingly commonplace in recent decades. In alignment with new trade theory, removing trade barriers in economies with monopolistic competition leads to greater diversity within industries. This is the result of firms operating in scale economies and profiting from consumer’s enjoyment of diversity. The point to be made is that while the above data shows that Europe has been sufficiently diverse, with respect to its export production, the evidence probably underestimates the true diversity of Europe’s economies.

Figure 11, offered below, details the EU’s export product broken down by industry, as of 2010. The data offers no different conclusion than that of prior years. No single sector dominates European exports. Accordingly, one can confidently claim that the European case has sufficient production diversification, both in past and current times.

![Figure 11: Extra-EU27 Export Product Breakdown Share, 2010](image)

**Factor mobility**

In the American and German cases, factor mobility proved to be a difficult criterion to measure. Fortunately, the European case has a greater selection of data available. Let us start by looking at labor mobility. The idea of free movement of labor was first mentioned in the Treaty of Rome. Articles 48-51

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of the Treaty discusses the ability of workers to move freely across borders. A decade later, labor mobility was formally achieved in 1968. Allowing labor to move freely between countries is not as simple as signing a treaty, however. Free labor movement is as much a legal issue as it is an economic and social one. For labor to be truly mobile, there must be a transparent and functioning labor market mechanism, social services must be transferable and comparable among countries, and degrees and professional qualifications must be recognized by all economies in the union. Of equal importance, cultural differences can disincentivize workers to not pursue opportunities outside of their home country. Even if Europe had removed all legal and technical barriers to labor mobility, language and cultural barriers between diverse populations such as Germany, Britain, Spain, and Greece still exist. As has been detailed earlier, the diversity of Europe has many benefits, but a cost of such diversity is that European labor may be inherently immobile.

Table 13 presents the results of a study performed by the EU’s Directorate General of Employment regarding the impediments of to free labor movement within the EU.

<table>
<thead>
<tr>
<th></th>
<th>Marginal Effect</th>
</tr>
</thead>
<tbody>
<tr>
<td>Language</td>
<td>-0.012</td>
</tr>
<tr>
<td>Job</td>
<td>-0.009</td>
</tr>
<tr>
<td>Access to Facilities</td>
<td>0.001</td>
</tr>
<tr>
<td>Recognition of Qualification</td>
<td>-0.004</td>
</tr>
<tr>
<td>Transferability of Pension Benefits</td>
<td>-0.001</td>
</tr>
<tr>
<td>Finding Suitable Housing</td>
<td>0.001</td>
</tr>
<tr>
<td>Residence/Work Permit</td>
<td>0.003</td>
</tr>
<tr>
<td>Cultural Adaptation</td>
<td>-0.008</td>
</tr>
</tbody>
</table>

The table presents the coefficients of each variable’s effect on an individual’s decision to seek employment in another European country. As one can see, the effects are largely negative—evident in that all but one of the coefficients are negative. One should also notice that language, job availability, and cultural adaptation are clearly the most impactful variables. This evidence confirms claims that

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social concerns—e.g. language and cultural differences—are large deterrents to Europe having a more mobile labor force.

While language and cultural differences may have the greatest impact on labor immobility in Europe, it has still yet to be determined if labor is sufficiently mobile or immobile. Consider Graph 2, which describes employment protection scores, as given by the Organization for Economic Cooperation and Development (OECD). The OECD’s scores reflect the strictness of a state’s policies towards protecting individual contracts and collective dismissals. The higher the score, the more difficult it is for firms to hire and fire employees. Likewise, the lower the score, the easier it is for firms to hire and fire employees. In terms of labor mobility, a higher score correlates to lower mobility of labor because strict labor protections make it more difficult for workers to switch sectors or countries of employment.

The evidence above shows that labor protections in Europe, over the past two decades, have been consistently higher than those in the United States and, except for a few cases, have not declined. Two of the key features of Graph 2 are the high labor protections in France and the low protections in the United States.

States. Although the French scores decreases steadily from 1990 to 2013, it sill remains the highest score of the listed countries. Conversely, the American score remains consistently and significantly lower than any other listed states. The only other country to come close to the United States’ level of labor protection is the United Kingdom—another non-euro area member. The trend one starts to notice is that the euro area’s member states have high levels of labor protection—at least in comparison to their non-euro area counterparts. One can take these high levels of employment protections to mean that labor is significantly less mobile in the euro area than it is in the United States or the United Kingdom.

Relative comparisons are only so worthwhile, though. A convenient test of how the euro area treats labor mobility—in more absolute terms—is to look at how open EU15 countries are to labor migrations from both core European countries as well as newly added EU member states—like Bulgaria and Romania. Using assessments made by the Directorate General for Employment, Table 14 is compiled below. This table appraises whether or not EU15 countries were open or restricted to the entry of workers at different times and from different places.

Table 14: Members of EU15 that Continue to Impose Labor Restrictions

<table>
<thead>
<tr>
<th>Country</th>
<th>Entry of EU8 workers (May ’04 – April ’06)</th>
<th>Entry of EU8 workers (May ’06 – April ’09)</th>
<th>Entry of workers from Bulgaria and Romania (2007 – 2008)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Austria</td>
<td>Restricted</td>
<td>Restricted</td>
<td>Restricted</td>
</tr>
<tr>
<td>Belgium</td>
<td>Restricted</td>
<td>Restricted</td>
<td>Restricted</td>
</tr>
<tr>
<td>Denmark</td>
<td>Restricted</td>
<td>Restricted</td>
<td>Restricted</td>
</tr>
<tr>
<td>Finland</td>
<td>Restricted</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>France</td>
<td>Restricted</td>
<td>Restricted</td>
<td>Restricted</td>
</tr>
<tr>
<td>Germany</td>
<td>Restricted</td>
<td>Restricted</td>
<td>Restricted</td>
</tr>
<tr>
<td>Greece</td>
<td>Restricted</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Ireland</td>
<td>Open</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Italy</td>
<td>Restricted</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Luxembourg</td>
<td>Restricted</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Netherlands</td>
<td>Restricted</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Portugal</td>
<td>Restricted</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Spain</td>
<td>Restricted</td>
<td>Open</td>
<td>Restricted</td>
</tr>
<tr>
<td>Sweden</td>
<td>Open</td>
<td>Open</td>
<td>Open</td>
</tr>
<tr>
<td>United Kingdom</td>
<td>Open</td>
<td>Open</td>
<td>Restricted</td>
</tr>
</tbody>
</table>

Two important conclusions can be yielded from this table. First, from the initial period of observation—May 2004 to April 2006—to the second period—April 2006 to May 2009, seven of the twelve states previously deemed restricted, gained an open designation. Second, only two of the fifteen states examined—Sweden and Finland—were considered open to labor entry from newly added EU states. This presents a somewhat conflicting message. On one hand, the euro area appears to be opening up its labor restrictions—especially among its core countries. However, on the other hand, as of 2008, Europe remained hesitant to allow workers from newly added states to freely move into the rest of Europe. Ultimately, Table 14 offers more evidence to the notion that European labor is not entirely mobile—at least not yet. Restrictions may be opening up, but, at this point, it cannot be considered sufficiently open.

The second part of evaluating factor mobility in Europe is to consider capital mobility. Since the signing of the Single European Act in February 1986, capital movements have been liberalized across Europe.\textsuperscript{160} This claim was enforced by the Second Banking Directive of 1989, which mandated the full elimination of capital controls by allowing any EU-licensed bank to establish branches and offer financial services in other EU member states.\textsuperscript{161} The only exceptions to this rule of free movement are certain safeguards that allow government intervention to occur in case of serious political or economic crisis. This means that, from 1988 onwards, all capital movements and payment transactions have been liberalized. Borrowers can purchase capital from wherever it is cheapest—national restrictions no longer exist. Likewise, investors can lend their capital wherever the gain is the biggest. Since free capital movement implies that the lending and borrowing market is consistent all across the euro area, one would expect interest rates—the price of lending and borrowing—to converge to equilibrium across the euro area. Graph 3 depicts such as convergence.

\textsuperscript{160} Loukas Tsoukalis, \textit{The New European Economy Revisited}, 45.
\textsuperscript{161} R. Baldwin and C. Wyplosz, \textit{The economics of European integration}, 506.
Detailing euro area interest rates from 2004 to 2013, this graph shows that outside of the 2008 sovereign debt crisis, interest rates across Europe were relatively similar in 2004 and have continued to remain so. Interest rates in Europe have continued at just below five percent for much of the euro’s lifetime. The two largest exceptions to this rule—interest rates spikes in Ireland and Greece—can be explained by outside factors. In the case of Greece, an overwhelming sovereign debt led to a complete loss of confidence—from investors—in Greek government bonds. This caused the steep rise in borrowing costs. For Ireland, a country highly dependent on foreign direct investment and the United States’ economy, the burst of the American housing bubble helped bring about the failure of the private Irish banking sector. The Irish government’s rescue of its private banks led to an increase in the cost of borrowing. In the past two years—2012 and 2013—one can see that the effects of 2008 are starting to wane. Once again, the interest rates of Europe are converging. Many scholars argue that the inherent differences of the various European economies implies that they should not be forced into having similar interest rates. That is the price of capital mobility and monetary union, however. Regardless of whether

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they should or should not be united in a monetary union, it is obvious that capital movements are free in Europe. This is supported both de jure, by the Single European Act, and de facto, by looking at interest rate convergence.

Despite spending the past few pages arguing that Europe enjoys sufficient capital mobility, this claim must ultimately be ignored because Europe does not have equivalent labor mobility. Using the requirements of factor mobility put forth by Mundell, an economy must have both internal labor and capital mobility. Since Europe’s capital is mobile, but it’s labor is not, the model must regard the factors of production in Europe as immobile.

**Macroeconomic preferences**

One of the greatest struggles of European integration over the past few decades has been combining the diverse set of national macroeconomic preferences held by the various European states. This is a concern of not only economists, but also political leaders—who recognize the need for Europe to harmonize its preferences. This is not an impossible task, however. Europe in the 1950s and 1960s was certainly not a homogeneous economic or political entity. In the decades since, great progress has been made towards unifying the macroeconomic preferences of the economies of Europe. The question becomes, though—has enough progress been made? In particular, are the inflation rates and unemployment rates of euro area member states sufficiently similar? To start, let us look at the first significant effort at unifying macroeconomic preferences—the Maastricht Treaty.

The Treaty recognized the need for euro area member states to coordinate economic policies. Article 103 of the Treaty states that “Member States shall regard their economic policies as a matter of common concern and shall coordinate them within the Council [of Ministers]… The Council shall, acting by a qualified majority on a recommendation from the Commission, formulate a draft for the broad guidelines of the economic policies of the Member States and of the Community, and shall report its findings.”163 The aim was to have the Commission monitor the behavior of member states—ensuring that

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they act responsibly and in the best interests of the EU. The findings of the Commission would then be shared with investors and the public. This sort of transparency offered no method of punishment to incentivize states not to cheat on the rest of the Union. The Maastricht Treaty provided this motivation in Article 104.

In Article 104 the Treaty states “The Community shall not be liable for or assume the commitments of [other member states]... A Member State shall not be liable for or assume the commitments of [other member states].”164 This clause specifically prohibits both the EU, as a whole, and individual member states to bail out other members, in times of trouble. Why would the EU institute such a measure? One purpose was to communicate to financial markets that creditors have to assess the risk of lending to a state. They cannot count on troubled states having their debt rescued by strong states. Another reason was to enforce the message to member states that they must act responsibly because they would not be bailed out otherwise. In the early 1990s, the biggest fear was that Italy would have serious debt issues. Hence, there was a strong no-bailout message in the EU’s founding treaty. The worry was that if not all members of the EU acted responsibly and in coordination with one another, then a single troubled state could destabilize the entire union.

The euro area needed, though, not only responsible members, but also members who had similar economies. Prior to the signing of the Maastricht Treaty, macroeconomic conditions varied greatly across Europe. Recognizing the danger of incorporating these disparate economic units into a single monetary union, Germany insisted that admission to the EMU not be solely a political decision. German leaders demanded a set of criteria for admission that engendered a culture of stability. Article 104c presents one such criterion, stating that “Member States shall avoid excessive government debts.”165 In practice, this meant that member states could not have a deficit greater than three percent of GDP or a national debt greater than sixty percent of GDP. Failure to comply with these requirements would result in the Commission publishing of additional financial information, a reconsideration of the ECB’s lending policy.

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164 European Union, Treaty on European Union.
165 Ibid.
towards that state, forced austerity measures, and fines.\textsuperscript{166} Many economists will argue that adopting a single currency, in itself, is the best way of achieving macroeconomic convergence. However, Germany remained staunch in its assertion that the members of the euro area must achieve similar economic goals, before joining into a monetary union.\textsuperscript{167} This brief history of the creation of the EMU shows us that European leaders were certainly aware and concerned with the need of homogeneity among their economies. They knew that too much heterogeneity would lead to the downfall of their integration effort. Have they been able to achieve the necessary amount of homogeneity? Let us look at the evidence.

Before examining the measures most germane to this investigation—i.e. inflation and unemployment rates—let us take a wide look at macroeconomic convergence in Europe. One of the broadest macroeconomic measures one can employ is GDP growth. Presented below, Graph 4 details the GDP growth rates of four euro area member states—as well as a composite of the EU15—from 2002 to 2015. The picture this graph illustrates is not one of strong macroeconomic convergence. The four economies in question appear to follow a similar cyclical pattern, but their absolute levels vary greatly.

Graph 4: GDP Growth Rates of EU15, 2002-2015\textsuperscript{168}

\textsuperscript{166} European Union, \textit{Treaty on European Union}.
\textsuperscript{168} OECD, "Economic Outlook-OECD Annual Projections".
Take for instance the extreme example of the difference in growth rates between Germany and Greece. In 2002, the Greek GDP grew at a quarterly rate between just below four percent and nearly six percent. Conversely, in Germany, quarterly GDP growth rates hovered right around zero percent—experiencing both slightly positive and slightly negative growth. In a mere eight years, by 2010, the situation had flipped. German growth rates approached four percent whereas Greece’s GDP was contracting at a rate of nearly eight percent annually. While this is definitely a severe example, the point it makes still stands. Since the full implementation of the euro in 2002, growth rates of the countries that use the euro have differed widely. This proves problematic since a single monetary policy cannot successfully account for economies that are overheating as well as those that are cooling off. Too high of GDP growth can be just as damaging as negative GDP growth. Periods of massive growth can cause inflationary pressures that can prove disastrous. A successful currency union must find a balance between risky high growth and recession-inducing low growth.

To more precisely examine this divergence in economic preferences, consider the average inflation rate of euro area members since the 1960s. Using raw data collected by the European Commission, which includes all euro area member states as of 2008, Table 15 calculates the average inflation rate of the euro area inflation rates from the 1960s through the 2000s.

**Table 15: Inflation Performance in the Euro Area**

<table>
<thead>
<tr>
<th>Years</th>
<th>Average inflation</th>
<th>Standard deviation of inflation</th>
<th>Maximum inflation</th>
</tr>
</thead>
<tbody>
<tr>
<td>1960s</td>
<td>3.7%</td>
<td>0.9</td>
<td>5.1% (1963)</td>
</tr>
<tr>
<td>1970s</td>
<td>9.3%</td>
<td>2.8</td>
<td>13.6% (1974)</td>
</tr>
<tr>
<td>1980s</td>
<td>7.5%</td>
<td>3.8</td>
<td>12.8% (1981)</td>
</tr>
<tr>
<td>1990s</td>
<td>2.8%</td>
<td>1.2</td>
<td>5.0% (1990)</td>
</tr>
<tr>
<td>2000s</td>
<td>2.0%</td>
<td>0.3</td>
<td>2.4% (2001)</td>
</tr>
</tbody>
</table>

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169 European Commission, "EMU@10: Successes and challenges after ten years of Economic and Monetary Union," (2008).
As one can tell, in the first decades of European economic integration, inflation rates actually became increasingly varied. From the 1990s onwards, though, the deviation of inflation rates among euro area members has substantially decreased.

Graph 6 offers more evidence to this discussion. Using recent data provided by the Commission, the differences in inflation rates among four euro area countries are illustrated. With the exception of Greece—the Greek economy is just presented as a source of contrast—many of the major states of the euro area have enjoyed relatively similar inflation rates since the introduction of the euro in 2002.

Graph 5: Harmonized Inflation Rates of EU15, 2002-2015

One can see in Graph 5 that, prior to crisis in 2008, inflation rates among the four listed countries, as well as the EU15, had converged to a point somewhere between three and four percent. This suggests that the euro area does have a significant degree of macroeconomic homogeneity. Excluding the years immediately after the crisis, the inflation rates of the euro area members have consistently and significantly converged since the introduction of plans for monetary union in the early 1990s. That said, inflation rate convergence might have returned a false positive of true macroeconomic convergence. It may be that sufficient similarity and coordination of Europe’s economies led to such convergence. Or, it may be that such convergence occurred in spite of still existing differences. As many German leaders

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170 OECD, “Economic Outlook-OECD Annual Projections”.
warned in the early 1990s, the adoption of a single currency can lead to artificial convergence, but not the sort of structural and lasting convergence needed to ensure a stable monetary union.\textsuperscript{171}

The best way of deciding whether the inflation rate convergence of the euro area is a true signal of macroeconomic homogeneity is to turn to the second macroeconomic variable under consideration—unemployment rates. Since many European leaders have believed, and may still believe, in the connection between unemployment rates and inflation rates, a way of measuring whether or not Europe is converging to a point of macroeconomic homogeneity is to examine if similar trends occurred for both inflation and unemployment rates. Graph 8 offers important evidence for this examination. Similar to the approach taken with inflation rates, the population standard deviations of unemployment rates in the EU12 from 1960 to 1995 are calculated.

Graph 6: Population Standard Deviation of the Unemployment Rates of the EU12, 1960-1995\textsuperscript{172}

Unlike the analysis of inflation rates—in which deviation increased from the 1960s to the 1980s, but then began to decrease sharply—the difference in unemployment rates steadily increased from 1960 through 1995. This suggests that the preferences of Europe’s economies are really not all that aligned. If they were, then one would expect to see a similar pattern of deviation among inflation and unemployment. However, that is not the case. Consequently, one arrives at the conclusion that Europe does not have

\textsuperscript{171} Tom Redburn and Richard E. Smith, "Political Accord 'Before Monetary': Germany Cautious on Union".

\textsuperscript{172} Eurostat, 2014.
sufficient homogeneity of macroeconomic preferences. The evidence of increasing variation in unemployment rates—even as the integration process has deepened—supports this assertion.

**Conclusion**

As Figure 12 displays in red, the combination of heterogeneous preferences, factor immobility, production diversity, and an open economy yields the prediction that the European case should have had a relatively small gap between monetary and fiscal union. In particular, this model forecasts the fourth smallest gap—meaning the fourth quickest integration process.

**Figure 12: Dichotomous Key Results for the European Case**

<table>
<thead>
<tr>
<th>Heterogeneous preferences and factor immobility</th>
<th>Homogeneous preferences and factor mobility</th>
</tr>
</thead>
<tbody>
<tr>
<td>No production diversity</td>
<td>Production diversity</td>
</tr>
<tr>
<td>Closed</td>
<td>Open</td>
</tr>
<tr>
<td>Closed</td>
<td>2nd Smallest</td>
</tr>
<tr>
<td>3rd Smallest</td>
<td>4th Smallest</td>
</tr>
<tr>
<td>4th Largest</td>
<td>Largest</td>
</tr>
</tbody>
</table>

The prediction of a quick integration process has proved to be somewhat true in the European case. After the completion of the internal market in 1986 there was quick movement to the creation of monetary union in 1993. Moreover, in the decade that followed efforts were made to push towards fiscal and political union. Those attempts failed to result in monumental change, however, and with the effects of euro area crisis still rippling throughout Europe, the European integration effort has reached a critical juncture. This is, in part, why this evaluation of the European integration effort is so important. The next few years may determine the course of European integration for the foreseeable future, so better understanding these processes will assist European policymakers. As the model presented herein argues,
the euro area has decent incentive to continue integrating. Whether or not the process moves forwards or retreats backwards, though, will depend largely on the political willingness of European governments.

The European case separates itself from the American and German cases in that European integration has been consciously vocalized as an experiment in economic and monetary integration. The notion of a fiscally and politically united Europe has been raised, but largely ignored in favor of economic and monetary union. This differs from the American and German cases, where experiments in political coordination oftentimes preceded economic and monetary unions—remember early colonial American plans at political organization and the early nineteenth century German confederations. Granted, Europe’s economic designs have often been motivated by political motivations, but Europe’s people and politicians have promptly rejected several efforts that smelled too strongly of political union and the corresponding loss of national sovereignty. These include the failure of the EDF and the European Defense Community (EDC) in 1954 as well as the more recent failed ratification of the European Constitution in 2005. In short, Europeans have hesitated to approve any arrangement that creates political federation in Europe. This is an issue that Europe must face moving forward. As Miroslav Jovanovic has asserted, the political motivation for the creation of deeper economic ties in Europe, for the past half-century, was the perseverance of peace and democracy on the continent. Those objectives have long been achieved and protected, though, so their importance has begun to be taken for granted.\textsuperscript{173} Especially in Germany, where the new generation of leaders lacks the experience and guilt of the Second World War, the memory of the 1940s is fading and a new political currency must emerge to pay the costs of integration. This means that the European integration process is subject to change and unless the current group of euro area states can find a sufficient motivation to move the process forwards, the enthusiasm to continue integration may fade away.

That Europe is an ongoing integration process presents a different dynamic than the previous two historical studies because the shape and size of the euro area may change. This could affect how the

\textsuperscript{173} Miroslav Jovanovic, "Was European Integration Nice while It Lasted?," \textit{Journal of Economic Integration} (Center for Economic Integration, Sejong University) 28, no. 1 (March 2013): 17.
model treats the European case and either speed up or slow down the integration process. For instance, imagine a scenario in which the euro area is broken down into a northern and southern euro area. Per the model proposed here, such a division would act as a disincentive towards creating fiscal and political union in Europe. A northern EMU—comprised of Germany, the Netherlands, among others—would meet the OCA criteria much more coherently than the whole of Europe currently does. As such, there would be less a need for strong fiscal or political union to keep their economic and monetary union held together. Northern Europe would be free to pursue their preferred policies of free trade, low inflation, low public debt, and relatively higher unemployment and interest rates. A Southern EMU—consisting of France, Italy, Spain, Portugal, among others—could choose to pursue opposite polices of greater government involvement—meaning more restricted trade, higher inflation, higher public debt, and relatively lower unemployment and interest rates. Sharing these preferences and policies, Southern Europe would have less need for a fiscal or political entity to coordinate their economic and monetary union. Granted, this hypothetical scenario is wildly simplified and eliminates several of the greater goals of having a single European currency—namely lower transaction costs across all of Europe and the pursuit of a unified Europe as a means of reducing future security concerns. It would, though, solve many of the issues Europe currently faces regarding its integration effort. Achieving economic and monetary union across all of Europe requires some sort of fiscal and political coordination because the OCA characteristics of the euro area—as presently constructed—are not ideally suited for a sustainable economic and monetary union.

A point that should be taken away from this evaluation is that the European integration efforts is by no means finished nor is it destined for a certain fate. The process cannot proceed as it has in recent decades—i.e. gradual widening and deepening—without considerable structural reform. At some point, Europe will have to decide from a variety of options. These include: 1) some form of fiscal and political union that confers a supranational body the powers necessary to make the unnatural union that is the euro area a sustainable economic and monetary union, 2) a breakdown of the euro area and a return to national currencies, and 3) the division of the euro area into two or more regional currency blocs. These are the
sorts of structural changes that will have to be taken in order to create a more stable economic Europe. As mentioned earlier, though, it is not easy to predict where Europe is headed from this point. The crown jewel of European integration—the Single Market—is threatened by recent resurgences of economic nationalism. France, Britain, and Spain have heard calls recently from prominent politicians to withdraw from the larger European economy by promoting measures that limit the mobility of labor and capital across borders as well as promote the purchase of national goods.\textsuperscript{174} The next few years will tell if Europe has the energy to continue its integration or if it will revert course. For years increased integration and the corresponding loss of national sovereignty were amenable to Europeans because of the economic prosperity that followed. Now, in a time of global recession, the costs of integration cannot be offset by the promise of economic growth. Consequently, Europe’s states are reconsidering their positions on integration and evaluating whether or not giving up their sovereignty in certain realms is really in their best interests.\textsuperscript{175}

\textbf{Part V: Conclusions}

Remember that the purpose of this paper is to test the validity of the proposed relationships between OCA theory, the Balassa stages of integration, and federal integrations. It does this by proposing a model predicting the speed of federal integration processes based on a case’s fulfillment of select OCA criteria. As has been stressed throughout, a holistic evaluation of such correlations is necessary, since economic criteria alone cannot explain the entirety of existing linkages. That said, it may not be possible to have a model that encompasses all three of these theoretical realms. Accordingly, the following remarks will assess the applicability of the presented model.

To start, let us compare the three cases next to each other. Figure 13 details the results this model returns for all three of the examined cases. Presented side by side, it is striking that all three cases are predicted to have similar integration speeds. Of the eight possible results in this model, these three cases were predicted to have the third, fourth, and fifth quickest integration processes.

\textsuperscript{174} Miroslav Jovanovic, "Was European Integration Nice while It Lasted?," 19.
\textsuperscript{175} Ibid., 30.
Figure 13: Dichotomous Key Results for All Cases

Is it not only revealing that these cases are comparable to each other, but also that they fall in middle of the speed spectrum. Granted, due to the small number of cases—three—and the limited number of possible solutions—eight—there is a high likelihood that the predictions would be somewhat similar. That they are so close to each other, though, is still remarkable. This suggests that the model is prone to returning results that gravitate towards the middle of all possible results. This may be because a case is unlikely to find itself at either extreme of the model. A case is poorly matched for any sort of union if the economies in question are too dissimilar—especially in the modern times when the forceful merger of incongruent states via military force is less prevalent. Similarly, a case is ill suited for fiscal and political integration if its too well situated—per the OCA criteria—for economic and monetary union. Additionally, the likelihood that a group of states will be that similar and not already have shared fiscal and political competencies is slim. The point is that for cases suited to the model there will be a tendency to gravitate towards the middle of the band of possible solutions.

It is necessary not only to look at the predictions of these cases side-by-side, but to also consider differences between predicted integration speed and the actual length of the integration process. As has been discussed, there are divergences between the predicted integration speeds—especially in the American case—and the actual length of the processes. This leads one to questions the impact of factors
not considered by the model. The facts of these three cases suggest two possible sources of these discrepancies: 1) differences between historical and contemporary cases and 2) effects of non-economic forces.

Before unpacking these two suggestions in greater detail, let us consider a major implication of these ideas. That is, they question the validity of the Balassa stages of integration. A key assumption of this model is that the Balassa stages of integration always hold their order and that there is a critical gap between monetary union and fiscal union that can be used to measure the speed of an integration process. Does this supposition always hold, though? And, what happens if this assumption is relaxed? With this in mind, reassess the American case. It has been argued that the American integration was a one-stop process in which economic, monetary, fiscal, and political union were achieved simultaneously. It can also be maintained, though, that economic and monetary union were the result of fiscal and political pressures to integrate. So, was it economic and monetary union that necessitated the need for fiscal and political union—or vice versa? This is a difficult distinction to make. The same issue arises in the German case. Undoubtedly, the first step in the German integration process was the creation of the Zollverein customs union. From there, though, it is tough to ascertain whether efforts at political organization motivated monetary and fiscal consolidation or if was the other way around. Difficult questions like these suggest that there is an important distinction to be made between historical cases and contemporary ones. That is, the stages Balassa surmised may not always keep. It may be that in isolation the Balassa stages hold, but under the stress of non-economic forces or due to differences between historical and contemporary integrations the stages cannot always be considered fixed. This condition limits the effectiveness of this model, but only in that one must account for outside forces.

Now, let us turn our attention to the distinction between historical and contemporary integrations. The model returns relative results as a means of accounting for differences in communications and other technologies over time, but this does not seem sufficient to account for larger discrepancies between historical, contemporary, and possibly future integration efforts. It is important to remember that the Balassa stages of integration and OCA theory are both the creation of mid-twentieth century thinking.
Such notions were not on the minds of American or German economic and political actors during their integration processes. As such it is risky to blindly apply these theories to historical cases. Does this mean the model proposed herein is worthless? No—just that its applicability to historical cases is limited. This is because integrations prior to the twentieth century were not as conscious as the ongoing European process. In Europe, integration was conjured as an economic solution to many of the political and security concerns that frightened Europe in the middle of the twentieth century. Remember that integration was not the only solution to such concerns. But, it was the chosen option. As such, European integration has been a very planned and conscious process. This allows Europe the luxury of following the theoretical path of integration outlined by Balassa. As the German and American cases illustrate, though, what is prescribed in theory does not always play out in practice. The Balassa stages may be the best path for a group of states to follow, but it is not the only path.

To illustrate, consider changing views of national sovereignty since the end of the Second World War. Post-1945, states have more reluctant to relinquish economic, monetary, fiscal, and political sovereignty. As such, one cannot treat cases that occur before and after this war the same. The proposed model fails to acknowledge properly that the value states place on sovereignty affects how they make integration decisions. In other words, it is likely that the stages that integration processes go through after 1945 differ greatly from the processes of prior centuries. While these stages may apply neatly to the European integration process, it is foolish to force these distinctions onto the American and German cases. It should also be noted that the relative importance placed on certain criteria—i.e. macroeconomic preferences and factor mobility—versus those classified as weaker criteria—i.e. openness to trade and production diversity—is a distinction that does not always hold historically. For instance, capital mobility and unemployment figures were less considered and less available the further back in time one goes. This makes the discussions of factor mobility and macroeconomic preferences more abbreviated in
the American and German cases than in the European narrative. This insinuates that the weight placed on a given OCA criteria should be calibrated to the historical circumstances of the case. It may also mean that more rigorous data collection is needed in historical case studies. Perhaps, in future efforts these factors can be properly implemented and a more appropriate model offered. This paper, however, has avoided such endeavors because it aimed to only find a correlation between the four specified OCA criteria and the speed of federal integrations—not to answer these sorts of methodological difficulties.

Another difference between historical and contemporary integration processes is the sort of currency their monetary unions employ. Just as one must consider differences in how states have viewed their sovereignty over time, it is also important to mull over the effect of changing currencies. The ongoing European integration process uses a fiat paper currency—the euro. Fiat paper monies are a relatively new phenomenon, though. As such, it is necessary to consider the impact the use of commodity currencies in the past or digital monies in the future may have on the creation and stability of federal integrations. Such an exercise can be done by thinking about the recent popularity of the digital money bitcoin. Possessing a bitcoin gives its owner neither the right to a physical object or a recognized currency—simply a computer file. The value lies in the use of that digital property as a unit of exchange. They derive their value from the belief that other users will accept them. This trait makes bitcoins fiduciary currencies with no intrinsic worth. In that sense, Bitcoins—or any other sort of digital money—are more like fiat paper currencies—e.g. the USD and euro. That is, they have no intrinsic worth, but are given value by an outside source. The time, hardware, and energies needed to generate bitcoins are significant and present a certain cost to creating of these digital coins. This is part of the genius of bitcoin. Without the backing of a government, bitcoins need another source of their worth. As has been stated, they are valuable because of their usefulness as an agent of exchange, but their value also originates from the resources expended to obtain them. The difference with bitcoins is that once mined,

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176 If the data were available, a lengthier discussion of factor mobility and macroeconomic preferences would be conducted for each case—relative to openness to trade and production diversity. That was only possible, though, for the European case.

they hold no intrinsic value. In this manner, a digital money is not at all like a commodity currency. But, it is not completely similar to a fiat paper money either as it is not backed by any state. Instead, bitcoins occupy an interesting space that is somewhere between commodity and fiat currency.

Given this distinction, how does one treat bitcoins and future digital currencies? As voiced earlier, one aught not treat historical and contemporary cases the same. Given that logic, digital money cannot be treated like paper currencies. It may seem improbable at this point in time, but in a few decades fiat paper monies may be largely extinct and historical and digital currencies may dominate worldwide currency systems. This is not meant to be an advertisement for bitcoin or any digital money, but rather a recognition that currencies evolve, change shape, and at some point become extinct. This means that the role of the state as a participant in the governance of currencies will and has changed over time. Bitcoins are not under the jurisdiction of a state, though. Since they do not fulfill many of the properties of a traditional currency they cannot be controlled by the state or protected by a state against digital counterfeiters. This leaves bitcoins’ future and the role of governments in that future very much in question at this point in time.178

Former chairman of the Federal Reserve, Alan Greenspan, has recently voiced concern over the emergence of digital money stating, “It’s a bubble. It has no intrinsic value. You have to really stretch your imagination to infer what the intrinsic value of Bitcoin is. I haven’t been able to do it. Maybe somebody else can.”179 That said, the traditional intrinsic value that Greenspan sees as a requirement for viable currencies may not be necessary. This is not to say that a sustainable money can be intrinsically worthless—either by lack of physical value or government backing—just that it is a possibility that should be considered. If modern money does not operate like historical money, one cannot assume that future money will operate like modern money. Take for instance a 1999 interview with Milton Friedman in which he predicted the emergence of digital currency: “I think that the Internet is going to be one of

the major forces for reducing the role of government. The one thing that's missing, but that will soon be developed, is a reliable e-cash, a method whereby on the Internet you can transfer funds from A to B without A knowing B or B knowing A. From Friedman’s perspective, a great benefit of digital money is that it eliminates the state’s control over the money supply. This is a role states have held for thousands of years and losing such power would signify a dramatic shift in how currencies and their users interact.

The point of this discussion is to emphasize the dynamism of money and the danger of applying modern judgments of money backwards in time. This is important to remember when analyzing the process of forming monetary unions. What would an integration process look like if the state had no control over its currency? Would the process stop at economic union or would it simply skip over monetary union? These are important questions to ask. Like how each integration process is different, the type of currency each monetary union employs is different. One must be cognizant of these differences especially when comparing monetary unions that utilize different forms of money—i.e. commodity, fiat, etc. Future papers may want to examine this distinction more closely and contemplate the implications of these findings on the model proposed herein.

When discussing the characteristics of historical and contemporary integrations, it is also relevant to talk about how the age of an integration affects the ability of economic and political actors to impact the process. In theory, if policymakers hold the political power necessary to affect changes in the factor mobility, macroeconomic preferences, trade openness, and production diversity conditions of a state, then they also wield the ability to affect the speed of an integration movement. Consider the example of the European case. Imagine that German politicians are interested in crafting a European fiscal and political union to build on the already-created euro area. From its current position, certain shifts in how the euro area fulfills the four OCA criteria could pick up the pace of the European integration process. The most obvious choice German leaders could make—to speed up the effort—is to reduce production diversity across Europe. While this is no easy task—as it is difficult to make quick structural economic changes—

Germany could use its political clout to institute economic programs that only incentivize a small number of industries. This may be difficult, though, not only because it is hard to physically shift a state’s industries, but also because without the powers of a fiscal and political union, Germany would struggle to incentivize such changes. Moreover, as has been discussed, reducing product diversity in an economic unit is a risky behavior. Lack of diversity exposes that economy to asymmetric shocks that can bring with them damaging economic booms and busts. The difficulty and risk associated with instituting these sorts of policy changes brings about a major caveat to the usefulness of this model. That is, it is actually quite challenging and risky to change how a group of states meets the four OCA criteria this model examines. Especially without already having fiscal and political powers, it is difficult to manipulate a group of states’ integration process. So, the greatest benefit of this model—in this sense—is to spread awareness of these effects and allow that knowledge to inform better decision making regarding the choice to introduce new members to an integration effort.

Returning to our previous example, assuming that Germany wants to reach a sort of European political union it will not want to introduce new members that increase the production diversity or openness to trade of Europe—as these economic conditions lessen the motivation for Europe to unite politically. This advice may be not pertinent to the European case because the EU already has twenty-eight member states and the euro area has eighteen members. Such unions may be too large for the introduction of new members to affect changes on the how the union as a whole fulfills OCA criteria. This is especially true since most of Europe’s largest economies are already participating in European integration. The periphery countries that have joined the EU and the euro area in recent areas undergo significant changes in their individual economies, but because of their relatively small size they have little impact on the whole of Europe. Germany could have considered these factors when the European integration process was younger and been able to inflict a greater effect. For example, Germany could have fought against the inclusion of Greece—an economy very diverse from Germany’s. This suggests that the greatest opportunity for the four OCA criteria considered herein to impact integration efforts is in the early years of the process, when there are fewer members. At that point, the addition of each
economy has a greater impact on the economic conditions of the body as a whole—meaning that a clever state can more easily manipulate the speed of that integration process. Also, the relative power of each member state is greater the smaller the size of the union—i.e. there are less votes to split—so a state has more power to inflict such changes.

As we have seen, the point in time at which an integration occurs affects how one should evaluate it. This includes both its position as either a historical or contemporary case as well as the age of the process when one wishes to start acting on it. Non-economic shocks are equally crucial determinants of integration speed and direction, though. The fulfillment of OCA criteria will situate a case towards a certain integration speed and order, but the presence of non-economic shocks will disrupt the speed and/or order of the process. In other words, economic conditions situate a group of states for integration, but a spark of more immediate concern is often required to move states towards or away from greater union. This is because while economic considerations aggregated across the entire population may more greatly affect the utility of the populace they are harder to identify and promulgate publicly than political or security crises. Such forces were at play in both the American and German cases. One can also point to the Second World War as a motivating factor behind many of Europe’s early integration efforts. Today that memory fails to carries as much value in Europe as political currency. So, for the European case to further its integration may require an additional thrust. Is the financial crisis of 2008 that spark in Europe? The next few years will provide the answer to that question. Either the carnage of the worst global recession since the 1930s will motivate real structural reforms across Europe or as the economy recovers to pre-2008 levels the motivation to initiate such reforms will dissipate and Europe will look hardly different than it did five years ago. Regardless of what happens in Europe over the next few years, this is an important point for policymakers involved in any integration effort to remember. While not expressed directly in the model, the three test cases teach us that fulfillment of OCA criteria can situate a group of states to be open for integration, but oftentimes the impulse that bridges the gap between economic/monetary and fiscal/political union is not related to OCA theory. Oftentimes, the push is a non-economic factor.
One such aspect of the relationship between the speed of integration efforts and OCA theory is that they are not static processes. Rather, they are dynamic and have a certain momentum to them. Sometimes, this means that a process needs a long incubation period to warm a populace to the idea of integration and then a spark to ignite the realization of integration. For instance, consider the various waves of the European integration process. In the 1940s and 1950s, there was plenty of excitement over the promise of economic integration as both a deterrent against future military conflicts and as a driver of economic growth. This enthusiasm was furthered by the easy realization of integration benefits when the number of members was small as well as the economic boom that occurred as Europe rebuilt itself in the 1950s. That eagerness died down in the late 1960s and 1970s following the empty chair crisis and the withdrawal of France from the integration effort. Economic crises and worries over giving up national competencies caused Europe’s leaders to question the idea of greater integration. Those concerns eventually subsided in the mid-1980s, though, as the Single European Act created a common market and plans for monetary union were outlined in the early 1990s. The script has flipped again in recent years—leaving the integration process at a critical moment. One faction opposes greater unity and suggests a return to intergovernmentalism—where less power is wielded at the European level. Others cry that the solution to the recent economic troubles is greater European unity across all levels. Regardless of which side has the correct response, there exists uncertainty over where Europe is headed.

Another non-economic effect on the speed of integration processes is the war of attrition concept that Alberto Alesina and Allan Drazen introduced in their 1991 paper “Why are stabilizations delayed?” Alesina and Drazen wondered why countries do not initiate needed economic adjustments and stabilize their faltering economies when it is obvious that such corrections are necessary. They argued that the answer to this puzzle was a war of attrition between political parties. This struggle starts as neither wishes to take action, which delays stabilization efforts and creates a political stalemate.\footnote{Alberto Alesina and Allan Drazen, “Why are stabilizations delayed?,” \textit{American Economic Review} 81, no. 5 (1991): 1171.} Simply put, no political entity wants to bear the costs of structural economic adjustment, so an impasse persist until
one party agrees to take on those costs. A later paper by Alesina, Silvia Ardagna, and Francesco Trebbi relates this notion more closely to the thoughts of this study. They assert that the war of attrition model supports the crisis hypothesis—the idea that drastic stabilization measures are more easily enforced in times of crisis than under normal economic conditions.\(^{182}\) This point has several implications for federal integration processes. First, an integration process requires—at some point—the creation of a fiscal transfer union. Assuming that the economies of this union are not all equal, some members will be pay more into the system than they receive and others will receive more than they pay. The difficulty is in securing states’ commitments to put more into the system than they will receive. Second, wars of attrition promote lengthy integration processes—or at least longer than would be the case if political factors were not considered. Parties will wait to agree to stabilization adjustments until the marginal benefit of waiting and someone else possibly picking up the tab is no longer greater than the marginal cost of delaying needed reforms. This is costly because suspending necessary restructuring is Pareto inferior to the society as a whole, but is oftentimes the chosen course of action because each player in the process acts in their own self-interest.\(^{183}\) Third, a good effect of a crisis—be it political, economic, et c.—is that it can be used to motivate states out of a Pareto inferior situation in which they continue to delay needed reforms. The effects of a crisis are inherently negative, but they can be used constructively to implement lasting reform. In this sense, the war of attrition idea is relevant because it stresses the importance of leadership, crisis, and other outside factors affecting integration processes.

Resolute fiscal and political leadership is an important element of any integration process—the European case is no exception. McKinnon stresses in a 2011 article the need for European-minded leadership, as an answer to the troubles facing the continent. McKinnon argues that Europe needs to learn from American history and finds its own Alexander Hamilton. By that he means that Europe lacks a “soldier-statesman” like Hamilton—one with the expertise and European-mindedness to force through


\(^{183}\) Ibid., 4.
necessary supranational adjustments.\textsuperscript{184} What McKinnon is prescribing is the sort of political spark alluded to earlier. Europe may have achieved as much integration as possible based solely on economic incentives. To proceed further may require additional motivation. McKinnon sees the emergence of a truly European leader as that sort of impetus. The issue with such a prescription is that meaningful leadership oftentimes only emerges in the presence of significant crisis. Once again, does the 2008-to-present crisis qualify as a grave enough threat? That is a question that has yet to be answered. Moreover, is there room in Europe for such a leader? Angela Merkel is oftentimes described as the face of European integration as she presides over the greatest proponent of European integration—Germany. McKinnon suggests, though, that Merkel is not an ideal candidate for the sort of leadership. This is because Merkel’s primary constituency is the German people—not Europe. Regardless of how pro-Europe she may seem, Merkel is ultimately beholden to the Germany first and Europe second. As such, she will never be able to offer the sort of European leadership that McKinnon envisions. Europe is in a tough spot, in this regard, because it is difficult to have a true European leader without first creating a leadership position with sufficient powers. The point is that, without its own Hamilton, Europe will struggle to make the jump from economic and monetary union to fiscal and political union. Paul Krugman shares these sentiments—recently asserting that Europe’s current troubles stem largely from the lack of a response from Europe’s leadership. He cites the lack of strong political institutions—such as a European “leader”—and cooperative political leadership as restraints to finding structural solutions to Europe’s problems.\textsuperscript{185}

Leadership may be the ingredient Europe is missing if it seeks to reach more complete union. One can argue that the American and German cases were able to reach fiscal and political union because they had dominant voices to press their integration processes forward. This was especially true in the German case. As has been mentioned, Prussia was the most powerful German state and a driving force in German integration. Without Prussian political ambitions the Zollverein may have remained a mere

\textsuperscript{184} Ronald McKinnon, "Oh, for an Alexander Hamilton to save Europe!," \textit{Financial Times}, December 18, 2011.
economic union and never transformed into the basis of a unified political empire. Conversely, had Prussian nationalism peaked in the early half of the nineteenth century, then maybe German unification would have occurred much earlier than 1871. The point is that there exists a relationship between German economic capacity and political power. One can argue that the creation of the Zollverein helped transform the German states from a group of disparate agriculture-dominated principalities to a economically unified industrial power. This transformation allowed Germany—led by Prussia—to compete with other industrializing powers, such as France, Austria, and Russia. It is hard to imagine an agricultural-dominated Germany—as it was in the beginning of the nineteenth century—being the military power it was at the end of the nineteenth century. It is key, though, not to overemphasize the importance of dominant states because their power is, in part, based off of the economies that surround them. In other words, Prussia’s ability to inflict its economic might is in many ways correlated to the congruence of the various German economies. It is difficult to ascertain the direction of this causal relationship. Did the power of Prussia bring the German economies to act more like one another or was it the similarities of those economies that allowed Prussia to affect such influence? This is the domain of other studies that more closely examine the political factors at play in integration processes, but it is at least crucial to mark that this sort of relationship exists.

One more non-economic effect on federal integration speed is federation type. As detailed earlier, federations can be classified as either coordinated or competitive. Coordinated federalism implies that the states are not entirely suited to function as a joined economy body without some sort of higher supranational coordination. This means that the need for a strong fiscal and political union is greater in coordinated federal systems. The reverse is true of competitive federal systems. In these structures, the states function more autonomously of each other, so the need of a supranational body to coordinate macroeconomic policy is less. Consequently, coordinated federal structures should, experience quicker integration processes because once they achieve monetary and economic union the need for a strong federal or supranational government to govern over those unions is greater. Likewise, competitive federal states will not be as quick to progress to fiscal and political union—ceteris paribus—because the states are
better suited to function without coordination and will have less incentive to integrate fiscally and politically.

Let us evaluate each case with respective to the sort of federal governance they utilize and see if the predicted effects come true. First, the American case exemplifies staunchly competitive federalism. Up until the early twentieth century, the American states functioned largely autonomously—i.e. with little federal interference. For the timeframe considered, the American case refutes the notion that competitive federal systems breed long integration processes. As has been discussed, though, the external and internal threats the young American government faced were dire. So meaningful fiscal and political union may have been the only option available. Said otherwise, the American states did not have the time to ease their way into a federal structure—as the theory would suppose. In that sense, maybe the American case is an outlier and is not entirely applicable to testing this idea. Second, look at the German case, which also had competitive federalism. Like the American case, though, it may not be completely relevant because of the dominant role played by Prussia. It is difficult to have competitive federalism if a single state holds the majority of the power. In that instance, there is no real competition. That said, the German case follows the theory because its competitive nature predicts a longer integration gap and that is what occurs in Germany. Third, let us look at the European case. Unlike the other two examples, Europe employs coordinated federalism. Europe supports the aforementioned predictions because in line with Europe’s creation of a pre-federal structure—i.e. an organization with economic and monetary responsibilities, but not fiscal or political ones—that is coordinated, it specifies a relatively short integration process. This is because the same forces that require coordinated federalism make having economic and monetary union without fiscal and political union unsustainable. Problems arise, however, because the same differences that make fiscal and political union necessary—i.e. a need for supranational coordination—can make achieving those unions difficult. One runs into a causal issue in this case as well. It is tricky to differentiate between whether the existence of coordinated political institutions leads to a quicker integration process or if it is the need for a quick integration process that incentivizes those
structures to be implemented in the first place. The future consideration of other conscious federal integration, such as in Canada and Switzerland, may better support or refute these claims.

While this discussion of integration speed and federalism type may be a bit disjointed, the take-home point is that there is some sort of relationship between the integration speed and shape of federations. This model, however, does not yield any definitive predictions relating those two dynamics. In certain cases, there does appear to be a sort of feedback loop between the speed of integration and the type of federation that is created. Unfortunately, it is not certain if there is a causal relationship in place and, if so, in which direction that relationship is pointing—i.e. which event causes the other. Further study into this issue may return interesting and important results, as it would be useful for policymakers to understand how the structure of their federation impacts the speed that group of states integrates.

What is clear, though, is that fiscal union is critical to the process of creating federations. Integration is only doable if the players involved are willing to put funds into a supranational budget—creating a fiscal union. Regardless of whether non-economic forces drive an integration process or not, fiscal union is the key step. Establishing fiscal union requires that political union accompany it and this increases the need for economic and monetary union—if they did not already exist. If a case only experiences economic and monetary union, then fiscal union is required for sustainable integration. The point to be made is that at one point or another fiscal union must be achieved for an integration to be sustainable. This raises the importance of fiscal solidarity as an OCA criterion. Previously ignored, the role of fiscal solidarity in integration processes is an important one. Fiscal cooperation typically takes the form of a transfer mechanism that redirects income—leaving some states more paying more and receiving less than others. There is usually pushback on the part of the stronger states in a fiscal union, as they will resist surrendering disproportionate shares of their income to economically weaker states. In the case of Europe, the previously mentioned no-bailout clause acted as a rule against fiscal transfers, but the de facto abandonment of such clause in 2010 opens the door to the possibility of meaningful fiscal union in Europe. Future studies should consider the willingness to cooperate fiscally as a critical characteristic of integrating states.
In sum, this paper offers several interesting suggestions regarding the relationships between OCA theory, the Balassa stages of integration, and the speed of federal integrations. First, it is critical to account for differences between historical and contemporary integration. Integrations from the eighteenth and nineteenth centuries—e.g. the American and German cases—were much less artificial and conscious than the ongoing integration process in Europe. After the emergence of OCA and integration theory, integration processes have been more mindful of the effects of their efforts and are oftentimes not subject to the same sort of non-economic shocks. As such, the Balassa stages of integration do not always hold—especially historically speaking. In the face of non-economic pressures, integration cases—both past and present—will bend into different orders and proceed or retreat at different speeds.

Second, it is important to consider both economic and non-economic forces when evaluating integration processes. The model presented herein focuses solely on four OCA criteria, but there are many non-economic factors that can affect an integration process. The pattern seems to be that economic conditions can situate a case for or against integration and promote integration to a certain degree, but dramatic swings in the speed or order of an integration process are usually the result of non-economic shocks. These processes are also static and prone to momentum effects. This is a limitation of the model, but an important one to comprehend. As the test of these three case studies has shown, the proposed model only predicts integration speed in the absence of significant non-economic shocks. The absence of such shocks hardly ever hold, however, so one must adjust for the presence of non-economic pressures, when applying the predictions of the model to specific cases.

These two suggestions serve as the real lessons of this study. It is stressed here that while it is tempting to create an economic model that predicts the speed, direction, or end result of an integration process, such a model will undoubtedly fail without proper consideration of non-economic forces and the inherent characteristics of the historical place a given case operates within. A model has been presented here, but there are many qualifications to account for before it can be considered effective. This is because federal integrations are driven by more than economic factors. The impact of non-economic forces, as well as historical versus contemporary distinctions, can go as far as to push an integration away
from the path prescribed by Balassa. Does this mean the model offered herein is worthless? No—only that any purely economic model can only take one so far. To completely understand an integration process requires the consideration of non-economic variables and forces unique to the time and place of that integration. The wide range of variables that drive integration processes makes it prohibitively difficult to develop a model that predicts such efforts. Only by regarding all of these factors will one be able to fully and properly understand the forces that drive a given integration process.

Appendices

Index of Exchange Rates of Colonial Currencies versus the British pound sterling

<table>
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<tr>
<th>Year</th>
<th>Massachusetts</th>
<th>Rhode Island</th>
<th>Pennsylvania</th>
<th>New York</th>
<th>Virginia</th>
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Extra EU27 Export Product Breakdown, 2000-2010 (measured in millions of Euro)

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<tr>
<th>Year</th>
<th>Food, drinks, tobacco</th>
<th>Raw materials</th>
<th>Energy products</th>
<th>Chemicals</th>
<th>Machinery and transport equipment</th>
<th>Other manufactured goods</th>
<th>Total</th>
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<td>29,116</td>
<td>118,911</td>
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<td>65,629</td>
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<td>198,793</td>
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<td>2010</td>
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<td>75,857</td>
<td>235,263</td>
<td>572,448</td>
<td>311,763</td>
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Extra EU27 Export Product Breakdown Share, 2000-2010

<table>
<thead>
<tr>
<th>Year</th>
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<th>Energy products</th>
<th>Chemicals</th>
<th>Machinery and transport equipment</th>
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EU15 Harmonized Inflation Rates, 2002-2015

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EU15 GDP Growth Rates, 2002-2015

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Eurozone Interest Rates, 2002-2013

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